Agenda

Investment Advisory Council (IAC)

Monday, June 11, 2018    1:00 P.M.*

Hermitage Centre
Hermitage Conference Room, First Floor
1801 Hermitage Blvd., Tallahassee, FL  32308

1:00 – 1:05 P.M.  1. Welcome/Call to Order/Approval of Minutes/Election of Officers
Peter Collins, Chair

(Action Required)

1:05 – 1:15 P.M.  2. Opening Remarks/Reports
Ash Williams, Executive Director & CIO

1:15 – 2:00 P.M.  3. Florida PRIME Review

   A. Florida PRIME Legal Compliance Review – Chapter 218, Pt. IV, Florida Statutes
      Anne Longman, Lewis, Longman and Walker, P.A.

   B. Florida PRIME Best Practices Review
      Kristen Doyle, Aon Hewitt
      Katie Comstock, Aon Hewitt

   C. Florida PRIME Portfolio Review
      Amy Michaliszyn, Federated Investors
      Paige Wilhelm, Federated Investors

   D. Review of Florida PRIME Investment Policy Statement
      Ash Williams, Executive Director & CIO, SBA

(Action Required)
2:00 – 2:45 P.M.  4. **Private Equity Asset Class Review**
John Bradley, SIO, Strategic Investments & Private Equity
Wes Bradle, Senior Portfolio Manager
Sheila Ryan, Cambridge Associates

2:45 – 3:30 P.M.  5. **Defined Contribution Program Review**
Daniel Beard, Chief – Defined Contribution Programs
Walter Kelleher, Director of Educational Services
Kristen Doyle, Aon Hewitt
Katie Comstock, Aon Hewitt

3:30 – 4:20 P.M.  6. **SIO Asset Class Updates**
Alison Romano, SIO, Global Equity
Tim Taylor, SIO, Global Equity
Katy Wojciechowski, SIO, Fixed Income
Steve Spook, SIO, Real Estate
Trent Webster, SIO, Strategic Investments & Private Equity

4:20 – 4:30 P.M.  7. **Review Changes to Florida Retirement System Pension Plan Investment Policy Statement**
Ash Williams, Executive Director & CIO

   *(Action Required)*

4:30 – 4:40 P.M.  8. **Major Mandate Review**
Kristen Doyle, Aon Hewitt
Katie Comstock, Aon Hewitt

4:40 – 4:50 P.M.  9. **Audience Comments/2018 Scheduled Meetings/ Closing Remarks/Adjourn**
TBD, Chair

*All agenda item times are subject to change.*
MINUTES
JOINT MEETING OF
THE PARTICIPANT LOCAL GOVERNMENT ADVISORY COUNCIL (PLGAC)
AND THE INVESTMENT ADVISORY COUNCIL (IAC)
JUNE 5, 2017

A joint meeting of the Participant Local Government Advisory Council (PLGAC) and the Investment Advisory Council (IAC) was held on Monday, June 5, 2017, in the Hermitage Conference Room, State Board of Administration of Florida (SBA) offices, located at 1801 Hermitage Blvd., Tallahassee, FL 32308.

PLGAC Members Present:  Mark Peterson, Brevard County Clerk of Court (Chair)
                        Gary Price, Fifth Avenue Advisors (via phone)
                        Daniel Wolfson, Office of Manatee County Clerk of Court

IAC Members Present:  Peter Collins (Chair)
                      Les Daniels
                      Bobby Jones
                      Michael Price
                      Gary Wendt

Other Participants:  Debbie Cunningham, Federated Investors
                    Kristen Doyle, Aon Hewitt
                    Anne Longman, Lewis, Longman & Walker, P.A.
                    Michael McCauley, State Board of Administration
                    Amy Michalisyn, Federated Investors
                    Lamar Taylor, State Board of Administration
                    Ash Williams, State Board of Administration

CALL TO ORDER/APPROVAL OF MINUTES/OPENING REMARKS/LEGISLATIVE UPDATE (ACTION REQUIRED)

Mr. Ash Williams, State Board of Administration, called the joint meeting to order at 10:10 a.m. and gave a brief update on the SBA’s activities. Mr. Michael Price made the motion to approve the minutes for the June 8, 2016 Joint PLGAC/IAC meeting; it was seconded by Mr. Gary Wendt. The minutes were approved unanimously.

FLORIDA PRIME LEGAL COMPLIANCE REVIEW – CHAPTER 218, PT. IV, FLORIDA STATUTES

Ms. Anne Longman, Lewis, Longman & Walker, presented their statutory compliance review. Ms. Longman indicated that Florida PRIME has been managed and operated in accordance with the statutory requirements of Part IV of Chapter 218, Florida Statutes, from May 16, 2016 to May 15, 2017. Ms. Longman noted this was the ninth annual statutory compliance review conducted on Florida PRIME.
FLORIDA PRIME BEST INVESTMENT PRACTICES REVIEW

Ms. Kristen Doyle, Aon Hewitt, presented the findings of the 2017 annual best practices review, noting the pool is managed in accordance with industry best practices. Ms. Doyle noted Florida PRIME’s compliance procedures were robust and offered proposals to streamline reporting and make the process more efficient. Ms. Katie Comstock presented additional elements of the 2017 best practices review, including the participant survey and the biannual due diligence evaluation.

FLORIDA PRIME PORTFOLIO REVIEW

Ms. Debbie Cunningham, Federated Investors, presented the portfolio review of Florida PRIME along with a summary of recent economic events impacting the money markets, including results of the most recently performed quarterly stress test, the outlook for interest rates, and unwinding of the Fed’s balance sheet. Ms. Cunningham reviewed the pool’s asset allocation and investment performance, noting the pool’s strong, relative performance over all time-periods. Council members briefly discussed the portfolio’s performance and investment allocation.

REVIEW OF FLORIDA PRIME INVESTMENT POLICY STATEMENT (ACTION REQUIRED)

Mr. Williams presented the investment policy statement for Florida PRIME, which included several amendments. Mr. Wendt made a motion to approve the amended investment policy statement for Florida PRIME; Mr. Price seconded it. The amended investment policy statement was approved unanimously.

OPEN AGENDA ITEMS/AUDIENCE COMMENTS/ADJOURN

The Joint PLGAC/IAC concluded the agenda and the meeting was adjourned at 11:05 a.m.

Mark Peterson, Chairman
Participant Local Government Advisory Council

Date 9/19/17

Peter Collins, Chairman
Investment Advisory Council

Date 9/25/17
(Further meeting information can be found in the written transcripts of the meeting kept by the State Board of Administration.)
MINUTES
INVESTMENT ADVISORY COUNCIL
December 4, 2017

A meeting of the Investment Advisory Council (IAC) was held on Monday, December 4, 2017, in the Hermitage Room of the State Board of Administration of Florida (SBA), Tallahassee, Florida. The attached transcript of the December 4, 2017 meeting is hereby incorporated into these minutes by this reference.

Members Present:  
Peter Collins, Chair  
Gary Wendt, Vice Chair  
Chuck Cobb  
Les Daniels  
Bobby Jones  
Sean McGould  
Vinny Olmstead  
Michael Price

SBA Employees:  
Ash Williams, Executive Director/CIO  
Kent Perez  
John Benton  
Trent Webster  
Alison Romano  
Tim Taylor  
Katy Wojciechowski  
Cherie Jeffries  
Steve Spook  
John Bradley  
Daniel Beard

Consultants:  
Steve Cummings, Aon Hewitt  
Katie Comstock, Aon Hewitt  
André Mehta, Cambridge Associates  
Samit Chhabra, Cambridge Associates  
Jim Mnookin, Cambridge Associates (via telephone)  
Tod Trabocco, Cambridge Associates  
Richard Brown, Townsend Group  
Seth Marcus, Townsend Group

WELCOME/CALL TO ORDER/APPROVAL OF MINUTES
Mr. Peter Collins, Chair, called the meeting to order at 1:00 P.M. He asked the IAC members to look at the minutes from the September 25, 2017 IAC meeting. Mr. Michael Price made a motion to approve the minutes; the motion was seconded by Mr. Bobby Jones. The minutes were approved.

OPENING REMARKS/REPORTS
Mr. Ash Williams, Executive Director/Chief Investment Officer, provided a brief summary on the performance of the Florida Retirement System Pension Plan, stating that, as of December 1, 2017, the fund total was $160.4 billion, up 15.61 percent on the year, 42 basis points ahead of target, and at an all-time high. Mr. Williams also discussed the Florida Retirement System Investment Plan, indicating that, as of month-end October, calendar year-to-date, it was up 11.79 percent and had aggregate assets of $10.5 billion. Mr. Williams commented on the recent hurricane season and informed the IAC members that the Florida
Hurricane Catastrophe Fund is in excellent financial condition coming into the next hurricane season. He thanked the IAC members for their support which, he said, has empowered the SBA in recruitment and retention. Mr. Williams mentioned two new hires at the SBA as well as his plans to hire a head of cyber security. He informed the IAC members that the Trustees had reaffirmed the SBA Executive Director/CIO for another year and that they had accepted all of the IAC’s recommendations with regard to his relationship with the Board. Mr. Williams thanked the IAC members for their work and for their leadership.

STRATEGIC INVESTMENTS ASSET CLASS REVIEW

Mr. Trent Webster, Senior Investment Officer - Strategic Investments and Private Equity, provided a detailed presentation on the Strategic Investments asset class. He discussed their policy objectives and their processes, including fund selection, due diligence, risk management, manager monitoring and asset allocation. Mr. Webster described the portfolio, elaborating on net asset value, unfunded commitments, number of relationships, and illiquid and liquid strategies. He also provided details of their recent activity. Mr. Webster discussed asset class performance, benchmarks and strategy allocations. He described the six broad strategy allocations (portfolios): debt, equity, real assets, diversifying strategies, flexible mandates and special situations. Mr. Webster also discussed hedge funds and the role that they play in the portfolio. There was a brief discussion pertaining to the policy objectives, specifically regarding language on reducing risk. Mr. Webster explained that the asset class would be changing the policy language that currently reads “provide a hedge against inflation.”

Mr. André Mehta, Cambridge Associates, began his presentation with a description of what Cambridge Associates does for the SBA, both on the strategic side and on the private side. He discussed hedge funds and hedge fund portfolios, briefly outlining three broad goals of the portfolios. There was an in-depth discussion about hedge fund portfolios. Mr. Samit Chhabra, Cambridge Associates, concluded the presentation by mentioning the asset class’s addition of global macro and other diversified strategies.

Mr. Seth Marcus, Townsend Group, described Townsend’s focus on real assets, including real estate debt and timber with the Strategic Investments asset class and real estate equity with the Real Estate asset class. He informed the IAC members that Aon will be acquiring Townsend. Mr. Marcus discussed the performance of the real estate debt and timber portfolio.

Questions were posed by IAC members throughout the Strategic Investments review and were answered by Mr. Webster, Mr. Williams, Mr. Mehta, Mr. Marcus and Mr. Steve Cummings, Aon Hewitt.

SIO UPDATES, DC PROGRAMS UPDATE

The Senior Investment Officers of Global Equity, Fixed Income, Real Estate, and Strategic Investments and Private Equity (specifically, Private Equity), provided an update on the performance of their respective asset classes over the last quarter and trailing time periods and discussed general market conditions. Ms. Cherie Jeffries, Director of Fixed Income Trading, also provided an update on the SBA Securities Lending Program. Questions from IAC members were asked and answered.

Mr. Daniel Beard, Director of Administration - Defined Contribution Programs, provided an update on legislative changes from the past session which impacted the Florida Retirement System, and he provided a snapshot of the assets, number of members, average account balance, assets under management by asset class, performance, and membership growth for the Investment Plan.

MAJOR MANDATE PERFORMANCE REVIEWS

Mr. Steve Cummings spoke briefly about the consulting team at Aon Hewitt and offered to answer any questions the IAC members might have concerning the pending acquisition of Townsend by Aon. Ms. Katie Comstock, Aon Hewitt, provided an overview of the performance of the Pension Plan, the
Investment Plan, the Florida Hurricane Catastrophe Fund, the Lawton Chiles Endowment Fund, and Florida PRIME. Questions posed by IAC members were answered by Ms. Comstock and Mr. Cummings.

AUDIENCE COMMENTS/CLOSING REMARKS/PROPOSED 2018 MEETING DATES/ADJOURN

There were no comments or questions from the audience. Mr. Collins announced that the proposed IAC meeting dates for 2018 are located behind Tab 6 in the meeting materials.

The meeting was adjourned at 3:30 P.M.

Peter Collins, Chair

2/4/18
MR. COLLINS: Do we have anybody on the phone today? Anybody called in?

MR. MNOOKIN: Yes. Jim Mnookin from Cambridge Associates is on.


And we need to look at the minutes and approve the minutes from the last meeting.

MR. PRICE: Move it.

MR. COLLINS: Bobby?

MR. JONES: Second.

MR. COLLINS: Does anyone have any comments or objections to the minutes from last meeting? Seeing none, they're approved. Opening remarks. Ash. He's going to tell us whether we're actually up or down this year.

MR. WILLIAMS: Michael Price seemed to be of the general view that we -- no, it was Les Daniels -- that we might be up on the year. Fortunately we are. As of the close on December 1, the FRS Trust Fund is up 15.61 percent. These are initial numbers, of course, on the year. That's 42 basis points ahead of target, $16 billion net of distributions that average 600 million-ish a month, on the calendar year, leaving us with a balance of 160.4 billion, which is an all-time record high. So that's good.

And does the levitation continue? Well, I think we all probably have doubts about that. But when the wind is blowing, get the sail out and move the boat. So that's what we've done. And we continue to be well-diversified. And as you will hear as we go through the asset classes today, I would ask the SIOs to give a sense of the character of the flows they're seeing within their individual asset classes and how you see the relative valuation environment and how your asset class will fit into the overall portfolio construction of the Board.

It's particularly appropriate that we have the focus today on strategic investments because that's where we've got most of the stuff that's sort of negatively correlated to broad equity beta. So good on the performance side.

I think of equal strength is what's going on on the defined contribution side. We have been growing the DC side of the Florida Retirement System. The numbers are a little bit different there. We don't have real-time numbers on a daily basis there. So
the numbers I'll share now are as of month-end October.

But if we look at calendar year to date there, up 11.79 percent. That's 85 basis points of value add, which reflects two things, manager selection -- well, three things really. Manager selection, manager oversight, and the manager performance relative to the underlying benchmarks they're looking at, and I think also the fee structures we have, because in many cases the fees that we have on the DC platform are firms that we're also doing business with on the DB side, meaning we can leverage our scale with them and get substantially more advantageous fee structures for the beneficiaries than they would see if they bought the exact same funds in an over-the-counter transaction with a retail financial services firm.

The other thing that's of interest is that the aggregate assets in the Florida investment plan, which is the proper name of the defined contribution scheme, is $10.5 billion, which up 1.2 billion from where we started the year. So all is well on all fronts.

A couple of other things I wanted to touch on. We were very pleased to see the hurricane season end. This year, like we did last year, we had close brushes with Mother Nature that fortunately did not do anywhere near the damage they could have done. And with Hurricane Irma, we've had an awful lot of questions about, gee, what are your losses from Irma.

The short answer is it's too big to say. I think what we paid out to date is about $26 million, which is nothing on a $17 billion fund. There are two reasons for that. Number one, loss development takes time. The CAT Fund is a reimbursement scheme for primary insurers. It is not a primary insurer.

So before we get claims from primary insurance companies, they have to first complete their own claims adjusting process and reach closure on what they're paying out, and we then reimburse them for a component of that, with a co-pay, so that the alignment remains appropriate. You can have loss development after a storm for literally years. So to be weeks or months after a storm, it's not realistic to expect we really know.

That said, we've looked at the actuarial work on the storm and modeled it against our zip code base of exposures. And our thinking is, at the outside, this is probably a 5 billion kind of an...
exposure for us. I think that's probably 2x reality, if not more.

Long way of saying the CAT Fund is and remains in excellent financial condition coming into the next hurricane season. And we'll accept the grace of God for that, but also understand that prudent policy on the part of the trustees and the legislature has been helpful.

I would say also, on the team, I want to thank the IAC again for all your support on things that we have done, been able to do, that you've empowered us to do on the recruitment and retention side. In the calendar year we did not lose -- I don't think we lost a single investment staff person, did we, for any kind of competitive reasons?

And we did fill at least one vacancy. Where is Shoaib? Is he in here? There he is. We brought in Mr. Shoaib Khan from New York, who was on the private sector and is in strategic investments on the credit side, doing a terrific job. And there's no way that could have happened five years ago. That's a direct result -- because he's not cheap. I mean, you know how these people are.

MR. KHAN: I'm not that expensive either.

MR. WILLIAMS: The only thing worse is football coaches, but that's a different story. Don't get me started. So all good there.

The other key thing I wanted to bring up on the team side is that we did have our chief investment technology officer leave during the past six months. We have completed a search there, found an outstanding woman for that role who is a Boston College person, for the benefit of some of our IAC members, and extremely sharp and has been on the private side doing development work that I think is directly relevant to what we're doing here. So she'll be starting very soon and may even be here today. No.

UNIDENTIFIED SPEAKER: She has started. She's not with us, but she's here.

MR. WILLIAMS: So she's being very selective about who she'll talk to. You have to respect that.

MR. COLLINS: Probably good to skip this group.

MR. WILLIAMS: Yeah, I don't blame her. And the next hire we'll be making in the IT area is a head of cyber security. And we think that's worth a separate position. In the past week I met the deputy U.S. attorney general who handles all of the cyber crime prosecutions for the U.S. Department of Justice, had an extensive conversation with that
individual about what's going on in that space, also
reacquainted myself with the person who was head of
cyber security for the Homeland Security
Administration.

And, interestingly, they have a major cyber
security facility, Homeland Security does, in
Pensacola, so just a couple hundred miles west of
here. I met this fellow a year ago. And he is now
the head of cyber security for Goldman Sachs. He's
gone private and made a pretty good trade out of it.
But he has again offered to open the door for us to
meet the folks over in Pensacola and get the best
insights they have on doing a little look at what
we're doing and how we might sharpen our cyber
security environment.

I also met last week a woman who heads up one
of the leading crisis management firms in the world.
And we were talking about this whole idea of cyber
security, and she made a very interesting point,
that with social media the way it is, if you have
any kind of a problem, whether it is of a cyber
penetration origin or some other thing, it will
literally go global in 17 seconds courtesy of social
media. The average major corporation takes between
18 and 36 hours to even recognize and define a

problem and come up with a statement.

By that time the sound bites are already there.
The headlines are already there. The blogs have
already picked it up. And the whole issue has been
calibrated for you. And trying to reconstruct that
on a backward-looking basis, or change it, very,
very difficult.

All of which is why we are really, really
tightening up on this cyber security business.

Everything I hear about that is bad. The number of
bad actors that are out there spending their waking
hours doing those sorts of things is incredible.

At an event I was at last week in New York, one
of the MFA events, we had a very senior person from
the Treasury there who had recently left the
Treasury and gone elsewhere. And he said, By the
way, if any of you receive a letter on perfect -- a
digital letter on perfect United States Treasury
letterhead, with very credible language, saying your
institution has an account or a hung instrument
somewhere, blah, blah, blah, all you have to do to
claim it is e-mail me at the below address, and it
has my signature on it. He said, The only problem
is it's not my signature. It's something that's a
scam out of Eastern Europe or Africa or something
But he said it looks so good, he said, If I saw it and I didn't know my own signature, I would think it was real. So I think there are so many unexploded bombs buried out there for financial institutions in cyber world, we can't pay too much attention to it.

Two other things I'll touch on. Legislatively, the governor's budget is out. He has again taken an appropriate leadership role and is recommending full funding of the Florida Retirement System, normal cost and an appropriate actuarially indicated contribution to unfunded liability. So we thank him for that.

A lot of stuff in the news lately about cryptocurrencies, Bitcoin, et cetera, et cetera. We get asked all the time, Do you have Bitcoin investments? The answer is no. Are you thinking about them? Not really. Although I did see what would be a temptation perhaps to someone, not us, but I see Venezuela has now launched its own cryptocurrency, the Petro. I think we'll take a pass on that, for a number of reasons.

The last thing I want to share is, at the trustees meeting on November 7, they reaffirmed for another year the executive director and CIO of the SBA. So thank you for your work on that. And they also accepted without change all of the IAC's recommendations with regard to my relationship with the Board. So thank you again for your leadership broadly and for your help on that specifically.

With that, Mr. Chair, unless there are any questions, I'm done.

MR. COLLINS: Does anybody have any questions on that? I would just say that relative to the Compensation Committee work that was done, this is the first year where the Compensation Committee got together, did its work, went pretty smoothly, put it before the Cabinet and the Cabinet didn't even have any questions, so if that gives you a sense of the kind of job that they think we're doing on the compensation side.

So does anybody have any comments or questions before we move on to Trent? Trent, we gave you long enough to get in your seat. Go ahead and let's start the review.

MR. WEBSTER: Well, I'm glad to say that I removed that old presentation on cryptocurrencies as the next asset in strategic investments.

MR. COLLINS: I was going to say he stole your
thunder. I thought you were cornering the market on Bitcoin.

MR. WEBSTER: We're leaving that to private equity. So for those that may be new in the audience, we're strategic investments. We are the alternative asset class. If an investment doesn't fit nice and neatly into the four other asset classes, it comes to us.

And we're charged in policy with four policy objectives. For people who have seen this before, you'll notice a slight change in that we're now charged with generating a four and a half percent real return. And that is in line with the change at the total fund level. We're also here to diversify the rest of the fund, to provide a hedge against inflation and to invest opportunistically.

And in fact not only has the first one changed a little bit, but we're going to be changing these a little bit, too, based on some of the discussions we've had in this forum. So you'll see that in the next quarter or two.

So as Ash had mentioned, we hired Mr. Shoaib Khan during this calendar year. We also have an opening for an analyst. So if anyone knows an eager beaver young professional who always dreamt of working at the State Board, we have a position for him or her.

I thought we'd spend the bulk of our time today on how we approach the portfolio philosophically and how all the components fit together and how we fit into the total fund. So I thought we'd move through process fairly quickly, though I'm happy to spend as much time on anything that anyone wishes.

So when we're looking at individual funds, these are the three broad screens that we look for for managers. So they must be of high ethical standards, and they must be of institutional quality, and they must be able to demonstrate attractive, process-driven, repeatable risk-adjusted performance, in that order. If a manager has a very good track record but we hear dodgy things about him, we're just not interested.

This next slide, I apologize for this eye-straining slide. One day I'll get around to improving this. But this shows the multiple steps in our fund selection process. And typically, when we're doing our due diligence, we spend a lot of time on a manager. Typically, during the due diligence process, we're spending between 20 and 40 hours on an individual manager. And in fact it can
take significantly longer than that, because prior
to entering our pipeline, we've often had multiple
meetings already with the manager, often meeting
them here or in the office or over the phone and
reading up about them. And sometimes it can take us
years to develop a relationship with a manager.

In private market structures, we prefer to meet
a manager when they're in between fund-raising.
That way we're not rushed or we don't feel urgency
like we have to invest in a fund.

Of course, thorough due diligence is part of
our risk management. Also up front I had mentioned
earlier, at the beginning, that one of our
objectives is to invest opportunistically. And we
tend to take a contrarian approach to investment,
where we want to be investing in things where a lot
of capital has left. So typically that means
they're cheaper. Sometimes it looks a little scary,
but generally capital has come out of the market,
and we're trying to put money into those areas and
avoid areas which are frothy.

Ongoing manager monitoring is also part of our
risk management process. And typically we're
speaking to the managers at least quarterly,
sometimes monthly. And oftentimes we will follow up
if there are any issues outstanding that we feel
necessary.

The other issue that is highlighted on here is
that where possible, if a manager has a limited
partner advisory committee, we request seats on
those boards. And we are on most of the LPACs with
our funds. That gives us a heightened level of
manager monitoring for our managers.

MR. COLLINS: Trent, a question on that. How
many funds are you in today? I know you're going to
to get to that, but I'm going back to the topic you
just brought up about being on the boards.

MR. WEBSTER: 86.

MR. COLLINS: And when you reduce that 86 for,
say, multiple funds with one firm, what does it come
down to?

MR. WEBSTER: Well, we have 86 relationships.
We have -- I think it's 136 funds. I have that on a
slide.

MR. COLLINS: Okay. So how many of those
meetings do you go to?
MR. WEBSTER: How many meetings? We try to attend every annual meeting for our funds which put them on. Occasionally we may not because we may have a conflict. But we're generally covering 99 percent of the meetings that our managers put on.

MR. COLLINS: Okay.

MR. WEBSTER: So even though we are an opportunistic asset class, we do have an asset allocation process once a year. We sit down as a group and make a determination over the next three to five years on where we want to allocate capital relative to where the portfolio is currently. And you'll see that in few minutes when we go through some of the strategies.

We create a target allocation for the next three to five years. And that is a guide. It is not a hard-set target, but rather acts as a roadmap for us to allocate capital, because we don't ever want to be in a situation where we wake up one day and, say, have half our portfolio in distressed or 30 percent in insurance or some other overweight that is unintended.

Currently we're at 8.2 percent of the total fund. We have a policy target allocation of 12 percent. We've been working really hard to get there. But Tim and Alison have made it very difficult for us because they just sprint away like jackrabbits in global equities.

So we've been around eight and a quarter percent for the last two years. And we have not changed our investment process at all. We're going to allocate something like two and a half billion dollars this year, this calendar year, which is a little above what we normally do.

But we're having a problem getting up simply because the global equity markets have been so strong and the other phenomena of our managers in the private market structures who are distributing capital back faster to us than we're contributing to them. So we're at about eight and a quarter.

Our net asset value is 12.9 billion. If you include the unfunded commitments, our total exposure at the end of the third quarter was 17.7 billion.

As of the third quarter, we had 86 relationships, managing 136 funds. And currently it's roughly split half and half between illiquid strategies and liquid strategies.

In the most recent quarter we had cash outflows of $57 million for the calendar year. The first three quarters of the calendar year, we've had just
under $100 million go out the door. We've had five new funds, totaling $800 million, closed in the third quarter. And we actually now, in this quarter it's now up to three new funds at I think it's $450 million. And for the calendar year we've closed 16 funds at $2.3 billion.

And we're trying to get a few more across the line before the end of the calendar year. Our pipeline, though, is probably the thinnest it's been since I've been involved in the asset class. We're actually now at five funds at roughly $450 million.

So before we go into performance, are there any questions? Okay. So this is our performance. We don't get too excited over near-term performance for the quarterly or one year. We're looking -- in our mind-set, we're looking at three to five years or longer. The blue bars is the performance of the asset class. The red bar is the benchmark, and the yellow bar is the real return target.

We have actually -- I'll explain why we've lagged our real return target in a few minutes since inception. But in terms of the benchmarks, our benchmarks that we officially are measured against is the weighted sum of all the individual fund benchmarks rolled up to an aggregate. And those are comprised of either market based, peer based or the real return benchmark for individual funds.

We're charged with generating a real return of four and a half percent over time. We create a portfolio that we think will attain that or beat it over time. What that means is that we will put some strategies which should do significantly better in that portfolio than the real return target as we expect. But we will also put some things in the portfolio which we think are diversifying and helps improve the risk patrol of the asset class and the total fund but may have a lower return than the CPI plus 5 percent.

So I mentioned earlier that global equity has been a hard act to follow this calendar year. You can see here we like to compare ourselves to the rest of the FRS, just to see how we're doing. The FRS is primarily an equity-based risk fund. We're primarily credit and some other things with a bit of equity. So we wouldn't necessarily expect to keep up to the performance of the total fund, but we like to pay attention to it nonetheless.

So I had mentioned earlier that we had underperformed the real return target since inception. The reason for that, it can be explained
in this graph. So this is our strategy allocations over time. And so we've gone -- this big red part is global equities. And we no longer have a global equities allocation.

When strategic investments began in 2007, we were allocated a $6 billion global equity portfolio, which was to fund the alternative strategies over time. So the idea would be that we would cash out of those and then fund what would traditionally be thought of as alternative strategies.

But then the global financial crisis happened, and we plunged pretty significantly. So because we were primarily a global equity portfolio, we acted like a global equity portfolio and fell a lot.

In 2010 the global equity portfolio was transferred over to the newly created global equity asset class, which was a merger between domestic and foreign equities. And that now resides with Tim and Alison. But we never got the bounce that came with the global equity markets in that allocation.

You can see the light blue part of the graph there. That is a high yield portfolio. High yield was transferred to strategic investments in 2010, and it was sold out and used to fund other strategies.

So this is where I was going to make my cryptocurrency joke. But you can see here we've got 19 different strategies, sub-strategies in strategic. We're hoping to have a small little purple slice in there called insurance within the next couple of quarters, if we can get one of the funds or two of the funds closed before year-end, but we'll see.

Another way of looking at the portfolio is to divide it up between the illiquid markets and the liquid markets. So we currently have $2.6 billion invested in illiquid income-generating assets or strategies or funds. And these are strategies where the return is primarily driven by the coupon. So we have $2.6 billion allocated there.

In the red part of the pie graph, that's $4.5 billion invested in what we call illiquid markets-growth. And these are strategies where the returns are not dependent upon income in the illiquid markets.

On the right-hand side of the graph the yellow part, liquid markets-growth, we have $3.5 billion. These are the more traditional hedge funds, as well as activists and a few other things. And then that purple part is the diversifying strategies, which
are mostly the diversifying strategies I mentioned earlier, and that's $2.4 billion.

So if you think about it, the top part of the graph is the buffer of the portfolio. The bottom half of the graph is really the growth engines of the portfolio. So we would expect the illiquid income portfolio to decline during a -- or the net asset value to decline during a bear market, but the income should provide a buffer for it, whereas the diversifying strategies, those are generally uncorrelated to markets and have historically done fairly well in bear markets. So if you think about it, we've got about two-thirds of the portfolio in growth engines and about one-third of it in more defensive allocations.

Twelve months ago we decided to start looking at what our exposures were at an asset class level. As of the end of the third quarter, we currently have a gross -- or had a gross exposure of just under 250 percent where we were long -- actually about 245 percent where we were long, about 165 percent short, about 80, 81 percent, giving us a net exposure of 82 percent. And so currently we're generating returns with about an 80 percent exposure to assets.

Now, that also includes a lot of our diversifying strategies, which we're long things that should do well during a bear market. So I think that our --

MR. PRICE: So, Trent, what you're saying is a lot of your funds have big short books.

MR. WEBSTER: Some do, yes.

MR. PRICE: And how many of your funds are levered, like margin account levered?

MR. WEBSTER: I would say most of the hedge funds are.

MR. PRICE: So do you have any charts on how much real exposure you're running with the leverage, or this incorporates that?

MR. WEBSTER: That incorporates that, yeah. And these are our largest allocations by manager. So currently we have 86 different relationships. Ten of them account for just over a third of the book. And Blackrock is our largest allocation.

Any questions before we move on?

MR. PRICE: So your returns are net of your fees, and your fees are less than 2 and 20 but approaching 2 and 20, versus your fees in global equities of 15, 20 basis points. So there's a large 3 or 4 percent differential right there. Fair
enough? Is that fair?

MR. WEBSTER: We actually -- I think we have
two -- well, three or four funds where we pay a 2
and 20. Everything is below that.

MR. COLLINS: But it's not 15 or 20 basis
points.

MR. WEBSTER: Not yet.

MR. COLLINS: That's okay. Nobody is --

MR. PRICE: And you couple that with no
liquidity, right? So you've got less liquid, worse
performance and higher fees, Cambridge, right? And
you're paying Cambridge to advise you on this. Is
that a fair statement?

MR. WEBSTER: Well, I think -- I think that the
performance of the portfolio has obviously lagged
the global equity portfolio.

MR. PRICE: Of course. It's a bull market.
But is that a fair statement? High fees -- if you
adjust for the fees, you come much closer to their
returns.

MR. WEBSTER: That's an interesting point
because -- and this is one of the themes that I was
actually going to touch on as we started with the
debt portfolio, because we have four different
strategies, distressed, mezzanine, opportunistic

And so in opportunistic debt, those are our
credit hedge funds. And then we've got a book of
everything else. What we're finding in our book is
that they often run similar strategies. Oftentimes
they have similar credit exposure. And sometimes
they will actually have the exact same security in
the portfolio.

And what we have found is that in our private
market structures, where we're -- we're generating
300 to 400 basis points above what we're generating
in the hedge funds. Part of that is the fee
structure, because in a hedge fund we're paying
carry on the first dollar of profits earned, whereas
the private market structure, you're not paying any
carry until you hit a hurdle of 8 percent. So we're
finding that that accounts for about half of the
underperformance, when you look at it apples to
apples on similar strategies. The other half is
what we think is in a liquidity premium.

So currently I think we're paying -- I think
for this year it's going to come to about one and a
quarter, is our management fee, somewhere around
there, 1.3 percent is what we're paying.

MR. PRICE: Plus performance.
MR. WEBSTER: Yeah, and then plus performance. We've got a weighted average performance, which we track, which is something along the lines of -- I think it's an 18 percent carry, with a five and a half percent hurdle across all of our funds. So if you think of our fee structure on a weighted average basis, that's what we're paying.

So thanks for that. That's a good segue. And one of the themes that we're finding is that in -- where we can get credit in equity exposure, we've been moving it more to the private market funds and then hedging it with our diversifying strategies, which we talked about earlier.

The other point that I could make on this page is that parts of the credit market are very overheated, especially in the sponsored lending. Some of our managers have been doing this for decades, have seen it through multiple market cycles, and they're saying they've never seen things like this in some areas before.

One of the anecdotes that we had heard was that one of the managers had forced upon its creditors to accept $500 million in synergies that were not identified five years from now. And our manager is saying that's just crazy. So that's what you're seeing. So we've become cautious on certain parts of the credit market.

This is our performance. And this is a pattern that you will see. So you can see -- I use three years here because this is where we've got the most data points for a time series. But distressed, mezz and senior loans are all private market. Opportunistic debt is the hedge funds.

And by the way, that opportunistic debt portion outperformed its benchmark. And the benchmarks are peer-based benchmarks. So they're running up against their comps. You can see the disparity in performance amongst the private markets and the hedge funds. I don't know if that will necessarily last forever, but it certainly has been over the last few years.

MR. COLLINS: You know, with that many names, and you were alluding to it earlier where there's some bleed-over with one manager or a distressed manager and an opportunistic manager owning the same name, right? So how do you all monitor that when you're bringing this firm or this new investment in, or how do you get at that?

MR. WEBSTER: Well, I think first of all, we haven't actually done anything new in credit hedge
MR. COLLINS: When was the last one made? How old is that portfolio?
MR. WEBSTER: On the hedge funds?
MR. COLLINS: Yeah.
MR. WEBSTER: I think that we hired Canyon, was it four years ago, five years ago?
MR. COLLINS: So you haven't done anything in the debt portfolio in four or five years?
MR. WEBSTER: In the hedge funds, in the opportunistic debt. Now, having said that, if we thought that the opportunistic debt portfolio was going to do better, we'd allocate more money there. But it hasn't been the case.
For equity, we have some equity investments. So typically we focus on strategies which are not in global equities or in private equity, but we have some private-equity-like stuff. But the bar is very high for us to put an equity investment in strategic investments simply because the FRS is composed of 90 percent equity risk.
Now, we want to have some equity for two reasons. One because there are opportunities in the equity markets that perhaps don't fit well in global equities or private equity. And part of it is we probably need some equity to generate our real return over time. And we do intend to get more aggressive allocating to global equity or to equities during the next bear market, which apparently will never ever happen again.
And you can see here, so you look here, so this is our activist equity, which is really a beta-plus strategy. The GP investments, which are investments in a couple of firms. And then long/short equity. So that's three year performance. But that long/short equity performance lagged its benchmark by about one and a third percent. So it's not like it lagged by five or six percent. You can just see the underperformance. But, again, if we ever have a bear market again, then we would get more aggressive in equity.
In real assets, we really like mining right now, especially on the lending side, because it's a classic -- a classic thing that we like is that it had a pretty brutal bear market. The commodities have gone sideways. A lot of capital had been destroyed. A lot of capital had left. And so we have been allocating to some mining funds. The
problem for us is it's hard to access. It's hard to find institutional quality managers where we can do that on a structured credit or equity side.

We like energy because of what's happened in energy. There's a lot of money that's been raised in energy, but we think the opportunity is quite large. So on a risk-return basis, we think it's pretty good.

On infrastructure, infrastructure has actually done pretty well for us. But we think that there is an imbalance of demand over supply for attractive risk-adjusted returns. So we really haven't been doing a whole lot in infrastructure over the last few years. We have a slight underweight in a portfolio context. Though we do like some of the things that are going on in emerging markets infrastructure, where we think you're probably compensated for it on a risk-adjusted basis. You can see here, this is the performance. This is a little bit more even on the real assets portfolio.

So this is an area where we've been spending a lot of time. This is the portfolio that we use to hedge the credit and equity portions in the private structure markets. We hope to put some money in the ground in insurance soon, but we'll just wait to see how pricing is before we get really aggressive on that.

And this is the performance. We don't have three year performance for relative value and royalties. Global macro, which has been a bit of a -- has had a bit of a difficult time, has actually been, I think, our best performing hedge fund strategy over the past three years.

Flexible mandates are composed of event-driven, multi-strategy. These are primarily hedge fund strategy. And then we also have this allocation called open mandate, where we give -- these thus far have been private structures, but we give the manager a wide mandate to invest across a variety of different things.

And often they are investing in things which fall between the cracks within their organizations, which maybe they're too aggressive for credit but they don't meet the return hurdles for private equity but are still attractive on a risk-adjusted basis.

We don't have a three year track record yet for open mandate. But you can see event. Event, actually that was down 1 percent. It lagged its benchmark, but the benchmark was down 0.5 percent.
MR. COBB: Mr. Chairman, I have a question on Luxor Capital. I'm on another endowment fund that's had very poor experience with Luxor. What's your experience and are -- is that a hold or a warning?

MR. WEBSTER: So as you know, they had a pretty big decline, and then they came rallying back. So I don't want to comment about individual funds specifically, but we do have a risk profile that we're looking for, and we're assessing whether or not a fund that goes down 30 or 40 percent fits in our portfolio.

There are other mitigating circumstances that we will assess. It's possible that with funds that go down a lot, that bounce a lot, maybe give a small allocation to them and then ramp up when they fall. We don't know. We're assessing all those things. But it's a live situation for us currently.

And the special situations is the miscellaneous bucket of the portfolio. This is primarily comprised of transportation, private-equity-like strategies in the Florida Growth Fund. We're actually going to be restructuring the asset class a little bit. And most of this or all of it will be reallocated elsewhere, either to newer strategies or to new strategies, newly created strategies or allocated within the asset class currently. But it's done fairly well over the last three years.

So any questions? So I want to spend a little time on hedge funds and the role that they play in our portfolio, because we sat here and we've talked about how they've pretty dramatically underperformed private market structures. So we'll get to that in a little bit.

But if you look at -- I've blacked out the non-hedge fund strategies. And if you look at this allocation, there are currently 38 -- we have currently 38 percent of the asset class and 3 percent of the total fund are currently in hedge funds. And it splits about 50-50 between the diversifying strategies and the more beta-oriented strategies in the portfolio.

The allocation does not include activists. Some strategies include activists. We consider activists not to be a hedge fund strategy. We don't include them as such. And the important point --

MR. COLLINS: What do you consider them to be?

MR. WEBSTER: Beta plus. They're long-only beta plus. And the one point that I would just make here is that we don't have a hedge fund program. We have a program that includes hedge funds. We think...
that talking about a hedge fund program is a bit of
a misnomer, in the same way that somebody would be
talking about a liquid custodial fund program.

I can't recall anyone ever having a discussion
about a liquid custodial program, but I just
described fixed income and equity. Those are liquid
custodial funds, but they're two very different
asset classes.

Within hedge funds we see them as a wide
variety of different hedge funds and strategies.
And so we think of them as such and allocate capital
as such, as opposed to saying we want to have
5 percent in hedge funds or whatever.

So even though it's -- I think hedge funds have
lagged a little bit recently, I think it's important
to put into context why we went into them
originally. So if you were the CIO, not just of the
FRS but of any public fund, and it's 2010 and you're
looking back at the world and you're saying, gosh,
we've gone through two giant bear markets, should we
be looking at hedge funds. You look at these
numbers and you say, well, yes, because not only
have they done a pretty good job of protecting
capital relative to equity, they've actually
significantly outperformed a typical pension plan in

the Sharpe ratio during that time period it's been
significantly higher.

So it's perfectly rational in the post-global
financial crisis to make this assessment, because it
would move the portfolio of the total fund out onto
the efficient frontier.

As we know, it hasn't worked out that way. The
credit -- this is the broad market. The Credit
Suisse Hedge Fund Index has actually been about half
that of the total fund, and the Sharpe ratio has
been slightly less than the rest of the plan. And
to add injury to insult, what we found was that the
correlation of hedge funds to the FRS, you know, has
risen during that post-global financial crisis time
period.

So I wanted to just give a bit of a background
on how we think about them. When we originally went
into hedge funds in 2011, we focused on big
institutional brand name funds. A lot of pension
plans originally went through a fund of funds route.
We opted to go direct, but we opted to go to funds
which were well known, which had first class back
offices and operations.

And so our first -- what we did is that we
hired the good people at Cambridge, and then we told
them what we were looking for. They gave us ten names. And we did our very best, because we're curmudgeons, to shoot down all their ideas. And if we couldn't shoot them all down sufficiently enough, then we hired those managers. So hired five managers from that. And then we went and asked them, okay, send us some more. And I think they sent six, seven other managers. And from that we hired two or three.

That was our first wave. And we focused not just on the large managers but the managers that had done well protecting capital during the global financial crisis, because we looked at the world and we said, well, you know, the FRS went down 20-some percent. Global equities went down 40 percent. We've got enough of that. So let's find things that aren't that.

And I think the first 15 or 20 funds that we hired, I think the average decline during 2008 was eight and a half percent, whereas stock markets went down 40 percent during that year, or thereabouts.

So that was the original thinking. And that was in our first wave, was getting suggestions from Cambridge. Then we went back to Cambridge and we said, in our second wave we said, let's take a look at all the comps of the firms that you've supplied to us. And they gave us about 80 or 100 names. And then from that, we went through every single one and culled it down to about 40. And then we went and met all of them and made a decision to hire something like five or six of them.

And then in the third wave, where we got to know hedge funds, we got to know the assets in the hedge funds, got to know who the players were, we spread our wings and we started to fly away from the nest, and it became more of a partnership with hedge funds, where we're sourcing ideas and bouncing it off them and they're sourcing ideas and bouncing it off us. We're working more like an integrated team.

The other change was that it evolved to focus less on how you did in the financial crisis to more focusing on strategies which were uncorrelated to equity returns, because the first few waves of strategies were in funds which were primarily credit and equity.

So what we currently do is we're currently looking for strategies which are not correlated to equities and less focused on credit but with a big caveat that we'll always find a place in the portfolio for a high quality manager no matter what
they do, if they're equity, credit or whomever. So
we'll always look at those types of managers, so
we'll always have, we would imagine, exposures to
those strategies.

But really the way we see it is a large portion
of this book is to hedge the illiquid strategies in
the private market structure, where we can access
those exposures cheaper through a private market
structure than we can through a more liquid hedge
fund.

And so this is our performance since
April 2011. And so from a total return standpoint,
it's been probably less than what we had expected,
but it has beaten its benchmark. It has beaten the
industry. It has beaten the fund of funds. It's
lagged the FRS, and it's lagged our real return
benchmark. But if you look at it on a risk-adjusted
basis, on a Sharpe ratio, it's ahead of all of
those.

So there's a bit of a conundrum that we would
be looking much better on an absolute return basis
if our managers took more risk. But they've been
running at about a three and a half percent vol
since inception, and so they're not generating a
great deal of return, but they are generating

attractive risk-adjusted return.

And not only that, but what we've seen over
time is that we've seen the correlation of our hedge
fund portfolios decline relative to the FRS. So the
light blue line, that represents the total industry
or the Credit Suisse Hedge Fund Index. The dark
blue line, that's us.

One thing I forgot to mention on here on the
performance is we don't include activists in it, but
our activist book has been so strong because equity
markets have been so strong and it's beaten the
benchmark, that had we included activists, that
return, hedge funds plus activists, would be
8.8 percent since inception. So it just depends on
what you're comparing.

And, finally, these are the returns, the three
year returns where we have the most data for all our
hedge fund strategies. The relative value is
actually quite negative because we've had one fund
that hasn't done well. But they're all lower than
what we had expected. But this book has beaten its
benchmark over three years by about 90 basis points.

So that's all I had.

MR. PRICE: How long a leash do you give them?

MR. WEBSTER: That's a good question. We
typically go into any fund with the mind-set of three to five years. Now, if there's something that's going wrong fast, then we'll get out. And that has happened for us.

But ideally you'd like to give them a market cycle. But what's a market cycle these days? Ten, 12 years is probably too long. So we typically think at about three to five years and then adjust accordingly. I think the average duration of our hedge funds are somewhere around three and a half, four years thus far.

MR. McGOULD: And, Trent, when you look at just the allocation of U.S. versus European or Asian hedge funds, are you actively looking for hedge funds outside of the U.S., or is it mainly U.S. focused?

MR. WEBSTER: Most of it's been U.S. focused. We do have a few things outside of North America. And broadly what we've been discussing as a group recently is, not just in the hedge funds but in the total fund, putting more money outside the U.S. And I would imagine over time we will. But I would guess that most of our assets will be in America.

The problem that we have with Asia is that we require full position level transparency from our funds. And that's pretty difficult to get in Asia. So that's -- that stops us from doing business there. But ideally we'd like to put more money outside of the United States.

MR. COLLINS: Any questions?

MR. COBB: Yes, sir. I have a question.

Trent, in your presentation particularly on hedge funds, you continue to emphasis risk -- minimizing risk. And clearly the hedge funds do that. On your very first slide -- and I commented on this I think twice during the last couple of years. No. Back to the very first slide of the whole presentation, where you talk about your objectives.

MR. WEBSTER: I'm sure there's a better way to do this.

MR. COBB: So there's absolutely no mention of risk or minimizing risk. And it seems to me that you're doing most of those things through other than hedge funds, but you also do have hedge funds. And although you're reducing it, which I would support, it's still 38 percent of your portfolio. And the reason I think you have those hedge funds is to minimize risk.

And so it seems to me one of your key policy objectives, and that's the main reason you're in the
hedge funds, is to minimize risk, which is completely different than diversification, by the way. So I know I brought this up before, but I think you disagreed with me then, and I'm still finding out whether you're still disagreeing with me.

MR. WEBSTER: Actually, you know something? There are two points here and why we're changing the policy. We're going to change it slightly. What you'll see here in the next couple of quarters is, because of the conversations that we've had, Ambassador, because you made a great point about downside protection, where I've always been a little bit worried about getting nailed on that is that there are some times where you want to be really aggressive in the markets. And so there could be times when stocks are at seven times earnings or whatever.

MR. COBB: But why isn't it one of five key policy objectives?

MR. WEBSTER: Let me explain. So I'm going to tell you what we're going to change. What we're going to change is, because I don't actually want to put downside protection in there, but what we're going to change it to, I think the exact wording is outperform during a significant market decline. So if you get a big decline, this portfolio should do better, significantly better by the way we're constructing it.

And we acknowledge that that should be one of our objectives. So we're going to change it and add language which says that we should be doing better than the FRS during a market decline, and that should push us into strategies which will help mitigate the down side.

Part of our thing is that we actually -- if you have like a 40 percent decline, we don't expect to go up. We expect to go down. But we would go down 10 percent, 15 percent, somewhere along those lines. But we will have strategies in there which will help mitigate it.

MR. COBB: The Cambridge slide two or three from now shows that -- it says the status, that we captured only 17 percent of the last downturn, if I understand this chart correctly. So, yes, we did accomplish that minimizing risk, but it seemed to me it should be the focus. That's all.

MR. WEBSTER: And that's fair. And it has been a focus for the last three years, which was why we haven't done any credit hedge funds. We've done one
equity hedge fund in the last four years.

MR. WILLIAMS: Mr. Chairman, can I help out here?

MR. COLLINS: Sure.

MR. WILLIAMS: Trent has just given us the long answer of yes. That's the answer.

MR. WEBSTER: I'm windy.

MR. WILLIAMS: The policy objective is to help reduce risk, yes. Thank you.

MR. COLLINS: And I think what the ambassador is saying is why don't we put something in there. If that is the case, why doesn't it appear anywhere?

MR. WEBSTER: That's coming.

MR. COLLINS: Is that a ditto, Ash? Okay.

MR. WEBSTER: And the other change we've had is again from conversations around here. I remember making this presentation, it might have been a year or two ago, and I said one of our objectives is to diversify the Florida Retirement System. And Mr. Price wisely said, Well, isn't that why you're all here?

So we're changing that actually, and the wording will be something along the lines of "dampen the volatility of the fund." We're actually going to strike that "provide a hedge against inflation" because it's already implied in generating a real return. So you'll see a little bit of a change.

MR. COLLINS: All I'm going to say is it better be in there before the next meeting.

MR. WILLIAMS: Thank you. May we have another.

MR. COLLINS: Because I think he's going to say something again, and rightfully so.

MR. WEBSTER: We're with you in spirit.

MR. COLLINS: Continue.

MR. MEHTA: Thank you. We have a number of pages here. In the interest of time, we'll just go through a few, sort of building on the conversation that we've had already.

MR. COLLINS: Andre, for those that might not know up here, why don't you give a little bit of background on what you do specifically for the State Board at Cambridge.

MR. MEHTA: Sure. So at Cambridge we serve a number of different roles, both on the strategies side and then we also work with John Bradley, another team, on the private side. I think, as Trent described it, that really is a fair assessment. So we work hand in hand as real partners here, with a lot of debate going back and forth, being almost like another part of their
investment office, having weekly calls where we
discuss what interesting managers we've met with,
talk about interesting things we've heard out there
in the markets, talk about strategies, about how to
access difficult-to-access managers, how to convince
them that providing transparency is the right thing
to do, and also importantly to negotiate fees down,
because fees are certainly a big cost of this.

So it's a wide ranging -- we talk about
anything and everything. We'll interject thoughts
on capital markets and how that might impact the
program. So it's a very dynamic discussion. Is
that helpful?

MR. COLLINS: Yes.

MR. MEHTA: So let me just flip to the right
slide here. I'll start with this slide here called
How Are Hedge Funds Different From Traditional
Investments. And one of the ongoing discussions are
the question of whether or not every incremental
fund that we add really does serve to achieve those
goals that Trent outlined earlier.

So what this honeycomb chart really is is
looking at what are those investment strategies that
you can achieve through traditional fixed income in
blue through traditional equity in orange and hedge

funds in green, which is in addition to everything
else that you see in the blue and the orange slides.

So the big picture point is that what we're
trying to do is to find investments that generate a
reasonable return, that do so in a very different
way than what else is in the portfolio.

When thinking about which managers might fall
into this portfolio of hedge funds as opposed to a
hedge fund portfolio, every investor has their own
unique goals and unique circumstances. And we've
outlined here three broad goals of hedge fund
portfolios. One is true diversification. Another
on the other extreme end might be a very
return-seeking goal, and in the middle certainly a
blend of the two strategies.

And in this case we have focused on the
diversification goal, so really again emphasizing
that we're trying to find things that are different
than what we might get elsewhere in the total FRS
plan.

In terms of measuring, you brought up the
question of have we protected in down markets. So
let me just describe what this matrix is briefly.
When we think about evaluating the performance of a
portfolio of hedge funds, we're really thinking
about it from a return perspective, clearly, but
also a risk perspective and a diversification
perspective.

And so we'll talk about these various metrics
on an ongoing basis, not only to evaluate
performance but thinking about what might be missing
and what might we be seeking in order to try and
better the overall profile of the portfolio.

You did point out in the very bottom of that
green block and the very top of that orange block,
we are trying to capture a meaningful portion of
market returns. And over the course of the past 78
months since 2011, we've been able to achieve
roughly a 60 percent market capture when markets are
rising. And similarly, when markets are falling,
that has been roughly 17 percent.

So what we're looking for is that asymmetry,
try and capture as much of the returns when markets
are rising but try and really capture as little of
the negative returns when markets are falling.

MR. CHHABRA: We're going to flip one more
page. If you flip forward to --

MR. COLLINS: Can I just ask a question real
quick?

MR. CHHABRA: Please.

MR. COLLINS: So on the 60 and the 17, so I
guess a couple of pages or the next page, actually,
it says we captured 55.9 and 24 percent of the -- of
the up and 24 percent of the down. If our goal is
60 and I think you said 17, is that right?

MR. MEHTA: That is historical. The goal is
somewhat qualitative. We like to ideally capture
100 percent when markets are rising and zero percent
or negative -- make money when markets are falling.

MR. COLLINS: So I guess that answers sort of
my whole issue with the hedge fund portfolio in
general today, modern hedge fund portfolios. I
think, along with some of the other people up here,
I sit on other endowment boards or pension boards as
well. The returns -- it's not so much the returns.
It's the, hey, I thought I bought this and I got
this. Right? And it was about two years of
performance before we realized that we didn't get
what we bought for, but we paid a lot, so that was
good.

And so in the diversification, it seems to me
that whenever somebody goes out to build a hedge
fund portfolio or when they were starting to build
hedge fund portfolios, oh, well, we need some of
this and we need some of this and we need three or
four names here.

And before you know it, you've got 20 names. Right? And three different strategies, all of them Google. Right? And how can that be? Right? Well, one guy is buying puts, and somebody else is just going long, and then some idiot is going short. Right?

So at the end of the day, I wonder if the three of you and Trent, no offense, if we really have any idea how it's going to perform at certain levels of market performance. I just find it just baffling because I don't -- it's like grabbing onto sand.

MR. WEBSTER: Can I make a comment on that? Like on the diversifying strategies, what we have found is that during pull-backs, it's performed as we've expected. It's either been up or it's been down a little bit. And that's what we're looking for.

Now, when the market is up 20 percent or whatever, it's going to be up two or whatever. So you look at it and you go, gee, why aren't you in, you know, the market? And our argument is, well, that's not the market. This is something different, has a different role.

So parts of what we already -- what we have in the portfolio is acting as it should. And then the other parts, which are more the growth engines and the growth drivers, they've done better than the market or, I'm sorry, better than the industry, but it lagged the market.

MR. COLLINS: So in the graph on this next page that I'm talking about, you've got MSCI Investable Market Index, 7.9, and you're saying we're at 4.4. Is that the right benchmark to judge whether we're getting 60 percent against or not?

MR. MEHTA: So it's the question of what really are the overall goals, right?

MR. COLLINS: Yeah. What is the market, right, that we're trying to grab 60 percent of.

MR. MEHTA: We're using the equity markets just as a proxy for that asset class which generates a substantial long-term return and that will drive performance of the overall plan most greatly. It may not be the right -- it may not be the right index. It may not be the right market, but there's a question with alternatives, which is what are you really trying to achieve overall. And defining the goals and defining a benchmark is something we could spend all day on.

MR. COLLINS: Like I say --
MR. MEHTA: I agree.

MR. COLLINS: -- it's like grabbing sand.

MR. MEHTA: One more comment.

MR. COLLINS: Expensive sand.

MR. MEHTA: It is expensive. We agree completely. And it is a big sand box, and there's a lot of people, a lot of grains of sand in there that really aren't worth it. And so we spend a lot of time trying to weave through those to find those which really are.

And at the same time, instead of trying to fill buckets -- and I think Trent's direction to us has been very clear on this. We're looking at it from a bottom-up perspective. So each individual manager needs to stand on its own. And what we really need to understand is, when you put a dollar in, you're going to expect a dollar plus out, and what is that mechanism in between that achieves that goal.

MR. WEBSTER: And you have an excellent point, because this is our realization, Peter, is that, you know, we can get the credit and equity exposure through the private market structure where the fees are lower, just do that. But we've got to hedge it, so we're hedging it with the stuff that will go up when the market goes down. That's how we think of it holistically from a portfolio standpoint.

MR. DANIELS: Mr. Chairman?

MR. COLLINS: Yes.

MR. DANIELS: But aren't you really saying, when you look at the numbers, that you're paying a price to have this cushion, if you will, in a down market? Because if you didn't have the asset class at all and you went back and looked at since inception, which means you can stomach the down market, you'd do better without the asset class. So you're saying that you're willing to pay that overall return difference to have that damper in a down market.

MR. WEBSTER: Well, I do think that there's -- and I'll defer to Ash on this. But from the total fund basis, I think there is a benefit to reducing volatility to the total fund. It depends on how much you want to --

MR. WILLIAMS: But directly to your question, Les, that is the proposition. And since we set this up -- keep in mind I got back in Q4 of '08. We hired Cambridge in '09, I guess, and did our first manager visits and fundings in '10. We haven't had a real downturn since then, and it's been an uncommonly long bull market.
UNIDENTIFIED SPEAKER: (Inaudible).

MR. WILLIAMS: True, that's true. But it wasn't like '08, '09 either or some of the other big downturns.

MR. PRICE: I think the Board, Ash, needs to turn from Trent and you and say, do you think, as the head of this place, 4.4 percent with the fees is sufficient.

MR. WILLIAMS: I think where we have the fees and the way we model out what the benefit will be, yes, it makes sense from a portfolio construction standpoint now. And as Trent just said, what we've continued to do is sharpen our pencils in terms of looking at these strategies and saying, wait a minute, this is really like -- effectively like something we can do in the public markets for almost no cost or something we can do in a long-only private market format at substantially less cost. We do that on a daily basis.

And I think the other trend that's in place in the hedge fund industry unambiguously is fees and terms are becoming more and more aligned between LPs and GPs.

MR. DANIELS: I'm not so concerned about -- the fees aren't a problem. What I'm getting at is you are making a conscious decision that having that damper in down markets is worth paying a premium for over not having it.

MR. COLLINS: And not only that, but I think we have an asset allocation really, an overall asset allocation that is supposed to be helping us with that, and then you're taking part of that asset allocation that's supposed to be helping, and then you're doing it -- you know, you're doing it again on a sub-level that's really expensive.

And I'm not sure at the end of the day, if we have another '08 or '09, how much of that is going to be the real reason why we don't go down dollar for dollar and how much other portions of the asset allocation are going to really contribute.

MR. DANIELS: Putting it another way, it helps you sleep, but it doesn't necessarily help you eat over the long run.

MR. WILLIAMS: That's the best summary I've heard. That's really good. That may be right. And then the question is, you know, how much hunger is the sleep worth, I guess.

MR. DANIELS: That's the question.

MR. WILLIAMS: I get it. That's the balance.

And, again, I would come back to it and say I guess...
on a relative basis, if you think about -- this seems to be a cost-benefit analysis. And if you look at the cost, it's a relatively small cost. I mean, all in, you're talking about, what did we say, 175 basis points, 160 across the book, something like that?

MR. WEBSTER: Less than that.

MR. WILLIAMS: Right. So think about that and then think about the capital preservation value. If you have a material drawdown against that same capital base, you could cover a fair number of years in those fees in one good drawdown that you've mitigated significantly through the holding of those assets.

I think the other thing is, again, I can't leave this point of the way we're continuing to evolve the book. The last really big change we made in this hedge fund portfolio was to add the CTA exposure, which is probably the most powerful capital protector in down environments, risk mitigator, risk reducer, negatively correlated thing you could have. It's also one of the very cheapest exposures we've got.

MR. WEBSTER: Just as a point, when we did this, we've done analysis of whether we could have managed futures in the portfolio, and I think we ran it through -- I think it was the FRS, or it was stocks. I can't remember. It did reduce the returns, but I think it reduced it by like 50 basis points, 100 basis points. It reduced the volatility by 40 percent. We look at that and that causes your Sharpe ratio to spike, you know.

And it's a balance, because you can go 100 percent equity and make the same argument for this whole fund. Just give all the money to Alison and Tim and there you go. So it's a balance between what sort of risk-return trade-off do you want to have.

And as a point, we've seen in managed futures fees absolutely collapse, below -- it's double digit basis points, no carry. That's what we're seeing. So for us it's worth it.

MR. WILLIAMS: And that fulfills exactly the need we're trying to fulfill and does it very cheaply.

MR. COBB: Mr. Chairman, I have a question for Cambridge. And my question relates to the macro world of both hedge funds and private equity, with today, what, four, five trillion dollars, all looking for inefficiencies in the market, when ten
years ago there was 5 percent of that or 10 percent of that amount of money looking for the same inefficiencies in the market.

So it seems to me it was pretty easy to justify fees because there were so many inefficiencies and so little capital. And your returns show that up until 2009 or '10. But since that time, just the supply of capital seems to me a factor. But it hasn’t been mentioned at all in this presentation.

MR. MEHTA: What was subtly mentioned in Trent’s presentation was a shift towards smaller managers that do have the ability to invest in things that the big, mega players cannot. So we are cognizant of the amount of capital, the vast amount of capital that exists in the alternative markets.

We are trying to find managers that that is not a hinderance. And one of the things that we measure very clearly is at what point does a manager’s asset base exceed, or rather at what point do they start to diminish the returns by accepting additional capital.

MR. COLLINS: Bobby.

MR. JONES: The only point I wanted to make was I think all of us have some questions about the fees associated with hedge funds, how expensive that insurance is. And, again, we haven't seen a payoff in quite a long time. So I think it's something we ought to keep looking at.

I think the other indication, though, is our performance against the other endowments and pension funds has been in the top quartile, if not number one or better. So it's something that seems like we don't make a decision in one day but continue watching ourselves as well as our peers and make sure our returns stay better than the rest of the ocean.

MR. COLLINS: Yeah, I think I would agree with that. The only thing I would say about fees coming down, you know, a brand-new boat captain charges more than a boat captain with a really broken boat when you go to charter. And you can get really, really, really cheap boats. Not sure you want to go on it at the end of the day. Right?

So I love paying for alpha. Right? But I don’t want to overpay for beta. And they can keep reducing the fee because they're not creating alpha and everybody is screaming. Right? But we're still overpaying for beta.

MR. WILLIAMS: If we're buying beta in that format, and I think I would argue we're not.
Mr. Collins: And I would tell you that I think in all the diversification, I don't think that we're getting as much hedge as we think we are. None of us disagree with the hedging. I think, as I said, asset allocation is our greatest hedge. But I think when you get that many funds and that many different strategies, you never really know until you look in the rearview mirror.

But it just seems to me that if you deep dive into these various funds and you start looking at the names that are owned and what the strategy is on that name, you could have really good performance in one fund and really bad performance in another and you overpaid for one of them.

Mr. Webster: And we're cognizant of that. So one of the things that we have been studying for years and that we continue to look at is these risk premia, style premia, alternative beta, whatever you have. We have one of those funds from AQR. And we have met with a lot of the providers of that. That's a very -- that may be one of the solutions.

Mr. Collins: I don't want to belabor it. So let's keep moving on, unless anybody else has any other questions.

Mr. Chhabra: Just one last point. I flipped forward two pages. It's hard to see on the screen, two pages forward. But I think this is powerful to the point of morphing this part of the portfolio to be more focused on diversification.

Trent mentioned the addition of global macro, specifically CTAs over the last few years. That's done wonders, and along with that adding some other diversified strategies, to bring down the total correlation relative to what we're getting in the broader part of the portfolio.

So that's actually decreased the correlation of the strategic part of the portfolio to the rest of the portfolio by something like 40 percent. It's been -- going forward, should you have any worries about market valuation levels and the ability sort of to morph this to be more diversification in periods of stress, I think this is proof in the pudding that we should be well situated.

Mr. Collins: Does anybody have any comment on that? Okay. All right. So do we have global equity next? Alison and Tim, or is it Katy? No. Alison and Tim. That's what I have in my book.

Mr. Williams: I think we have another component.

Mr. Collins: Oh, sorry.
MR. MARCUS: So we'll keep this brief. We know you've gone on quite a bit here with the strategic portfolio. So we'll jump ahead. Townsend has a couple of slides in here, and I'll give a quick explanation of what Townsend does.

MR. COLLINS: Just explain to everybody Townsend and your role and what you're doing in the portfolio.

MR. MARCUS: Absolutely. So there's a Townsend update later in the presentation. Townsend has about 34 years of experience working in the real estate and real assets asset classes. We've been working with the SBA since 2004, and we focus on real assets exclusively. So we work with both Trent on the strategic group, with a focus on real estate debt and also timber, and then with Steve Spook and his team on the real estate equity side of the portfolio.

So we are headquartered in Cleveland, Ohio, offices in London, Hong Kong and also in San Francisco. Trent and his team have recently utilized our international offices on some due diligence trips to Europe. And another recent update of Townsend is, announced on September 1st of this year, Aon, who you know well, announced the acquisition of Townsend later this year. So we feel this is a great fit for Townsend's clients, yourself, as well as Townsend employees.

So Townsend will become a wholly-owned subsidiary of Aon, Aon's global retirement investment business, which as you know, really provides objective advice and investment management solutions to a wide range of global clients, and as a strong fiduciary, much like Townsend, has strong values, corporate culture, very like-minded organizations, putting the client first.

And the acquisition really provides stability here at the Townsend level, a large balance sheet, really a path of growth for Townsend as an organization, and all to support you-all and also our employees. Essentially it's being really structured as a reverse merger. So Townsend will retain its name, maintain its headquarters in Cleveland, the investment process, the investment committee. And to that point, Terry Ahern, someone you have met over the years, will remain the CEO of Townsend going forward in all the existing illiquid asset classes that AON covers.

MR. COLLINS: Anybody have any concerns there?

I know that they’re making him go through that slide
MR. DANIELS: Have you thought about moving to Florida?

MR. WILLIAMS: The chief executive of Aon is right here, Steve Cummings, if you'd like to pose that question to Steve.

MR. DANIELS: Sure. Steve, you can answer that question.

MR. CUMMINGS: Am I moving to Florida?

MR. DANIELS: Move the company to Florida.

MR. CUMMINGS: Not in the immediate future, sir.

MR. MARCUS: Any other question on that? I'll jump just quickly to two slides of our presentation, talk about performance of the real estate debt and timber portfolio. So here on the slide in front of you we look at the real estate credit and timber portfolio performance.

This is a sub-allocation within the strategic investments of about 1.6 billion of market value today. It's 16 active positions. That's across -- 16 active positions in the debt side and two in the timber. And that's across ten different managers. There's been approximately 3 billion of capital commitments, with 1.7 billion returned to you-all, with about 750 million of unfunded capital. Since the portfolio's inception, so the first investment was made in 2008, the portfolio has generated, as you'll see here, an 8.7 percent net IRR.

Flipping to the next slide, we focus on just the debt performance of the portfolio. And here is really the majority of the investments that we all cover at Townsend. Approximately 70 percent of those 3 billion in commitments were made to real estate debt investments. And we show again a very strong performance over these time periods.

We also show on the right-hand side the cash flows and market value of these investments dating back to that '07, late '07, '08 inception. And it's somewhat hard to see, but on the far right-hand side of this chart, you'll see the past six quarters of distributions have actually exceeded capital contributions. You'll see a slight decline in the net asset value.

And this is, to another point that Trent mentioned earlier, capital is being returned quicker than it's being invested. That's the nature of the market we're in today, the market environment, but also the life cycle of these funds. So they're reaching sort of their full term.
The last slide I'll touch on and then pass it back to you-all is really on the timber performance. So here on this slide we show both the performance of the two timber separate accounts as well as their diversification. However, you'll notice some underperformance in your timber portfolio versus the industry indices, not necessarily the benchmark within the SBA but the industry indices of the NCREIF timber index and the separate account index.

MR. COLLINS: Is that because of regionality of our holdings, or what would cause that underperformance relative to the index?

MR. MARCUS: The primary reason is inception. So your portfolio began in 2012. Both of these indices have long-standing cash flow and assets dating back to the eighties. So as your portfolio is still being created, value creation is still being implemented, a lot of your assets are being held at cost in the first year. So it's more of a timing issue than it is the diversification or allocation.

MR. COLLINS: Ash, we weren't in timber before 2012?

MR. WILLIAMS: No.

MR. COLLINS: Really? In any way?

MR. WILLIAMS: Look, I've thought of about a half a dozen timber jokes here, and I'm going to steer away from all of them. But no.

MR. COLLINS: For sure we were involved with some Timcos or something way back when. Okay.

MR. MARCUS: So it's really the early onset of this portfolio. It will continue to grow. And if you just look at the long-term performance over the three year period, there's a slight underperformance, but it is tracking towards that benchmark.

So there's a number of other slides here, but in the interest of time and keeping it brief, I'll stop there and open it up to any questions.

MR. COLLINS: Any questions to them? We're just talking about timber. Any questions for Townsend? Okay. Thanks, everybody. Thanks, Seth. Thanks, Dick.

MR. MARCUS: Thank you.

MR. COLLINS: Alison, Tim, now you're up, unless Katy wants to go first.

MS. WOJCIECHOWSKI: No.

MR. COLLINS: Okay.

MS. ROMANO: Good afternoon. It's been alluded to many times in this discussion and I know you-all
know the markets well. Equity markets are way up. But I want to provide a few data points to provide some context around what I know you do want to talk about, which is performance. So I'm going to give some updated statistics to even what's on this page.

But just to give you a sense of how much the markets are up this year, through last Friday, domestic markets up 19.7 percent, non-U.S. developed markets, almost 22 percent, and year to date emerging markets up 31.5 percent this year.

One really interesting point, if you break down emerging markets, now close to 20 percent of the emerging market index is five companies. So how Tencent does, Samsung, Alibaba, Taiwan Semi and Naspers, which essentially owns Tencent, so you could say it's four companies, how they do has driven a lot of this quick rise in emerging markets.

MR. COLLINS: So what's the acronym for that?

Like FANG, what's the acronym for that? Y'all haven't made one? Okay.

MS. ROMANO: So tech has had an incredible run, and particularly in emerging markets. And you can see in the bottom left graph there that it's not only been tech, but it's been a lot of the cyclical areas that have come back, materials, industrials, financials. So if you want to call that a risk-on environment, we could.

I think what's also telling on the bottom, or sorry, the top right graph is how much growth has been in favor. So it looks like over the quarter it's only 71 BPs but, again, year to date through last Friday, growth has beaten value 10.6 percent across the world.

And I mention this because I think, as we started, we said everything looks expensive. But there is divergence within the equity market. So there could very well be opportunity for the right managers. For instance, is this now the time for value, because for so long growth has outperformed. And there's a lot of evidence to say, over very long periods of time, value should outperform.

So in periods where the market keeps going up and up -- and to give you another set, 13 months in a row of up performance for the MSCI World Index. It can be tough for active managers. Everything is rising in tandem.

But you'll see our performance on the next slide. We have outperformed. So 21 BPs outperformance in the third quarter, 98 BPs for the year and 79 BPs over the five years. We continue to
do this well within our risk budget, and actually well below the monitoring standard, to deliver ongoing strong risk-adjusted returns. And I'll turn it over to Tim to talk about the detail behind that performance.

MR. TAYLOR: Thank you, Alison. Good afternoon, everybody. Looking at the next page, under active performance summary, I'm not going to cover each line here, but I thought I'd focus on the top two and the bottom two. If you look at the emerging market active aggregate, it lagged its benchmark. Very strong market. It was up seven and a half percent in the quarter. Cash holdings detracted, as well as an underweight to the Chinese Internet names.

As Alison discussed, the EM benchmark has changed notably in the past couple of years, as the top five names account for such a large percentage of the benchmark. Three of the names that Alison mentioned, Tencent, Alibaba, Baidu, are all grouped into the category of Chinese Internet stocks. Just I think it was a week or two ago Tencent became the first Asian company to ever exceed a market capitalization of $750 billion.

The struggle of U.S. small cap, those managers, continued in the quarter. Headwinds have included the outperformance of, quote, unquote, non-earners. This would include biotechnology stocks. We recently completed a manager search in this space, and we funded two new managers. I'll talk very briefly about that in just a moment.

On the positive side, in the foreign developed large cap space we did well. Historically this has been a very good, consistent source of alpha. Here, one of the contributors was off-benchmark exposures. These managers actually held some of these names, Tencent and Alibaba, that our emerging market managers typically underweight, as well as some momentum tailwinds.

Finally on this page I'll note the positive developments in the U.S. large cap active aggregate. It was up 131 basis points in Q3. From our discussions previously, you know this has been a challenging space, and we've made some changes. It was our best performing aggregate in Q3. And now for the one year period it is above its benchmark.

And the last page we'll discuss with you today is an update on initiatives. We have been active with respect to structural enhancements. I mentioned the two new U.S. small cap managers. They
began their official performance on November 1st. We're also deep into the process for a search for a foreign developed value strategy to complement that successful aggregate.

And we are continuing to research potential strategies for internal management. Currently we're internally managing four passive strategies but also two active strategies, all in-house, all by SBA employees.

The bullet point here, we are identifying and targeting certain strategies for fee negotiations, with the goal of obtaining more attractive structures, more attractive schedules. We've been successful on many occasions already. And we know many of our managers read these transcripts. If you'd like to call us about a potential fee concession before we call you, that would be much appreciated.

MR. COLLINS: Where is Trent?

MR. TAYLOR: We recently established access to the Hong Kong Connect program with our global custodian BNY Mellon. This is really good. This is in advance of MSCI adding China A Share securities to our target, which will happen in only a few months. So we have access there in advance that we can offer up to our managers. It wasn't particularly easy. There's still a lot of questions, but we do have access there.

On the staffing side in global equity, we're excited to have recently filled two open positions with talented individuals that bring impressive skills and also solid experience to our team. In some cases this helps us to further our custom analytic capability and also bolsters our internal management resources.

And the last bullet point here, provide liquidity. We've provided over $5 billion year to date through Q3 for benefit payments and for other reasons, and we remain ready and able to raise funds efficiently when called upon. We're always at the ready for that.

Those were the last of our prepared comments. Mr. Chairman, I think you -- Ash had asked maybe to comment briefly on valuations perhaps in the asset class. I think there is an acknowledgment that valuations in equity across the board are very expensive. But I think it's in three tiers. It's the U.S., then the non-U.S., and in particularly emerging markets some would argue that there are values there.
There are discussions about are we in a bubble, particularly for U.S. equities. My personal belief, I don’t think so. I don’t think so. Valuations are rich. If you think of some of the companies that have really driven the performance, called the disrupters, if you think of Google, if you think of Facebook, these are tremendous businesses with tremendous growth potential still as we sit here today. So they are rich on some metrics, but they are real businesses. They are very well managed. So I think one of the risks that investment managers have is underestimating the power of these disrupters. Also, with respect to equities, if you don’t have your money in equities, where are you going to put your money? Relative to fixed income, fixed income is very expensive. Equities arguably are attractive. You don’t want your money to be in cash. Where are you going to get your return? And then finally I’ll mention that over the last few years, in many cases non-U.S. investors, we haven’t seen flows from them into the U.S. market to purchase U.S. stocks. We’re starting to see signs now that actually non-U.S. investors’ money is flowing to U.S. equity markets, for whatever reasons there. That’s another positive as well. So while valuations are very rich, there’s still -- volatility levels remain very low and somewhat scary that they’re so low. We don’t think we’re in a bubble, but we’re particularly -- it’s certainly not inexpensive to invest in equities right now. Thank you.

MR. PRICE: Mr. Chairman.

MR. COLLINS: Yes.

MR. PRICE: This is, what, 50 billion or so?

MR. TAYLOR: It’s about 90 billion.

MR. PRICE: Ninety billion, of which half is active, half is passive?

MR. TAYLOR: Roughly, yes, sir.

MR. PRICE: In the active section and the passive combined, how many dollars do you have in the five more or less FANG stocks, Facebook, Apple, Google, Netflix, maybe Alibaba, how many dollars?

MR. TAYLOR: I do not know that metric off the top of my head. We certainly can get it to you.

MR. PRICE: I'd just be curious whether it was 5 billion or 10 billion or even more than 10 billion.

MS. ROMANO: I don't know the exact weight. I will tell you, given on the U.S. side our large cap
MANAGERS ARE A LITTLE MORE VALUE FOCUSED, WE'RE MOST
LIKELY UNDERWEIGHT SOME OF THE U.S. NAMES.

EXTERNALLY, ON THE EMERGING MARKET MANAGERS, THEY
TEND TO BE MORE QUALITY AND VALUATION SENSITIVE.
THEY'RE GOING TO BE UNDERWEIGHT. OUR DEVELOPED
MARKET MANAGERS ARE GROWTH FOCUSED, AND THEY ARE THE
ONES THAT ARE OVERWEIGHT. SO WHEN YOU BRING IT ALL
TOGETHER, THEY'RE NOT OUR TOP OVER OR UNDERWEIGHT.

MR. COLLINS: COULD YOU DO US A FAVOR AND GET
THAT NUMBER TO ASH, THAT DOLLAR NUMBER TO ASH, AND
HE CAN GET IT OUT TO US?

MR. TAYLOR: ABSOLUTELY.

MR. COLLINS: HOW MANY NAMES ARE YOU DOING THE
SEARCH FOR ON THE INTERNATIONAL VALUE RIGHT NOW, THE
NEW SEARCH?

MR. TAYLOR: HOW MANY NAMES?

MR. COLLINS: FOREIGN, YEAH, THE FOREIGN.

MR. TAYLOR: WE DID OUR INTERVIEWS A FEW WEEKS
AGO.

MR. COLLINS: I MEAN, WILL YOU ADD ONE? WILL
YOU ADD TWO?

MR. TAYLOR: ONE CERTAINLY, TWO PERHAPS. IT'S
BEING DEBATED RIGHT NOW.

MR. COLLINS: AND WHAT DO YOU THINK THE TOTAL
ALLOCATION TO THAT WILL BE?

MR. TAYLOR: IT WILL BE A SIGNIFICANT MANDATE.

THE ACCOUNT VALUES IN THAT SPACE THAT ARE GOING TO
BE ADDED ARE ALL VERY LARGE, ON THE ORDER OF LIKE
1 TO $2 BILLION ACCOUNTS. THIS ACCOUNT WILL
PROBABLY BE AT LEAST A BILLION DOLLARS, PERHAPS UP
TO 1.5. SO THESE ARE BIG ACCOUNTS IN THAT SPACE.

MR. COLLINS: AND WHAT DO YOU THINK THE FEE
WOULD BE ON THAT, THAT YOU'RE GOING TO PAY?

MR. TAYLOR: WELL, RIGHT NOW THE PROPOSALS WE
HAVE ARE IN THE, LET'S SAY, 25 TO 30 BASIS POINT
RANGE. WE WILL PROBABLY GO BACK AT THEM AGAIN IF WE
GET REAL SERIOUS ABOUT PUTTING FORTH THE -- WHEN WE
GET THE RECOMMENDATION TOGETHER.

MR. COLLINS: ANY OTHER QUESTIONS? MR. WENDT?

MR. WENDT: EARLIER TODAY THERE WAS A COMMENT
MADE ABOUT THE NEED FOR TRANSPARENCY, THERE MUST BE
ABSOLUTE TRANSPARENCY. NOW YOU'RE TALKING ABOUT
CHINA STOCKS. DO YOU HAVE A CONCERN THERE THAT YOU
CAN'T MEET THAT TEST?

MS. ROMANO: I THINK PART OF THE REASON FOR
HIRING ACTIVE MANAGERS IS BECAUSE THEY ARE HIGHLY
FOCUSED ON QUALITY AND TRANSPARENCY AND CORPORATE
GOVERNANCE. THERE ARE A LOT OF COMPANIES THAT OUR
MANAGERS WON'T INVEST IN. THERE'S STATE-OWNED
ENTITIES A LOT OF THEM WILL AVOID OUTRIGHT AND WILL
not invest heavily.

So, yes, we have concerns, but that's where we hire active managers to assist us. We did have a China A fund at some point. And while the market may be this, the investable market to address those questions does shrink quickly.

MR. WENDT: Thank you.


MS. WOJCIECHOWSKI: I'll be pretty brief as well. Boring returns is all I can say. The yields on -- very low volatility in fixed income markets as well. We finally got I think the yield on the Intermediate Ag to about 2.50. So that's up from where I put my notes here, which was about 2.40. And the duration is still about 4.4, 4.2 years. So not very exciting.

Long corporates did incredibly well over the past 12 months. That's our off-index bet, so we have some long corporates but not a lot. Intermediate corporates also did well, and we have an overweight to that persistently. So the tide is coming in. Don't fight the Fed, those kind of things.

Just a couple of notes. Tim mentioned the wall of money coming into the United States. There's definitely still demand, central banks still buying. We are the high yielders if you look (inaudible), sad to say, but we are the high yielders throughout the world.

So we continue to see the wall of money possibly easing off, definitely in the United States over the next year, possibly hints from Europe, but that's about it. So we continue to see that persisting, which will keep a lid on rates. But we have recently assigned a little bit more of a non-zero probability that rates may rise.

So to Ash's question about what do we see for outlook, we see that corporations are still in good shape, so we don't see spreads widening continuously. And there is a lot of demand for buying. So we continue to see that as a positive, but also headwinds because valuations are, to Tim's point, very tight right now.

Rates, obviously on the short end we believe rates will continue to rise over the next 12 months, and possibly in the long run a little bit more. We saw it today a little bit with possible budget and tax reform. So we'll see.
Risk we continue to keep pretty low. We did
over the last year -- I'm just going to flip to this
because we did increase our allocation to core plus,
not because we're trying to reach for yield or
spreads or anything like that but because our core
plus manager has a little bit more allocation to
some different, like different arrows in their
quiver. So it will give them opportunities, without
taking more risk, to possibly get more
non-correlated returns. And we'll continue to do
that. We're looking at it seriously right now.

We're seriously considering a couple of
different strategies for fixed income, different
because there's not a lot of ways to spell
intermediate ag, investment grade fixed income, but
we continue to look at that.

And then we're just going to -- periodically we
like to discuss just briefly our sec lending
program. I think it doesn't get mentioned often,
but we do have a significant securities lending
program. It's historically been weighted towards
equities, sometimes a very significant add, and in
the past year it's been actually on fixed income a
little bit, right?

MS. JEFFRIES: Yes. So over the past year
Three year, 80 basis points. Five years, 190 basis points. And that outperformance is pretty evenly distributed across the portfolio.

Here you see the principal investments, which is our direct investment portfolio, with similar type of outperformance, 130 basis points one year, 90 three year, 200 on the five year. And then outperformance in all periods for the externally managed portfolio as well, which is, as you know, our pooled funds and public REIT portfolios.

Here's the sector allocation. Our target is public 10 percent and private 90 percent. And that's exactly where we are. We target 20 percent for non-core, we're almost at that, 19 percent, and core, 81 percent. And that chart shows 8.9 percent. That's a little dated information. We're probably at closer to 8.6 percent of the total portfolio. That's partly Tim and Alison's fault, on the denominator effect. And we've continued to be net sellers.

Here's property type diversification. We're slightly below benchmark exposures in most property types except office, due to an overexposure in the alternative property types. We feel pretty good about this situation at this point in the cycle.

Office is by far the most volatile of the property types, and we've positioned ourselves in the "other" category in more defensive, less volatile property types.

Geographic, we're pretty close to the benchmark positions also, with the exception of the Midwest. We just don't see a lot of great opportunities in the Midwest.

And recent activity, three acquisitions. They're all fairly small acquisitions, but they're all hold-ons to existing portfolios that we have. So you may recall last year we purchased a 66-property self storage portfolio. Ourselves and our JV partner continue to look to add on to that portfolio and buy these one-offs from mom and pops. You can add serious efficiencies. And so we think these small acquisitions are very prudent.

Same with medical office. We have an existing portfolio in the medical office space. Building up a portfolio creates value through aggregation. The large medical office REITs, you know, such as a Ventas or HCP, don't really have the time go out and find a $6.3 million building in Akron, but we -- we aggregate those and are creating value that way.

And retail, I think I've talked about that program...
before, too, where we're buying High Street retail and creating a portfolio.

Dispositions, sold one senior housing deal in Seattle. Industrial, that's a JV where we're developing leasing, stabilizing and selling with our JV partners, so that's creating value there. Student housing, that was -- we've got a portfolio there. We keep adding to the portfolio. This was one particular property that was a value add opportunity as opposed to a core opportunity. Business plan was accomplished and sold it and made money. And multifamily, we sold a fairly large multifamily deal in San Diego.

Commingled funds, one domestic value add fund commitment, 75 million, and a European value add fund with 50 million commitment.

MR. DANIELS: Excuse me, Steve. Just a rough number if you have it, on a weighted average basis, what kind of cap rate are you acquiring at and what kind of cap rate were you disposing at?

MR. SPOOK: It depends on the property type obviously. That multifamily deal is probably a 4.3, 4.4 cap rate, conventional property type in a larger market. Senior housing, you're going to get a higher cap right there. It's a higher risk type of asset.

Student housing, we went into it with the idea that with cap rates so low on multifamily, that we could get a premium on student housing. That premium still exists, but it's come in. It's compressed quite a bit. We still like the sector because we believe it will behave differently than traditional multifamily in a downturn. People will still go to school. In the GFC enrollment actually went up.

Again, student housing depends if you're in a primary market for student housing, like Tallahassee, or if you're going to a smaller school. But on average you're going to see student housing probably between five and a half, 6 percent.

Medical office buildings, again, you would expect to see some premium to conventional office. Same ways in student housing now. We think it will act different than regular office in down times. So medical office buildings, again, depends on the market because what we consider a primary market or conventional office like New York, Washington, San Francisco, medical office can be in Davenport, Iowa, as long as it's associated with a leading health care provider.
MR. COLLINS: Mr. Wendt?

MR. WENDT: You obviously mathematically sold a lot more since the last report than you bought or invested in. There have been a lot of comments today about equity markets being highly valued. Do you think that has also happened in the real estate industry in general? Do you think the properties you're buying are overvalued?

MR. SPOOK: I think it depends on what measure you're looking at. If you're talking about price per pound, so price per square foot, versus historical valuations, yes, the market looks expensive. If you're looking at the spread between corporates or the risk-free rates, spread between cap rates and those other rates, it looks fairly valued today.

MR. WENDT: Do you think real estate is tracking at higher values than all other assets?

MR. SPOOK: I'm sorry?

MR. WENDT: Do you think the real estate values -- sorry. I didn't understand the answer to my question. But I think it was, yes, real estate values are going up, but so is everything else.

MR. SPOOK: So is everything else. So the spread between a cap rate you can buy a property at and your alternatives such as corporate bonds or Treasuries, that spread is not out of line with historical averages. And so on that basis --

MR. WENDT: So you don't think real estate is overvalued today?

MR. SPOOK: It's expensive.

MR. COLLINS: He's a real estate guy, so he's going to give you five different answers for that. Right? He's going to say price per square foot, he's going to say, you know, a multiple on NOI.

MR. SPOOK: And Townsend is in the room. They may have an opinion on pricing also.

MR. WENDT: I didn't ask Townsend, though.

MR. COLLINS: Wow. Dick, did you hear that?

MR. BROWN: It was softly.

MR. COLLINS: Softly, okay. So I have a couple of questions for you. First, my favorite question, what is our leverage position today? Because as I look at --

MR. SPOOK: I knew that was coming.

MR. COLLINS: -- interest rates and we've had another quarter of pretty low interest rates -- and I'm going to pick on Townsend here for a second. Dick wasn't here when I brought this up last time, in all fairness.
MR. SPOOK: I'm sure he heard about it.

MR. COLLINS: So I asked one time in a meeting to -- you know, can we study this. Everybody is concerned about risk and everybody is concerned about taking on too much debt and over-risking the portfolio. And my premise is that we've got core assets in core markets and we have extremely low leverage on them.

And if you're -- but yet we're investing in opportunistic funds, right, that have higher risk with third parties and there's more leverage in those assets. So to boil my position down, I don't think there's any difference materially in going from, say, 25 percent leverage to 35 percent leverage in a core asset in a core market.

So I asked them to put together some information. And what you may remember we got from Townsend was a line chart. It wasn't even one of these unreadable, you know, that look like a sunset of the Grand Canyon charts. It was just a line, and it said, hey, as you up your leverage, your risk increases. And it was almost linear. Well, that can't be. Right? I mean, there's got to be some movement in that. You can't tell me it's a direct percentage-to-dollar ratio between 26 percent

leverage and 27 percent leverage. There's got to be a little bit of a flatness there, but this chart was a perfect slope. So what's our leverage? How are we doing today and what are your thoughts on that?

MR. SPOOK: So with deals that we have in process, so adjusted, we're somewhere between 28 and 28 and a half percent. We've also identified a number of assets that would be suitable for putting leverage on, so fairly low-risk assets. And we're currently talking to brokers right now about getting quotes in the range of about 400, $450 million. So it will go up a little bit. But then we are going to be bumping up against the new 30 percent cap.

But it has fairly --

MR. COLLINS: I think when we first started looking at this, we were like 21, 22 percent.

MR. SPOOK: We were at about 21 percent.

MR. WILLIAMS: Mr. Chairman?

MR. COLLINS: Yes.

MR. WILLIAMS: I think another element of this is that as we've added the leverage in the real estate book, we've been pleasantly surprised at the structures and the cost of the leverage, which is to say both are better than we would have expected. The technique we used, as Steve just referred to, is...
we use third parties to go out and canvass the market for us and get the best terms we can get. And then we get a fiduciary letter. We evaluate it. We pick whoever the winner is and move on.

We have been getting fixed-rate stuff, unbelievable terms, ridiculously low cost. It's sort of the sort of thing that you hear people say, well, the banks aren't replaying the mistakes they made in prior cycles. I'm not so sure. But if people are willing to give us money under these terms, we're happy to take it.

MR. SPOOK: To add to that, like I said, we pick our safest assets with the right kind of leasing in place versus the long-term. And typically we're between 40 and 50 percent loan to value. So that's why we're getting such good terms. We've got lenders fighting to get that business.

MR. COLLINS: Right.

MR. SPOOK: It would have to be worse than the GFC really for them to lose money on that.

MR. PRICE: Mr. Chairman.

MR. COLLINS: Yes.

MR. PRICE: Do we have a place in our portfolio, either with Steve or anywhere else, where there's someone trading real estate investment trusts at large discounts from net asset values versus cap rates he's willing to pay? For instance, you're out buying retail. I don't know. You said it was High Street, not malls. But, for instance, in the last couple of quarters, the mall stocks got destroyed. Taubman, Macerich and General Growth all came down 40 percent. Since then there have been two tender offers and one proxy fight. So is anybody taking advantage of that, with your real estate knowledge, in the public markets?

MR. SPOOK: I'm sure they are, but we aren't personally, no. We do have global REIT separate accounts. They're more conventional accounts.

MR. PRICE: Under which pocket? Is it under Trent?

MR. SPOOK: Under real estate.

MR. PRICE: Under you.

MR. SPOOK: Yes. Ten percent of the total real estate book is public securities.

MR. COLLINS: But you're long.

MR. SPOOK: Yes.

MR. WILLIAMS: I hear what you're saying. That's an interesting angle for I'm thinking maybe somebody in a PE format. But I don't know that we've really got anything that's hitting it.
MR. COLLINS: What you have is market knowledge every day. Right? You're the third largest public pension fund in the country. You're buying. You're selling. You know every player in the market. And you see these REITs out there and what they're trading at in terms of net asset value.

I think what Michael is saying is that you're just not doing anything with that knowledge, other than buying and selling traditional -- or buying and selling properties directly but not going --

MR. PRICE: Cap rates -- I know where there are public securities with liquidity trading much cheaper than he's paying, happily and financing well. That's all I'm saying. There's a place to put a few billion.

MR. COLLINS: So my second question would be California. Any update on California, the fires and everything there relative to our holdings in the state?

MR. SPOOK: No damage to our properties. Rainfall has been above average for the last couple of years now. Great snow pack. So from an ag point of view, we're looking pretty good. But, no, the fires didn't affect us at all.

MR. COLLINS: Any other questions of Steve?

Vinny?

MR. OLMSTEAD: One quick question. Obviously, we are disposing much more than we're acquiring. How does the pipeline look when you guys are looking at what's available out there and how close you are on buying some more stuff?

MR. SPOOK: We've got a pretty good pipeline. There are several deals that are in closing or due diligence right now.

MR. COLLINS: You're looking for more, Vinny?

MR. OLMSTEAD: Just curious, because the last time we were here also, it seems like we're obviously disposing more than we're acquiring. So overall the percentage is going down. If you believe there's a good market, it sounds like there is a pipeline there, it's logical just to -- if you think it's a good value.

MR. WILLIAMS: It might be helpful, if I may, Mr. Chair.

MR. COLLINS: Please.

MR. WILLIAMS: The degree of specificity that would really be responsive to that question might be better delivered off line, because sometimes when you have transactions that are in process, we don't want to broadcast. We've got our eye on this, if you
follow my drift.

    MR. SPOOK: I can show you our pipeline after
    the meeting.

    MR. COBB: Mr. Chairman.

    MR. COLLINS: Yes.

    MR. COBB: I would like to repeat what I think
    Steve has said, Vinny, because I heard it different
    than you. I heard that values are high per square
    foot, some of the highest they've ever been.
    They're high by other measurements. And the only
    measurement that they are not low but reasonable is
    vis-a-vis fixed income.

    And so my conclusion of that is that I'm
delighted we're selling more than we're buying,
particularly that we've sold -- in San Francisco it
was 3 percent cap rates, and some other places we've
been selling 3 percent cap rates. So I want to
applaud management, from my point of view. I think
real estate is pretty fully valued.

    MR. COLLINS: The other thing that I would say
that in my opinion that they've done well is in this
market it's tough to buy core. Right? Tough to buy
core multifamily or core anything in a core market
and pay better than a four cap.

    MR. SPOOK: We've been manufacturing a lot of

that.

    MR. COLLINS: Right. So what they've done is
they've gone out and said, okay, well, if we can't
buy it, we're going to build it and sell it to other
people, and so they've been doing quite a bit of
that.

    MR. SPOOK: Or keep it.

    MR. COLLINS: Or keep it. Right? Which you
get a better basis if you're in there in the
beginning. If you're developing something at a
seven and a half percent --

    MR. SPOOK: It's come down from that.

    MR. COLLINS: Let's say seven, maybe a little
bit lower, and selling at four and a half or five,
that's a decent business. There's churn, but it's a
decent business.

    MR. WILLIAMS: I just wanted to make a
clarifying point, following up on something Mr.
Wendt said a moment ago that's very, very important.
When I made the comment about information off line,
I want to be very clear. What I meant was any
member of the IAC who wants to contact me or any
member of staff directly with any questions, fine.
I did not mean any off line discussion among members
of this body, which would be violative of Florida
MR. COLLINS: Thank you for that, Ash. What is next? John Bradley.

MR. BRADLEY: Thank you and good afternoon. I'll start with a market update. U.S. buyout activity picked up in the third quarter at almost 50 billion of activity, which was an increase from what we saw in quarter two, yet 2017 still trails 2016. Not surprisingly, pricing continues to rise in aggregate. Pricing today is almost a full turn higher, at 10.6 times versus 9.7 times observed at the peak of the last cycle in 2007.

I would say this 10.6 headline number is being driven by the large end of the market, particularly large tech deals. The small to middle market has seen pricing trend down a bit over the last few quarters.

Asset sales and distributions remain strong across the entire industry. If this current pace continues, 2017 could set a new record for the PE industry in terms of distributions. And this will likely be the case within our portfolio. Our net cash flow through October stood at $687 million. And there's a strong chance this will increase by the end of the year. And to put that 687 in perspective, our past high for net cash flow was 650 million in 2015.

And then the final bullet, over the past 12 months, our distressed portfolio at 21.8 percent and our non-U.S. buyout portfolio at 21.1 percent, were our best performing strategies. Both of those strategies, performance was driven by some strong realizations seen throughout the year.

MR. PRICE: John, can I ask, you say technology is 40 percent of your portfolio. Is that because some venture deals matured largely?

MR. BRADLEY: Correct. That's a big part of it. What we'll also see here -- and what we've seen is if you put aside our venture and our tech-focused buyout guys, we've seen a lot of our generalists cycle into the tech space. And I would say, as long as these deals continue to be successful, which they have been to date, that trend will likely continue.

Our sector exposure. Geographically we remain focused on building out our non-U.S. portfolio. That portfolio today sits at 25 percent, which is a slight increase in what we observed last year. We were at 22 percent, and the year before that at 18. So the growth internationally continues, albeit at a slow pace.
We move to performance of the asset class. We can see our one year performance trails the benchmark by around 350 basis points. As everyone has mentioned today, public markets have been a pretty tough bogey to keep pace with over the past year. But you will see all other time periods showing outperformance versus the benchmark, with our three year return being particularly strong.

MR. COLLINS: I always really like the colors on that slide, John. Very nice.

MR. BRADLEY: Thank you, Peter. I like them, too.

MR. OLSTEAD: John, real quick. When you look at the geographic exposure and you say you're looking outside the U.S., are you looking anywhere specifically or just sort of generically outside the U.S.?

MR. BRADLEY: I think our focus would be, maybe over the last four to five years we've kind of honed in our Europe portfolio and built that out, so anything in Europe would be on the margin, probably not adding a lot there. The focus has really been in Asia, and that's mainly been in China.

What I would tell you, though, is we've been focused there for probably three or four years and have moved extremely slowly and have had difficulties finding groups that we're comfortable with. But the quality of the GP, the performance, the ability to diligence, that is getting much, much better.

Here we're at the slide with performance of the asset class sub-strategies. I guess what I would say is all strategies continue to perform well. And since inception only our non-U.S. growth strategy has underperformed it's peer benchmark.

And then finally I'll end with our commitment activity. This is through the first nine months of the year. So as of September 30 we've committed 1.6 billion to 16 funds, that's 1.1 billion to 11 buyout funds. I'd note over half of that went to funds focused on the small end of the market. We've committed 150 million to three venture funds and 300 million to two distressed or turnaround funds.

MR. OLSTEAD: Any other thoughts on sort of construct? I go to a number of these conferences, and they're sort of saying underweight the venture capital. Any changes in thoughts on buyout versus venture versus some of the sub-strategy performance?

Is that how you're looking at it?

MR. BRADLEY: I don't think so. I think we've
been if nothing but consistent with kind of our
targets, our overall targets. So when you look at
what we're doing in venture, we're committing what
we think we should be to maintain a 10 percent
allocation to venture.

I think we believe in cycles of these markets.
We hear our peers and we hear people concerned with
venture, but we invest in these funds over ten year
horizons and --

MR. OLMSHEAD: As a venture capitalist, I like
to hear that.

MR. BRADLEY: That's it. Any other questions?

MR. COLLINS: Any more questions of Mr. Bradley
on the private equity portfolio?

MR. WENDT: Do you think prices are getting
high?

MR. BRADLEY: I think they are. I think they
are historically. I think our GPs also think they
have. Dry powder has been building in the industry.

Our funds have been less active on the buy side. So
I think their actions would also indicate that they
think things are expensive today.

MR. COLLINS: You're probably the only person
at the Board whose relationships cost more than
Trent's. Have you thought about that?

MR. BRADLEY: Maybe.

MR. COLLINS: Dan. Where's Joan?

MR. WILLIAMS: We've got Dan on deck.

MR. COLLINS: Dan. Sorry. I was just asking
where Joan was. I don't see her smiling face, but I
like yours just as well.

MR. BEARD: Thank you. Good afternoon. Before
I get into the slides, I want to do an update on a
couple of legislative changes from this past session
that impacted the FRS major. The first one was
renewed membership was reopened. Effective July 1,
2010, renewed membership was closed for any rehired
retiree. They did open that back up effective
July 1, 2017. But it was just for retirees from one
of the optional plans, which the investment plan is.
So effective July 1, 2017, it opened back up.

Since that point in time, we've had
approximately 6,000 new members who have come back
into the investment plan. They're mandatory in the
investment plan. They don't have to make a choice.

It's mandatory, as long as they retired from the
investment plan. So that was one piece of the
legislation.

The second piece is a change in the default.
So the default is currently the pension plan. So
any member who, once they go through the choice period, if they don't make a choice, they default into the pension plan.

Well, effective January 1, 2018, that default is going to be changing to the investment plan. And that's for all new hires except those who are special risk. And special risk are your firefighters, correctional officers, your police, your troopers. They're all considered special risk. They will still default, if they don't make a choice, into the pension plan.

So the first time that we will see someone who actually defaults into the investment plan will be October 1, 2018, because the second part of that was they lengthened the choice period. Currently it's five months from the month of hire. Well, effective January 1, 2018, it goes to eight months from the month of hire in order to make a choice.

So those are two pieces of major legislation that impacted the Florida Retirement System. One has already gone into law, and the other one will be effective January 1, 2018.

So assets, as of September 30th, we were at 10.3 billion. As of November 30th, we're at 10.5 billion. For our returns, through November 30th, calendar year to date return, is actually 15.23, and then fiscal year to date 7.10. We have 183,000 members. Again, that includes the 5,000 mandatory investment plan members who are rehired retirees.

Average account balance has increased about 3.5 percent over the year, and then we saw a 10 percent increase in the number of retirees. And, again, the retirees are members who actually take a benefit from the plan, whether it be a partial benefit or the full benefit.

The next slide you see is how the assets are broken out. Again, the majority, as expected, is in the retirement date funds. The retirement date funds is the fund that they will default into, so that's a majority of the funds.

The next one is our performance both quarter year to date, fiscal year to date, one year, three years and five years. And as you can see, with the increase in the market, it also has been a benefit to our members.

Membership growth, this year 3.6 percent. Again, a lot of that is driven by that additional 5,000 members who have come in due to the renewed membership. And then for the financial guidance
program, again, we do see a lot of hits to our website, as well as those members who are using chat, that continues to increase as we get a lot of people who want to communicate via chat.

Does anyone have any questions on what I've covered? Thank you.

MR. COLLINS: Any questions? Steve and Katie.

MR. CUMMINGS: Thank you, Mr. Chairman, members of the council. It's good to be here again. Once upon a time I was on the official SBA consulting team from Aon, but I think as you know, Kristen Doyle and Katie Comstock represent that team. I'm here today covering for Kristen. As I think you all are aware, she is due to deliver twins here in a few weeks, so she sends her best.

Logistically, we thought it was good for me to support Katie on this visit in case you had any questions for me or my colleagues, my soon-to-be colleagues from Townsend about our business transaction.

Kristen does expect to be back with you for your March meeting. In the event she's not able, I will be taking that meeting, along with Phil Kivarkis, because Katie will be out on maternity leave for your March meeting. So we are growing our ranks.

MR. COLLINS: Did you guys schedule that, Katie, you and Kristen?

MS. COMSTOCK: We planned it out last year, absolutely.

MR. JONES: Kind of makes it hard to recruit women now.

MR. CUMMINGS: Actually, we were talking about that at lunch. We're enjoying great success in no small part because of -- our ranks are deep enough that we can accommodate these work-life balance issues that are so critically important to attracting and retaining. We just planned to roll out a new paternity leave policy as well in the new year. So we're excited.

Katie is going to cover the major market mandate review. As I think all of you know, over the years, we've done a variety of different tasks as your general consultant. And one of them is fairly routine but is also important as a check-the-box part of our services, to opine on the performance of the major markets at a very high level compared to appropriate benchmarks and peers.

So as usual, Katie will step through that. But before I hand it over to her, are there any other
questions as relates to -- I know Seth mentioned the pending acquisition of Townsend by Aon. We are waiting for regulatory approval, which we expect to come in the next few weeks, but you can't rush regulators. They have their own schedules.

But if you have any questions about what's going on at Aon or the consulting or the pending acquisition at Townsend, I'd be pleased to answer those questions. Otherwise I will quickly let Katie take over the rest of the presentation.

MR. COLLINS: Does anybody have any questions?

Okay.

MS. COMSTOCK: Thanks, Steve. Good afternoon, everyone. We'll move right along. I will reiterate Ash's comments from earlier in this meeting that all is well across all fronts of the five major mandates that we report on, and we'll go into a little bit more detail. But the performance continues to be exceptional on an absolute and relative basis.

So moving ahead, starting with the pension plan performance, Ash gave updated numbers. All of our numbers in this report will be through the third quarter of 2017, so ending September 30th. The pension plan ended the quarter with $157.6 billion, growth over the quarter of about 4 billion. As Ash mentioned, that has risen to over 160 billion through December 1st, I believe. So all-time highs.

Growth being due to significant investment earnings. You can see over the quarter that was about $5.9 billion in growth over a one year period. That represents investment earnings of 19.5, growth of $12.9 billion.

Before we dive into the associated returns, I did want to stop on this page quickly. You heard from each of the asset class heads in silos, but just to aggregate that and to give one snapshot of how the overall portfolio is allocated across the different asset classes.

The green bar represents where the FRS is allocated at the end of the third quarter, the orange bar being the interim targets. I'll note that what's not on here is the longer-term targets, where each of these asset classes are at their long-term targets, with the exception of two, real estate and strategic investments.

The long-term target for real estate is 10 percent, and strategic investments is 12 percent. And as you heard from your asset class heads, the challenges of growing that when you have an overall portfolio that continues to grow very quickly and
the asset classes continue to distribute capital, not a bad problem to have but will make reaching those longer-term targets a bit more challenging.

I also remind the committee, this came up at the last meeting, that in the March meeting we will be doing our refresher of the asset-liability and asset allocation study, where we will not get into strategy-specific discussions but at a higher level we will talk about the trade-offs of and ideally the goal of both eating well and sleeping well.

We’ll talk about the roles of the asset classes and the implications not only on expected return but on volatility, on contribution rates, on funded status. So that’s to come in the next meeting.

Now I want to talk about returns. You-all continue to make our lives fairly easy coming here in front of you-all. The FRS net investment returns through the end of the third quarter are represented by the beige bar. As you can see across the board, strong absolute returns, primarily driven by global equities, but also alternative investments, both private equity and real estate, have generated double digit returns across most of these time periods here.

We compare to two benchmarks on this page. The first being the performance benchmark represented in blue. On a relative basis, strong outperformance, ranging from 20 basis points outperformance for the quarter, all the way up to 100 basis points for the one year period.

The longer term periods, the margin of outperformance has been very strong, and it's been diversified across the asset classes as well, which is also rare, when you see each asset class adding value across the board across these different time periods.

The next benchmark is the absolute nominal target rate of return, which was represented -- it was CPI plus 5 percent. As Trent touched on, it's now CPI plus four and a half percent. This is more appropriately evaluated over a longer time period, so we do include this metric. And the next slide, over the past 20, 25 and 30 years, you can see over the 20 year, the portfolio was in line with the longer-term target and ahead of the benchmark fairly significantly over the 25 and 30 year period.

The next few slides look at the FRS's performance relative to a peer group. This is the TUCS Top 10, so the top 10 largest pension plans in the United States. And we show here the asset
allocation of the FRS as of 9/30 relative to the median plan in this universe of other ten plans. And consistent with previous quarters, the greatest difference between these asset allocations and what drives the difference in returns that we'll look at on the next page is primarily the greater allocation FRS has to global equity.

You can see roughly 10 percentage points greater than the median plan in this universe. And if you look at the detail, the composition of the global equity, nearly all of that is coming from the FRS having greater weight to foreign securities. So recently that has been a tailwind that's been beneficial for relative performance.

If you look longer term, the U.S. has done exceptionally well. And so the FRS being an early mover to a global mandate, that had provided in the past some headwinds when you look at relative performance, but recently this has been beneficial.

The offset to that is the alternatives, where peers have about 22 percent and the FRS has about 15 percent to what we would aggregate as alternative, being private equity and strategic investments.

Any questions on asset allocation? So I'm looking at returns. This shows FRS returns over these same time periods. These are gross returns so we can have an apples to apples comparison with the TUCS universe, because they report on gross returns. But you can see, with the exception of the third quarter, the FRS has outperformed the median plan across all these time periods, and not only outperformed the median but has ranked in the top quartile.

The ranking for the FRS are those bottom numbers there. So over the one year period it ranked in the first percentile of that universe, so that top, that hot spot you want to be at over the one year period, and then in the top quartile in three and five year and the top 5 percent of plans over the ten year. So great performance relative to your peer groups.

Also we don't show this. We have this in the detail books, but we also look at your performance relative to another peer group, which is a little bit broader. It's roughly 100 other public pension plans with assets over a billion dollars. And the FRS ranks in the top quartile across all of these time periods as well.

So those are slides on the FRS performance.
Any questions? The next major mandate we cover is the investment plan. Any questions?

MR. COLLINS: I was just -- I had two questions of Ash. I said, How many times have we been number one? And he said, I don't think we've ever been. I said, Well, how many times have I been chairman?

MR. CUMMINGS: We could run a correlation on that for you, if you'd like.

MS. COMSTOCK: I think you were number one last quarter, so you're two for two at least. The investment plan, as you heard from Dan and Ash earlier as well, the performance continues to be very strong. The numbers to focus at on the top of the third line there, that shows the relative performance of the aggregated investment plan versus the aggregated benchmark. And what this is representing are the active managers and how they're performing relative to their benchmarks, as well as what Ash mentioned earlier, the lower fees that also come into play when selecting the investment options for the members.

So strong outperformance across the board. And, again, this is coming from -- diversified across all the asset classes. I think each fund has outperformed its benchmark across all of these time periods, with one exception, the real assets fund, which we've spoken about in previous quarters. Over I believe the three and five year, more benchmark-like performance, given an allocation to commodities. But that has come back over the one year period. So great relative performance across the board for the investment plan options.

MR. COLLINS: Can I go back one slide for a second? On the asset allocation -- maybe a couple of slides -- on the alternatives. Do you happen to know the breakdown between how the universe looks at alternatives between, say, private equity and other versus how we are broken up in private equity, strategics?

MS. COMSTOCK: Yeah, that's a great question. Unfortunately, that's a tough -- that's an issue that most of these survey providers run across, is how specific can you break out alternatives. Unfortunately TUCS just has a broad alternatives allocation. They don't give the breakout between private equity or other, or sometimes commodities can be in there, managed futures.

MR. COLLINS: Hedge funds?

MS. COMSTOCK: Hedge funds absolutely are included in the alternatives. There are other
providers that will break out private equity and
that will have then an "other" category, or some
will do private equity and hedge funds. So we can
provide some of that information. Unfortunately,
this universe does not give us any detail on that.

MR. COLLINS: Okay.

MS. COMSTOCK: Jumping back to the investment
plan, we did get updated universe data. So that's
the table at the bottom. Numbers are a little bit
hard to see, but this is the CEM benchmarking
report. That is a survey that's done on an annual
basis. The information here is through
December 2016, as it takes time for them to collect
and aggregate and then distribute the report.

So we look at three metrics from this peer
survey. One is a five year average return. And we
look at the investment plan relative to a peer group
and how the FRS investment plan did. And you see
that bottom line. The investment plan
underperformed by one percentage point. This is
going to be largely due to asset allocation and how
the participants are allocating their assets, which
you-all don't have control over.

So the difference there is that the peers had a
greater allocation to equities than the investment
plan participants. And as equities have done well,
when you aggregate overall performance, the
performance is going to be better.

Before that reason, we also look at the net
value added that the SBA's investment plan has added
relative to its benchmark compared to peers. And so
that's a positive number. Again, though, this will
be impacted by how the participants are invested.
If there's more assets in passively managed funds,
then you won't see as great a level of
outperformance relative to the benchmark. The
number is positive. It's not as great as some of
the peer -- as the median peer group here. But this
is consistent with past surveys.

And then the last metric that we look at is the
expense ratio. The overall annualized expense ratio
is 33 basis points for the FRS investment plan.
This has come down since the last survey about three
basis points. And this includes the administrative
costs as well as the investment manager fees.

And when you look, break this number down and
compare it to peers on those two components, the
investment management -- the investment management
offerings have a lower fee relative to peers, which
is what the participants are paying.
When you look at the aggregated fee relative to the peer group, it looks -- the FRS is paying about seven basis points greater than the peer group. And that's all due to the investment advice program that the SBA offers the participants that -- it is unclear if other peers are offering that to their programs and what that entails. So it's a little bit of an apples to oranges comparison, but that's where the extra fee is coming from.

The universe data here, this is pretty consistent with what we've seen in past years as well. So nothing really new to know but just new numbers.

We'll move on to the hurricane catastrophe fund. We can move pretty quickly through. The performance on a relative basis continues to outperform the benchmark. As a reminder, the goal of these funds are to be stable, ongoing and provide liquidity when it's needed. And as Ash mentioned, the fund continues to be in excellent shape, with about $17 billion in assets at the end of the third quarter.

Lawton Chiles Endowment Fund is the next major mandate that we cover. Just a quick reminder that it's about 70 percent invested in global equities, which will drive performance. That global equity allocation is managed by one active manager. That active manager has done very well for the fund across all these time periods and has driven the outperformance of the total endowment relative to the performance benchmark.

And the last major mandate that we cover is Florida PRIME. Low absolute returns but, again, relative to the benchmark, which is a peer group of other local government investment pools, strong outperformance here. With the increase in the federal fund rate and expectations, we have seen an uptick. Though it doesn't look that great, yields have risen. We're expecting them to as well, which will help absolute performance.

Here again, the goal is to provide stability, preserve the capital that the participants are investing and to provide liquidity. So that's the reason for the low absolute returns, but the relative returns continue to be very strong relative to the peer group.

I ran through that pretty quickly, but are there any questions on any of the five major mandates that we cover?

MR. COLLINS: Any questions? Great. Thanks,
MS. COMSTOCK: Thank you.
MR. COLLINS: Appreciate it. Thanks, Steve.
Is that it, Ash?
MR. WILLIAMS: I think that's it.
MR. COLLINS: I think that's it. Yeah. So we need --
MR. WILLIAMS: Audience remarks.
MR. COLLINS: Audience remarks. Anybody on the phone or anybody in the audience have anything that they would like to discuss with the Board or take up? Okay. And then dates for next year, so at Tab 6 in your book, the meeting dates are there, the four meeting dates, March, June, September and December. These are the proposed meeting dates, so --
MR. WILLIAMS: Be aware of those.
MR. COLLINS: Yeah, be aware of those. If nothing else, we'll be adjourned. Thanks.
(Whereupon, the meeting was concluded at 3:30 p.m.)

STATE OF FLORIDA   )
COUNTY OF LEON     )

I, Jo Langston, Registered Professional Reporter, do hereby certify that the foregoing pages 3 through 119, both inclusive, comprise a true and correct transcript of the proceeding; that said proceeding was taken by me stenographically and transcribed by me as it now appears; that I am not a relative or employee or attorney or counsel of the parties, or a relative or employee of such attorney or counsel, nor am I interested in this proceeding or its outcome.
IN WITNESS WHEREOF, I have hereunto set my hand this 2nd day of January 2018.

JO LANGSTON
Registered Professional Reporter
MINUTES
INVESTMENT ADVISORY COUNCIL
March 19, 2018

A meeting of the Investment Advisory Council (IAC) was held on Monday, March 19, 2018, in the Hermitage Room of the State Board of Administration of Florida (SBA), Tallahassee, Florida. The attached transcript of the March 19, 2018 meeting is hereby incorporated into these minutes by this reference.

Members Present: Peter Collins, Chair (via telephone)
Chuck Cobb
Les Daniels
Vinny Olmstead

SBA Employees: Ash Williams, Executive Director/CIO
Kent Perez
John Benton
Steve Spook
Lynne Gray
Michael Fogliano
Alison Romano
Tim Taylor
Katy Wojciechowski
John Bradley
Trent Webster
Joan Haseman
Michael McCauley

Consultants: Kristen Doyle, Aon Hewitt
Phil Kivarkis, Aon Hewitt (via telephone)
Richard Brown, Townsend Group
Jack Koch, Townsend Group
Seth Marcus, Townsend Group

WELCOME/CALL TO ORDER/ELECTION OF OFFICERS/APPROVAL OF MINUTES
Mr. Ash Williams, Executive Director/Chief Investment Officer informed the Investment Advisory Council that some members would not be able to attend the meeting. Mr. Peter Collins, Chair, called the meeting to order at 1:05 P.M. A quorum was not present, so the IAC members postponed the approval of the minutes and the election of officers.

OPENING REMARKS/LEGISLATIVE UPDATE/REPORTS
Mr. Williams provided a brief summary on the performance of the Florida Retirement System Pension Plan, stating that the fund is up 9.44 percent fiscal year-to-date, with a balance in the fund of $163.5 billion, $10 billion ahead of July 2017, net of distributions.

Mr. Williams informed the IAC members that the Legislature had approved full actuarial funding for the pension system and the full actuarially indicated contribution to unfunded liability. He discussed language pertaining to Venezuela in the Pension Plan Investment Policy Statement that is now also in Florida statute. Mr. Williams also discussed two reviser’s bills, one that eliminated redundant or outdated references, and another that eliminated Fund B and the Participant Local Government Advisory Council.
Mr. Williams briefly discussed the Legislature's response to the tragedy at the high school in Parkland, Florida. He concluded his remarks by referring to a review of governance risk and compliance by Funston Advisory Services, and he noted a recent compliance exception that he had reported to the Trustees at their last meeting. Mr. Collins thanked everyone who had participated in the Funston review and indicated that he was glad to see the results.

**ASSET-LIABILITY REVIEW**

Ms. Kristen Doyle, Aon Hewitt, introduced Mr. Phil Kivarkis, U.S. Director of Investment Policy Services with Aon Hewitt Investment Consulting, Inc. Mr. Kivarkis presented the highlights of the asset-liability study, including the scope (a 30-year projection analysis). He reviewed the risk and reward trade-offs for a variety of portfolios, and he compared and contrasted what the implications would be of various portfolio strategies. Mr. Kivarkis provided an investment analysis as well as an asset-liability projection analysis and concluded that the portfolio is well constructed with 81 percent return-seeking assets. Mr. Williams, Ms. Doyle, and Mr. Kivarkis answered questions from IAC members.

**FRS PENSION PLAN BENCHMARK REVIEW**

Ms. Doyle presented the results of Aon Hewitt's Comprehensive Benchmarking Review. She discussed the benchmarks for each asset class as well as total fund. Ms. Doyle informed the IAC that Aon Hewitt only has one recommendation for change, and that would be to the cash benchmark. Ms. Doyle explained the recommendation as follows: the BofA Merrill Lynch 3-Month U.S. Treasury Bill would be the new primary benchmark; and the current primary benchmark (iMoneyNetFirst Tier Institutional Money Market Funds Net Index) would then become the secondary benchmark. Mr. John Benton, Senior Investment Policy Officer, told the IAC members that the recommendations for the benchmark changes to the Pension Plan Investment Policy Statement would be brought up for consideration at the June 11, 2018 IAC meeting. IAC members’ questions on the Aon Hewitt benchmarking review were answered by Ms. Katy Wojciechowski, Fixed Income; Ms. Doyle; Mr. Williams; Mr. Steve Spook, Real Estate; and Mr. Jack Koch, Townsend.

**REAL ESTATE REVIEW**

Mr. Spook, Senior Investment Officer – Real Estate, provided a broad overview of the Real Estate portfolio, discussing the following: asset class governance, the consultants, the role in the total Pension Plan portfolio, and the two broad strategies within the private portfolio (core and non-core). He reviewed target allocation for Real Estate. Mr. Spook provided details on property type diversification and geographic diversification in the private market portfolio. He also discussed portfolio leverage and Real Estate returns. Mr. Spook concluded his presentation by providing a peer performance comparison and by detailing asset class activities over the past fiscal year.

Ms. Lynne Gray, Senior Portfolio Manager, provided an overview of the principal investments portfolio (direct-owned real estate investments), and Mr. Michael Fogliano, Senior Portfolio Manager, provided an overview of the externally managed portfolio. IAC members asked questions which were answered by Ms. Gray, Mr. Fogliano, Mr. Spook, Mr. Williams, and Mr. Koch. There was a discussion on leverage within the asset class and a request by Mr. Collins for additional analysis.

Mr. Seth Marcus, Townsend Group, introduced the Townsend consultants attending the meeting, and he gave a brief history of the relationship that Townsend has had with the State Board of Administration. He discussed the outperformance of the real estate portfolio and noted that it has consistently delivered strong returns while remaining within policy guidelines.
ASSET CLASS SIO UPDATES, DC PROGRAMS CHIEF UPDATE, INVESTMENT PROGRAMS & GOVERNANCE OFFICER UPDATE

The Senior Investment Officers of Global Equity, Fixed Income, and Strategic Investments & Private Equity provided an update on the performance of their respective asset classes over the last quarter and trailing time periods and discussed general market conditions. Questions from IAC members were asked and answered.

Ms. Joan Haseman, Chief – Defined Contribution Programs, provided a snapshot of the FRS Investment Plan assets, number of members, average account balance, average years of service, and distributions. She also discussed the FRS Investment Plan assets under management, performance, and the Financial Guidance Program. Mr. Williams announced Ms. Haseman’s upcoming retirement and thanked her for the terrific job that she and her team have done.

Mr. Michael McCauley, Senior Officer – Investment Programs & Governance, presented voting statistics through the calendar year and discussed their recent study on over-boarding. He concluded his presentation by discussing two of the proposed proxy voting guideline amendments: a new expanded version of the high-risk markets guideline that deals with Venezuela and an expansion of an existing guideline dealing with board committees.

MAJOR MANDATE PERFORMANCE REVIEW

Ms. Doyle provided an overview of the performance of the Pension Plan, the Investment Plan, the Florida Hurricane Catastrophe Fund, the Lawton Chiles Endowment Fund, and Florida PRIME. Ms. Doyle stated that performance continues to be strong across all of the major mandates.

AUDIENCE COMMENTS/2018 MEETING DATES/CLOSING REMARKS/ADJOURN

Two members of the audience, Mr. William Ortiz, Organize Florida, and Mr. Jim Baker, Private Equity Stakeholder Project, spoke about a foreclosure crisis in Puerto Rico resulting from the devastation caused by Hurricane Maria.

Mr. Les Daniels made a motion that the meeting adjourn; Mr. Olmstead seconded the motion. The meeting adjourned at 4:30 P.M.

Peter Collins, Chair

Date 5/7/18
STATE BOARD OF ADMINISTRATION OF FLORIDA

INVESTMENT ADVISORY COUNCIL MEETING

MONDAY, MARCH 19, 2018
1:05 P.M. - 4:30 P.M.

1801 HERMITAGE BOULEVARD
HERMITAGE ROOM, FIRST FLOOR
TALLAHASSEE, FLORIDA

REPORTED BY: JO LANGSTON
Registered Professional Reporter

APPEARANCES
IAC MEMBERS:
PETER COLLINS (Telephonically)
CHUCK COBB
VINNY OLMSTEAD
LES DANIELS

SBA EMPLOYEES:
ASH WILLIAMS, EXECUTIVE DIRECTOR
KENT PEREZ
JOHN BENTON
STEVE SPOOK
LYNNE GRAY
MICHAEL FOGLIANO
ALISON ROMANO
TIM TAYLOR
KATY WOJCIECHOWSKI
JOHN BRADLEY
TRENT WEBSTER
JOAN HASEMAN
MICHAEL MCCAULEY

CONSULTANTS:
PHIL KIVARKIS - (Aon Hewitt) (Telephonically)
KRISTEN DOYLE - (Aon Hewitt)
JACK KOCH - (The Townsend Group)
RICHARD BROWN - (The Townsend Group)
SETH MARCUS - (The Townsend Group)
INVESTMENT ADVISORY COUNCIL MEETING

* * *

MR. WILLIAMS: Good afternoon. This is Ash Williams. We have an unusual format today in that we have several of our members calling in, by phone, including our chair, Peter Collins, who I understand is on the line. Is that right, Peter?

MR. COLLINS: I'm here.

MR. WILLIAMS: Okay. Great. And I believe we're going to have Bobby Jones dialing in as well. Bobby, are you with us? All right. We'll stand by for Bobby's arrival. So why don't we do this. For purposes of identifying who is speaking, for the court reporter's benefit, at this point Peter Jones (sic) is the only one on the phone, but let's just be mindful of that, and when we get other people on, we'll remind them to please identify themselves. So with that, Peter, do you have anything you want to open with?

MR. COLLINS: Other than sorry I could not be there today, but I'll do my best on the phone. Do we need to wait until Bobby comes on for our -- not for our call to order but our elections?

MR. WILLIAMS: Yes. And let me just back up and tell everybody where we are, because not everybody in the room understands the dynamics. We have several folks out today. Peter had a transportation issue, couldn't make the trip due to a broken airplane. Bobby had a different kind of transportation issue, couldn't make it because of a broken foot, just different levels of transportation, I suppose.

And then in addition, Gary Wendt is ill, and Michael Price is on spring break, as is Sean McGould, our remaining IAC member. So they're both on family travel and not available for those reasons. But if Bobby comes on, we will have a quorum.

And the first order of business in the March meeting is usually to elect successor chair and vice-chair leadership. That's always a simple process because it's a simple seniority thing. So Gary Wendt is set to move up as chair, and Peter Collins has expressed a willingness to step into the vice-chair role. So the awkwardness we've got is that we don't have either of them present. So if the members choose to move forward, we can do that.

MR. COLLINS: Ash, I think you meant to say that Bobby Jones has expressed the willingness to step into the vice-chair role.
MR. WILLIAMS: Yes. What did I say?
MR. COLLINS: Peter Collins.
MR. WILLIAMS: Sorry. Do you want to reconsider, Peter?
MR. COLLINS: I just wanted it to be clear and on the record.
MR. WILLIAMS: Not being here, you're at risk for all kinds of stuff. Yeah. My mistake.
MR. COLLINS: Well, why don't we just go ahead and call the meeting to order. We don't have a quorum to approve the minutes, so why don't we go right to your opening remarks and legislative update, Ash.
MR. WILLIAMS: We can do that. And Les just suggested it might make sense to just put off the election to the next meeting anyway, and that way we have everybody here. I'm not sure if that's acceptable to the group.
MR. COLLINS: That's fine.
MR. WILLIAMS: So in terms of legislative activity and general update for me, first, as always, we’ll open with performance. And through Friday's close, if we look at the fiscal year to date, the Florida Retirement System Trust Fund -- and these are unaudited gross numbers at this point -- up 9.44 percent. That's three basis points ahead of target and leaves us with a current balance of $163.5 billion. That's $10 billion ahead of where we started the fiscal year, net of distributions that average about $600 million per month. So performance has been good.

Our value add over benchmark at three basis points you may perceive as conspicuously small compared to what you normally hear, and I think that's correct. But it's a high class problem in this market environment because when you have very, very robust bull markets, our value add is less apparent. If you have more challenging environments, we will tend to show substantially better numbers. Either way, the good news is we're up $10 billion, so no complaints there.

Legislatively, probably the most fundamentally important thing that the legislature did in the session that ended, what, Sunday a week ago, I suppose, was to approve full actuarial funding for the pension system and the full actuarially indicated contribution to unfunded liability.

In addition to those things, legislation that we previously discussed relating to Venezuela, which simply reenacts in statute the same provision that
the trustees had previously adopted by resolution, and we in turn have reflected in our investment policy statement, that is now in statute. In addition, we had two reviser's bills. Reviser's bills are technical legislative lingo for bills that don't have a substantive policy impact, they just clean things up.

So the two revisions were, one, a cleanup of all the SBA statutes to eliminate redundant or outdated references. And the other was elimination of Fund B and the Participant Local Advisory Council. So you'll recall that we've had joint meetings every June of the IAC and the PLGAC.

With the resolution of Fund B and the tail end of the problems in what's now known as Florida PRIME, back in the old days the Local Government Surplus Funds Trust Fund, since that whole matter was resolved, the PLGAC had little reason to exist and voted itself to dissolve. But the legislature has to take that action. So that bill, I believe, has now gone to the governor.

And there were a number of things rattling around that we were not particularly fans of. And the good news is none of those went anywhere. So I think, on the whole, it was a good legislative session for the SBA, and we're happy with its outcome. So -- oh, one other thing that came up, it was a very, very high visibility issue, obviously was the tragedy at Parkland school. And that led to a lot of discussion about what the right legislative response should be to that situation.

One of the things that came up was, not surprisingly, a divestiture initiative. And that was not a course taken. There were a number of public safety policy solutions embraced by the legislature and put forward by the governor that in our view are the appropriate way to respond to something like this. This was not an investment policy issue. It was a public safety issue. And, therefore, the realm of policy that's appropriate to its resolution is public safety policy, not investment policy.

That said, what we are probably going to be doing over time is looking at responsible and prudent ways that we can engage with companies in which we own shares that may be firearms or ammunition producers. And we have a long history of constructive engagement. We're thoughtful in how we go about it. I've already had some contact with some of our peers and some of the large private
sector asset managers, and I think there's a lot of interest around this area.

Mike McCauley, who runs the State Board's corporate governance program, is the chairman of the International Corporate Governance Network, and I was elected chairman of the Council of Institutional Investors last week. So between the two of us and our long history in this area of corporate governance, I think we're well positioned to be heard on this and I think can keep the discussion in a constructive and productive vein instead of doing things just to do them, which sometimes can be an offshoot of emotional issues.

So unless there are any questions, happy to move on with the asset-liability review, as you prefer, Mr. Chair.

MR. COLLINS: That's great. The only thing I would say is congrats to both you and Mike for those two respective roles. It's a pretty high honor to get elected to those two positions, and so congrats to both of you. And I think it speaks to your work and dedication on behalf of all of the pension funds in the country, so we're fortunate.

Let's go ahead and start. I'm assuming Phil and Kristen are both there.

MR. WILLIAMS: Peter, can I jump back for one minute?

MR. COLLINS: Yeah.

MR. WILLIAMS: I apologize. I neglected to do two things I should have done. I need to mention the reports that are in the book, which are all of the substantive reports from IG, the audit committee, general counsel, compliance. And the key thing I wanted to draw a little bit of attention to there is that we had a periodic review done of our compliance and risk environment.

So this is something that best practice says you do every three to five years. We've historically done it every three years. I think we're probably going to move it to five because it makes more sense and will save us some money. But at any rate, we brought in an outfit called Funston Advisers, which is a top drawer firm in this area.

They did an extensive review of our governance risk and compliance, GRC, activities and practices and concluded that -- basically they divide practices into leading, prevailing and lagging. And as they looked over dozens of different areas of our activity, they concluded that the vast majority of what we do is either leading or prevailing and very
little in the way of lagging.

That said, there are always things we can do better. This was a true partnership engagement, where the Funston people, our compliance people and our chief audit executive and her team worked together all the way across management, all asset classes, et cetera, and had a very, I think, open and productive discussion as to areas where we can improve and be more cutting edge in what we're doing in that space.

So we're taking that forward. We've already taken the report up to the audit committee. The Funston people came in and spent a lengthy audit committee meeting reviewing the details of their findings and management's reactions, et cetera. I think the audit committee is happy, and this is primarily within their beat. But it's an important thing, so I wanted to mention it to you.

One other thing I wanted to mention to the advisory council that I mentioned to the trustees last week is we did have a compliance exception. And it's rare that we have these. But when we have one, we're going to report it promptly and be clear about it.

We were transitioning among three different equity managers, outside equity managers. And in the process of that transition, two equity issues were errantly bought that were violative of the Iran/Sudan prohibitions. The global equity team caught that just about immediately. The trades were reversed, and there's no economic impact plus or minus to the State Board.

And we're sorting through how exactly that slip occurred and to fix it so it won't happen in the future. But since that's a statutory exception, we take it seriously, and I reported it last week, or the week before, to the trustees. So we should be squared on that.

MR. COLLINS: I'm glad you brought up the Funston report, Ash, because I just want to thank everybody that participated. I know they did an exhaustive interview process. If everybody would look up their report on page two or page three, you can see -- it's under Tab 2 -- the list of interviewees and the list of survey participants.

Thirty-four groups and 98 individuals were invited to participate in the survey, and 94 responded, so 95 percent. I know I talked to them at length, and I'm sure some of the other Investment Advisory Council members did as well. So good
process. And I thought the questions were great and glad to see the results.

MR. WILLIAMS: Thank you. That's it for me. I apologize for having to go back and retread.

MR. COLLINS: Great. All right. So we'll turn it over to Aon Hewitt.

MS. DOYLE: Great. Thank you, Chairman. So, actually, Phil Kivarkis is on the phone today. He also had travel troubles. I think it was a broken engine. So unfortunately he's not present with us today either.

But for those of you that have been through this before, I think all of the IAC members have actually been through this at least once before, you will recall that we refresh the asset-liability study every March. So we're going to do that again today.

And what we do and what we focus on with the asset-liability study is looking at the relationship between plan assets and liabilities and revisiting the risk position that we have, so that overall allocation to what we call return-seeking or risky assets and safety or risk-reducing assets. So that is the high level decision that we want to make sure that we discuss today.
MR. KIVARKIS: All right. Fantastic. Please do. So the table of contents on page one, you can see that we'll start with the executive summary, effectively, the overarching message. We'll summarize with the bottom line, and thereafter we'll go over the overview of the analysis and then the results of our analysis, and I'll wrap with summary and conclusions. We'll have Q and A at the end, but by all means, if you have questions that arise throughout the discussion, feel free to ask away.

The first section, executive summary, I'm on page three, and the scope of the project is this annual asset-liability management review. So part of this will be the 30 year asset-liability projection analysis, and we'll review what those results look like. We'll review the risk and reward trade-offs for a variety of portfolios as part of this analysis, and then we'll compare and contrast what the implications of various portfolio strategies would have been in our study.

So that's it at a very high level. Now, page four is the bottom line on the executive summary. And we really split this into two key components, the investment analysis and then the asset-liability projection analysis.

Now, we looked at the investment analysis. By and large we like the current construct of the fund. The current portfolio, we believe, is well-constructed. It's 81 percent allocated to what we call return-seeking assets. And we'll provide more detail as to what that looks like in just a few moments.

Importantly, the equity risk premium, which you'll recall is actually an average of four different investment advisers' assumptions. The equity risk premium is 3.62 percent for this 2018 study. It was 3.72 percent for last year's study. And we've noticed a consistent decline in that assumption over the course of the last several years. And so that's important. That will have implications as we walk through the analysis, which I'll highlight.

The asset returns at 6.44 percent based on this analysis is obviously lower than the actuarial rate of return, which is 7.5 percent. And that also has implications, as we'll see. The expected real return, 4.06 percent, falls short of the investment policy target of 4.5 percent.

When we look at the asset-liability projection analysis, the most noteworthy item is that the
funded ratio is projected to move sideways over the course of the projection period. So if we're to look at the 30 year projection analysis, you would note that the funded ratio starts in the mid-eighties, and over the course of the 30 year projection period stays in the mid-eighties by and large. And so you'll see what that looks like over the course of the next 30 years.

Of course, higher return-seeking strategies would have a higher trajectory of funded ratio growth over time, and lower return-seeking portfolio strategies would have a lower trajectory. But of course the resultant knock-on effects in terms of risk, higher return-seeking strategies are more risky by their nature as well.

And then, finally, longer time horizons work to the benefit of public pension funds. By and large, because public pension funds are primarily focused in the long run, they tend to tilt their portfolios towards return-seeking assets, as those are expected to reward over the long run, and thus economically, from a risk-reward perspective, look advantageous. And we'll examine that as well.

All right. That's it in a nutshell. Now I'm going to spend a few minutes going over how we conducted the study and then the detailed results of that study. Again, this should look fairly familiar to you, but by and large, if you have questions, feel free to interrupt.

So the next section, the overview, I'm on page six. So what is an asset-liability study? It's intended to provide the group with an understanding of the nature of the relationship between assets and liabilities within the pension plan. Now, we'll use this study to examine the impacts of various asset allocation strategies in terms of the economic risk versus the economic reward.

We'll be able to identify trend lines of the main financials in the pension plan, things like funded ratio and contributions, for example, so that you can examine the implications of different strategies on the pension's projected financials, and then finally to help determine the appropriate level of risk in the context of the plan.

So it's right there at the bottom the page.

The asset-liability study provides you with the tools to align the plan's risk taking with the nature of the liabilities in question.

And you can see the schematic on page seven, which shows effectively that everything that we're
talking about here is a balance of assets and liabilities. And interestingly, if you're working with a plan that is less than 100 percent funded or less than fully funded, the way to grow the funded ratio from less than fully funded back to 100 percent is to have the assets grow faster than the liabilities.

Now, you can see what components would grow the liabilities and what components would grow the assets. Generally speaking, the liabilities will grow every year because of new benefit accruals. That's because your people earn one more year of service. Their benefits grow as a result. And the liability return is effectively the actuarial interest rate.

And then growing the assets is a combination of cash contributions and asset returns. Well, if the assets are to grow faster than the liabilities, you would need cash contributions and/or asset returns which fuels growth of the assets such that that exceeded the liabilities. So one of the first things we'll study is, what is the growth rate of the liabilities, what is the expected growth rate of the assets, and how do they compare over time.

All right. Page eight shows a schematic of how we conducted our asset-liability study. Now, I won't get into too many of the weeds, but I will say that we conducted a 30 year projection analysis of assets and liabilities on a single platform.

We study not just one trial. We study 5,000 economic trials over the course of the next 30 years, from the best of times to the worst of times and everything in between. And for each one of those 5,000 trials, we'll have a progression of actuarial results, a progression of pension plan financials, if you will. And some of those will be very optimistic. Some of those will be very pessimistic, and we'll have -- some of those will be middle of the road, and we'll have a distribution of potential outcomes.

So effectively we're doing this 5,000 times. We're ensuring that the economic scenarios -- each of those 5,000 economic scenarios is robustly treated over the course of the next 30 years on both the assets and the liabilities and ultimately the contributions and funded ratios, et cetera. So all of that is baked into the model that we use.

Page nine talks about the long-term economic cost of the plan. So this is one of our key metrics, and we'll show you what the economic cost would be.
looks like. When we look at economic cost, we're effectively talking about the cost of contributions plus any shortfall at the end of the projection period.

So for example, let's say you were to fund over the course of time -- if you were to fund over the course of time $50 billion into the plan, and over the course of that projection period, you never quite get to a fully funded state. You're still 10 billion short. We call that economic cost about $60 billion, because it costs 50 billion in cash, plus there was a shortfall at the end of the day.

And so the expected economic cost is one key metric. Of course, that's the expected case. However, the actual scenarios that play out over the next 30 years could be quite pessimistic. And so we, as a matter of economic risk, also study what might happen if things don't play out as expected but rather if we have a pessimistic case.

And so we're going to compare economic cost in the expected case versus economic cost in the -- what some might deem to be the worst case and compare that -- and present that for your consideration. Effectively, we call that economic cost versus economic risk evaluation.

But those are the key metrics. In fact, economic cost by and large is going to be the present value of contributions into the plan over the course of the projection period.

And then finally in this section I wanted to highlight on page ten the risk-reward trade-offs. The risk-reward trade-offs when we compare the asset-only or traditional sense versus the asset-liability sense.

Your traditional asset-only sense, reward is measured in terms of investment return. So think about your standard, you know, your portfolio will earn 7 percent. Risk is the volatility of those returns. And that's the traditional sense for risk versus reward. We're going to consider that as part of this analysis. We're also going to consider, however, the asset-liability context.

What is return in terms of a reward in terms of the asset-liability context? It's the potential cost reduction associated with different investment strategies or potential funded status improvement. And risk is what happens to those metrics in the worst of times. So in other words, in the worst case economic outcome, what does the pension plan financial state look like. So we're going to
examine risk versus reward, not just in terms of asset-only traditional sense but also asset-liability within the context of your pension plan.

All right. The next slide covers some key factors affecting the risk-reward trade-off. Just to highlight this in very broad strokes, the time horizon, the longer the time horizon the more that supports risk taking. The characteristics of the plan. For example, a mature plan might have a lower tolerance for risk than a less mature plan.

Funded status can come into play as well. The plan with less funding that needs more upside might desire a higher risk profile, if you will. And then finally the nature of plan benefits. So for example, if there was a sensitivity to inflation because of wage growth, then that might implicate the investment strategy as well. So those are a few of the key features that might affect the risk-reward trade-off.

When we talk about the risk-reward trade-off, by and large we're talking about the allocations to what we call return-seeking assets versus risk-reducing assets. Return-seeking, things like equities. Risk-reducing, things like investment grade bonds.

In the interest of time, there's a glossary of terms on the next page. I will mention that it's there, but I don’t intend to cover that. And with that, let's move forward to the asset-liability profile. So the next slide has the historical information on the assets and liabilities for the FRS.

And here you can see that the green line is the value of assets over the last 15 or so years. The blue line is the value of the liabilities. It's interesting and noteworthy that at the start of this graph, the assets actually exceeded the liabilities. And you can see that that was true until about 2008.

You'll recall in 2008 is when markets were quite challenged performance-wise. And so that's when you saw a crossover point. The assets moved south of the liabilities. You'll notice the liabilities have had a fairly smooth and steady progression north over the course of the last (inaudible) years.

Assets have also been a fairly smooth progression. That's because these assets are the actuarial value of assets. There are smoothing mechanisms (inaudible). However, you will notice
there's a precipitous drop in that 2008, 2009 time period. But by and large they've been roughly tracking together over the course of the -- over the historical period, minus that 2008, 2009 time period.

And onto today, the asset-liability profile as of July 1, 2017, on the next slide. And here you'll see effectively four quadrants to this page. The upper left-hand corner shows the asset-liability snapshot as of July 1, 2017. Market value of assets, $154 billion, 86 percent funded on that basis. You'll notice the actuarial liability is 178.6 billion. Actuarial value of assets, pretty close to the market value, 150.6, 84 percent funded on that basis.

I'm going to focus on the market value of assets basis just because it's more of the economic reality. The plan as of July 1 of 2017 sat at about 86 percent funded. And that will be the starting point for the projection analysis that's forthcoming.

The upper right-hand corner shows the expected benefit payments. I'll note that the plan is projected to grow the benefit payments over the course of the next 30 years at a smooth and steady, predictable pattern. Now, this information was information that we, Aon, collected from the plan actuary. And so this information -- we partnered with the actuary to collect this information and ultimately to see, begin the starting point for our asset-liability projection analysis.

MR. COBB: Excuse me, Mr. Chairman. I have a question at this point.

MR. COLLINS: Go ahead, Ambassador.

MR. COBB: So with the 86.3 percent funded, is that assuming that we will earn an average rate of return of 7.6 percent? So is that the discount that you have used to get to the 86 percent?

MR. KIVARKIS: It's actually 7.5 percent.

MR. COBB: Except the legislature has given us 7.6, I thought. Isn't that right?

MR. WILLIAMS: I believe we moved back to 7.5. What's happened is they've taken it down slightly for each of the past couple of years.

MR. COBB: So we're at 7.5 now. Okay.

MR. WILLIAMS: Yes, sir.

MR. COBB: So if we earn less than 7.5 over time or if we assume we're going to earn less than, which I think our investment advisers are suggesting, then we're really not at 86 percent.
MR. WILLIAMS: Mr. Chairman, if I may.

MR. COLLINS: Go ahead, Ash.

MR. WILLIAMS: Ambassador, you've just identified the central tension that all public pension plans have, which is since the convention in public plan actuarial science is to use the investment return assumption as the discount factor, there is a hard-wiring between conservative or lower investment return assumptions and funding requirements.

MR. COBB: But I assume, on the other hand, if in fact interest rates go up, our assumption of asset values presumably would go up, too, which would help our percentage.

MR. WILLIAMS: Depending on the mix, yes, should be the case.

MS. DOYLE: Yes. And what you'll see, when we get into the projections that Phil has been mentioning, is that we do assume the 6.4 percent expected return on assets based on our capital markets assumptions, actually the blended capital markets assumptions from the four consultants. And so you'll see that the projected funded status does not stay at 86 percent. It definitely sort of levels off around 78 or 80 percent, which I think is what you were alluding to.

MR. COBB: Thank you.

MS. DOYLE: Okay, Phil.

MR. KIVARKIS: So I agree with all those points, by the way. And, yes, there's more information forthcoming along those lines exactly. In fact, just to say it, the lower left-hand corner covers the snapshot, the point in time as of July 1 of 2017, the asset-liability growth metric.

I mentioned earlier, when we looked at that page showing the scale of assets versus liabilities, here we can see the liabilities are growing every year due to what we call an interest cost. That's the 7.5 percent actuarial assumption. Another 1.1 percent due to normal cost, cost of new benefits that accrue to your people every year for one more year of service, et cetera. $15.3 billion per year, about 8.6 percent of the liabilities. In other words, your liabilities are growing at about 8.6 percent per year. By the way, that's simply 15.3 billion divided by 178.6. 8.6 percent per year.

However, if you were to do the math, as a percentage of the assets, it's more like 9.9 percent. If I take 15.3 billion, divide it by 154.1
billion, I get 9.9 percent. So that's important because that tells us how much the assets have to grow just to keep pace with the liabilities.

Now, what are we projecting for the assets? We're projecting the assets will grow by two different components. Expected return on assets, which is effectively your investment performance. And here you can see 6.4 percent is what we're projecting. And another 2.4 percent per year due to contributions, funding going into the plan.

So as of the snapshot at July 1 of 2017, we see expected asset growth of something on the order of 8.8 percent. That's less than the 9.9 percent that I just mentioned. For that reason, because the assets are growing 8.8 when we need them to grow 9.9, you're going to see the initial funded ratios, if anything, trend slightly lower in the early years.

Now, the good news is this. We're actually projecting the contribution rate will increase over time. We're also projecting that the investment performance will increase over time as interest rates revert back to more normal levels, just as you described.

So the sum total of those things will actually pull the asset growth rate in excess of the liability growth rate, but not right away. Right away you can see that there's going to be a little bit of a shortfall, which means the trajectory of the funded ratio will point lower before it starts going higher.

So with that, why don't we continue on. I'm looking at the investment analysis, the equity risk premium methodology. This is the SBA approach. It's the average of four different investment advisers' assumptions. So the whole point of this exercise is to remove biases from one single adviser. The four advisers in play were Mercer, Wilshire, Callan and Aon Hewitt. You can see the overarching average equity risk premium from that group, 3.62 percent.

It's always interesting to see how individual advisers shake out relative to one another. But you can see that there's a range here between 2.9 percent to 4.1 percent. And so by and large the average equity risk premium -- by the way, equity risk premium being the equity return expectation less the bond return expectation. And when we say equity, we mean global equity.

So the average global equity return
expectation, 6.78 percent. The average bond return expectation, 3.16 percent. And the difference between those two is the 3.62 percent equity risk premium.

Now, you'll notice that last year it was 3.72 percent. And so on average that assumption has dropped 10 basis points. If you look at what we've seen over the past several years, you'll notice we have quite a bit of history here. Going all the way back to 2012, 4.3 percent, 4.7 percent, 3.5 percent, 3.9 percent. So we're certainly on the low end of that scale. And that's important because that will implicate -- the assumptions going in, of course, implicate the results coming out of the analysis.

The next page covers the investment analysis using that set of assumptions that I just described on the previous page. And here we're looking at the current frontier. We're looking at risk and reward within the context of the traditional approach, the asset-only approach for starters. The vertical axis on the graph shows the expected return on assets. The horizontal axis shows the volatility of the returns.

And you can see a spectrum of potential solutions ranging from what we call zero percent return-seeking assets to 100 percent return-seeking assets, and at several points in between. Of course, the 100 percent return-seeking asset portfolio is going to be the highest reward and highest risk. And conversely, the zero percent return-seeking portfolio, low reward, low risk.

You can see that your current policy is what we call 81 percent return-seeking. It lies toward the upper end of the risk spectrum. It's pretty common with public pension funds, given their long-term time horizon.

I'm looking at the table down below, and you can see some more detail as to what those summary statistics look like. 6.44 percent expected nominal return, 12.52 percent expected volatility, Sharpe ratio of .323. And you can see what that allocation looks like. Off to the right you can see the allocation to return-seeking assets and also the safety or risk-reducing assets.

By and large, the return-seeking assets, they're centered in global equity. There is some allocation to real estate, the strategic funds and private equity as well. And then in terms of the safety assets, it's primarily investment grade bonds. So that's the current frontier.
Now, if we look at the implications of the current portfolio in terms of the range of potential returns over various periods, if you flip to the next page, you can see what the range of those nominal returns looks like over 5, 10, 15, and 30 year periods.

And you can see that the 50th percentile return, 6.44 percent, lies under the actuarial assumed rate of return, 7.5. In the range of outcomes, however, you'll notice -- and this is cumulative annual returns. You can see that the range of those outcomes narrows over time as you're progressing from 5 years to 10 to 15 to 30, such that over the course of the 30 year period, we have investment returns which could range from 2.78 percent to 10.23 percent cumulative annual returns over the course of the 30 year projection period, the 10 year being 6.44 percent.

Now, of course, the shorter the time horizon, the less certainty around that cumulative annual result. You'll see that the range of outcomes is considerably wider.

And we've done the same analysis on page 19 on page 20, except for that here we're showing the range of real returns on the next page. You can see a similar picture. I'm not going to belabor the point.

All right. So that takes us to the next section of our analysis, which is now the asset-liability projection analysis. So I'm on the -- the first page in this section is the projection of employer contributions over the course of the 30 year projected period for the defined benefit plan.

Now, just to orient you to the page, we have three graphs on the page. The three graphs represent three different investment policies. The second investment policy is the current policy, the 81 percent return-seeking portfolio. And you'll notice we bracketed that result with a 70 percent return-seeking portfolio and a 90 percent return-seeking portfolio. Effectively, we've bracketed the current policy with a lower risk and a higher risk investment solution. And so we can examine the implications to the contribution rate of each of these types of strategies.

Now, the vertical axis, that's the contribution percentage, that's as it relates to the total payroll. And the X axis shows the calendar years. So you can see the -- I'm sorry. These are fiscal
years. So you can see the years across the bottom of the page, ranging from 2017 to 2047, thus representing the 30 year projection period.

I'm going to focus on the current policy for starters. And it is important to note that the current policy has a starting point of 10 percent of payroll as your contribution rate. If you examine the dotted line, consider the dotted line your central expectation. It's the 50th percentile above the 5,000 trials, stochastic trials. But consider that dotted line to be the central expectation.

You can see that the central expectation for contributions in is expected to grow from 10 percent to about 16 percent over the next 20 years. And then it takes — it moves south. After various 20 year amortizations are complete, it moves south, once those amortizations expire, down to a level, something on the order of 12 or 13 percent of payroll. So that is the contribution requirement in the expected case with the current policy.

Now, that's the central expectation. Of course, things could be better. They could be worse. In the best of times, you can see that that contribution starts trending toward zero. I'm looking at the dark blue line, the 5th percentile result effectively. And you can see that in the best of times you have funded ratios of substantially north of 100 percent, and the contribution therefore would start to move toward zero. In the worst of times, that's the dark green line, you can see contributions moving even north of 30 percent 20 years out.

So there is quite a range of potential outcomes. But I'm going to focus on that central tendency. The central tendency says the expected contribution going from 10 percent to 16 percent over the next 20 years.

Now, if you compare that to the 70 percent return-seeking portfolio, that's a lower risk, lower reward portfolio, you can see a higher trajectory of cost. You'll notice that the cost is expected to grow from 10 percent to about 19 percent over the next 20 years before trending lower.

And, conversely, the 90 percent return-seeking portfolio, which is effectively higher risk and higher reward, that has a lower cost. It's expected to grow from 10 percent to just shy of 15 percent over the next 20 years. So there's a lower cost associated with a higher risk portfolio, and vice versa.
So that's the contributions. Now, the contributions were used for purposes of determining the funded ratios, which are shown on the next slide. And, again, just to orient you to the page, here we're looking at funded ratios. That is the market value of assets divided by liabilities. The second graph is your current policy. I'm going to focus on the starting point and the trajectory of those future values.

You can see that the projection starts life at about 86 percent funded, and you'll notice it moved south ever so slightly before it starts to move sideways. And so it moves south because that active growth rate being less than the liability growth rate initially, but after those contributions start to ramp up, we then move to a state where the assets are basically treading water versus the liabilities. So you can see it kind of settles in at the 80 percent level over the course of the next 30 years.

Now, you can see what happens. If you were to move to a 70 percent return-seeking portfolio, you'd see that trajectory continue to move south. And with a 90 percent return-seeking portfolio, you see the trajectory start to move slightly north.

So that's the implication of the various strategies. But by and large, with the current strategy, we're expecting to move largely sideways, ending at about 80 percent funded.

If you were to compare this result to what we saw last year, you'd see a very similar outcome. In fact, these pictures are effectively similar, albeit slightly south of what the pictures looked like last year. And the reason that they're slightly south is because the return expectations are slightly south. So because those return expectations are slightly south, so too are the trajectories of your funded ratios over time.

All right. And then on page 24, I'm sorry, the next slide you can see the net outflow analysis. Net outflow is defined as the benefit payments less contributions as a percentage of the market value of assets. The reason we look at the net outflow analysis is because this is a good indication as to whether there will be significant drawdown in the value of the assets over the course of the projection period.

Once we start getting into the 10 percent range, that's where we start to really take notice of the fact that you have a fairly substantial
drawdown. And if that's the case, that might
implicate the nature of the liquidity of the fund.
So we want to make sure that we're staying well
south of that.

Now, I'm going to focus again on the current
policy, the middle picture. You can see that the
net outflows for starters are around 4 percent.
That tells me that the benefit payments, less
contributions, divided by the asset value, 4 percent
net outflow for starters.

You can see that it, by and large, over the
course of the 30 year period, trends sideways in the
expected case. I'm looking at the dotted line.
It's right around 4 or 5, 6 percent over the course
of the next 30 years. All manageable in the
expected case. In the best of times, you can see
that net outflows move to almost zero. And in the
worst of times, you can see that start to trend
higher.

You'll notice that 30 years out in the worst
case -- I'm looking at the 95th percentile, you do
cross the 10 percent threshold. But it's a very low
probability, 5 percent probability of crossing that
10 percent threshold, and that's 30 years away. We
wouldn't view that as a substantial problem.

Although, if the time came, you'd want to make sure
you kept your eyes on it.

All right. And then just to close on the
economic cost over the various periods, I'm looking
at the economic cost over 1, 5, 10, 15 and 30 year
horizons on the next slide. It is interesting
because here we're looking at your risk versus
reward, but now we're talking about economic risk
versus reward. Recall we're defining economic cost
as the present value of contributions, plus any
shortfall at the end of the projection period.

And in looking at these curves, it is
interesting. The one year curve is the orange
curve. It's fairly flat. What is that telling us?
It's telling us that -- oh, and by the way, the left
end of this curve is a zero percent return-seeking
portfolio. The right end of the curve is a 100
percent return-seeking portfolio.

And you can see that if you were to move from a
zero percent return-seeking portfolio to a
100 percent return-seeking portfolio, there wouldn't
be that much cost reduction over the next five
years, but there would be considerable risk added.
So that's -- the implication of a flat curve
tells me that there's not a lot of reward but there
is extra risk with the heavier allocation to return-seeking assets. But it is interesting to note what happens. As you increase the time horizon from one year to five years, you'll notice the curve gets a little bit more vertical, to 10 years and it gets more vertical. Fifteen it gets more vertical still. And by the time you're at 30 years, you're almost looking at a straight line up and down.

What is that telling us? It's telling us that while you might not be incentivized to take risk over a one year period, you certainly do appear to be incentivized to take risk over a 30 year period. The heavier return-seeking allocations over a 30 year period offer considerable reward without a whole lot of extra economic risk. Now, that's not the case if you're looking at shorter time horizons.

Ultimately, it's a question of, are you looking at a long-term or a short-term. And the real answer is that it's going to be a blend of both short-term and long-term concerns, primarily long-term. However, just note that the short-term can be particularly painful in the worst of times, as we saw in that 2008, 2009 time period.

Finally, on page 26 we've stress tested what the equity risk premium might look like and how it might implicate the economic results. And so here we've effectively taken a plus or minus 1 percent on that equity risk premium. And so where you'll note the 3.62 percent was the expectation from the four investment advisers, you'll note that if the equity risk premium was 4.62 percent, you'd have a more vertical display, which tells me that the more vertical, again, the more incentivized you are to take risk. And if the equity risk premium was 2.62 percent, or minus 1, that would be a more horizontal and therefore less incentive to take risk.

So here's a graphical representation of, as that equity risk premium changes over time, as that equity risk premium assumption were to change, it will demonstrate quantitatively more or less incentive to take risk in the portfolio.

And on the next slide, some shortfall analysis to balance kind of the long-term view with some of the shorter-term concerns. Here we're looking at probabilities of falling below some key funded ratio thresholds over the next five years.

And just to say it, I'm going to focus on the current policy. If you look at the graph, 81 percent current policy, it has a 29.6 percent probability of falling below 70 percent funded over
the next five years, 15.8 percent probability of falling below 60, and a 6 percent probability of falling below 50 percent funded.

Here you can see that the higher return-seeking assets will implicate the probability of falling below 50 percent over the next five years. So for example, if you were to move to a 100 percent return-seeking portfolio, you'll notice that the probability grows from 6 percent to 9 percent of falling below 50 percent funded. So there is a risk associated with a heavier return-seeking allocation.

All right. The next section --

MS. DOYLE: Do you mind --

MR. KIVARKIS: Please.

MS. DOYLE: Do you mind if I make one quick comment? So the reason that we've shown you a couple different types of analysis, so we showed you the economic cost analysis over a number of different time periods -- and, again, if you look at the 30 year, it indicates that you should take more risk, that you're getting reward for very little incremental risk, so why wouldn't you do that.

And part of the reason, part of where we get into the science of the -- or the art of this is with the shortfall analysis, that sort of indicates, okay, but we also have to remember that there are 2008s and there are 2001s, and so we need to understand what the implications are of taking more risk.

So that's why we showed you a number of different analyses, and we sort of have to blend them all together because they all tell a slightly different story.

And we also want to consider the current market environment. The equity risk premium that we're showing you is 3.6 percent. Interest rates have gone up quite considerably over the last couple of months, and so that's not necessarily baked into this analysis. If we did that, our equity risk premium may be slightly lower. And so then that indicates that maybe there isn't a reason to take additional risk.

So I just want to make sure that we kind of tied this all together, because I know there's a lot of numbers and a lot of charts. But that's the reason for the number of different analyses. Are there any questions before we move on? I know there was a lot of data there and a lot of analysis.

Okay, great.

MR. KIVARKIS: Fantastic. So the next section
is benchmarking versus peers. I'm just going to
cover the highlights here. The first slide in this
section, comparing the asset allocation versus other
public peers. There are just a couple of noteworthy
items on the first page.

A 59 percent what we call equity allocation for
FRS, compare that to some of the peers. You appear
slightly higher than other peers in the large public
pension space, also slightly higher than Aon
Hewitt's public peer average, but frankly pretty
darn close. We're talking about 59 percent versus a
range of 55 to 57 percent. Pretty close.

Slightly lower in terms of fixed income
exposure. About the same in terms of real asset
exposure. And then other diversifiers, you're a bit
higher than the average, largely due to that
strategic fund. But pretty close in terms of the
asset allocation, when comparing your asset
allocation to peers.

If you look at the next slide, at the expected
returns, you can see that there was an effort to --
the red line is your assumption for the expected
return on assets. And you can see -- this is the
actuarial assumption, by the way. You can see how
that's dropped from 8.0 percent down to 7.75, down
to what's now 7.5. Fiscal 2016 was still 7.6, I
believe. But you're now at 7.5.

And you can see how that compares to the
universe of public pension funds. You can see that
public pension funds also dropped from 8, albeit a
little bit later than you did, but the trend has
continued, all the way down to 7.5. You should be
right on top of the median, which is nice to know.

In terms of demographics, the demographics of
the U.S. population has aged. That's true in
pension funds. It's true in the Florida plan as
well. So you can see that the percentage of actives
to non-actives has decreased. And that's true as
populations generally age. You have effectively
more retirees and as a percentage of your total. So
here you can see the trend is fairly similar. If
anything, the Florida plan has aged slightly more
quickly than the field, but very close.

When we look at the next slide, the funded
ratio, this is a great story, I think, in terms of
the strength of your system versus others. Your
system shows a north of 100 percent funded ratio
prior to 2009 and then south of 100 post-2009,
albeit still well above average. You can see that
you're in the top quartile of funded ratios among
public pension funds. So great story there.

And then in terms of contributions made versus peers, you can see that by and large Florida has made around 100 percent of the funding, the actuarial funding requirements over the course of the last 15 years. There was a period there, 2011, 2012, 2013, where it was south of 100, but that was short and moved right back to the 100 percent range in '14, '15, '16. All right. So, again, some good news.

And this is important, right, because it's -- it's important because your assets grow with those two key components. And what we found was the plans that are the most healthy are the ones that have good performance and good funding into their programs. The ones that are less healthy are the ones that have not as strong performance and/or not funding in the actuarial calculated contribution. And so it's important to have both. And if you have both, that's a recipe for success.

All right. So on to the summary and conclusions. The next page, the summary of results shows a big table of costs, contributions and funding ratios over the course of the next 30 years, with relationships that you'd probably expect. That is, contributions will go down as return-seeking assets or the riskiness of the portfolio goes up. But of course the risk goes up as well. The downside can be more severe as well.

If we're looking at the expected contributions going into the plan over the next 30 years, present value, $66 billion expected. But in the worst of times, that could be as much as 115.9 billion.

Funding ratio, if we're looking at the expected case, that's 80 percent expected funded ratio 30 years out with the current policy. In the worst of times, that is a 5th percentile outcome. It could be as low as 23 percent. And so in the worst of times, that's a 1 in 20 type of event over the next 30 years, you could have substantially lower funded ratios than you have today. We don't think that's likely. It's a very low probability of occurring but a probability nonetheless.

And if we look at the next page, just to kind of bring it all home and restate, the bottom line on top, which is now the bottom line on bottom, again, breaking it into the two key components that I highlighted at the beginning in terms of the investment analysis and the asset-liability projection analysis. In terms of the investments,
we think that the portfolio is well constructed, 81 percent return-seeking assets. It's well diversified and well constructed.

The equity risk premium has continued to drop, and 3.62 percent is less than it was last year, 3.72 percent last year. And as a result, the asset returns have dropped, and so the asset returns, 6.44 percent, not expected to keep pace with the liability, with the actuarial assumed interest rate of 7.5. And that has implications particularly at the front end of the projections, as that funded ratio started to trend lower before leveling off.

And so that's really the first point in terms of the asset-liability projection analysis, is the funded ratio is effectively projected to go sideways, that there is actually an initial step lower before trending sideways over the course of the projection period.

You'll note, if you compared to your last year, you'd note that that trajectory is slightly south, again, because the assets -- the projected asset returns are slightly south of where they were last year. It all boils back down to the assumptions.

And of course, if you think about the risk-reward trade-off, the longer time horizons incentivize more risk taking. Of course, you as a group should consider the long-term needs with the short-term risks. And most public pension funds have decided that they want to be focused on the long run and for that reason tilted towards the higher end of the spectrum, albeit not all the way because there are short-term needs that they need to consider as well.

With that, I will pause and see if there are additional questions.

MR. COLLINS: Does anybody have any questions? I have a couple of questions, if you don't mind, Ash.

MR. WILLIAMS: Fire away.

MR. COLLINS: So if you were to hand us -- I think going back to page 17, where you show the asset-liability profile as of July 1st, and I guess the liability hurdle rate, I guess that's the total amount of our deficit. And if it's not, let me know. But if somebody handed us a check today for $15.3 billion, tomorrow we would be underfunded via our return -- our real returns versus what our liabilities are. Would that be a correct statement?

MR. KIVARKIS: So the 15.3 is how much the liability is growing every year. So in other
MR. COLLINS: Okay. I get it. So instead of that then, so go back to my premise without the dollar amount. So if the premise is, let's say that the deficit today is $30 billion. If somebody handed us a check for $30 billion today, tomorrow we would be less than 100 percent, or in a week or in a month or something, just by virtue of what our return long-term horizon is versus what the liability percentage is. Is that right?

MR. KIVARKIS: That's right. The current deficit as of July 1 of '17 was 24 billion. If somebody were to give you a check for 24 billion such that you had 178 billion of assets and 178 billion of liabilities, in theory the assets would still be growing 1 percent less than the liabilities. And for that reason, you would expect that, a year out, you'd have a funded ratio not of 100 but of 99.

MR. COLLINS: So how much of that is compounded by the ratio that you gave us of active versus beneficiaries falling?

MR. KIVARKIS: That's all baked into the amortization. So that shouldn't -- the demographic makeup shouldn't have a major implication on the progression of the funded ratio over time. If anything, there's less stress on the liability growth rate because you have fewer actives relative to the field that are earning like new benefits, which means the liability growth rate, if anything, would be lower.

MR. COLLINS: Right. So the only way to overcome this is to have more of our assets investment seeking, but based on the scenarios that you run in your analysis, that brings a much higher likelihood of having shortfalls. So there's really -- as I look at the data, there's really not much we can do about it. It really has to be adjusted on the spend side. Is that a correct assumption?

MR. KIVARKIS: Well, I think what you're painting, I think, is certainly valid. Ultimately it's a question of, look, my liability is growing at 15.3 billion per year. I want my assets to grow at 15.3 billion per year to keep pace. How am I going to accomplish that is one of two ways. Right? It's either investment performance or it's funding or it's some combination thereof.

And so if you're locked in on your investments,
then effectively the makeup or the fudge factor, if
you will, will be funding. And we actually see that
come into play in the projections. We're seeing
that the funding has to ramp up from 10 percent to
16 percent to keep pace over time. So we do see
that happening. It's just not an immediate thing.
It happens over time.

MR. COLLINS: Right. So, Ash, my last comment.
So going back to the ambassador's original question
and your answer to it, the only way that this can be
combated is really in the conference that you do
with -- I think you do it annually, or is it
biannually -- with the revenue estimating
conference.

MR. WILLIAMS: That's correct. I mean, that's
where this comes from. I think it's also helpful to
look at the history. And to your point, it is a
funding solution. And I think there is some
relationship between the current amount of
underfunding and what happened when some years ago
the funding level peaked at 118 percent, and there
was a conscious decision taken by the legislature to
deliberately reduce funding and provide partial
contribution holidays to member employers over a
period of about a decade that resulted in an
aggregate -- and, John, I think the number is about
12 billion. Is that right? About $12 billion less
in contributions was made over that period than
otherwise would have been made. Then you came to
2008, and you suddenly had underfunding on a mark to
market basis.

If you look at aggregate pension contributions
where they are today for member employers of the FRS
relative to where they've been in years past, I want
to say you'd have to go back to a period of about
2010 to see them lower than where they are today.

So the idea that contributions could increase a
bit to get this situation straightened out over time
or to maintain it on a sound basis is not crazy at
all, and it should not be burdensome.

And if you look at, as Moody's, the credit
rating agency, has done, if you look at all the
pension plans, state plans across the country,
normalize their data for funded status, et cetera,
et cetera, fiscal years, Florida's funding level and
more importantly the net metric that Moody's creates
for looking at the cost of public pension funds is
what they call net pension fund liability, and they
look at that on a total economy basis for each state
and on a per capita basis.
Florida's is one of the lowest in the country. I want to say it's the third lowest in the country, something like that. And when you add to that the fact that our economy is a growth economy and our population is growing, as opposed to a lot of other states that have mature pension plans, we're in far, far better shape to deal with this than most states.

MR. COBB: Ash, in your introductory comments, you talked about the legislature made the recommended. What was that number?

MR. WILLIAMS: I don't know exactly what the number is. Frankly, to me, it's more important that they hit the actuarial target than exactly what the number is. That's the way we think about it, because what the exact number is will move around year to year, but the fact that it's the right number per the actuaries is what matters to us.

MR. COLLINS: But in that regard, I don't know that it's the right number. Right? So if the right number is based on a 7.5 percent assumed return, then the number that that spits out, if we're actually performing less than -- well less than that, the number isn't, quote, right. It's just a number.

MR. WILLIAMS: Well, with all of this, what you have to consider is you're talking about long-term information. So data points of a single year are just that. They're data points for a single year, and you shouldn't fixate on them.

I think the other thing that we should keep in mind in our consideration and discussion of this subject matter is that we're looking at it in terms of the expected return and related risk of any mix of risk assets and non-risk assets, and we're looking at it in terms of benefit cost and growth of benefit cost.

There's a third variable here that is in fact the most critical variable to public pension funds that get in real trouble, and this is proven through decades of observation, and that is funding. So the fact that I opened this conversation by saying the Florida Legislature fully funded both the normal cost and the actuarially indicated contribution to unfunded liability, that in and of itself, believe it or not, is exceptional if you look across other states.

The vast majority of states, think of Pennsylvania, Connecticut, New Jersey, et cetera, those that have real chronic and acute underfunding problems didn't get there because they missed their
 asset mix, and for the most part, amazingly, they
didn't even get there because they had gold-plated
benefits. They got there because they just never
contributed to the plan. And we don't have that
problem.

MR. COLLINS: Look, I agree with that. The
issue is, if you go -- I'm trying to find the chart
on the right page. Even with that, as our
80 percent or 81 percent return-seeking portfolio,
it moved a little south this year. Even with that
full funding last year, we still moved a little
south this year, and we're going to move a little
south next year.

MR. WILLIAMS: Part of what you're seeing there
is the way several years of variant behavior can
affect you on a longer-term basis. Here's the
variant behavior I'm talking about. Going back over
the 40-plus years of history of the Florida
Retirement System, to my knowledge, there are
exactly three years out of that entire period where
the legislature did not fully fund normal cost, and
to the extent there was an unfunded liability -- and
there's not always been one. There was a very big
one at the onset of the FRS, and then it was
eliminated in the late nineties and we started

becoming more and more overfunded.

But the only three years they didn't fully fund
those two contribution levels, normal and unfunded
actuarial contribution, were the three years
immediately following the great financial crisis.
And even then, they fully funded the normal cost,
and they made a partial contribution to the unfunded
liability.

And in fairness to the legislature, the State
was broke, and they were scratching around looking
for nickels in the sofa to balance the budget. So
the fact that they didn't step up fully for those
three years, but they stepped up an awful lot, and
compared to most of their peers, even in those three
years, they did better than most of their peers.

So I think part of what we're seeing on our
funding levels is the consequence of that. Aon can
opine on that more capably than I, but I think
that's true.

MS. DOYLE: Yeah. I mean, everything you've
said is true, in terms of how you compare to other
states. And, Mr. Chairman, to your comment about
the discount rate, 7.5 percent, certainly that
impacts the contribution rate. Encouragingly, yes,
it's come down very small increments over the last
couple of years, but the fact that it’s coming down
is a benefit in terms of trying to maintain or keep
up with the liability growth rate.

MR. COLLINS: Yeah. We can never get around
the third bullet in the summary and conclusions, as
far as I'm concerned, where it says, Asset returns,
6.44 percent, are not expected to keep pace with the
actuarial assumed rate of return of 7.5 percent. I
mean, it's like having a 106 basis point load on a
mutual fund you're buying every year.

MS. DOYLE: Right. And then this is also --
what Ash had mentioned earlier is the tension
between the expected return on assets and the
liability discount rate for public pension plans,
because the liability discount rate is a static
number. It doesn't change very often. You don't
want it to. That would make contributions way too
volatile. And it also tends to be a much
longer-term projection period for -- or outlook,
whereas the 6.4 percent expected return is a 10 year
expected return. So you have a little bit of a
mismatch in terms of timing as well.

MR. COLLINS: My point is, we can only do so
much. The FRS or the SBA can only do so much. If
you have a portfolio that we believe is well
constructed with 81 percent return-seeking assets
and your asset returns are not expected to keep pace
with what the legislature is using as the actuarial
rate of return and our expected return falls
short of the investment policy target, whatever
amount of money the legislature gives us is going to
continue to take that line down a little bit every
year in funded.

Now, are we doing better than our peers?
Absolutely. Is the legislature doing better than
other legislatures? Absolutely. But it doesn't
change the fact that we're on a -- you know, I think
Phil is being nice when he says it's going sideways.
That's my last point, Ash.

MR. WILLIAMS: Well taken.

MR. COLLINS: Anybody else have any questions
on this, or comments?

MR. COBB: Yeah. My question would be, how
many in the legislature have heard this presentation
and have sat through our presentation?

MR. WILLIAMS: I think roughly the same number
that are with us today.

MR. COLLINS: There's going to -- it's setting
up a reckoning, and it could be a long time from now
or it could be a short time, but there will be a
reckoning. All right. Let's do our benchmark review. Kristen, go ahead.

MS. DOYLE: Okay. Thanks. Let me just get there on the slides. So every couple of years, one of the things we do is review all of the benchmarks that are used for the total fund asset classes. So that's what we've done this year. I think the last time we did this was in 2014. We only have one recommendation, so I'm not going to spend a ton of time on this review. There's a couple of slides that I'll walk through, but also know that there is the longer report that we wrote in your packet of information.

So if we look at just the executive summary here, so the report starts out by defining what characteristics make a benchmark good. And you can see those listed here. They're fairly intuitive. The public market benchmarks that we'll talk about are going to fulfill all of these requirements. But once we start to get into the private markets, they will fulfill some but not all of these requirements.

And so that's just really the nature of the private markets. We're challenged with liquidity and valuation frequency and other factors, when we look at private markets, that make those markets more difficult to benchmark. We just want to acknowledge that those are challenges and then we do our best to ensure that we have the appropriate measures for performance for those particular parts of the asset allocation.

So on this slide here you can see an overview of each of the major asset classes for the total fund and their respective benchmarks. And, again, as I mentioned, there's only one recommendation for change, which is to the cash benchmark, which I will go through in just a few minutes. So let me just walk through each of the major asset classes really quickly.

So here you can see the global equity and fixed income benchmarks. So the global equity benchmark today is the MSCI All Country World Investable Market Index. This is the benchmark for the -- this is the deepest benchmark that exists for the global equity markets. It covers 99 percent of the opportunity set, and it's the most widely used benchmark by investors to benchmark active global equity mandates as well as to manage passive global equity mandates. So no recommendation for a change here for this particular benchmark.

For the fixed income benchmark, it's now the...
Bloomberg Barclays suite of indices. And so this is also the most widely used benchmark provider for fixed income assets. The suite of aggregate benchmarks provides the most coverage and has a very sound construction methodology, which is important for both equities and fixed income, but in particular it's very important for the fixed income markets, to make sure that you have a sound philosophy for how you construct the benchmark.

So, again here, we're not recommending any change. Recall that we're using the intermediate aggregate bond index as opposed to the aggregate bond index. And that was a conscious decision that was made a number of years ago, I think in 2010, to shift the duration of the fixed income portfolio slightly lower than the aggregate.

MR. COBB: So a question on that. Today, what is our average maturity actual and what is our -- what is the benchmark maturity?

MS. WOJCIECHOWSKI: The intermediate ag is four and a half years, and that's roughly a year and a half short of the ag. So we cut out the 10 to 30 maturities.

MS. DOYLE: And I think the actual portfolio matches the -- typically matches the duration of the index pretty closely.

For the real estate asset class, so this is a blended benchmark, so let me just go through this quickly and explain the different components. So for the core part of the portfolio, we're using what's called the NCREIF ODCE index, which represents a universe of core real estate equity managers and has rules for inclusion in that particular benchmark that ensures appropriate representation of the actual core equity real estate market, things like you have to be 95 percent invested in the U.S., 80 percent in real estate equity, and you can't have more than 40 percent leverage. So it's a very well-controlled benchmark. It's a peer universe benchmark. So we use that for the core part of the portfolio.

For the non-core part of the portfolio, we're adding a premium onto the ODCE index to indicate that because we're taking more risk and we're in value added and opportunistic investments, we would expect that we would outperform a core benchmark, higher levels of leverage and things like that. So we've got that plus 150 basis points over the NCREIF ODCE.

And then there is a REIT component to the real
estate portfolio. And you'll hear a lot more about
that today. And so we're benchmarking that to the
broadest measure of the global REIT index, which is
the FTSE NAREIT developed index.

We changed this benchmark a couple of years
ago, took a deep dive into the portfolio to make
sure that we had the right mix, and so there's no
additional recommendations for the real estate
benchmark either.

Here is the private real asset benchmark peer
data. So this isn't a reason to necessarily have a
benchmark based on what your peers are doing, but it
is interesting to see how you stack up relative to
peers. And for real estate it's really kind of a
mix of what different funds, different public
pension plans are doing in terms of benchmarking
their real estate.

And it tends to be very dependent on the
composition of the real estate program, how much
core versus non-core is in the portfolio, how
aggressive the non-core program is, the maturity of
the program and other things. So you can just see
here that there really isn't a common practice.

What we would say is best practice is taking a look
at your portfolio and customizing a benchmark to
make sure you're reflecting the appropriate measure.

And then on private equity, so again, as I
mentioned, it can be very difficult to benchmark
these private components to the portfolio, private
equity being one. So we have two benchmarks for
private equity currently. We have the primary
benchmark, which is an opportunity cost benchmark of
the global equity index, which again is that MSCI
All Country World Investable Market Index, plus a
premium of 300 basis points.

So that premium, if you recall, has come down
over the years. It used to be at 600 basis points.
We've incrementally lowered that, as there has been
less of an ability to earn that type of a premium
over a global equity -- a public global equity
benchmark. We're not recommending a change today.

We took a long, hard look at whether we should
lower this number from 300 to something else, say
maybe 250 or something like that. But ultimately we
felt that the 300 BPs premium was appropriate for
some of the reasons that we've listed here, which is
that the history of the program is that it continues
to outperform the global equity index. There's a
significant fee advantage that the SBA gets from
being a large investor with an established private
There's also, looking at peers to see whether we're in line with peers -- again, we don't want to make a decision solely based on what peers are doing, but if you look at the next slide, you can see that really the average is pretty close to that 300 basis points. It's come down slightly from when we did this in 2014, but nothing notable. So we felt that the 300 basis points continued to remain appropriate. So no recommendation for a change there either.

Then we also use a secondary benchmark for private equity, which is a peer-based benchmark, so this actually giving you a more apples-to-apples comparison to other private equity funds that are out there. It's a broad universe of private equity funds across a number of different strategies. You've got venture cap and buyout in that universe. And so we like to look at that as a secondary benchmark to gauge how the program is doing relative to the opportunity set that's out there in the marketplace.

And then second to last is strategic investments. You heard a lot about strategic investments at the December meeting. So the primary benchmark here is the aggregation of those individual fund level benchmarks. So there's a very comprehensive process by which staff and consultants select benchmarks for each of the different fund investments that are made, because strategic investments has such a wide range of strategies and funds that it invests in. It invests in private market structures and open-end structures.

So we think the best benchmark for that is the aggregation of those individual benchmarks. But then we also have a secondary benchmark, given that the goal and one of the main objectives of that particular part of the portfolio is to outperform that long-term nominal target rate of return that we've set of inflation plus 4.5 percent. So we want to make sure that over long periods of time, we are measuring to that benchmark as well. So that's why we show that benchmark as a secondary. So, again, no change there.

And then last is where we do have a recommendation. So for the cash part of the portfolio, the current benchmark is the iMoneyNet money market fund index. So this is a peer benchmark that's made up of a very wide range of money market funds. Part of the reason to recommend
the change, a couple of things. One is that this
iMoneyNet money market fund index is not necessarily
investable, so you can’t really go out and invest in
the entire benchmark itself.

We often have a disconnect between what the SBA
is actually doing in the cash portfolio and what the
characteristics of the iMoneyNet money market fund
index have. So a couple of things. One is that the
duration tends to be lower than what the typical
money market fund is managing to. And there are
asset-backed securities that are in the iMoneyNet
index that the SBA does not invest in in the cash
portfolio. So it causes a little bit of a
disconnect, and it makes it less appropriate, given
how the cash portfolio is being managed.

The other component to this is that for the
SBA, the cash portfolio really is for capital
preservation. That's the number one objective of
that part of the portfolio. So using a Treasury
index, which is the recommendation for the primary
benchmark, would be the three month U.S. Treasury
index, is a very comparable index, we think, given
that the objective of the portfolio is really to
maintain capital preservation and to not take risk.

But we still think that having a peer-based
benchmark would be beneficial to gauge how the cash
portfolio is doing relative to other cash funds.
And so we would recommend that we keep the iMoneyNet
as a secondary benchmark for cash. Any questions on
that recommendation?

MR. COLLINS: Does anybody have any questions?
MR. COBB: Yes. I have a comment and a
question.

MR. COLLINS: Go ahead, Ambassador.

MR. COBB: One of the good things about these
benchmark recommendations is they are simple and
they're easy to understand by all of our audiences,
the trustees, us as a committee and everybody. And
the only one that doesn't meet that, Steve, in my
perspective, is the real estate, which is really --
I mean, I have -- Les and I flew up together, and I
tried to remember our real estate benchmark, which
is impossible to memorize because it's so
complicated. So my question -- that's my comment.

My question is, why have we been so easy to
understand on all the other benchmarks and we have
come up with this impossible to understand and to
remember benchmark for real estate?

MR. SPOOK: Is that a question for me or for
Aon?
MR. COBB: Either one, anybody that can answer that question.

MR. SPOOK: I know there's a lot of acronyms in there and everything.

MR. COLLINS: Why is it that you're doing the impossible?

MR. SPOOK: There's a lot of acronyms, but it really comes down to two components. It's the private market, which is based on the ODCE, and the public market, which is, granted, a lot of letters, FTSE EPRA NAREIT, but that is the most used global diversified REIT index, and the ODCE is -- really all we're doing for the non-core portion is adding 150 basis points premium to that because they have higher expected returns. So it's really a two part, with an adjustment to the non-core.

MR. COBB: I understand the rationale, because I've asked the question before. My question today was why don't we make it simpler. And as we look at all of our other peers, they are so simple. Maybe ours is more difficult. In fact, you've almost convinced me that it's more difficult, particularly with the 150 basis point increase. Why don't we try to make it simple, as we've done all the rest of them?
suffering the burden of -- well, I won't say excessive leverage, but that will be problematic in and of itself.

But, anyway, we've tried to accurately reflect every component of what we do in this benchmark. And I admit it is more complicated than higher math. But look at it this way. Nobody will ever hack it.

MR. SPOOK: I'm looking at the list of peers, and I would take most of their benchmarks any day because they're, frankly, easier to beat because they don't have a risk premium in there for non-core.

MR. KOCH: Mr. Ambassador, that's exactly what I was going to say as well. The fact is is that a lot of these portfolios, the underlying portfolios of these peers don't match what these benchmarks are, where your benchmark is in fact measuring, as Steve just said, each one of the underlying components of the composition of your portfolio. So yours does to a much closer degree track the actual risk that's inherent in the portfolio.

There is certainly a way that we could simplify it. But I think today this really does track and makes it much harder to beat and therefore a much more realistic representation of what the

performance of those underlying components are.

MR. COBB: Okay. So let me challenge a little bit more. Why don't we take global equity and break it down into its component pieces of large cap, domestic, mid cap, small cap, international, developed, emerging markets, frontier, and give them six different benchmarks and then an average of all six?

I mean, I could take the argument that you have for real estate and do it for each of these portfolio managers. I've probably spent more time on this than it's worth.

MS. DOYLE: No. I think it's a good point. Part of the difference with global equity versus real estate is that the global equity benchmark we're using includes all of those components. There isn't really a non-core real estate benchmark that we can use today. So that's also part of the problem, is that because real estate, especially non-core real estate, is sort of a, quote, unquote, newer asset class and something that institutional investors haven't always invested in, we don't have as great a benchmarks yet like we have in private equity, like we have in fixed income and global equity. So we're trying to work with what we've got
to make sure that we give the best measure possible for what the SBA is doing in that portfolio.

MR. COBB: I give up.

MR. COLLINS: I don't see the white flag.

MS. DOYLE: The only other thing I just wanted to make sure I close the loop on is the total fund benchmark, which is, as you all know, all those underlying component benchmarks we just talked about at the policy weights that we've established for each of the asset classes. And that is best practice in terms of how to track and measure the performance of the total fund.

MR. COBB: Do we need a motion to approve?

MR. COLLINS: I think we do.

MR. WILLIAMS: That would be appropriate.

MR. COLLINS: Are you making the motion?

MR. BENTON: Ash, Peter, what we plan on doing is bringing the investment policy statement to the June meeting for approval for the changes to the cash benchmark.

MR. COLLINS: Okay. Everybody okay with that?

Okay. Anything else on that, Kristen?

MS. DOYLE: No. Thank you.

MR. COLLINS: All right. Steve, you know, I so wanted to be there in person for this today.

MR. WILLIAMS: I think I know who diddled your strut on your plane.


MR. SPOOK: Don't worry, Peter. There's a slide on leverage. Good afternoon. I'm Steve Spook. I'm the senior investment officer for real estate. And with me today are Lynne Gray, senior portfolio manager for principal investments.

MR. COLLINS: Could you speak up just a little bit, Steve?

MR. SPOOK: Yeah. I'll put the mike closer.

And Michael Fogliano, senior portfolio manager for externally managed portfolio. So I'm going to start off today with a broad overview of the total real estate portfolio, and then Lynne and Michael will each do a deeper dive into their respective portfolios.

So on the next page you see the org chart, where I report directly to Ash Williams as executive director and CIO. You see that real estate is really divided into two kind of separate sections, each reporting up to me, with Lynne Gray overseeing principal investments, which is our direct-owned portfolio, and Michael oversees externally managed,
which is our pooled funds and our REITs. Lynne has four portfolio managers and an analyst reporting to her, and Michael has two portfolio managers and an analyst reporting up to him.

In this slide you can see that Ash, as executive director and CIO, approves all major decisions, which includes new managers, direct-owned acquisitions, dispositions, financings, new funds, IMAs, and joint ventures. And Kent Perez, as deputy executive director, is consulted on all of these major decisions, and his concurrence is required prior to approval by Ash.

The Townsend Group is our real estate consultant. And joining us today are Jack Koch, Seth Marcus and Dick Brown. They are retained by the executive director/CIO and provide the services shown here. So they prepare all our performance reports, investment provider monitoring and annual reviews, all fund due diligence, research, and projects as assigned.

I think we talked about this slide, so I'll just keep going. So the reason we exist is, real estate, we're designed to provide attractive risk-adjusted returns, diversification for total fund with low correlation to equities. We do have an income focus, and theoretically we provide an inflation hedge.

Within the private real estate portfolio, we have two broad strategies, core and non-core. Core has a quality, as you see there, primarily income focused, institutional quality, and stabilized. Non-core is, you know, more getting hands dirty, lease-up, development, repositioning.

We consider core strategic because those tend to be long-term holds or the base of the portfolio. Non-core is more tactical. It's more of a buy it, fix it and sell it, and therefore by definition more of a short-term hold. Higher risk, but higher expected returns.

So we've got a target of 85 percent per policy for core and 15 percent for non-core. Within core we can operate between 70 percent and 100 percent, and currently we're at 83 percent and 17 percent for non-core.

Target allocation for real estate is 10 percent. As of Q3 2017, we're 8.7 percent, and we're roughly the same today. I described earlier what principal investments and externally managed were, and this is the breakdown between the two within the portfolio, 63/37. And then within
externally managed, REITs is 10 percent of the total portfolio, which is exactly what our target allocation to REITs is. And we can operate within 5 to 15 percent for REITs.

Property type diversification, we're slightly below the benchmark exposures. And the main reason for that is our allocation to other, which includes ag, student housing, senior housing, self-storage. And our biggest underexposure in the main property types is office. I'm perfectly comfortable with that underexposure, given where we are late in the real estate cycle.

Geographically, we're pretty close to benchmark exposures, with the biggest underweight being in the Midwest. We're perfectly fine with that as well, seeing as the Midwest tends to be, one, a much smaller market but a relative underperformer. And the other category is our international.

And here we've got the leverage page, Peter. So the one area of leverage that we have the most control over is that third bar, principal investments. And as you know, we recently increased our permissible leverage in that portfolio from 25 percent LTV to 30 percent. These numbers here that you see, where we're 21.7 in principal investments, is as of Q3 '17. If you adjust for transactions that have occurred since then, so dispositions, acquisitions and actively putting financing, very conservative financing on existing assets, today we are at 28.3 percent. And note that the leverage is 21.3 percent.

MR. COLLINS: You're still breaking up a little bit, Steve, on me, when you go back and forth like that. So I don't know if you're still a little far from the mike, but you're going in and out.

MR. SPOOK: I just pulled it closer. Is that better?

MR. COLLINS: Thanks. Yes.

MR. SPOOK: And real estate returns, we continue to beat our benchmark over all time periods by pretty good margins. Next is returns versus our peers. And what this graph shows is 61 institutional real estate investors, SBA being in the 83rd percentile. As the note on the slide says, it's important to note all these plans have different strategies, different leverage levels and different risk appetites.

But I do think the next slide is more relevant than the one I just showed because it shows all the plans with real estate assets in excess of
$2 billion. And in that graph we rank, over the five year period, number two. And that's 22 institutional investors.

So fiscal year 2017 through today, which the fiscal year started July 1st, 2017, in principal investments, we made acquisitions of $662 million. I've got the breakdown on the slide. And disposions were 334, for a net increase of 332 million. And then you see the financing, which has been pretty substantial. Some of it is still in closing. And that's part of the adjusted leverage I gave you on the previous -- couple of slides previous.

And in pooled funds during that same time period, we committed to five new pooled funds across various strategies, for a total of 385 million. And we rebalanced our core open-end portfolio and had redemptions of 150 million. So unless there's any further questions, I will turn it over to Lynne Gray to do principal investments.

MR. COLLINS: I'm going to just hold any questions I have until the end, but if anybody else has any questions that they'd like to ask now before Lynne starts, go ahead. Okay. Lynne.

MS. GRAY: Thank you. As Steve mentioned, principal investments is the board's portfolio of direct-owned real estate investments. It's actively managed by real estate staff. As of September 30th we had a gross market value of just over $11 billion, with a corresponding net asset value of $8.7 billion. Our primary objective within principal investments is to meet or exceed our benchmark, which is NCREIF ODCE.

And if you flip to the next slide, you'll see how we've compared to our benchmark. Over the one, three and five year period, we've outperformed the benchmark. And while it's not shown on this slide, we've even outperformed over the ten year. Performance for the one, three and five year is driven by our industrial portfolio, which has had strong returns of in excess of 14 percent over the one, three and five year periods of time.

The SBA has established investment portfolio guidelines for managing and monitoring risk within the portfolio, both at the portfolio level and the asset level. Over the next series of slides, we'll touch on each aspect of these guidelines, which include strategy, property type, location, exposure to single investment and investment managers.

As we've mentioned, principal investments has a
core strategy, with a primary focus of investing in high quality, well-leased assets, well-located assets, with credit quality tenants, stable occupancy and income stream. We look for assets that have the majority of the return based on income rather than appreciation.

Our guidelines do allow up to 15 percent in non-core, and currently we're at 9.3 percent non-core. That's up just under 2 percent from a year ago when we presented this presentation. Our non-core portfolio consists primarily of development today, which includes apartment, industrial and office development.

On the next slide we'll show how the portfolio is allocated among the different property types, primarily four main property types, office, retail, industrial and apartment. Our specialty sector includes agriculture, self storage, senior housing and student housing.

And as Steve mentioned earlier, our principal investments leverage position is 21.7 percent. With everything baked into the pipeline, we'll bring that percentage up to 28 percent. In addition to what Steve has noted, I will add that today our current weighted average cost of debt is approximately 3.6 percent.

On the next slide you see the map with the dots representing the locations for our commercial properties. That includes industrial, office, retail, multifamily and then even the specialty sectors. We have a large concentration of the portfolio on the West Coast, with 45 percent of the net asset value on the West Coast, 30 percent East Coast, and then approximately 20 percent in the South, with the remainder in the Midwest.

One of the major changes that you may note from last year with this slide is that we have a lot more dots in Florida. And so subsequent to the presentation last year, we closed on a self storage portfolio, so most of those dots are represented by self storage facilities within the state of Florida.

This map represents the markets we're in for agriculture. Again, the West Coast, the majority of the exposure is to permanent plantings, nuts, apples, citrus. And then in the South and the Midwest, those investments are primarily row crops.

The next slide shows how principal investments compares to our benchmark by property type and by location. And as you'll note, we're within policy guidelines for exposures. And on the next slide it...
shows manager concentration. We have a policy limit of less than 30 percent exposure to our investment managers. Currently we work with eight separate account managers. Three of those managers manage our specialty property types. And the remaining five invest for us in all property types.

This slide shows our metro and investment exposure. Our top ten metros are shown on the left side. This represents just under 60 percent of the net asset value for our portfolio in the top ten metros. On the right side you see our top five largest assets in the portfolio based on net asset value.

And this slide brings it all together. It shows all property types, the number of properties per property type along with the net asset value and other metrics associated with each property type. We invest -- we have just over 70 investments in the portfolio and 250 properties within those investments. Again, a market value of $11 billion, with a net asset value of 8.7 billion.

This slide shows operational metrics for the stable properties in the portfolio. On the upper left side you'll see our average occupancy. On the lower left you'll see the commercial lease expirations. This includes office, industrial and retail property types. And then on the right you'll see net operating income. And this is for properties that are stable properties that have been held for the 12 months ending December 31st, '17.

As I mentioned earlier, our portfolio is actively managed by staff. And in the upper left side you'll see what's involved with a portion of that active management. We determine investment strategy. We decide on acquisitions and dispositions. We manage the assets once we close on them, and we also make decisions on financing activities.

On the lower left side you'll see that we work with third-party service providers. Our investment managers are an extension of staff. Property management and leasing companies are the groups that are on the ground managing day-to-day operations of the business or property. And then we also work with investment brokers for acquisitions, dispositions and even financings.

On the right side you'll see the various groups within the board that are also involved with management of the entities. For each title-holding entity, there's a board of directors. That is made
up of the COO, the general counsel and the SIO of real estate here within the board. They oversee the audit and tax program. Our SBA general counsel is involved with all aspects of the portfolio, not just legal matters but acquisitions, dispositions, financings and other matters that may come up in the portfolio.

And then, finally, our accounting group oversees and manages the valuation program. SBA accounting works with a third-party service provider for managing both the external appraisal and internal valuation process. Each property within the portfolio is valued throughout the year and has either an internal or an external on a quarterly basis.

As part of our active management internally, each investment has an annual hold/sell analysis. And if acquired, we ask for a hold/sell analysis on an interim basis. We take into consideration the individual investment performance, market conditions, whether it be space fundamentals or capital markets, and then we layer that with overall portfolio considerations to determine if the particular investment is a disposition candidate or if we should continue to hold the property in the portfolio. And occasionally we go through this exercise, and then we have someone who comes along and makes an insane offer on a property that we can't pass up, and so we take their money.

The next series of slides, really, are just photos that represent the various properties that we have in the portfolio. And so I'll just make a few comments on those, and please stop me if you have any questions. The apartment portfolio, we have garden, mid-rise and high-rise properties within the portfolio, over 6,000 units, and this represents 20 percent of the principal investments portfolio. Average rents range from just under $2 a square foot to well over $6 a square foot.

Industrial, we have nine investments, 54 properties in total, market value of $1.7 billion, and roughly 14 percent of principal investments. And as I mentioned earlier, the industrial portfolio has been one of the top performers over the one, three and five year period, with strong returns of 14, 16 and 15 percent respectively for those periods of time.

Our office portfolio, 16 commercial office buildings, eight medical office buildings, which are included in the office portfolio. And this
represents just under 30 percent of principal investments.

Our retail portfolio, 13 investments, just under 20 percent of principal investments. Student housing, we have 11 properties in our student housing portfolio within ten universities throughout the United States. We have just over 2600 units with 7,000 beds.

Senior housing, one thing to emphasize on senior housing is that we do not take operating risk at the senior housing facilities. They're triple net leased to operators. And so we are not managing the properties on a day-to-day basis.

Agriculture, we have both permanent and row crops within the portfolio. One of the recent additions to our portfolio has been a pecan grove in South Georgia.

And then, finally, self storage, which I had mentioned that this was a newer acquisition for us, a joint venture, and not our first venture with self storage. Our first investment in self storage, I think, was back in 1998. So this is our third round in self storage. And with that, I'll turn it over to Michael for an overview of externally managed.

MR. FOGLIANO: Thanks, Lynne. In the externally managed portfolio, we invest with fund managers and REIT separate account managers. The objectives of investing with these managers is to provide the overall real estate portfolio with property and geographic diversification and access to non-core investments via managers with unique strategies and expertise.

The externally managed portfolio is 5.2 billion in size. The portfolio consists of large open-ended funds, a mid-sized closed-end fund portfolio consisting of value add and opportunistic strategies, and a mid-size global REIT portfolio.

You can see the pros and cons of open-end and closed-end funds on the slide. Most open-ended funds are lower risk funds with low debt levels and provide good cash flow to investors. The debt level of our core fund portfolio is 20.5 percent. For the closed-end funds, risk profiles tend to be value add or opportunistic.

Leverage is higher in these funds and can be 65 percent or higher. In this cycle, however, we are witnessing more prudent levels of leverage. For instance, our value add investments are 43 percent levered, and our opportunistic investments are 57 percent levered. The overall debt level of our
closed-end portfolio is 55 percent, and the overall debt in the externally managed portfolio is 40 percent.

There are many closed-end fund options in the market today. We invest in REITs through four separate account managers. A REIT is a real estate company that trades on the stock exchange. Our REIT managers provide us with global real estate exposure on an actively managed basis, and they typically have 75 or more REIT positions. These managers can trade in and out of their positions on a daily basis.

The pros with such a portfolio is that we get global exposure. There's low fees, and it's not a perfect correlation with private real estate. The cons is it could be volatile and we're exposed to currency fluctuations.

Of the three investment types within EMP, open-ended funds is the largest, with 2.5 billion spread over ten investments and eight managers. Our closed-end funds have an NAV of 1.2 billion, spread over 30 investments and 15 managers. Our uncalled capital of just over 1.1 billion is mostly associated with these closed-end funds. The REIT portfolio is managed by four managers, with a total NAV of approximately 1.4 billion.

The externally managed portfolio exceeds its benchmark for all time periods. The externally managed pooled funds exceeds its benchmark for all time periods. The core portfolio is beating its benchmark.

More than a year ago the EMP group initiated an exercise to enhance returns of the core portfolio. So far we ended up redeeming out of two funds for a total of 340 million and committing to two funds for a total of 150 million. The goal was to reduce our exposure to funds that were providing low income returns and low appreciation returns due to being overexposed to weaker segments of the market and underexposed to stronger growth segments of the market.

We believe these moves will benefit the portfolio in the midterm at least, in the next three to five years. As you can see, the non-core portfolio, which is comprised of value add and opportunistic pooled funds, has beaten its benchmark by a wide margin.

Our apartment and industrial properties have a similar property type weighting compared to the ODCE index, and our office and retail properties are
moderately lower than the index. Our portfolio has 15 percent exposure to international, which is up from 13 percent one year earlier.

Our top five international markets in order is the UK, India, Australia, Germany and Denmark. Our international diversification will increase as our recent commitments to global, European and Asian strategies made over the last few years are invested by our managers.

Over the last year we have conducted due diligence on many markets, including São Paulo, Brazil, four markets in Asia and a handful of European markets. This has enabled us to understand the markets and where our dollars are being placed.

Overperformance relative to the benchmark was achieved in all time periods with our REIT portfolio. The overall REIT market has been volatile over the last 12 months. With inflation on the horizon, the REIT market has been hurt, despite strong real estate fundamentals. Our four separate global REIT accounts have an average of 105 REIT positions. Our four managers complement each other to create an appropriately diversified portfolio.

Our approach to investing and managing a portfolio of real estate funds is discussed further on the next six slides. If anyone has a question related to the process, feel free to ask, but this concludes my commentary.

MR. COLLINS: Does anybody have any questions?

MR. COBB: Yes. I have a question regarding our REIT commitments.

MR. COLLINS: Go ahead.

MR. COBB: It's my impression in today's market that investors are seeking yield and are -- and over the last few years, there's been sort of an adjustment on that the last year, but that the REIT prices have gotten way high based on their intrinsic real estate values, because they've been selling on a competitive yield basis.

So are you as concerned as I am about REIT investments compared to your other options in real estate?

MR. FOGLIANO: Well, it really depends on the market. So there are some markets that we're invested in that they're trading at a discount to the NAV, and there's other markets where there's a slight premium, like J-REITs, for example. REITs in Japan are trading at premiums, and some of our managers are backing off that. But there's other markets where I would say on average, across our
entire REIT portfolio, they're trading approximately at -- at or slightly under NAV.

MR. SPOOK: But U.S. REITs are probably on average about 15 percent, trading at a discount to NAV of about 15 percent. And that's -- U.S. REITs have way underperformed the broader equity markets over the last 12 months.

MR. FOGLIANO: And that's particularly true with the retail and the hotel REITs. They're trading at substantial discounts, whereas industrial is trading at a premium, and office is probably close to par. So just having a large diversified portfolio helps. We have some situations where we have premium to NAV and others where we have severe discounts, but overall it's around par.

MR. COBB: I guess I'm a little skeptical of those appraisals that give you those NAVs that say that there's a discount. I personally haven't found too many, but I'm glad you have.

MR. FOGLIANO: You know, if you bet against retail, maybe the mall REIT portfolio might be one to go after. They're trading at substantial discounts.

MR. COLLINS: Any other questions? So I have one. And I'm going to pick on Lynne.

MS. GRAY: Thank you.

MR. COLLINS: Nothing personal. It's just an easier way to make my point. So I have been struggling for three years now to get us to increase the leverage in the real estate portfolio. And I almost thought I couldn't get it done even when I was chair, but I got an additional meeting because the new chair couldn't be there, so I'm going to give it one last try.

So if you look at slide 25 of the principal investments -- and principal investments is -- because we control this. We own it. (Inaudible) And our portfolio is limited -- we're not going to call it a target, but we're going to say it's limited at 30 percent of LTV.

And I think that -- what I've been trying to do is to get somebody to give me an analysis of the risk, much like we do -- that Aon did for the pension asset-liability study, where they do the current (inaudible) risk-reward spectrum.

And the one time I got this, I asked for it, I got it, and what I got was, hey, if you add -- it was essentially a straight-line line graph. If you add 1 percent risk, or if you add one more percentage of leverage, you add 1 more percent of
risk. And that's just -- that's not real. That's not true. I keep asking for additional analysis, but we aren't -- I haven't seen any.

So to put it in numbers, if you -- so right now we're at 21.7 percent leverage, where our limit is 30. So we're at 72 percent of our potential leverage, on a portfolio that's earning -- that earned 7 percent last year, has earned 10.3 percent over the three years and 12.5 percent over the five years.

So the principal investment total portfolio is about $11.1 billion. At 30 percent, that's about 3.334 billion of debt. Today we have 2.4 billion of actual debt. So there's almost a billion more dollars that we could have had available to earn the 7 percent, the 10.3 percent or the 12.5 percent. So on the one year, that would have been $70 million of additional income.

Now, I'm not for, quote, risking up the portfolio, but I don't think that there's -- I'd love to see the study that tells -- that says, hey, if you go from 21.7 to 30, boy, that's a real -- that's just too much risk. Even if you go from 30 percent to 40 percent, boy, that's just too much risk. But nobody is producing that efficient frontier for us. And I think we are leaving a lot of money on the table based on the notion that this real estate portfolio should have really low risk.

I love that we're outproducing the ODCE with approximately the same percent leverage, but I would tell you that 21 percent in a core portfolio that we control 100 percent is low. It's too low relative to what our requirements are for returns. And I don't think that going from 21 percent to, say, 35 percent is going to create a meaningful risk in an asset class like the principal investment portfolio.

So I've been asking for three years for somebody to show me otherwise, and I can't get it, and so I feel like I'm beating my head against the wall, but we're leaving a lot of money on the table. And I'll leave that -- I'll leave it with you, Ash, at that.

MS. GRAY: So, Peter, this is Lynne. I wanted to just point out one thing that Steve and I both mentioned and I'll reiterate, that with the change in policy increasing from 25 to 30 percent, we actually have gone out, and right now we have -- first of all, the 21.7 percent is as of September 30, 2017. Post-September 30, 2017, we
actually have baked with seven assets up to 500 million in leverage. And so that amount alone brings us up to 26.3 percent.

In addition to that, we have what I'll call pipeline activity, where there are investments that we have identified and we're working toward either in document -- the negotiation stage of the deal. But if we close on everything in the pipeline, we'll be at 28 percent.

So based on the conversations that we've had over the past three years, I think that the one good outcome has been that we've been able to go out, we've identified assets, existing assets in the portfolio that are long-term hold, stable assets in the portfolio, and we've been able to get some really advantageous leverage for that portfolio.

And an example of that would be with our -- one of our larger multifamily deals that we have that we see holding for a much longer period of time, we were able to secure 15 year debt at 3. -- I believe it was 3.5, interest only, that is actually open to prepay without penalty in year 12.

So I think that we've had a good -- we've made progress. And while I can't give you the answer today for the most efficient or that tipping point

MR. COLLINS: Well, so I appreciate that. But I've -- and not to be combative, but I've had this same conversation, like I said, three years. And every time I bring it up, somebody says, Oh, we're doing better. We are increasing the leverage. We are doing this. We are doing that.

But it seems to me like we're -- if that's the case, then we still wouldn't be at 26 percent, so -- and I guess my bigger question is, we've got a lot of consultants, and I think Aon does a great job and Townsend does a good job. But the last time -- well, not the last time, but the time before last I was there, and we asked Townsend -- we tasked Townsend with doing an analysis. And I've yet to see it.

And so I think that while we're getting closer to 30 percent, I don't know that that's the right number. And I think that we're stuck in this conventional wisdom that, oh, real estate is the anchor to windward. Right? And it's going to -- we
can't put too much risk in that. While I agree with that concept generally, somebody has yet to show me what that level is.

And I don't want risk for the sake of risk, and I certainly don't want risk that risks corpus. But I'd like us to do an analysis and just get out of the conventional wisdom that risk above X in the real estate portfolio is not good.

Mr. Williams: Peter, it's Ash. Let me offer a couple of thoughts, if I may. First of all, there are two components to leverage. One is the amount of debt. The other is the value of the asset. Over the time we've been having this conversation, which is two-plus years, we've added about a billion dollars in debt to our real estate book, or a very significant amount of money. Even if you break that down to a daily basis, it averages to a fair amount of money every day, not that we do it that way.

At the same time, we've had the happy problem of the value of our assets going up very dramatically. So while we add leverage, to the extent the asset value outstrips that leverage, it masks the amount of additional leverage we've put in place and its impact on the portfolio, which is terrific.

Mr. Collins: I agree.

Mr. Williams: It doesn't always go that way. And it can go the reverse. And the initial analysis that we did illustrated the historical impact that leverage can have on a real estate portfolio. And what we saw was, when the tide goes out in a period of economic adversity, as we saw in U.S. real estate in '91 or more recently in the great financial crisis, the effects of really high leverage are awful.

I understand that's not what we're talking about. And so what we're really -- the conversation we're having is how much is enough. And that's a hard thing to peg.

Mr. Collins: How much is too much, right, relative to the overall goal and the asset allocation structure of the portfolio.

Mr. Williams: Correct. And I'm not sure there's a hard number for that. We've talked with Aon. We've talked with Townsend at some length, and I don't think there's a bright line anywhere. And there's another couple of variables here. One is we're not looking at simply maximizing the return of real estate in and of itself. We're looking at the contribution real estate makes to the aggregate
returns of the fund and the aggregate risk of the
fund.

And from a portfolio construction standpoint,
one of the things we're looking to real estate to do
is be a diversifier to global equity beta, which is
our single biggest risk exposure. And if you think
about what we have in private equity, that's global
equity beta on steroids with less liquidity.

So having some things like the fixed income
portfolio, the strategic investments portfolio, the
real estate portfolio all mitigate that
concentration of risk and return-seeking assets of
the equity ilk. And the real estate risk we look at
as appropriately a blend of equity and credit risk.

So I guess what I'd say is, given where we are
in the cycle -- and the ambassador has brought up on
a couple of occasions how certain major markets in
the U.S. are at valuations that are just
stratospheric and hard to imagine that they're
sustainable. Our sense is, and as Lynne touched on,
we have quite literally had a number of unsolicited
bids where I would not refer to them as crazy, I
would just say that they had a thorough recognition
of the high quality and desirability of our
portfolio, perhaps more anticipatory than our own.

And, therefore, we were quick to take their cash and
let them have that asset at these valuations.

So I think our sense is, valuation-wise, we've
come a long, long way. And I guess, on the balance
of all those things, our sense is we've done a lot.
We've gotten excellent structures, fixed rates,
pretty good longevity on these loans. And if you
also think about the sorts of things we've been
doing lately, where we've repurposed the cash that's
come out of some of these asset sales into develop
to core strategies, by definition those have an
element of leverage in them that is more pronounced
than our other exposures in the principal portfolio.

So I think we've come a long way in the
direction you want us to come. And the question is,
two things, from my perspective, how much is enough
and, from your perspective, yeah, but how much more
can we do before we get a hangover. And the science
on that last one is hard to define.

MR. COLLINS: Well, it's amazing to me that Aon
can run a 5,000-scenario simulation on our entire
portfolio, asset and liability and our portfolio
construction, but we can't run it on leverage in the
real estate portfolio. We can't get anybody to run
a meaningful analysis in the real estate portfolio
MR. KOCH: Peter, this is Jack Koch with The Townsend Group. And I apologize if what we provided in the past wasn't what you were seeking. However, I do also believe that Aon ran a very similar analysis in the course of the past six months that also showed the same outcomes.

So we'll be happy to have further conversations with you and give you more information maybe in a different vein. However, we were under the impression that we did provide you what you were looking for, and I believe that Aon was as well on the real estate side.

It is -- as Ash said, it's not a crystal clear answer. We work to the objective within the real estate portfolio of roughly a 7.5 return. And that's based upon the asset-liability study, et cetera, and filling that on a risk-adjusted basis at that 7.5 percent. So we've created a portfolio and provided that advice to both staff and your peers on the board that ultimately have followed that strategy and it's performed very well.

So we would agree that if there was analysis and that information was available, we would certainly like to put our hands on it, and we'll continue to look to try to give you the information that you're looking for. So happy to follow up at a later date.

MR. COLLINS: So if there was something that you guys did in the last six months that I didn't see, I'd love to see it, but I haven't seen anything that anyone has done in the last six months on this.

MR. FOGLIANO: Jack, I just wanted to point out, so the ODCE, open-ended diversified core portfolio, that's around 21 percent levered. We're, in the principal, going to be 28 percent levered. And core-plus funds out there are somewhere either maxed at 40 percent or 50 percent debt. So I think 40 percent is way too high, because you're into a totally new risk profile. And I think the upper end of the core, open-end diversified core portfolio range is in the mid to upper twenties. So at 28, we would be at the top of the open-end diversified core universe.

So what do we want this portfolio to be? Do we want it to be core-plus or core? So, anyway, that's just my observation.

MR. WILLIAMS: Good context. Anything else on this? We will circle back with you, Peter, on what if any analysis we have not shared. I think we have
shared everything we've got. And if we were off on
our memory of the timing, shame on us.

MR. OLIMSTEAD: Can I just ask a quick
clarifying question? So we're at, in theory,
26.3 percent. Is 30 percent the max that we can go
on the leverage? And of the pipeline, we're at 28.
So part of Peter's conversation is whether that
30 percent is the right number --

MR. WILLIAMS: Correct.

MR. OLIMSTEAD: -- or whether that should be
higher. And that's why we're trying to look at some
analysis.

MR. COLLINS: Yeah. My point is, if we're
going to refer to ODCE as the benchmark from a
leverage standpoint -- I feel like I'm beating my
head against the wall, but I feel like the guy in
the room that's saying, no, the world is round, and
everybody is like, no, no, no, it's flat.

So the argument against what I'm saying is,
well, the ODCE benchmark. Well, okay. But if you
look at our asset allocation versus the world out
there, we look a lot different. And why do we look
a lot different? Because we studied it. We spent a
lot of time on it. And we were number one last
time. I don't know what we are now, but we were

number one in the TUCS top 10.
Are we materially riskier than the rest of the
world out there relative to those returns we're
generating? We've all looked at that and said,
well, we're comfortable with that risk. So I don't
want the reason why we don't go to a certain risk
level, whatever that risk level is, I don't want it
to be, well, because the ODCE index is X.

MR. WILLIAMS: I don't think that's the core
reason. I think that was a contextual observation.

MR. COLLINS: And all I'm trying to do is get
somebody to do some analysis. I mean, we pay people
good money to do a lot of analysis for us, and let's
pay somebody some good money and let's get smarter
on it. Let's get as much information on it as we
can. If we truly did leave a billion dollars out
there of leverage between 21.7 and 30 percent, these
are real dollars we're talking about. It's not like
I'm trying to pick up crumbs on the way to the --
you know, to see the retirees. It's real money.
Rant over.

MR. WILLIAMS: Rant received.

MR. COLLINS: All right. Anybody else have any
comments on that? Asset class, investment officer
updates. So we have Alison and Tim first?
MR. WILLIAMS: I think we have The Townsend leverage report next.
MR. COLLINS: Townsend is going to make a presentation.
MR. MARCUS: Peter, this is Seth Marcus at Townsend. We'll keep this brief.
MR. COLLINS: Okay, perfect.
MR. MARCUS: So I'm fast-forwarding through the slides in the room. Just to reiterate, so Townsend has worked with the IAC, with SBA on the real estate portfolio since 2004, so over the past 14 years. We appreciate the opportunity to again present an update to you.

As you may know, Townsend works with the staff, as Steve explained earlier, to facilitate new investments, as well as investment performance monitoring, and as well as some other projects we do.

The individuals next to me in the room here, Jack Koch on my left and Richard Brown on my right, make up the Florida team that is dedicated to service you-all. We're also backed by the broader Townsend organization, 100-plus employees across offices in Cleveland, San Francisco, Hong Kong and London. And as we discussed at the last meeting,

we're also now further augmented by the Aon platform, where Townsend is a wholly-owned subsidiary of Aon.

As I mentioned, I'll keep this brief. I won't repeat too much that has already been said or any that has already been said. So the portfolio is at and near its target allocation of 90 percent to the private, 10 percent to public real estate, with about 8.8 percent of total plan assets, 8.7 percent of total plan assets as of the third quarter.

That's about 13.9 billion.

This is under the 10 percent allocation. And this is both due to a strong growth at the total plan level, also a denominator effect, as well as the real estate portfolio taking advantage of an attractive selling environment, both on the direct side, but we're also seeing that on the fund side as well.

So investment periods are being elongated. Managers are taking a longer time to put the capital work, and they're also taking more chips off the table, given the opportunity and the capital flows in the market today.

Over $800 million has been committed over the last 12 months across the direct and externally
managed portfolio. And the portfolio has consistently outperformed the benchmark over the rolling five year period.

So I'm on slide 147 in the room, and this shows the rolling five year performance quarter over quarter. So the portfolio has consistently outperformed its benchmark. And the benchmark has been adjusted over a time period, so the benchmark is adjusted on this page. But since 2002, 16 years of consistent outperformance over the rolling five year period. Further, the portfolio outperforms over both the shorter and longer time periods, the one year, the three year, as well as the 10 year and the 15.

The driver of this outperformance has been broad-based, but a large portion of your portfolio is obviously in the core assets. And that allocation has driven outperformance, given the consistent strong performance there. However, we do believe that core returns -- and we are seeing it in your portfolio -- are moderating. So we expect the long-term average to come back to core at around 6 to 8 percent, with the majority of that coming from income, 70 percent of that roughly from income.

Therefore, the outperformance to really drive the higher performance for your portfolio will come from the smaller allocation but to that non-core portfolio. And we've seen that over the last handful of years, really, as Michael highlighted, returns in the mid to high teens from your non-core portfolio. On a relative basis, we also are already seeing that we rank strongly amongst peers as well as the larger funds.

The last thing I'll mention, in the interest of keeping it short, is that this portfolio has consistently delivered strong returns, while doing so and remaining within policy guidelines and compliance. That's on slide 158 in the room.

And because of the SBA's size, in many cases, we've also qualified for fee reductions because of the size of our commitments to individual fund managers. Additionally, we've pooled Townsend clients with the Florida SBA commitments to further augment further reduction in management fees. So that is something that we continue to focus on.

We've talked about that in the past, but just one more point of how we're looking to drive a little bit of alpha in a very difficult environment.

So there's a lot of other slides in here, but I said I'd keep it brief, so I'll stop here and open
it up to any further questions.

MR. COLLINS: Anybody have any questions? Keep going.

MR. MARCUS: That wraps up Townsend's prepared remarks.

MR. COLLINS: Okay. All right. Alison and Tim.

MR. TAYLOR: Thank you, Mr. Chairman. This is Tim Taylor. I'll start us off with the global equity review, and Alison will close it out. 2017 was an impressive year for global equity markets. The U.S. was up over 21 percent. However, this trailed the 25 percent rise in non-U.S. developed markets and also the surge of almost 37 percent in emerging markets. It should be noted that for U.S. dollar-based investors, the weak U.S. dollar accounted for a notable percentage of non-U.S. equity returns.

2017 was a year of strong corporate earnings growth and positive economic data almost everywhere in the world. All major central banks were moving away from quantitative easing and towards policies of normalization. The information technology sector was incredibly strong, with an annual return of 40 percent. Trailing the pack was the energy sector, with a return that, while positive, was far off that of the IT sector.

I mentioned the 37 percent return in emerging markets. It was its highest return in that space since 2009, so almost a decade. Growth and momentum were in favor and risk was on. Volatility levels were extraordinarily low.

The next page shows our performance. The global equity asset class's return was 25 percent in 2017. This exceeded our benchmark return by more than 1 percent, or 100 basis points. Excess returns continue to be positive over the three year, five year and from inception periods, all ending December 2017.

I'd like to note a couple of things here. The sheer strength of the bull market is seen by an annualized benchmark return of 11.5 percent from the inception of the asset class in July 2010. Also, our tracking error in the asset class has hovered around 50 basis points. This is leading to a strong risk-adjusted return as measured by the information ratio.

I wanted to talk a little bit about the year to date. 2018 has already been -- I chose the word "interesting." There's probably a lot of other
words I could have chosen. I went with
"interesting." I don't know why. But it was
interesting. It has been interesting. This page is
a visual depiction of global equity's excess asset
class return, coincident with the return of our
benchmark. We believe that we should outperform
when investors show at least some preference for
positive fundamentals or characteristics.

Particularly, we expect our absolute
performance to suffer when the general market
declines. However, we would expect our portfolio to
fall less because we're typically positioned in
securities perceived as higher quality because they
have stronger balance sheets, they have predictable,
defendable cash flows, they have positive growth
characteristics.

This graph indicates that as the market roared
to an almost 8 percent return in January, global
equity, our asset class, underperformed, the lighter
green line there. However, as the market lost all
of its early gains and more and went negative, our
excess returns quickly turned positive. So this
capital preservation characteristic has served us
well historically, and our belief is that it will
continue to do so going forward.

This is a small, I think, example of what Ash
alluded to earlier in the meeting, that we expect to
do well in challenging times. Again, this is a
small sample of that. Alison is going to take over
on the next page.

MS. ROMANO: So moving to the performance of
our active managers by aggregate, what we have on
this slide is performance over various periods and
commentary that relates to the full year 2017.
First I'll make a couple of points on the last
quarter, or fourth quarter. In emerging markets,
that was an area that we struggled. It's a theme
that we've talked about in previous quarters.
Companies like Tencent and other Chinese Internet
names continued to roar up, and those managers tend
to be underweight.

Our global aggregate underperformed. Again, a
theme we've talked about. We tend to have some
defensive managers there, and the market was up
strongly, but also our growth managers had some
stock-specific issues. It was, however, a very good
quarter for our U.S. large cap aggregate, which has
seen a positive trend, having factor tailwinds in
areas like momentum and exposure to mid caps.

Looking more broadly at 2017, we'll take a
little trip around the globe in terms of performance. Our developed market large cap had a fabulous year, outperforming the benchmark by over five percent. Eight of the nine managers outperformed. Four managers had greater than 5 percent excess returns. Now, remember, that benchmark was up 24 percent. So they beat a very strong benchmark and beat it in a big way.

How did they do that? Factor tailwinds, growth, momentum, making off-benchmark bets in the U.S., in the emerging markets, in some of these technology names, and just good stock picking. Emerging markets, the theme that I talked about for the fourth quarter applied for the full year. These managers tend to be quality and valuation oriented and are not going to be big investors in names like Tencent. Just to give you the picture for the year, Tencent was up 114 percent versus our benchmark, which was up 24 percent. And the top ten names in the EM benchmark delivered 38 percent of that benchmark's return. So holding those specific names really sort of made or broke managers. So given our focus on quality and on value, we're comfortable with where those managers ended the year.

On the positive side, U.S. large cap again continued the positive trend, driven by beta significantly. And then the currency managers did have a difficult year. A very simple explanation, long the U.S. dollar and short the Euro. And that was not a bet that paid off for the year. Again, overall, very positive 2017 for our active managers.

Turning to the next slide, our initiatives and what we're looking at going forward. In the past quarter we hired two foreign developed value managers, and we have just funded them recently at about $1.4 billion. The reason there was to round out our value exposure, and the average manager in that aggregate was close to 2 billion, and we thought it made sense to spread the wealth around some more managers and decrease the manager concentration risk.

We also completed funding for our two U.S. small cap managers, gaining one growth and one value manager. And we increased the funding to our internal factor strategy. It's now about 918 million. We continue to look for ways to bring money in-house and are researching that, as well as continuing to go after fees and make sure that we are negotiating fees where we are not getting unique
returns.

The final point I'd like to make, looking at 2017 in totality, we raised $7.1 billion. So we had an excess return in our asset class over 1 percent, and that is absorbing the costs of raising that $7.1 billion to meet both beneficiary payments and liquidity needs. With that, I'll turn it over and ask if you have any questions.

MR. COLLINS: Are there any questions for Tim or Alison. Okay. Katy?

MS. WOJCIECHOWSKI: Okay. I'll be brief. So while the equity markets were off to the races last year, we have barely held our own over the past 12 months. At the end of February we were up only half a percent, so barely keeping track with our cash portfolio. And 12 months through today we're up 70 basis points, so a little bit better, some improvement.

Annual returns were slightly positive. As you can see, credit and credit spread sectors did the best overall as rates rose. And the 10 year, if you'll notice, rose during the period from 2.40 to 2.80, and we're roughly at 2.85 right now, or when I came in here at least.

Fiscal year to date and the one, three and five year, we're outperforming on all periods, both internally and externally. And that's really with some very, very low risk levels, by the way, so great information ratios for those periods as well. Still very close to the vest, very low risk levels. We're taking about 16 basis points of tracking error, just for point of reference, and our -- we have the ability to take a lot more than that but just didn't see the opportunities. We're beginning to see opportunities, and I'll get to those in just a moment.

Just if you take a look on the left-hand side of the next slide, you'll see that finally option-adjusted spreads have moved out a bit, and we are seeing some opportunities for that. Still see the wall of money from foreign central banks, but we do see some issuance in the short end, where we see some opportunities. It is a -- I'm going to say a hundred percent baked in chance of a Fed hike in a couple of -- this month. Four are pretty much baked in, three and a half definitely.

And unless we see inflation really pick up, you can make the argument -- and that is not our central theme, by the way -- that you could make the argument that the curve will continue to flatten.
We see some opportunities in short corporates, and we're working on that right now. And that's kind of where we are focusing, so taking some of those opportunities.

And just by way of note, you can see how low our active risk levels are right now, so just incredibly low. But we have made money, even with those levels, just through security selection. So as Alison mentioned stock picking, it's bond picking instead.

And that's just kind of an update on the final page, just kind of where we're looking. We are looking at some possible short corporate, like a dedicated portfolio maybe in shorter duration, but that's to follow in the future. I think that's it.

Any questions?


Mr. Bradley: Thank you, Peter. I'll start with a quick update, first on the market. 2017 was a strong year for private equity fundraising. The U.S., Asia and Europe all saw gains year over year in funds raised. Purchase price multiples do continue to rise. Reported large buyout transactions averaged 10.9 times during 2017, while multiples for middle market companies averaged 8.3 times. Funding for these higher purchase prices came in part from increased leverage. Leverage was up half a turn, from five and a half times to six times. But what might be surprising is equity contributions also continue to rise. Average equity contributions for middle market companies hit their highest level since 2009, at 47 percent, which was up 7 percent from 2016.

Within the portfolio, our net cash flow for the full year of 2017 came in at $706 million, which was our highest year since our inception. We saw strong performance from our buyout, distressed and secondary strategies. And our venture and growth strategies did lag a bit on an absolute basis but still had solid performance relative to their peer benchmarks.

There's been no changes in our sector exposure. We continue to look similar to our private equity peer benchmark, and technology remains our largest exposure. Geographically, we remain heavily focused on the U.S. Exposure outside the U.S. continues to grow and now makes up more than 26 percent of the portfolio.

Moving on to the asset class returns, these are
shown as of September 30, 2017. Our one year return
trails what has been a very tough benchmark over the
short-term, which would be the public markets plus a
300 basis point premium. So you can see here our
one year performance trails by 120 basis points.
Longer term performance continues to remain strong,
however, and exceeds its benchmark over all
subsequent time periods.

Here we have performance broken out by strategy
and sub-strategies. Over the past year, as I
mentioned, our buyout, which would include both our
U.S. and non-U.S. portfolios, performed best. Over
the longer term and since inception all strategies,
with the exception of our non-U.S. growth equity
portfolio, have outperformed their peer benchmarks.

And then finally we made three commitments in
the first two months of the year, totaling
$265 million. All three commitments were made to
buyout funds, one each, focused on small, mid and
large buyouts. And then geographically two of those
funds were focused in the U.S. and one focused on
Europe. I think that's all I have.

MR. COBB: I have a question relating to
international focused.

MR. COLLINS: Great. Go ahead.

MR. COBB: So we're at 74 percent U.S., much
higher than Cambridge or the benchmark index. I
suspect that cap rates in Europe and Japan,
Australia are less than the U.S., just talk in terms
of 10 percent, up to 10 times EBITDA, where in
Europe is much lower. Why not more focus on Europe,
Asia and Australia for private equity?

MR. BRADLEY: That's a great point. I would
agree. What I would say is if we turn the clock
back a year, year and a half, our exposure within
the U.S. was 84, 86 percent. So we have begun to
build that out and make those commitments. But
given the nature of private equity and the three to
five year investment periods, that might take some
time.

But I think it's our goal and our strategy, and
we'll discuss it some at the June meeting when go
through private equity more in depth, but that piece
of the portfolio will continue to grow relative to
the U.S.

MR. OLMSSTEAD: Do you have a target on that?

MR. BRADLEY: We don't have a target. I think
we tend to look at the Cambridge peer benchmark as
sort of a guidepost. And then we really still weigh
every decision based on funds we see, both in the
MR. OLMSTEAD: When you look at the capital raising that's going on, how would you allocate that? Is it Asia? U.S. obviously. But with an increase, a significant increase in capital raising for these funds, where are you seeing those? Where are you seeing that geographically?

MR. BRADLEY: I think over the past year Europe has been by far the leader in fundraising. So a lot of LPs have flocked to Europe. Asia, I think, came in second in terms of increased fundraising. And then the U.S., which had been the leader the last two to three years, is a little behind. But we still see a lot of our peers and a lot of investors moving their portfolios overseas.

MR. OLMSTEAD: Is your approach to that more proactive versus reactive? So when you look at Europe, how is your sort of penetration, or how do they -- do they know a lot about your investing there? How are we getting the Asia and Europe --

MR. BRADLEY: Yes. It's definitely proactive. So we are, with Cambridge, with our consultant, identifying the top funds around the globe, constantly debating portfolio allocation, where we put our money, and then we are traveling quite frequently to those geographies, meeting managers, explaining our program, our portfolio. And then hopefully from those, developing those relationships and getting allocations and access to those funds when they come back to market.

MR. COBB: What are the cap rates in Europe, Australia and Japan compared to U.S.?

MR. BRADLEY: I think Europe is about a turn less. So if you said the U.S. is about 10 times market per purchase price, Europe is probably at 9. Some of that's leverage. So Europe, leverage tends to be about a turn less.

Japan is not a very active private equity market, and so I think the multiples there are much less. But I think in Japan, the last we looked, there was only 30 to 40 transactions a year, compared to the thousands that get done in the U.S.

MR. COBB: Thank you.

MR. COLLINS: Anybody have any additional questions? I always like the color of your slides, John.

MR. BRADLEY: Thank you.

MR. COLLINS: Trent.

MR. WEBSTER: Thank you, Mr. Chairman. So in
the last meeting, when we last met here in December, I'd mentioned that we were making some changes to our policy objectives. Most of them are consistent with what the total FRS is currently using for the real return benchmark. A couple of them are for clarification. But the most significant one is the third bullet point on the screen.

What we've done is that we have taken out -- it used to say there, to provide a hedge against inflation. But that's implied in the first objective, which is to generate a 4.5 percent real return over the long-term.

And we instead replaced this as a nod to the ambassador, who has pointed out that since one of our -- what we're actually doing is providing downside protection, is to put it into our policy objective. So we changed that to outperform the FRS during periods of significant market declines. And we're thinking more in bear markets.

And we do think that when we run our scenario analysis, that we probably -- would probably provide a beta of about a third to the rest of -- to the equity markets. So that's something we're actively doing, been spending a lot of time on that, so we put that into our policy objectives.

The other change on the next slide is that we have reclassified a few of our sub-strategies and added a few others. You'll notice on here that we used to have in this colorful graph a yellow piece of the pie called special situations. We've actually reallocated all those funds, mostly to a few newer strategies but a couple elsewhere as well.

And so you'll see at the bottom, in the pink, there's something there that says SI private equity. We are not actively sourcing private equity funds. John has a very good group, has done a very good job. But one of the reasons for the existence of this asset class, strategic investments, is to provide a repository for funds and strategies which may not fit nice and neatly in other asset classes.

So we do have some funds which have gone across equity and credit, have gone across equity and debt. But what we have found is that for some of these funds, they have morphed more into private equity, to be more like private equity. And so if they become too much like private equity, then we would defer over to John's group, to private equity, and hand that fund over to them, if they wanted to re-up into it. And in SI private equity we also have equity investments of the Florida Growth Fund.
In the green part of the graph, we've created a new sub-strategy called transportation. We've been actively investing in aircraft leases and tear-downs for nearly ten years now. We actually have a fund which we're hoping to close at the end of the quarter which invests in rail cars. So we created this new transportation slice.

And finally we started to make investments in insurance. We were able to close but not fund in the fourth quarter. We've actually closed on two funds since then. So you'll start seeing insurance come in in our diversifying strategies, which is the purple part of the pie.

Now I direct everyone's attention to the screen as opposed to if you're flipping through the book. So my apologies. This is a relatively new graph that we're producing, and we found a data error in it. Unfortunately it was after we distributed the books to everyone. These are our exposures, gross and net, across the entire asset class. Our net exposure hasn't changed very much over the last five quarters. It's roughly 80 percent. Our gross has come down a little bit as some of our hedge funds took risk off during the quarter.

This is our performance. We slightly underperformed our benchmark in the first quarter. We've outperformed over most other time periods. We don't get too excited about performance over the near term. And we would expect that, in a bear market, for some of that alpha to come down.

And finally, the other piece of news is that we're actually formally separating from private equity on July the 1st. Strategic investments was an outgrowth from the private equity asset class. And though we've operated as two asset classes for more than ten years, we've actually been one department within the SBA. We've shared a back office. We have a common budget. If you look at our org chart, it's all together. Starting on July 1st we will formally separate and become two separate departments.

For the calendar year, the only other point I would mention, for the calendar year we made actually 21 allocations at just under $2.6 billion, which is actually probably more than what I would have expected because we haven't been all that constructive on some of the opportunities out there, but we have been finding nicher things to do and some interesting things to do, and we've been doing some re-ups with our funds.
Currently our pipeline is still pretty thin, with four funds at $500 million, but these opportunities seemed to pop up. We would expect this calendar year to be lighter than last calendar year, but we’re opportunistic and we’ll just see what shakes out. Any questions?

MR. COLLINS: Any questions? Okay. Does that take us to Joan?

MS. HASEMAN: It does. I’m here.

MR. COLLINS: Go ahead.

MS. HASEMAN: These slides are very typical of the ones you’ve been seeing over the course of the last four years. As of December 31st, our assets sat at about 10-point almost 7 billion. As of market close on Friday, we were at 10.8 billion. Our membership growth is showing at 185–, almost 186,000. Of that, we have 127,000 active and 58,000 inactive. As of Friday, I believe it was, we were close to 188,264, and our active membership is up just a tick by about 2,000.

Our average account balance is sitting at about 57,386. That’s a 6 percent increase over a year ago this time. And our average age is 47. Our membership is broken out by males and females, obviously, and 49 percent are males and 46 percent are females, but you’ll note our members, our females make up 63 percent of our membership.

Average years of service is still well under the eight years required to vest in the pension plan at five years. And our retirees almost equal our active members.

We did have $11.4 billion in distributions from the plan. The good news is 61 percent of that are rollovers, which we like seeing. We don’t like seeing money leave the plan, but we do like seeing it being rolled, which tells us that members are continuing to save for retirement.

This is our assets under management by class. I don’t think there are any surprises here. Our brokerage account is still sitting at about 5 percent of our assets under management, but the membership is around 2.5 percent, which is what is expected when you introduce a self-directed brokerage window.

Our performance this year has been, I think, stellar, is a word I’ve heard used in the past a little bit. Our performance this year for one year has been stellar. It’s probably the highest I’ve seen since I’ve been with the plan, 16.36 percent. And I’ll let Aon comment further on that.
We did have a little downtick this past quarter. It looks like it's down a little bit, but I think we've held very well for the last 12 months, and I hope to see it continue into the rest of this fiscal year. This is our growth numbers in membership. No surprises.

And for our financial guidance program, which we consider to be one of the most important parts of the program that we offer all of our FRS members, we're still seeing a good usage of it, not as much as we'd like. The downtick I think you see is a result of our teachers going into the holiday time. We don't expect to see a lot of activity in December. They're closing out the midyear terms, and colleges are out. Students are going out on break, as are the teachers. And that covers my presentation.

Mr. Collins: Any questions of Joan?

Mr. Williams: I have an observation, Mr. Chairman, if I may.

Mr. Collins: Please.

Mr. Williams: Members of the IAC and guests, you should know this will be Joan's last IAC meeting. She's about to cross the great beyond and become an active retiree/beneficiary and will therefore haunt us to ensure that we're doing the right things in our day-to-day management of her assets. So I just want to recognize and thank her for the terrific job she and her team have done.

Ms. Haseman: Thank you.

(Appause)

Mr. Collins: Well said. Joan, we'll miss you.

It feels like yesterday, but it was 25 years ago.

Ms. Haseman: Thank you. That was kind.

Mr. Collins: All right. Mike.

Mr. McCauley: All right. I was just waiting for you. Thanks, Peter. We've included some voting statistics through the calendar year. These are more or less in line with prior periods. We vote against management about one out of every five ballot items. And we also have a significant amount of information on our website in terms of the individual votes, our archive votes, that sort of thing. We believe in transparency. So I won't spend a whole lot of time on that.

One of the probably most notable things that we did over the last few months -- we started it in late 2017 and published it in January of 2018 -- was a study on over-boarding, which we looked at U.S. board members, companies within the Russell 3000
index, and looked at their service on multiple boards, so any -- we looked at all directors but really focused in on those directors that serve on two or more. Our own voting guideline is more than three, and that's something that's been a driver historically of our voting practices.

So we wanted to essentially go in and quantitatively examine that policy position. Very similar to what we did in 2015, where we looked at our voting with proxy contest scenarios, the value of the vote study.

So we looked at, again, only U.S. companies, although it broadly applies, from a voting guideline context, broadly applies to other markets. And what we found is, where you had companies that had a higher than average level of directorships, both at the individual board member perspective as well as in the aggregate, when you added them all up and you summed all the directorships up, there was an inverse relationship between the level of directorships and the company performance.

So I've got the stat for the five year stockholder return, but it also was evident in the one and three year time frames. And we looked at it across a couple of different segments. Kind of above average, we looked at the top decile, top quartile names and companies. And then we also looked at just the segment that failed to meet the SBA policy. And the same relationship held across all time periods and all segments.

So, again, not unlike the value of the vote study, I think we were pleased to see that it validates our policy approach. And we also examined the extent that that drove some of our individual director voting, which it was about a third of all of our against or withheld support levels for U.S. directors.

And then in addition to that, we're proposing for the 2018 proxy season and beyond a set of rather minor tweaks and edits, but a couple of notable ones in here. Some of these are essentially wordsmithing or just polishing up existing guidelines. But we do have a new expanded version of the high-risk markets guideline that deals with Venezuela, as Ash noted in the opening remarks.

And then we also have an expansion of an existing guideline dealing with board committees, where we -- in the second half of 2017, we came across quite a few Chinese and Hong Kong domiciled companies, state-owned enterprises,
government-owned, where they were installing new
committee structures that in some instances could
override the board of directors, and we started to
shift our voting. So we felt it would be a good
idea to kind of beef up our existing policy.

The remaining ones are pretty straightforward.
I'm happy to answer any questions you have on any of
them, but they're relatively minor. So pretty much
status quo for the current season.

MR. COLLINS: Anybody have any questions for
Mike? Okay. Major mandate review, back to Kristen.

MS. DOYLE: Thank you. I will bring us home
here. So what you'll see from the major mandate
review that I'll go through quickly here is that
performance continues to be very strong across all
the major mandates. For the diversified mandates,
so that's the pension, the Lawton Chiles, et cetera,
absolute returns are phenomenal for the one year
period, and you'll see that when I get to the
different slides.

And that's really due to the continued strong
performance from the equity markets. But even the
more conservative mandates continue to steadily
outperform their benchmarks, albeit with lower
absolute returns, given the low interest rate
environment that we've been in. So overall the news
is very good.

If you look here, I'm on -- for those on the
phone, I'm on the slide FRS pension plan change in
market value ending December 31, 2017. You'll see
that for the fiscal year to date period, which is
July through December, the pension, net of benefit
payments, grew by $8.5 billion. If we extended this
chart out to the one year calendar year period,
you'd see from January to December that the pension
grew somewhere around $16 billion net of benefit
payments.

And I think what's most notable -- and I'll
move to that slide now, so now I'm on the FRS
pension plan investment results, two slides
forward -- is that the pension achieved 70 basis
points of alpha in a very strong market over the
past year. And you can see that with the one year,
the beige bar versus the blue bar.

And one of the things we talk a lot about here
but is really evident now that we've been through a
number of different market environments in the past
10, 15 years, is that the SBA does continue to
outperform across many different market
environments. And especially in strong market
environments, being able to achieve alpha is quite impressive. So I wanted to make sure I pointed that out.

We also look out over longer periods, as you know, relative to the absolute nominal target rate of return. And here we have outperformance over all periods. It's a little bit less for the 20 year period, but over the 25 and the 30 year period, continued strong performance relative to that metric as well.

And as you know, we compare on a quarterly basis to the TUCS top 10 defined benefit plans in the United States. As you've seen in the past, the asset allocation differs a bit from the universe. So the SBA tends to be overweight global equity, slightly underweight fixed income, and then just slightly underweight to the private market asset classes, although that gap has been shrinking over the past couple of years.

Performance continues to be strong relative to the median defined benefit plan fund in this universe. And drum roll, please. Over the one year period, the FRS continues to remain the first. I think that the rank was number one through September as well over the one year period. And then over the three, five and ten, up in the top quartile. So, again, continued strong performance relative to peers as well. Most of that is driven by that overweight to global equity, as we continue to see strong returns from that part of the market.

Please let me know if you have questions, otherwise I'm just going to continue on.

MR. COLLINS: The incredible insight of (inaudible).

MS. DOYLE: We lost you there.

MR. COLLINS: You don't think any of that is due to the incredible insight of the Investment Advisory Council?

MS. DOYLE: You're right. I was remiss in mentioning that. You're right. And the chairman, of course, right?

MR. COLLINS: Keep going.

MS. DOYLE: So the investment plan results continue to be strong as well. Joan just mentioned the strong absolute return for the one year period. But, again, I think what's even more notable here is the continued outperformance. So this is indicating that the active managers in the program continue to outperform, and the beneficiaries and active members continue to benefit from the strong performance of
the active managers in the program.

The chart on the bottom here is one that doesn't change. It only changes once a year, and I believe my colleague Katy went over this at the last meeting, so I will move on.

Again, as I mentioned, for the more conservative mandates, like the CAT Fund, which is invested solely in fixed income, continued strong outperformance relative to its benchmarks, but again sort of muted absolute returns, just given the low interest rate environment that we continue to be in.

And then we'll look at Lawton Chiles. Similar to the FRS, to the pension, strong absolute and relative performance, up 18.5 percent for the one year period and was able to again achieve an outperformance, some alpha, even in a very, very strong environment.

And last but not least we have the Florida PRIME, which if you remember we benchmarked to a peer universe of other local government investment pools. And the Florida PRIME continues to outperform that benchmark over all periods. And with that, I'm happy to answer any questions.

MR. COLLINS: Does anybody have any questions for Kristen or Aon about the review? Okay. Ash, I understand we have a couple of guests today. If you wouldn't mind introducing them and giving them a few minutes to talk to the board.

MR. WILLIAMS: We do. We have Jim Baker, with the Private Equity Stakeholder Project, and William Ortiz of Organize Florida. So if you guys would like to speak, we need to get you on the record, so you have a mike here. Please use that.

MR. BAKER: I have materials I'll hand out while William starts.

MR. ORTIZ: Good afternoon, everyone. My name is William Ortiz. I am Puerto Rican, and I'm also a student at Florida State University, studying international affairs. I'm here to talk about the foreclosure crisis in Puerto Rico and ask the State Board of Administration to halt its investments in companies that are driving the crisis in Puerto Rico.

Puerto Rico has been facing difficult situations ever since the U.S. first invaded in 1898. This is just a more recent crisis in a long history of them. Tomorrow is the six-month anniversary of Hurricane Maria making landfall in Puerto Rico. The hurricane devastated the island
after it already faced an 11-year recession. And
six months later, hundreds of thousands of people in
Puerto Rico are still without power, and many others
face regular power outages. And thousands of small
businesses remain closed, and more are still
closing.

Right before the hurricane hit, a family member
of mine suffered a stroke and was hospitalized. It
was extremely stressful for my family, as power
lines and phone lines were shut down. We could not
contact our family for two weeks to see if he was
fine. It's families like mine in Puerto Rico that
investing in firms like Blackstone would be
suffering from, families like mine.

Beginning in 2016 Puerto Rico fell into a debt
crisis. Since Puerto Rico is still a colony under
the status of a unincorporated territory, it cannot
declare bankruptcy on their debts of over
$70 billion like a state or city like Detroit would
be able to. And since they lack national
sovereignty, Puerto Rico does not have access to
international credit and are forced to borrow loans
from the vulture capitalist firms that seek to
maximize profits at the expense of people on the
island.

These neocolonial economic conditions have
created an unsustainable living condition in Puerto
Rico, which has forced people to flee their
homeland. Since the year 2000, Puerto Rico has lost
an estimated half a million people. Hurricane Maria
has exacerbated both the economic and population
crisis.

The hurricane was a natural disaster, but now
the island is facing another economic crisis, a
foreclosure crisis. Even before the hurricane,
foreclosures in Puerto Rico have reached record
levels. Many families cannot afford to make
mortgage payments because they don't have a job as a
result of the hurricane and economic crisis on the
island.

Companies like Blackstone and TPG have
foreclosed on many home owners in Puerto Rico. And
it's not right that our state has invested hundreds
of millions of dollars with Blackstone and TPG. Our
state has to take a stand. We should not be
investing in companies that are exploiting the
situation that Puerto Ricans now face.

I'm asking the State of Florida to halt
investments with Blackstone and TPG until they
provide a path for Puerto Rican families to stay in
their homes.

The federal government is ignoring the plight of Puerto Ricans by failing to provide adequate aid after the hurricane and creating the PROMESA Fiscal Control Board that aims to strangle the Puerto Rican economy of every last dime. I hope the State of Florida won't do the same. We should be valuing the people of Puerto Rico over profits. Thank you.

MR. BAKER: Good afternoon, Mr. Chair, members of the board.

MR. COLLINS: Thank you.

MR. BAKER: Good afternoon, Mr. Chair, members of the board. My name is Jim Baker with the Private Equity Stakeholder Project. As you know, Florida is a major investor with both The Blackstone Group and TPG Capital, two large private equity managers. Recent media accounts have highlighted the roles that TPG and Blackstone are playing in driving the -- or have played in driving the foreclosure crisis in Puerto Rico. Those are included in the packet that I handed out to folks in the room but can also share electronically for folks who are not here in person.

From the New York Times on December 16th, Blackstone owns a company, Finance of America Reverse, that specializes in a type of home loan called a reverse mortgage, which is guaranteed by the federal government. There are 10,000 reverse mortgages in Puerto Rico, and Finance of America controls about 40 percent of the market. Court records show that the Blackstone-controlled company is aggressive in its pursuit of and foreclosures on borrowers.

Then from The Intercept on December 22nd, Roosevelt Cayman Asset Company has 289 active foreclosure cases in federal court and another 56 in local Puerto Rican courts. Federal courts, typically not a venue for foreclosure cases, are seen as faster than local courts. So offshore companies like Roosevelt lean heavily on them. Roosevelt is an affiliate of Rushmore Loan Management Services, which in turn services loans owned by private equity giant TPG Capital.

Even prior to our recent hurricanes, Puerto Rico has faced an unprecedented foreclosure crisis that has destabilized families and communities. In June 2017 an average of 18 families lost homes every day to foreclosure in Puerto Rico, more than double the rate a decade ago during the global financial crisis. A record 5,424 homes were foreclosed last
year, up 130 percent from nearly a decade ago when
the government first began tracking the numbers.

Three months ago the New York Times reported
that nearly one-third of the island’s 425,000 home
owners are behind on their mortgage payments to
banks and Wall Street firms that previously bought
up distressed mortgages. As of January 2018, a data
firm Black Knight found 57,000 loans remain in
delinquency in Puerto Rico, and 49,000 of them
seriously so.

Recently, community groups and Puerto Rican
diaspora groups sent letters to TPG Capital and
Blackstone Group to discuss the firm’s foreclosures.
We spoke to Blackstone and Finance of America more
than a month ago and provided the company a set of
proposals to enable families to stay in their homes.

Unfortunately, Blackstone has not responded to
those proposals thus far. In addition, Blackstone’s
Finance of America is continuing to advance on
foreclosure suits in Puerto Rico, despite there
being an FHA foreclosure moratorium in place. For
example, see the motion for service by publication
that I included in your packet.

TPG Capital did respond and has put a temporary
halt through late May on many but not all of its
foreclosure cases in Puerto Rico. We had a positive
meeting with representatives of TPG and its servicer
Rushmore the week before last. TPG indicated that
its moratorium on foreclosures would be extended and
it was reviewing proposals community groups and
Puerto Rican diaspora groups have made to enable
families to stay in their homes. We await more
detail on TPG's specific response.

The Florida State Board of Administration
invested $200 million in Blackstone Tactical
Opportunities Funds 2, which owns Finance of
America, the Blackstone affiliate that’s foreclosing
on people in Puerto Rico. Overall, the Florida SBA
has invested at least a billion dollars with
Blackstone since 2012.

The SBA has invested $200 million in TPG's TSSP
Adjacent Opportunities fund. TSSP is the arm of TPG
that has invested in Puerto Rican mortgages and
foreclosed on home owners and small business owners
in Puerto Rico. Overall, the SBA has invested at
least $400 million with TPG since 2012.

Given the devastation that Puerto Rico faces,
we ask that the Florida State Board of
Administration halt further investments with TPG and
Blackstone until they provide a path for families to
stay in their homes. Thank you.

MR. COLLINS: Thank you to Mr. Baker and
Mr. Ortiz for your comments. I think that several
members of the committee have gotten -- have
received correspondence, and I know that Ash has
received some correspondence. Ash, any comment from
you on this?

MR. WILLIAMS: No, I don't believe so. I met
with Mr. Baker last week, and we're in regular
contact on this and other issues. We have a good
rapport with them.

MR. COLLINS: Okay. Well, thank you,
gentlemen, for coming and presenting your views on
the Puerto Rican situation. I know that it's
something that's on all of our minds. We all have
friends who have been impacted, so appreciate what
you all are doing on behalf of the people in Puerto
Rico.

Okay. Any other -- anybody else in the
audience, Ash, that would wish to say something?

MR. WILLIAMS: Anyone else want to be heard?

Dennis MacKee is back there grinning, but we're not
calling on him.

MR. COLLINS: I just wanted to one more time
just say thank you again to Joan for her service to

the State Board, really appreciate all that you've
given to the board over the years, and you will
surely be missed.

MS. HASEMAN: Thank you.

MR. COLLINS: With that, I will take a motion
to adjourn.

MR. DANIELS: So moved.

MR. OLMSHEAD: Second.

(Ayes)

MR. COLLINS: Nobody wants to adjourn? Do we
want to talk about leverage?

MS. DOYLE: He couldn't hear because the mike
wasn't on.

MR. WILLIAMS: Sorry. There was a motion, a
second and a unanimous vote, except for the
chairman. So do you want to stay in session?

MR. COLLINS: I thought somebody was going to
take up leverage again. I was getting ready for
round two.

MR. WILLIAMS: Steve looks tired.

MR. COLLINS: All right. We are adjourned.

Thank you, everybody.

(Whereupon, the meeting was concluded at 4:30
p.m.)
CERTIFICATE OF REPORTER

STATE OF FLORIDA   )
COUNTY OF LEON     )

I, Jo Langston, Registered Professional Reporter, do hereby certify that the foregoing pages 3 through 150, both inclusive, comprise a true and correct transcript of the proceeding; that said proceeding was taken by me stenographically and transcribed by me as it now appears; that I am not a relative or employee or attorney or counsel of the parties, or a relative or employee of such attorney or counsel, nor am I interested in this proceeding or its outcome.

IN WITNESS WHEREOF, I have hereunto set my hand this 10th day of April 2018.

_______________________________
JO LANGSTON
Registered Professional Reporter

ACCURATE STENO TYPE REPORTERS, INC.
Date: April 30, 2018
To: Board of Trustees
From: Kimberly Ferrell, Audit Committee Chair
Subject: Quarterly Audit Committee Report

The State Board of Administration’s Audit Committee met on April 30, 2018. Please see the attached agenda for the items discussed. Also please see the attached Office of Internal Audit Quarterly Report presented to the Audit Committee at the meeting.
1. Call to Order

2. Approval of the minutes of Open and Closed meetings held on January 29, 2018

3. SBA Executive Director & CIO status report
   ➢ SBA Update: investment performance, risks, opportunities and challenges

4. Presentation of Crowe Horwath’s audit plan for the financial statement audits of
   FRS Pension Plan and FRS Investment Plan for the year ending June 30, 2018

5. Presentation of OIA’s Compliance Advisory Engagement

6. Update on Management’s Response to GRC Report

7. Proposed FY 2018-2019 Internal Audit Budget

8. OIA Annual Audit Plan for FY 2018-2019

9. Office of Internal Audit Quarterly Report

10. Chief Risk & Compliance Officer Quarterly Report

11. Other items of interest

12. Closing remarks of the Audit Committee Chair and Members

13. Adjournment
Office of Internal Audit (OIA)
Quarterly Report to the Audit Committee

April 30, 2018
Table of Contents

<table>
<thead>
<tr>
<th>Status of the FY 2017–18 Annual Audit Plan:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Internal Audit and Advisory Engagements</td>
<td>4</td>
</tr>
<tr>
<td>• External Engagement Oversight</td>
<td>5</td>
</tr>
<tr>
<td>• Special Projects, Risk Assessment, and Other Activities</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Presentation of OIA Projects Complete and Status of Management Action Plans/Recommendations:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Incentive Compensation Audit</td>
<td>8</td>
</tr>
<tr>
<td>• Payroll Continuous Monitoring</td>
<td>9</td>
</tr>
<tr>
<td>• Details of open items – Audit and Advisory Projects</td>
<td>10–12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other OIA Activities:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Status of FY 2017–18 OIA Department Goals</td>
<td>14</td>
</tr>
<tr>
<td>• Change in OIA’s Annual Quality Assessment Process</td>
<td>15</td>
</tr>
<tr>
<td>• Other Items for Discussion</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Appendices:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Audit Recommendations and Action Plans at April 18, 2018</td>
<td>Appendix A</td>
</tr>
<tr>
<td>Incentive Compensation Audit Report</td>
<td>Appendix B</td>
</tr>
<tr>
<td>Periodic Follow-up Audit Report</td>
<td>Appendix C</td>
</tr>
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Status of Annual Audit Plan
## Status of the FY 2017–18 Annual Audit Plan

### Internal Audit and Advisory Engagements

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<tr>
<th>Projects Status</th>
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<th>Planned Timing</th>
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<tr>
<td><strong>Completed</strong></td>
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<tr>
<td>Internal Controls over Financial Reporting - DC</td>
<td>OIA Advisory</td>
<td>Q1</td>
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<tr>
<td>Real Estate, commingled</td>
<td>OIA Operational Audit</td>
<td>Q1</td>
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<tr>
<td>Continuous Monitoring - GE (Cost by Dealer report only)</td>
<td>OIA Advisory</td>
<td>Q1</td>
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<tr>
<td>Internal Controls Assessment - RE Cash Transfers</td>
<td>OIA Advisory</td>
<td>Q2</td>
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<tr>
<td>Quarterly Follow-up Audits/Action Plan Monitoring</td>
<td>OIA Operational Audit/Project Management</td>
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<tr>
<td>Continuous Monitoring - Payroll</td>
<td>OIA Advisory</td>
<td>Q2</td>
</tr>
<tr>
<td>Compliance Advisory, automation, efficiencies and gaps</td>
<td>OIA Advisory</td>
<td>Q2/Q3</td>
</tr>
<tr>
<td>Incentive Compensation Audit</td>
<td>OIA Operational Audit</td>
<td>Q3/Q4</td>
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<tr>
<td><strong>In Progress</strong></td>
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<tr>
<td>Externally Managed Derivatives Audit</td>
<td>OIA Operational Audit</td>
<td>Q3/Q4</td>
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<tr>
<td><strong>Not Started</strong></td>
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<tr>
<td>Continuous Monitoring - Accounts Payable</td>
<td>OIA Advisory</td>
<td>Q3/Q4</td>
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<tr>
<td>Continuous Monitoring - Pcards</td>
<td>OIA Advisory</td>
<td>Q3/Q4</td>
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Highlighted: Completed since prior quarterly report.
## Status of the FY 2017–18 Annual Audit Plan
### External Engagement Oversight

 Highlighted: Completed since prior quarterly report.

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<td>Operational Audit (follow-up #2015-083)</td>
<td>Auditor General</td>
<td>External Operational Audit</td>
<td>Q1/Q2</td>
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<td>Network Security, outsourced</td>
<td>BDO</td>
<td>External IT Audit</td>
<td>Q1/Q2</td>
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<td>Florida Hurricane Catastrophe Fund</td>
<td>KPMG</td>
<td>External Financial Statement Audit</td>
<td>Q1/Q2</td>
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<td>Florida Retirement System (FRS) Trust Fund</td>
<td>Crowe Horwath</td>
<td>External Financial Statement Audit</td>
<td>Q1/Q2</td>
</tr>
<tr>
<td>FRS Investment Plan Trust Fund</td>
<td>Crowe Horwath</td>
<td>External Financial Statement Audit</td>
<td>Q1/Q2</td>
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<td>Florida PRIME</td>
<td>Auditor General</td>
<td>External Financial Statement Audit</td>
<td>Q1/Q2</td>
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<td>Auditor General</td>
<td>External Financial Statement Audit</td>
<td>Q2/Q3</td>
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<td>Florida Growth Fund Initiative</td>
<td>OPPAGA</td>
<td>External Review</td>
<td>Q1/Q2</td>
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<td>Triennial Governance, Risk &amp; Compliance</td>
<td>Funston Advisory Services</td>
<td>External Advisory</td>
<td>Q1/Q2</td>
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<td><strong>In Progress</strong></td>
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Status of the FY 2017–18 Annual Audit Plan
Special Projects, Risk Assessments, and Other Activities

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<td>OIA Risk Assessment</td>
<td>Q3/Q4</td>
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<td>Q3/Q4</td>
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<td>Annual Audit Plan</td>
<td>OIA Risk Assessment</td>
<td>Q3/Q4</td>
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<td>Ongoing/In Progress</td>
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<td>Solution Cost Benefit Analysis</td>
<td>OIA Special Projects</td>
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<td>Data Analytics Tools Enhancements</td>
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<td>ISO 22301 Implementation Analysis</td>
<td>OIA Special Projects</td>
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<td>ACH Advisory Project for FHCF</td>
<td>OIA Special Projects</td>
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<td>OIA process improvement</td>
<td>OIA Quality Assurance</td>
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<td>initiatives, including QAR</td>
<td>OIA Audit Committee</td>
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<td>identified initiatives</td>
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<td>Audit Committee Related Activities</td>
<td>OIA Quality Assurance</td>
<td>Q3/Q4</td>
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<tr>
<td>Annual Quality Assessment Review</td>
<td>OIA Quality Assurance</td>
<td>Q3/Q4</td>
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Highlighted: Completed since prior quarterly report.
Presentation of OIA Projects Complete and Status of Management Action Plans/Recommendations
Incentive Compensation Program Operational Audit

Our risk-based audit assessed the existence, adequacy and effectiveness of internal controls, and compliance to relevant policies and procedures for three separate, but similar incentive compensation plans for FY 2015–16 and FY 2016–17. We evaluated the accuracy of participant information in the SBA systems and when possible, we performed data analytics and recalculations on select data for the same period. For flowcharts of these processes, see the appendix included in the report.

**Plans In–Scope**

1. The Incentive Compensation Plan for the ED&CIO
2. The Incentive Compensation Plan for Certain SBA Employees Other than the ED&CIO (Pension Plan)
3. The Incentive Compensation Plan for Certain SBA Employees –FRS Investment Plan

<table>
<thead>
<tr>
<th>Legend for Control Effectiveness Rating</th>
<th># of Key Controls</th>
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<tr>
<td>Effective</td>
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<tr>
<td>Improvement Needed</td>
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<tr>
<td>Not Effective</td>
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<td><strong>Total Key Controls</strong></td>
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**Observations in the Report:**

**Status of Action Plan:**

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<th>Status</th>
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<td>3</td>
<td>Medium</td>
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<tr>
<td>2</td>
<td>Low</td>
<td>Target completion date for one observation is June 30, 2018 and the second observation, not related to key controls is June 30, 2019</td>
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<tr>
<td>5</td>
<td>Total</td>
<td>Observations</td>
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Legend for Control Effectiveness Rating:

- Effective
- Improvement Needed
- Not Effective
Payroll Continuous Monitoring – This engagement was created to provide management with a means to review potential anomalies in the payroll data at a glance and provide assurance that due diligence was exercised in regard to payroll processing. The two objectives of this engagement:

1. Recreate the tests and scripts of two separate payroll tests in a single consistent, repeatable set of tests in Tableau:
   a. Tests from the 2014 Payroll Data Analytics, depending on the available data;
   b. Tests from the pre-packaged IDEA scripts purchased in 2016, depending on the available data;
   c. Tableau dashboard resulted in 14 tests, with 3 “alternate” looks at 3 of the 14.

2. Identify anomalies (if any exist) in Payroll data
# New/Closed Action Plans & Recommendations

Audit and Advisory Engagements

<table>
<thead>
<tr>
<th># of Recs</th>
<th>Source</th>
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<td><strong>New recommendations</strong></td>
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<tr>
<td>2</td>
<td>OIA Report 2018–03 Real Estate Cash Transfers Advisory</td>
</tr>
<tr>
<td>6</td>
<td>OIA Report 2018–06 Incentive Compensation Program Operational Audit (Appendix B)</td>
</tr>
<tr>
<td>85</td>
<td>Governance, Risk Management, and Compliance Assessment (Funston) (Note 1)</td>
</tr>
<tr>
<td>93</td>
<td>Total recommendations added to the database</td>
</tr>
</tbody>
</table>

**Closed action plans and recommendations:** (Note 2)

| (1) | OIA Report 2017–03 Global Equity Internal Trading Operational Audit |
| (4) | OIA Report 2017–05 Internally Managed Derivatives Operational Audit |
| (1) | OIA Report 2017–08 Real Estate Externally Managed Portfolios Operational Audit |
| (1) | Fiscal Year 2016–17 FRS Audit (Crowe Horwath) |
| **(7) Total action plans/recommendations closed in the database** | |
| 86 | Total Change for both Audit and Advisory Action Plans/Recommendations |

Reported in the OIA Report 2018–07, Periodic Follow-up Audit (Appendix C)

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**Note 1:** Funston’s report originally included a total of 110 recommendations. The SBA has reviewed and combined some of these recommendations for a total of 85, and will continue to combine as it makes sense to do so.

**Note 2:** Advisory recommendations closed as part of our annual risk assessment will be reflected on the next quarterly report to the Audit Committee.
Management Action Plans relating to findings from audits performed by internal or external auditors. The OIA monitors and performs follow-up procedures on the management action plans in accordance with the IIA Standard 2500. A1. In certain cases, follow-up procedures are performed by external auditors.

**Legend:**
- NYI - Not Yet Implemented
- PIRP - Partially Implemented and the Remainder is in Progress
- OTV - OIA to Verify

For details, see Appendix A.
## Status of Recommendations – Advisory Projects

<table>
<thead>
<tr>
<th>Report Title</th>
<th>Report Date</th>
<th>Pending</th>
<th>NYI</th>
<th>PI</th>
<th>IMP</th>
<th>NA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Technology General Controls Advisory Engagement (OIA)¹</td>
<td>01/20/2017</td>
<td>6</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>11</td>
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<tr>
<td>Internal Controls Over Financial Reporting Advisory – FRS Pension Plan (OIA)¹</td>
<td>07/19/2017</td>
<td>1</td>
<td></td>
<td>3</td>
<td></td>
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<td>4</td>
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<tr>
<td>Internal Controls Over Financial Reporting Advisory – FRS Investment Plan (OIA)¹</td>
<td>09/28/2017</td>
<td>1</td>
<td></td>
<td>2</td>
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<td>3</td>
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<tr>
<td>Network Security Assessment 2017 (BDO)²</td>
<td>11/02/2017</td>
<td>9</td>
<td></td>
<td>14</td>
<td></td>
<td></td>
<td>23</td>
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<td>Governance, Risk Management, and Compliance Assessment (Funston)³</td>
<td>01/15/2018</td>
<td>61</td>
<td>17</td>
<td>1</td>
<td>6</td>
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<td>85</td>
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<td>Real Estate Cash Transfers Advisory (OIA)¹</td>
<td>01/16/2018</td>
<td>1</td>
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<td>67</td>
<td>29</td>
<td>6</td>
<td>20</td>
<td>6</td>
<td>128</td>
</tr>
</tbody>
</table>

**Legend:**

- Pending - Further management discussion needed
- NYI - Not yet implemented
- PI - Partially Implemented, as represented by SBA management
- IMP - Implemented, as represented by SBA management
- NA - Not Accepted by SBA management

*Advisory Recommendations made by OIA or external consultants resulting from an assessment of a program or activity such as governance, risk management, compliance, ethics, disaster recovery preparedness program, etc. The OIA monitors the disposition of these recommendations in accordance with the IIA Standard 2500.C1.*

¹At the advice of the Audit Committee, the OIA closes Advisory Recommendations that management represented as “complete” once the OIA has considered those in the annual risk assessment. The next annual risk assessment will occur during Fiscal Year 2017-2018.

²Recommendations will be reviewed for remediation and closure by BDO as part of the 2018 Network Security Assessment.
Other OIA Activities
Status of FY 2017–18 OIA Department Goals

**Annual Audit Plan**
Successfully deliver the fiscal year 2016-17 Audit Plan and budget. Enhance communication of the COSO internal control framework.

<table>
<thead>
<tr>
<th>Completed</th>
<th>In Progress / Ongoing</th>
<th>Not Yet Started</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**Internal Audit Process**
Focus on enhancing OIA processes, programs and procedures, resulting in more efficient operation of the department administration and the effective development and utilization of department resources.

<table>
<thead>
<tr>
<th>Completed</th>
<th>In Progress / Ongoing</th>
<th>Not Yet Started</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**Use of Technology**
Implement audit technology solutions to enhance department effectiveness and efficiency.

<table>
<thead>
<tr>
<th>Completed</th>
<th>In Progress / Ongoing</th>
<th>Not Yet Started</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

**People**
Evaluate staffing and development needs.

<table>
<thead>
<tr>
<th>Completed</th>
<th>In Progress / Ongoing</th>
<th>Not Yet Started</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
OIA is recommending a rolling quality assessment process, as follows:

- 2014: Self-Assessment with external validation
- 2015: Self-Assessment
- 2016: Self-Assessment
- 2017: Self-Assessment
- 2018: GRC Assessment
- 2019: Self-Assessment with external validation
- 2020: Self-Assessment
- 2021: Self-Assessment
- 2022: Self-Assessment
- 2023: GRC Assessment *(Recommending changing the Audit Committee Charter to perform the GRC Assessment every five years instead of every three years)*
Other Items for Discussion

- Externally Managed Derivatives Audit Update
- Integrated Risk Management Solution Update
- Introduce Intern
- Next Audit Committee Meeting Dates
  - Monday, August 6, 2018
  - Monday, November 26, 2018
MEMORANDUM

To: Ash Williams  
From: Michael McCauley  
Date: May 21, 2018  
Subject: Quarterly Standing Report - Investment Programs & Governance

GLOBAL EQUITY PROXY VOTING & OPERATIONS  
During the first quarter of 2018, SBA staff cast votes at 1,458 companies worldwide, voting on ballot items including director elections, audit firm ratification, executive compensation plans, merger & acquisitions, and a variety of other management and shareholder proposals. These votes involved 11,041 distinct voting items—voting 76.5 percent “For”, 20.9 percent “Against”, and 2.5 percent as “Abstained.” Of all votes cast, 21.6 percent were “Against” the management-recommended-vote. SBA proxy voting was conducted across 55 countries, with the top five countries comprised of the South Korea (433 votes), United States (215), Japan (146), India (82), and China (52). The table below provides major statistics on the SBA’s proxy voting activities during the most recent quarter ending on March 31, 2018:

<table>
<thead>
<tr>
<th>Votes in Favor</th>
<th>76.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Votes aligned to Management’s Recommendation</td>
<td>78.4%</td>
</tr>
<tr>
<td>Most Voted Market (# of Votes)</td>
<td>South Korea (433)</td>
</tr>
<tr>
<td>Total Voting Items (All Markets)</td>
<td>11,041</td>
</tr>
</tbody>
</table>

CORPORATE GOVERNANCE & PROXY VOTING OVERSIGHT GROUP  
The most recent meeting of the Corporate Governance & Proxy Voting Oversight Group (Proxy Committee) occurred on March 27, 2018, and the Committee will meet next on June 20, 2018. The Proxy Committee continues to review ongoing governance issues including the volume and trends for recent SBA proxy votes, company-specific voting scenarios, corporate governance policies, governance-related investment factors, major regulatory developments and individual company research related to the Protecting Florida’s Investments Act (PFIA) and recent statutory investment requirements implemented for Israel and Venezuela.

LEADERSHIP & SPEAKING EVENTS  
Staff periodically participates in and often is an invited presenter at investor and other governance conferences. Typically, these events include significant involvement by corporate directors, senior members of management,
and other key investor or regulatory stakeholders. The following items detail involvement at events that occurred recently:

- In January, SBA staff participated in the Council of Institutional Investors’ (CII) “Real Talk on Executive Compensation” roundtable, discussing the design of incentive plans, equity grant patterns, and other general compensation elements.
- In March, SBA staff participated in Deloitte’s 2018 Governance Symposium, discussing major corporate governance issues and the investor perspective. A primary focus of the Symposium was on the rollout and continued engagement by members of the Investor Stewardship Group (ISG), of which the SBA is a founding member.
- In March, SBA staff participated in the Council of Institutional Investors (CII) Spring conference focusing on a variety of investment topics. SBA staff participated as speakers in both the CII Master Class on Activist Investing as well as a panel discussing how to integrate Environmental, Social and Governance (ESG) factors into investment activities.
- In April, SBA staff participated in the ESG4 investor conference serving on a panel covering how investors assure accuracy in the corporate reporting of ESG factors and global disclosure regimes.
- In April, SBA staff participated in the ‘Bank of America - Closing Bell Lecture Speaker Series’ within the Florida State University (FSU) business school, for a presentation on the SBA’s corporate governance program and general investment management topics.
- In May, SBA staff participated in a meeting on public company engagement at the Harvard Business School, sharing information with other U.S. asset owners and asset managers on select activist topics.

**ACTIVE OWNERSHIP & CORPORATE ENGAGEMENT**

From February through May 2018, SBA staff conducted limited engagement meetings owned within Florida Retirement System (FRS) portfolios, including Broadcom Inc., Tesla Motors, IBM, Goldman Sachs, Prudential, Merlin Properties, Taubman Centers and HomeStreet, Inc.

**HIGHLIGHTED PROXY VOTES**

**Walt Disney Co.**—on the March 8, 2018 proxy ballot, SBA staff voted against the advisory vote on executive compensation (“say-on-pay”). Investors voted down the non-binding compensation practices of the company by a slim majority of 52 percent. Disney has struggled with succession planning for the CEO role. Under the board’s most recent contract extension in December 2017, Mr. Iger’s pay could increase to over $140 million when combined with Disney’s deal to acquire assets of 21st Century Fox Inc. The board is likely to further extend the CEO’s contract through 2021 if the Fox deal closes. Disney’s board of directors said it accepted the results of the proxy vote and would take it under advisement when structuring future executive compensation. Market observers noted Disney’s situation could be one of the most expensive examples of a failure to adequately plan for and manage CEO succession.

**Tesla Motors**—for the company’s March 21, 2018 special meeting, SBA staff voted in support of Tesla’s performance stock option agreement with Chief Executive Officer Elon Musk. As one of the largest compensation arrangements in history—with a potential value in excess of $50 billion—the plan includes a series of increasingly higher market capitalization thresholds. If all performance goals are met during the plan’s 10 year life, the company’s value will increase more than ten-fold and also exhibit significant gains in both corporate revenues and earnings. Both of the leading proxy advisors recommended their clients vote against the compensation plan. Excluding insider-held shares, approximately 73 percent of voting shareowners supported the pay package.
Telecom Italia S.P.A.—for the May 4, 2018 special meeting, SBA staff supported a slate of board nominees presented by activist fund Elliott Advisors (UK) as part of its challenge to Vivendi and its de facto control over the board of directors. Elliot asked investors to support its proposal to revoke the six incumbent directors from the board and the appointment of six directors in substitution of the revoked directors. Italian board election regulations are rather complex with directors being elected on the basis of lists presented by shareowners representing at least 0.5 percent of a company's issued share capital, within 25 days before the meeting. Additionally, two thirds of the board members are elected from the list that receives the highest number of votes cast, in the order in which they are presented. The remaining directors are elected from the list that receives the second highest number of votes cast. And due to additional procedural requirements at the company, SBA staff also abstained from voting on ballot items to restrict the size of the board and director terms. Ultimately, Elliot defeated Vivendi to take control of Telecom Italia’s board, marking its first proxy fight victory in its four decades of operation. Shareowners supported the U.S. activist’s call to improve the corporate governance of Telecom Italia and push for asset sales.

General Electric Co. and Wells Fargo & Co.—SBA staff voted against the ratification of the firms’ external auditor. In the case of GE, votes were cast against KPMG (which has been in place for 109 years) due to material problems including the ongoing SEC investigation into the company's accounting practices involving internal controls and revenue recognition, and the auditing firm’s extremely long tenure. In the case of Wells Fargo, SBA staff voted against KPMG (which has been in place for 87 years) due to material problems including fraudulent account activity (although not involving internal controls), the auditor’s prior knowledge of management’s activities, and the auditing firm’s extremely long tenure. The auditor’s role in safeguarding investor interests is critical. Independent auditors have an important public trust, for it is the auditor’s impartial and professional opinion that assures investors that a company’s financial statements are accurate. Auditing standards place a responsibility on auditors to plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether caused by error or fraud. SBA staff generally supports proposals to ratify auditors unless there is reason to believe that the auditing firm has become complacent in its duties or its independence has been compromised. SBA believes all publicly held corporations should rotate their choice of auditor’s periodically. Shareowners should be given the opportunity to review the performance of the auditors annually and ratify the board’s selection of an auditor for the coming year. Although KPMG was ratified at both companies, the audit firm only received 65 percent support at GE, representing an extremely high level of opposition. At Wells Fargo, the audit firm received over 91 percent of voted shares. The vote at GE marks only the fifth time an external auditor has received less than 90 percent support since 2015.

Sturm, Ruger & Co.—for its May 9, 2018 annual shareowner meeting, SBA staff voted in favor of all director nominees and also supported an investor proposal requesting the company issue a report on the firm’s activities related to gun safety measures and the mitigation of harm associated with gun products. The report will cover: 1) monitoring of violent events associated with products produced by the company; 2) efforts underway to research and produce safer guns and gun products; and 3) assessment of the corporate reputational and financial risks related to gun violence. SBA staff supports a more robust discussion of the reputational risks faced by the company on account of ongoing gun violence and public safety concerns. The investor proposal passed overwhelmingly with almost 68 percent of the voted shares in support. This is among the highest vote support levels of any shareowner proposal year to date. As one of the SBA’s external proxy advisors noted, it may be unreasonable to assume that the company can adequately monitor gun violence nationally; however, the proposal’s requested disclosure of efforts to research and produce safer guns, as well as the assessment of the corporate reputational and financial risks related to gun violence in the U.S., would benefit shareowners. Sturm, Ruger is one of the few publicly-traded firearms manufacturers to perform well compared to industry peers and the broader stock market.
USG Corp.—for its May 9, 2018 annual shareowner meeting, SBA staff voted against four management director nominees due to the board’s refusal to enter into takeover negotiations with Gebr. Knauf Verwaltungsgesellschaft KG (“Knauf”), which publicly announced an offer to acquire USG for $5.6 billion, or $42.00 per share in cash, representing a premium of approximately 25.3 percent to USG’s unaffected closing share price on the day of the offer. The USG board’s inaction is protected by the company’s extensive structural defense policies, including a poison pill, a classified board, inability for shareowners to call a special meeting and restrictions on actions by written consent. On April 12, 2018, Berkshire Hathaway publicly announced its intention to vote its entire 31 percent share ownership of USG equity against the four USG director candidates. Berkshire’s action represented the first time the investment holding company had ever cast votes against members of the incumbent management at a company it owned. Warren Buffet stated, “We did not think the [USG’s] directors were essentially doing their job.” After receiving significant negative votes from over 76 percent of the company’s investors, the board announced on May 1, 2018 that it authorized management to enter into negotiations with Knauf regarding a potential sale of the company. On May 4, 2018, USG and Knauf entered into a confidentiality agreement, pursuant to which USG agreed to provide certain non-public information to Knauf. In addition, Knauf stated that the agreement had a term of two years and contained certain standstill provisions lasting through August 31, 2018. Since the date of the Berkshire Hathaway announcement, the price of the company’s stock has risen over 30 percent.

NOTABLE RESEARCH & GOVERNANCE TRENDS
Department of Labor (DOL) Guidance on ESG—on April 23, 2018, the Labor Department’s Employee Benefits Security Administration (EBSA) issued Field Assistance Bulletin 2018-01 (FAB 2018-1) clarifying issues regarding proxy voting, shareholder engagement, and economically targeted investments. The DOL refers to investments that are chosen for reasons other than the economic return to a plan as “economically targeted investments” (ETIs). The newest FAB clarifies earlier interpretations set forth in Interpretive Bulletins (IB) 2015-01 and 2016-01. In IB 2015-01, the Department held that fiduciaries may not sacrifice returns or assume greater risks to promote collateral environmental, social, or corporate governance (ESG) policy goals when making investment decisions. The DOL found that ESG factors may in fact be part of the economic analysis of investments, and so it may be appropriate to apply ESG factors as more than mere “tiebreakers.” In IB 2016-01, the Department addressed issues surrounding written statements of investment policy, proxy voting, and other exercises of shareholder rights by fiduciaries when managing plan assets that are corporate stock. The DOL found that plan fiduciaries may adopt investment policies requiring ESG factors (including governance issues like board composition, transparency or executive compensation) to be taken into account by investment managers in voting proxies to enhance the long-term economic value of investments.

For decades, the DOL has consistently interpreted the fiduciary standards of ERISA to require investment decisions to be based primarily on economic factors, such as risk and return. ERISA requires fiduciaries to act with the “exclusive purpose” of providing benefits to participants and beneficiaries and paying reasonable expenses of plan administration. DOL’s guidance on how fiduciaries should take into account environmental, social or governance (ESG) factors has evolved over time. Guidance issued in 2008 generally permitted ESG factors to be used only as a “tiebreaker” among investments that were otherwise determined to be economically equivalent based on a quantitative and qualitative analysis of the investments. Similarly, 2008 guidance found that fiduciaries may violate their duties if they “attempt to further legislative, regulatory or public policy issues through the proxy process.” FAB 2018-01 advises fiduciaries of ERISA-covered plans to “avoid too readily treating ESG issues as being economically relevant to any particular investment choice.” It further advises that ERISA does not necessarily require plans to adopt investment policy statements with express guidelines on ESG factors. FAB 2018-01 recognizes that proxy voting of plan investments is typically performed by institutional investment managers with resources available to assess the economic benefits and costs of
proxy voting. Any proxy voting or shareholder engagement policies approved by plan fiduciaries should be intended to enhance the economic return of investments, and fiduciaries should be able to demonstrate that they have analyzed the economic benefit in view of the costs to the plan and that they are not using plan assets to promote public policy preferences. The FAB also clarifies that plan fiduciaries (including investment managers) may not routinely incur significant plan expenses to pay for the costs of shareholder resolutions or special shareholder meetings or to initiate or actively sponsor proxy fights on environmental or social issues. Separately, the U.S. Government Accountability Office (GAO) will issue a report later in 2018 covering how retirement plans should handle ESG investments.
MEMORANDUM

To: Ashbel C. Williams, Executive Director & CIO
From: Maureen M. Hazen, General Counsel
Date: May 18, 2018
Subject: Office of General Counsel: Standing Report
For Period March 1, 2018 – May 14, 2018

SBA Agreements.

During the period covered by this report, the General Counsel’s Office drafted, reviewed and negotiated: (i) 21 new agreements – including 2 Private Equity investments, 2 Strategic Investments, and 2 Real Estate investments; (ii) 108 contract amendments, addenda or renewals; and (iii) two (2) contract terminations.

SBA Litigation.

(a) Passive. As of May 14, 2018, the SBA was monitoring (as an actual or putative passive member of the class) 585 securities class actions. During the period from March 1, 2018 – April 30, 2018, the SBA collected recoveries in the amount of $637,271.32 as a passive member in 12 securities class actions.

(b) Active.

(i) In re Tribune Litigation. On January 24, 2012, the SBA was served a complaint (along with other defendants) now pending in the U.S. Bankruptcy Court, Southern District of New York by the Official Committee of Unsecured Creditors of the Tribune Company alleging damages for fraudulent conveyance and requesting the return of proceeds received by all defendant investors in a leveraged buy-out of the Tribune Company (which subsequently declared bankruptcy). Pursuant to a plan approved in the bankruptcy proceeding, the claim was transferred to the U.S. District Court, Southern District of New York (the “Court”) and consolidated with additional parallel cases for multi-district litigation. The SBA received approximately $11 million in connection with this leveraged buy-out. Several amended complaints have been filed in the action in which the SBA was originally served in January, 2012 (the “FitzSimons Action”). In early 2017, the Court dismissed the intentional fraudulent transfer count (the
only claim applicable to the SBA), and the SBA (and other defendants) are monitoring for a possible appeal.

(ii) **Valeant Opt-Out Action.** During the period covered by this report, the OGC recommended to the Trustees and you that the SBA file the opt-out with the group of plaintiffs being represented by Bernstein Litowitz. The SBA may have incurred more than $62 million in recoverable damages. The Trustees approved filing of the action on November 6, 2017, and the SBA subsequently filed the Complaint. On November 29, 2017, the Court issued a stay in discovery in the case pending the conclusion of the trial in the criminal case filed by the U.S. Department of Justice. Therefore, as a practical matter, there will be progress in the case until the conclusion of the criminal matter.

(iii) **LIBOR Litigation.** The Attorney General’s Office has commenced an investigation against several banks with respect to the alleged manipulation of LIBOR. The OGC and other SBA staff (e.g. Fixed Income, Financial Operations and Accounting) have been working with the Attorney General’s Office since September, 2012. Since then, the Attorney General (representing the SBA) has settled the case with Barclays Bank and Deutsche Bank, and the SBA has recovered over $12,000,000 in settlement proceeds. The cases against the other banks are ongoing.

(c) **FRS Investment Plan.** During the period covered by this report, the General Counsel’s Office monitored and/or managed the following cases for the Florida Retirement System Investment Plan (the “Investment Plan”). The SBA issued six (6) Final Orders, received notice of filing of two (2) new cases, and continued to litigate eleven (11) cases (including two appellate cases) that were pending during the periods covered by previous reports.

**Other Matters.**

(a) **Public Records.** During the period covered by this report, the General Counsel’s Office received 23 new public records requests and provided responses to 22 requests. As of the date of this report, the General Counsel’s Office continues to work on 3 open requests.

(b) **SBA Rule Activities.** During the period covered by this report, there was no rule activity.
MEMORANDUM

TO: Board of Trustees  
FROM: Ken Chambers, Inspector General  
DATE: May 21, 2018  
SUBJECT: Quarterly Report on SBA Inspector General Activities

The SBA Inspector General (IG) is responsible for serving as the organization's ethics officer; conducting internal investigations; overseeing investment protection principles (IPP) compliance; and handling special projects as directed by the Executive Director.

Ethics and Training

- Mandatory ethics training and certification of compliance are required for all SBA employees on an annual basis. The on-line training covers gifts, conflicts of interest, financial disclosure, outside employment, lobbyist/principal restrictions, honorarium related events, etc. In addition to ethics training, mandatory training is annually required for all employees in the areas of harassment prevention, personal investment activity, insider trading, incident management framework, fiduciary duties, and cybersecurity awareness. For 2018, employees will also be required to complete training courses for public records and the Sunshine Law (these two courses are required every other year). The deadline for completing the courses is June 30, 2018. All new employees are required to take all of the mandatory training courses within 30 days of their start date.

- During the period March 1, 2018 to May 21, 2018, no instances were reported to the Inspector General concerning non-compliance with the SBA gift policy.
Investment Protection Principles Compliance

In September 2002, the Trustees of the SBA adopted Investment Protection Principles (IPPs) for broker-dealers and investment managers in the wake of Wall Street scandals involving tainted equity research and conflicts of interest. The IPPs are geared toward promoting independence, transparency and regulatory compliance, and adherence to the highest standards of ethics and professionalism. On an annual basis, written certification is required from equity, fixed income and real estate investment managers, and broker-dealers. Additionally, annual certifications have been developed for the investment services related consulting firms engaged by the SBA. These consulting firms are required to certify their compliance with certain independence and disclosure principles.

The compliance results for the consultants were reported in the previous quarterly report.

The IPP certifications for the equity, fixed income and real estate investment managers were disseminated in February 2018. All of the investment managers completed and returned their IPP certification forms for the 2017 reporting period. An analysis of the 2017 certifications indicated full compliance with the IPP's by most of the investment managers. For the others, explanations were provided supporting that the managers are in compliance with the spirit of the IPP's.

Certification forms for broker-dealers were disseminated to the applicable firms in April 2018. All but a few of the certifications have been completed and returned, and the compliance results for all of the broker-dealers will be included in the next Trustee's report.

SBA Fraud Hotline

Since July 2006, The Network Inc. has been the independent provider of SBA Fraud Hotline services. Through an 800 number, SBA employees may anonymously report tips or information related to fraud, theft, or financial misconduct. The telephone number and information is prominently displayed on the SBA intranet home page. Additionally, the hotline information is available on the SBA internet site as part of the SBA Internal Control and Fraud Policy. To date, no reports or tips have been received by the Hotline for 2018.

Financial Disclosure Forms

The Commission on Ethics requires certain state employees and officials who meet the reporting requirement to file an annual Financial Disclosure Form. All SBA employees who met this requirement have filed a Financial Disclosure Form with the Commission on Ethics for the year ending December 31, 2016, as well as all new employees hired during 2017. Disclosure Forms for 2017 were recently submitted to all affected employees, and are due to the Commission by July 1, 2018.

cc: Ash Williams
The role of the Risk Management and Compliance (RMC) unit is to assist the Executive Director & CIO in maintaining an appropriate and effective risk management and compliance program to identify, monitor and mitigate key investment and operational risks. RMC plays a critical role in developing and enhancing the enterprise-wide system of internal controls. RMC proactively works with the Executive Director & CIO and designees to ensure issues are promptly and thoroughly addressed by management.

SBA senior management has created a culture of risk management and compliance through the governance structure, allocation of budgetary resources, policies and associated training and awareness. Management is committed to ethical practices and to serving the best interests of the SBA’s clients.

Included below is a brief status report of RMC activities and initiatives completed or in progress during the period March 3, 2018 to May 21, 2018.

Compliance Exceptions
No material compliance exceptions were reported during the period.

Risk Assessments and Management Plans
There were no changes in the residual risk levels of the 13 top-level risks in the Enterprise Risk Management Framework. The Risk and Compliance Committee (RCC) held their quarterly meeting on April 3, 2018 and affirmed Management Plans. The RCC reviewed the proposed SBA Business Model, and have been providing feedback. Once finalized, risks to the model will be documented and key risk indicators formalized.

Triennial Governance, Risk, and Compliance (GRC) Assessment
Recommendations contained in the Triennial external assessment of the SBA’s Governance, Risk, and Compliance Program include but are not limited to the following three broad categories:

- Tying a risk framework to an SBA business model with related Key Risk and Key Performance Indicators.
- Clarifying roles and responsibilities regarding operational due diligence.
- Prioritizing and automating compliance activities.

These will be primary focus areas for RMC over the next year.

Business Model Development
Business model development involves first designing a diagram that represents investment management and the functions thereof, rather than basing it on current business unit structure or the current risk framework. Additional diagrams would reflect the non-investment business of the SBA and unique business items, such
as the Florida Hurricane Catastrophe Fund. From this the SBA plans to revise the current risk framework and design and track Key Risk Indicators.

**Operational Due Diligence (ODD)**
RMC plays a significant role in ODD processes within the SBA and is participating in a cross-functional evaluation of ODD processes conducted on all SBA investments. A new framework is under development and will inform the roles and responsibilities included in policy.

**Trading and Compliance Systems**
The upgrade of the Charles River Investment Management Solution and move to the new Software as a Service (SAAS) operating model was implemented April 2018. The trading and compliance modules have been enhanced, and workflows have been tested. Going forward, the SAAS model will provide an annual upgrade service to capture the latest technology offered by Charles River. RMC is preparing to implement the Aladdin system for holdings-based compliance, and is currently evaluating additional functionality in existing compliance systems to ensure automated processes are in place to the extent practical.

**Compliance Advisory**
The OIA Compliance Advisory project was completed April 2018. As part of the engagement, an aggregate compliance rule library was developed containing all compliance rules. This library will be maintained by RMC going forward. The Advisory has provided useful recommendations to advance the program and gain additional efficiencies through automation.

**Counterparty Renewal and Monitoring**
RMC continues to enhance counterparty evaluation and monitoring processes to ensure current broker/dealer financial information and real-time market signals are considered in trading decisions. Counterparty exposure and market trend information is reported daily. Additional reporting has and continues to be developed. The annual counterparty renewal process led by RMC is planned to begin in June, with the new Authorized Trading Counterparty List being effective October 2018.

**Performance and Risk Analytics**
RMC recently launched an interactive performance, risk and attribution dashboard as a complement to the on-demand reports. The dashboard allows all SBA staff to quickly view performance, attribution, and asset allocation information for individual portfolios, groups of portfolios, or asset classes. Dashboard enhancements will continue.

As part of this development process, Kelly Marsey, Director of Performance & Risk Analytics, earned the Specialization in Data Science Certificate, following a rigorous 10-course program through Johns Hopkins University. The specialization provides a solid foundation in programming and data visualization that allows RMC to broaden capabilities in managing large data sets, providing enhanced insights into investment performance and risk. Additionally, Carolina Ramirez, Manager of Quantitative Investment Analysis, earned the Certificate in Performance Measurement (CIPM) designation in May 2018. This designation, awarded by the CFA Institute, reflects mastery in concepts relating to investment portfolio performance evaluation and risk analysis.

**Florida Asset Manager Evaluation (FLAME) System**
A new system has been internally developed to automate information collection from over 200 external investment managers as part of the annual contractual and statutory compliance certification process. This
collaboration between RMC and Information Technology has produced significant benefits including greater efficiency in analysis, process streamlining, and enhanced security in data transmission. Testing has been conducted and RMC is beginning the process of registering asset managers in preparation for July 2018 implementation. Based on positive feedback from investment managers and SBA senior management, planning is in progress for a second phase of implementation to collect a broader range of investment data to support asset class oversight of investment managers.
May 18, 2018

SUMMARY OF STATUTORY COMPLIANCE REVIEW, 2018

This review finds that the Local Government Surplus Funds Trust Fund, Florida PRIME™, (Fund) is in compliance with Sections 218.40 – 218.415, Florida Statutes.

Scope – The time period reviewed is May 16, 2017 through May 15, 2018.

Methodology – The review included analysis of the applicable statute, interviews with State Board of Administration personnel, review of materials posted to the Florida PRIME™ website, and materials provided by SBA personnel.

Additional Findings – Because the Fund existed long before many requirements for enrollment were added in 2008, a number of participants do not have a Disclosure Statement (a document specifically acknowledging receipt and review of enrollment materials) on file, but at this point over 98 percent of the dollar value of the Fund is in accounts of participants that have Disclosure Statements on file.

Auditor General Report No. 2018-045 noted no instances of noncompliance or other matters required to be reported under Government Auditing Standards.

The Participant Local Government Advisory Council (PLGAC) was eliminated by Chapter 2018-140, Laws of Florida, effective March 30, 2018, but this report retains references to the 2017 statutes which were in effect for the majority of this review period.

The report of the trustees to the Joint Legislative Auditing Committee regarding their review of the Auditor General audit, as required by Section 218.409(9), has not yet been made, but is on the trustee’s agenda for its June 13, 2018 meeting.

Disclosure: I currently serve on the Leon County Research and Development Authority (Authority) Board of Governors, which had some of its funds in a PRIME™ account during the review period. This is an unpaid position, and the Authority’s participation in PRIME™ predates my service on its board or as chair. My analysis, in which the SBA General Counsel concurs, indicates that this relationship does not pose a conflict or compromise the impartiality of this review.

Anne Longman
LOCAL GOVERNMENT SURPLUS FUNDS TRUST FUND
STATUTORY COMPLIANCE REVIEW

The Local Government Surplus Funds Trust Fund (Trust Fund or Fund) administered by the State Board of Administration (Board) was created in 1977, is governed by Part IV of Chapter 218, Florida Statutes, titled Investment of Local Government Surplus Funds, and is now known as Florida PRIME™.

THE STATUTE

Pursuant to section 218.405(3), the trustees (meaning the trustees of the State Board of Administration, section 218.403(10), constituted per section 215.44(1)) must make a two part annual certification:

(3) The trustees shall annually certify to the Joint Legislative Auditing Committee that the trust fund is in compliance with the requirements of this part and that the trustees have conducted a review of the trust fund and determined that the management of the trust fund is in accord with best investment practices. (Emphasis added.)

This is the ninth annual statutory review of the Fund under section 218.405(3). Applicable and related statutes were amended by the 2018 Legislature to eliminate the Participant Local Government Advisory Council (PLGAC) (sections 218.409, 218.421, 218.422) Chapter 2018-140 Laws of Florida, effective March 30, 2018, and to repeal references to the now-liquidated Fund B Surplus Funds Trust Fund (sections 218.417, 218.418, 218.421, 218.422) Chapter 2018-111 Laws of Florida, effective May 10, 2018. For clarity, this report retains the 2017 statutory references applicable during the majority of the time period covered by this review.
SCOPE OF REVIEW

This review addresses the first part of the annual certification and examines whether the Trust Fund, defined at section 218.403(9) as “the pooled investment fund created by s. 218.405 and known as the Local Government Surplus Funds Trust Fund,” is “in compliance with the requirements of this part.” “This part” refers to Part IV of Chapter 218, Florida Statutes, which includes sections 218.40 – 218.422, Florida Statutes.

The scope of this review is sections 218.40 – 218.412, Florida Statutes for the time period May 16, 2017 through May 15, 2018. The remainder of Part IV, Chapter 218 covers local government investment policies and the Fund B Surplus Funds Trust Fund, which are not within the scope of this review.

The second part of the certification required by section 218.405(3), the determination that the Fund is in accord with best investment practices, is being performed separately by Aon Hewitt Investment Consulting, Inc.

PURPOSE

As set out at section 218.401, Florida Statutes, the purpose of Part IV of Chapter 218 is:

[T]o promote, through state assistance, the maximization of net interest earnings on invested surplus funds of local units of government, based on the principals [sic] of investor protection, mandated transparency, and proper governance, with the goal of reducing the need for imposing additional taxes.

The definition of surplus funds, found at section 218.403(8), includes:

[A]ny funds in any general or special account or fund of a unit of local government, or funds held by an independent trustee on behalf of a unit of local government, which in reasonable contemplation will not be immediately needed for the purposes intended.

By its terms, the Fund is limited to units of local government, as defined at section 218.403(11):

‘Unit of local government’ means any governmental entity within the state not part of state government and shall include, but not be limited to, the following and the officers thereof: any county, municipality, school district, special district, clerk of the circuit court, sheriff, property
appraiser, tax collector, supervisor of elections, authority, board, public corporations, or any other political subdivision of the state.

This broad definition covers not just "any governmental entity...not a part of state government," but includes also authorities, boards and public corporations, and is specifically not limited to the enumerated bodies.

Fund participants are charged by statute with determining whether it is in their interest to participate in the Fund. §218.407(2). The enrollment materials require the participant to certify that it has determined it is authorized to invest in the Fund. They also state that the SBA is not responsible for independently verifying that the participant is so authorized.

CREATION, OBJECTIVES

The Trust Fund is created at section 218.405, Florida Statutes,

(1) There is hereby created a Local Government Surplus Funds Trust Fund to be administered by the board and to be composed of local government surplus funds deposited therein by units of local government under the procedures established in this part. The board may contract with a professional money management firm to manage the trust fund.

The Board has contracted with a professional money management firm, Federated Investment Counseling, Inc. (Federated), to manage the Trust Fund.

(2) The primary objectives, in priority order, of investment activities shall be safety, liquidity, and competitive returns with minimization of risks.

(3) (Certification requirement, cited above)

(4) The board may adopt rules to administer the provisions of this section.

RULES

Both sections 218.405(4) and 218.412 make rulemaking to administer the Trust Fund permissive rather than mandatory. The Board has adopted rules for the Fund at Chapter 19-7, Florida Administrative Code. The majority of these rules were enacted in 1982, with substantial revisions in 2002 and 2010. Revised Rule 19-7.002 was amended to adopt the current Investment Policy Statement for the Fund on February 12, 2018 as approved by the Trustees effective June 14, 2017.
HOW THE TRUST FUND INTERACTS WITH LOCAL GOVERNMENT AUTHORITIES

Section 218.407 sets out the requirements that must be met before a unit of local government may deposit surplus funds in the Trust Fund:

(1) Prior to any determination by the governing body that it is in the interest of the unit of local government to deposit surplus funds in the trust fund, the board or a professional money management firm must provide to the governing body enrollment materials, including a trust fund profile containing impartial educational information describing the administration and investment policy of the trust fund, including, but not limited to:
   (a) All rights and conditions of participation, including potential restrictions on withdrawals.
   (b) The historical performance, investment holdings, credit quality, and average maturity of the trust fund investments.
   (c) The applicable administrative rules.
   (d) The rate determination processes for any deposit or withdrawal.
   (e) Any fees, charges, penalties, and deductions that apply to the account.
   (f) The most recently published financial statements or independent audits, if available, prepared under generally accepted accounting principles.
   (g) A disclosure statement for signature by the appropriate local government official.

The Board, with Federated, has created enrollment materials which include a Trust Fund profile and education information which appear to be impartial and to accurately describe the administration and investment policies of the Trust Fund and which meet the specific requirements of the above section.

All materials are provided to participants and potential participants at the Board’s web site: www.sbafla.com at the Florida PRIME link, or directly at www.sbafla.com/prime. The New Participant Enrollment Guide, the current Investment Policy Statement, the Earnings Allocation description and the applicable rules are included under the “Enrollment Materials” tab, as are the forms of two documents that must be executed by a new participant: the Disclosure Statement and the Authorizing Resolution. These materials track the statutory information required by section 218.407(1) cited above, and have been updated to reflect changes since the last report.

(2) Upon review of the enrollment materials and upon determination by the governing body that it is in the interest of the unit of local government
to deposit surplus funds in the trust fund, a resolution by the governing body and the signed acceptance of the disclosure statement by the local government official, who may be the chief financial or administrative officer of the local government, shall be filed with the board and, if appropriate, a copy shall be provided to a professional money management firm authorizing investment of its surplus funds in the trust fund established by this part. The resolution shall name:
(a) The local government official, who may be the chief financial or administrative officer of the local government, or
(b) An independent trustee holding funds on behalf of the unit of local government, responsible for deposit and withdrawal of such funds.

The Fund was created in 1977, and so has many long-standing participants. When the governing statutes were substantially amended effective in 2008, new requirements and safeguards were added, including specific items set out in 218.407(1) and (2) above, that had to be given to or obtained from participants. Most of these requirements are intended to assure that the participant is fully informed about the nature, purpose, stability and processes of the Fund. Some long-standing participants do not have a Disclosure Statement on file with the Fund, as this was not required when they enrolled.

Staff analyzed all accounts in the Trust Fund as of April 12, 2018 to determine whether a Disclosure Statement is on file. There are still a number of participants who do not have Disclosure Statements, although the number continues to decline. This issue has been addressed more fully previously (see 2010 review), and that analysis still pertains: all participants have putative and actual knowledge of the workings of the Fund, through the Monthly Summary Reports and materials posted to the website. All participants who have enrolled since the law change in 2008 have Disclosure Statements on file. Since last year’s report, staff reports the following:

- As of the above date of analysis, there were 115 participants that had not submitted a signed disclosure statement, out of 736 participants.
- The percentage of all dollars invested in Florida PRIME which is in accounts of a participant with a Disclosure Statement on file now stands at 98.00%.
- Of the 144 participants with no Disclosure Statement on file, 9 have a balance of less than $2.

Staff continues to request a signed Disclosure Statement from any participant who does not have one on file each time a Participant Account Maintenance Form is submitted to update their account information.

(3) The board or a professional money management firm shall, upon the filing of the resolution, invest the moneys in the trust fund in the same
manner and subject to the same restrictions as are set forth in s.215.47. All units of local government that qualify to be participants in the trust fund shall have surplus funds deposited into a pooled investment account.

Section 215.47, cited above, details the types of investments permitted for all Board funds, including Florida PRIME. Pursuant to section 218.409(2)(a), the Fund also must be invested in accordance with the current written investment policy, which must be updated annually. Part two of the certification required by section 218.405(3), being conducted by Aon Hewitt Investment Consulting, Inc., determines whether the Fund’s management is in accord with best investment practices and whether the specific holdings of the Fund are in accord with all statutory requirements including section 215.47 (cross-referenced in 218.405(3)) as implemented in the current PRIME Investment Policy Statement, adopted in rule 19-7.002.

ADMINISTRATION OF THE TRUST FUND, ADVISORY COUNCIL

218.409 Administration of the trust fund; creation of advisory council.—

(1) Upon receipt of the items specified in s. 218.407 from the local governing body, the board or a professional money management firm shall accept all wire transfers of funds into the trust fund. The board or a professional money management firm shall also wire-transfer invested local government funds to the local government upon request of the local government official named in the resolution.

A clearing account maintained by Bank of America, which is a qualified public depository, accepts money transmitted to the Board and transfers to BNY Mellon, as the custodian, as discussed further below.

(2)(a) The trustees shall ensure that the board or a professional money management firm administers the trust fund on behalf of the participants. The board or a professional money management firm shall have the power to invest such funds in accordance with a written investment policy. The investment policy shall be updated annually to conform to best investment practices. The standard of prudence to be used by investment officials shall be the fiduciary standards as set forth in s. 215.47(10), which shall be applied in the context of managing an overall portfolio. Portfolio managers acting in accordance with written procedures and an investment policy and exercising due diligence shall be relieved of personal responsibility for an individual security's credit risk or market price changes, provided deviations from expectations are reported in a timely
fashion and the liquidity and the sale of securities are carried out in accordance with the terms of this part.

The Board administers the Trust Fund on behalf of the participants and handles accounting, statements, monthly reporting and compiling and maintaining enrollment materials, and has contracted with professional money management firm Federated to act as the Investment Manager and to invest the Trust Fund funds in accordance with the Investment Policy Statement. Federated also interacts with participants to answer inquiries and facilitates Standard and Poor’s ratings. BNY Mellon acts as custodian of all assets of the Fund, processes all trades made by Federated, and does valuation and pricing for the Fund. The Investment Policy Statement has been updated and approved by the Trustees effective June 14, 2017. It is posted at the Fund website tab “Risk Management and Oversight,” and at the “Enrollment Materials” tab as a separate item and as part of the New Participant Enrollment Guide.

(b) Officers and employees involved in the investment process shall refrain from personal business activity that could conflict with the proper execution and management of the investment program or that could impair their ability to make impartial decisions. Employees and investment officials shall disclose any material interests in financial institutions with which they conduct business on behalf of the trust fund. They shall further disclose any personal financial or investment positions that could be related to the performance of the investment portfolio. Employees and officers shall refrain from undertaking personal investment transactions with the same individual with whom business is conducted on behalf of the board.

All Board employees are required to complete training sessions to assure that Board officers and employees involved in the investment process are not engaged in personal business activity that could conflict with the Trust Fund program or impair their ability to make impartial decisions. The SBA Inspector General monitors completion of all mandatory policy courses and confirms that all courses required in the applicable fiscal year rotation have been completed. A course cycle sets out the courses which must be completed every year: Acceptable Use, Ethics, Harassment Prevention, Incident Management Framework, Insider Trading, Personal Investment Activity and Your Role in Information Security; those required every two years: Public Records, Sunshine Law; and those required every four years: Fiduciary Duties. All training is done online and all new employees are required to take the mandatory courses at the time they start working for the SBA. This includes the seven yearly policy courses and the Fiduciary Training. Human Relations notifies the Inspector General of any training non-compliance and he then follows up to assure that training is complete.
Employees and investment officials are required to disclose material interests in financial institutions with which they also conduct Trust Fund business, and any personal financial or investment positions that could be related to performance of the Trust Fund portfolio. Policy 10-041 on Personal Investment Activity, as updated April 10, 2017, guides the Board on these issues. The Inspector General assures that any trading or investment activity by individual employees is in compliance with applicable policies.

The Board has developed a process and document to be used by professional money manager Federated to certify that it is in compliance with statutory ethics requirements. Federated’s Chief Investment Officer and its Chief Compliance Officer have executed a Compliance Certification dated February 2, 2018.

(c) The board or a professional money management firm and all employees have an affirmative duty to immediately disclose any material impact to the trust fund to the participants. To ensure such disclosure, a system of internal controls shall be established by the board, which shall be documented in writing as part of the investment policy. The controls shall be designed to prevent the loss of public funds arising from fraud, employee error, and misrepresentation by third parties, unanticipated changes in financial markets, or imprudent actions by employees and officers of the board or a professional money management firm. The controls shall also include formal escalation reporting guidelines for all employees. The guidelines shall establish procedures to address material impacts on the trust fund that require reporting and action.

Policy 10-040, Ethics, as revised May 31, 2017, sets out comprehensive ethical requirements for all employees of the SBA, including PRIME. SBA management and staff have an affirmative duty to immediately escalate “employee or contractual party fraud or misconduct (whether actual or suspected), employee or contractual party material error that adversely affects SBA or client assets or interests, misrepresentation or omission of material information in internal and external reporting and client communications, and violations of laws, rules or SBA policies.” The Inspector General then is required to investigate.

The Board internet and intranet home pages include an employee toll-free fraud hotline number which allows all employees to anonymously report any concerns with regard to any aspect of Board functions, including the Trust Fund. This number also is provided in all contracts with external service providers, in order to reach any potential problems in these relationships. The hotline is operated by an independent company and is available 24 hours a day, 7 days a week. The Inspector General receives any reports from the hotline and copies these to the Chief Risk and Compliance Officer. There have been no fraud reports to the hotline number in the review period.
The Investment Policy Statement at Section IX, Controls and Escalation Procedures, imposes extensive reporting, monitoring and escalation requirements on the executive director, all employees, the Fund custodian, the Investment Manager, an independent investment consultant and any third party used to materially implement the Fund.

The IPS requires the Executive Director to appoint a Chief Risk and Compliance Officer, whose selection, compensation, and termination are to be affirmed by the Board. This position assists the Executive Director in fulfilling the Controls and Escalation Procedures, and has been staffed.

Also in accordance with the IPS, the executive director of the Board has organized an Investment Oversight Group (IOG) to regularly review and formally escalate exceptions or events that might have a material impact on the Trust Fund. The minutes of its meetings, with a list of participants, are posted to the Fund website.

As discussed below, the Auditor General conducts an annual financial audit of PRIME, and the IPS states that this audit “will include testing for compliance with this Policy,” (the IPS.)

The IPS also requires the Trustees to review and approve management summaries of material impacts on the Fund and any actions or escalations, along with any required actions thereon. The Monthly Summary Reports, which are provided at the website, constitute these management summaries. (See further discussion on the contents of this Report under section 218.409(6).) As reflected in the agendas of the meetings of the Board Trustees for the applicable period of time, which are posted to the SBA website, the requisite approvals were requested.

The above safeguards assure that the administration of the Trust Fund is in accordance with stringent standards of disclosure designed to prevent the loss of funds from fraud, error, misrepresentation, market changes or imprudent actions by the Board or a money manager, and in some aspects exceed what is required by statute.

(d) The investment policy shall be reviewed and approved annually by the trustees or when market changes dictate, and in each event the investment policy shall be reviewed by the Investment Advisory Council and by the Participant Local Government Advisory Council.

As set out above, the Investment Policy Statement was readopted, endorsed by the Investment Advisory Council and the Participant Local Government Advisory Council and approved by the Trustees on June 14, 2017.
(3) The board or a professional money management firm may purchase such surety or other bonds as may be necessary for its officials in order to protect the trust fund. A reserve fund may be established to fulfill this purpose. However, any reserve must be a portion of the management fee and must be fully disclosed, including its purpose, in the enrollment materials at the time a unit of local government considers participation. Further, any change in the amount to be charged for a reserve must have a reasonable notice period to allow any participant to withdraw from the trust fund prior to the new reserve charge being imposed.

No surety or other bonds have been purchased to protect the Trust Fund, and there is no reserve fund.

(4) The board or a professional money management firm shall purchase investments for a pooled investment account in which all participants share pro rata in the capital gain, income, or losses, subject to any penalties for early withdrawal. Any provisions for penalties, including their purpose, must be disclosed in the enrollment materials. Any change in the amount to be charged for a penalty must have a reasonable notice period to allow any participant to withdraw from the trust fund prior to the new penalty charge being imposed. A system shall be developed by the board, and disclosed in the enrollment materials, subject to annual approval by the trustees, to keep account balances current and to apportion pooled investment earnings to individual accounts.

All participants in the Trust Fund share pro rata in all capital gain, income or losses, as set out in the Description of Investment Pool Earnings Allocation, posted to the website. This system is designed to keep account balances current and to apportion pooled investment earnings to individual accounts.

(5) The board shall keep a separate account, designated by name and number of each participating local government. A maximum number of accounts allowed for each participant may be established by the board. Individual transactions and totals of all investments, or the share belonging to each participant, shall be recorded in the accounts.

Separate accounts are kept for each participant. The Board has not established a limit on the number of accounts a participant may have.

(6)(a) The board or a professional money management firm shall provide a report, at a minimum monthly or upon the occurrence of a material event, to every participant having a beneficial interest in the trust fund,
the board's executive director, the trustees, the Joint Legislative Auditing Committee, the Investment Advisory Council, and the Participant Local Government Advisory Council. The report shall include:

1. Reports of any material impacts on the trust fund and any actions or escalations taken by staff to address such impacts. The trustees shall provide quarterly a report to the Joint Legislative Auditing Committee that the trustees have reviewed and approved the monthly reports and actions taken, if any, to address any impacts.

2. A management summary that provides an analysis of the status of the current investment portfolio and the individual transactions executed over the last month. This management summary shall be prepared in a manner that will allow anyone to ascertain whether investment activities during the reporting period have conformed to investment policies. Such reporting shall be in conformance with best market practices. The board or a professional money management firm shall furnish upon request the details of an investment transaction to any participant, the trustees, the Investment Advisory Council, and the Participant Local Government Advisory Council.

A document titled Monthly Summary Report is produced monthly to address the above requirements and made available at the Florida PRIME website.

The quarterly reports of the Trustees to the Joint Legislative Auditing Committee showing that the Trustees have reviewed and approved the monthly reports and taken responsive action, per the above, are memorialized in the previously mentioned agendas of the meetings of the Trustees of the State Board of Administration, posted to the SBA website.

(b) The market value of the portfolio shall be calculated daily. Withdrawals from the trust fund shall be based on a process that is transparent to participants and will ensure that advantages or disadvantages do not occur to parties making deposits or withdrawals on any particular day. A statement of the market value and amortized cost of the portfolio shall be issued to participants in conjunction with any deposits or withdrawals. In addition, this information shall be reported monthly with the items in paragraph (a) to participants, the trustees, the Investment Advisory Council, and the Participant Local Government Advisory Council.

The market value of the Fund portfolio is calculated daily by BNY Mellon and posted on the website the next day. The Information Statement and Operating Procedures, posted to the website as part of the New Participant Enrollment Guide, sets out the operating procedures for the Fund, including hours of operation, holidays and timing of transactions. These procedures
are transparent and appear to ensure, to the extent possible, that disadvantages do not occur to parties making deposits or withdrawals on particular days, as each participant has equal access to the transaction system. A statement of the market value and amortized cost of the portfolio is available at all times to participants on the website, and participants receive monthly individual account statements.

The review of the investment portfolio, in terms of value and price volatility, shall be performed with practices consistent with the GFOA Recommended Practice on "Mark-to-Market Practices for State and Local Government Investment Portfolios and Investment Pools." In defining market value, consideration shall be given to GASB Statement 31.

Compliance with the above part of section 218.409(6)(b) will be determined in part two of the annual certification, conducted by Aon Hewitt Investment Consulting, Inc.

Additional reporting may be made to pool participants through regular and frequent ongoing multimedia educational materials and communications, including, but not limited to, historical performance, investment holdings, amortized cost and market value of the trust fund, credit quality, and average maturity of the trust fund investments.

Additional materials are available on the Trust Fund website and are provided through the monthly reports. Board staff are available for direct communication with participants for any questions regarding their accounts.

(7) Costs incurred in carrying out the provisions of this part shall be deducted from the interest earnings accruing to the trust fund. Such deductions shall be prorated among the participant local governments in the percentage that each participant’s deposits bear to the total trust fund. The remaining interest earned shall be distributed monthly to participants according to the amount invested. Except for costs, the board or a professional money management firm may not transfer the interest or use the interest for any other purpose, including, but not limited to, making up investment losses.

The above statutory requirement was present in the law before the 2008 revisions and has been discussed in previous reviews because it is theoretically problematic: If fund investment values were to decline sufficiently in a given month, there would be no interest from which to pay costs, and the literal requirements of this provision could not be met within a given month. Staff have reviewed this issue and updated last year’s analysis in the following statement:
The Florida PRIME total expense ratio is approximately 2.84 basis points (or 0.0284%), with the SBA's portion of the total fees equal to 1.0 basis point (or 0.01%). Historical asset levels with an average annual balance of $8.1 billion over the last 5 years have been more than sufficient to generate adequate fees to cover all administrative, operational, compliance and investment management charges. All pool charges have continued to be reported within the Monthly Summary Report, including the actual monthly line-item fees.

(8)(a) The principal, and any part thereof, of each and every account constituting the trust fund shall be subject to payment at any time from the moneys in the trust fund. However, the executive director may, in good faith, on the occurrence of an event that has a material impact on liquidity or operations of the trust fund, for 48 hours limit contributions to or withdrawals from the trust fund to ensure that the board can invest moneys entrusted to it in exercising its fiduciary responsibility. Such action shall be immediately disclosed to all participants, the trustees, the Joint Legislative Auditing Committee, the Investment Advisory Council, and the Participant Local Government Advisory Council. The trustees shall convene an emergency meeting as soon as practicable from the time the executive director has instituted such measures and review the necessity of those measures. If the trustees agree with such measures, the trustees shall vote to continue the measures for up to an additional 15 days. The trustees must convene and vote to continue any such measures prior to the expiration of the time limit set, but in no case may the time limit set by the trustees exceed 15 days.

In the time period covered by this review, the principal of all accounts in the Trust Fund has been paid at any time requested by a participant and there have been no events causing the Executive Director to limit contributions or withdrawals.

(b) An order to withdraw funds may not be issued upon any account for a larger amount than the share of the particular account to which it applies; and if such order is issued, the responsible official shall be personally liable under his or her bond for the entire overdraft resulting from the payment if made.

In the time period covered by this review, there have been no orders to withdraw funds for a larger amount than the share of a particular account.

(9) The Auditor General shall conduct an annual financial audit of the trust fund, which shall include testing for compliance with the investment policy. The completed audit shall be provided to the participants, the
board, the trustees, the Investment Advisory Council, the Participant Local Government Advisory Council, and the Joint Legislative Auditing Committee. As soon as practicable, but no later than 30 days after completion of the audit, the trustees shall report to the Joint Legislative Auditing Committee that the trustees have reviewed the audit of the trust fund and shall certify that any necessary items are being addressed by a corrective action plan that includes target completion dates.

The Auditor General annual financial audit of the Trust Fund, Report No. 2018-045, for the fiscal years ended June 30, 2017 and 2016, was completed in November, 2017, provided to all Fund participants, and is posted at the Florida PRIME website under the “Audits” tab, Audited Financial Statements. The Trustees’ report to the Joint Legislative Auditing Committee was on the agenda for the May 15, 2018 meeting, which was cancelled. It is now scheduled for the June 13, 2018 Trustees’ meeting. The report noted no instances of noncompliance or other matters required to be reported under Government Auditing Standards, and included as audit objectives determining if the SBA had complied with various provisions of laws, rules, contracts, the IPS, and other material guidelines, and had taken corrective actions as required in report No. 2017-099.

(10)(a) There is created a six-member Participant Local Government Advisory Council for the purposes of regularly reviewing the administration of the trust fund and making recommendations regarding such administration to the trustees. The members of the council shall be appointed by the board and subject to confirmation by the Senate. Members must possess special knowledge, experience, and familiarity obtained through active, long-standing, and material participation in the dealings of the trust fund. Each member shall serve a 4-year term. Any vacancy shall be filled for the remainder of the unexpired term. The council shall annually elect a chair and vice chair from within its membership. A member may not serve consecutive terms as chair or vice chair.

(b) The council shall prepare and submit a written biennial report to the board, trustees, the Investment Advisory Council, and the Joint Legislative Auditing Committee that describes the activities and recommendations of the council.

As noted above, the PLGAC was eliminated by the 2018 Legislature, effective March 30, 2018.

AUTHORIZATION TO PROVIDE ASSISTANCE
Authorization for state technical and advisory assistance.

(1) The board is authorized, upon request, to assist local governments in investing funds that are temporarily in excess of operating needs by:
   (a) Explaining investment opportunities to such local governments through publication and other appropriate means.
   (b) Acquainting such local governments with the state's practice and experience in investing short-term funds.
   (c) Providing, in cooperation with the Department of Economic Opportunity, technical assistance to local governments in investment of surplus funds.

(2) The board may establish fees to cover the cost of such services, which shall be paid by the unit of local government requesting such service. Such fees shall be deposited to the credit of the appropriation or appropriations from which the costs of providing the services have been paid or are to be charged.

The education offerings of the Fund are being discontinued, and there have been no instances of the SBA providing technical assistance to a fund participant in this review period.

Rulemaking authority.—

The board may adopt rules as it deems necessary to carry out the provisions of this part for the administration of the trust fund.

As noted above, the Board has adopted rules for the administration of the Fund at Chapter 19-7, Florida Administrative Code, which are up to date.

OTHER SECTIONS OF PART IV, CHAPTER 218, FLORIDA STATUTES

Part IV of Chapter 218, Florida Statutes covers other facets of investment of local government funds, such as local government investment policies (Section 218.415.) Because this review, as mandated by Section 218.405, is of the pooled investment fund created by 218.405 only, these sections are not a part of this review.
Florida PRIME™ Best Practices Review
Florida State Board of Administration (SBA)

June 2018
Table of Contents

Executive Summary 1
Compliance Review Follow-up 2
Investment Policy Statement Review 3
Participant Local Government Advisory Council 4
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Executive Summary

Aon Hewitt Investment Consulting (AHIC) conducts a Best Practices Review of Florida PRIME on an annual basis. In this report, we provide a summary of the most recent Governance, Risk Management, and Compliance Assessment and report on the discontinuation of the Participant Local Government Advisory Council. Typically our report provides an overview of the results from the annual participant survey; however, this year the survey will be conducted later in the year and we will include our evaluation of the survey results in our 2019 Best Practices Review.

We also reviewed the Investment Policy Statement and did not have any recommendations for changes.

Based on our review, we continue to believe that Florida PRIME is being managed in a manner consistent with best practices and in consideration of participants' best interests.

2018 Recommendations

- We do not have any recommendations at this time.
Compliance Review

The compliance policies that govern the Florida PRIME investment pool and corresponding compliance procedures represent a robust, multilayered approach to ensuring the portfolio remains in compliance with the criteria contained in the Investment Policy Statement. The effectiveness of the compliance procedures is crucial to the success of Florida PRIME in preserving and protecting participants’ assets. The Florida PRIME procedures have been continually updated and improved over time, as the portfolio and industry continue to evolve. We believe it is important to periodically take a step back and review the entire compliance process to ensure that the procedures remain effective, relevant, and efficient.

In the 2017 Best Practices Review, AHIC conducted a comprehensive review of the compliance procedures and policies that govern the management of the Florida PRIME Investment Pool. The review included an evaluation of the compliance practices followed by Federated, S&P, and the SBA. The observations from our review were threefold. First, that Federated has established thorough and effective compliance procedures, which together with their past performance, has provided us with full confidence in their ability to manage the portfolio successfully and in compliance with the applicable guidelines. Second, that the SBA has developed a very comprehensive compliance program that both ensures the policies in place for Florida PRIME are in line with best practices and provides independent verification that the portfolio is constantly managed in compliance with the governing policies. Lastly, after reviewing the compliance process as a whole, our review identified a few potential areas where efficiencies could be gained through streamlining processes and refocusing redundant efforts towards more effective activities.

Subsequent to our review, the SBA underwent its Triennial Governance, Risk Management and Compliance Assessment conducted by a third party consultant. This Assessment covered all major mandates managed by the SBA, including Florida PRIME. To no surprise, the Assessment identified the SBA as a high performing organization with strong governance and compliance practices and did not find any material issues. The assessment also provided some suggestions for the SBA to consider surrounding its compliance structure and practices. At the time our 2018 Best Practices Review was being written, the SBA was still digesting and responding to the results of the Triennial Assessment which covers the entire organization, of which Florida PRIME is only one aspect. Therefore, AHIC will postpone making any parallel recommendations until any potential changes resulting from the Assessment have been implemented.

Importantly, we reiterate that the compliance policies that govern the Florida PRIME investment pool and corresponding compliance procedures represent a robust, multilayered approach to ensuring the portfolio remains in compliance with the criteria contained in the Investment Policy Statement. AHIC maintains ongoing communication with the SBA Staff in order to stay apprised of any potential changes to the compliance procedures governing Florida PRIME.
Investment Policy Review

On a periodic basis, AHIC conducts a review of the Florida PRIME Investment Policy Statement (IPS). The objective of the IPS is to set forth the objectives, strategy, guidelines, and overall responsibilities for the oversight and prudent investment of Florida PRIME assets. The purpose of the periodic review is to ensure the document reflects the evolving investment portfolio, current legal and regulatory developments, and best practices. A well-written and unambiguous document is critical to the success of an investment program.

Included in AHIC’s 2016 best practices review was a comprehensive review of the Florida PRIME IPS and recommendations for modifications to align the IPS with the recently released GASB 79 guidelines. The modifications were all generally modest as Florida PRIME has stayed current with the guidelines issued by GASB over time.

As part of the 2018 review, AHIC reviewed the IPS and continues to find that the topics covered continue to be relevant and cover the components that are critical to the success of the management of Florida PRIME assets. The investment objective of the pool and the roles and responsibilities are clearly defined. The IPS provides the necessary specifics and supplemental guidelines for a clear understanding of the investment strategy, making direct and clear reference to the appropriate GASB guidelines for appropriate fiduciaries to follow and understand. We believe the IPS thoroughly defines the risks that are associated with investing in Florida PRIME and find the detailed control procedures provide the comfort of prudent safe-keeping and oversight of assets.

During the 2018 review, two modest reference edits, noted below, were identified and will be updated.

1. Within Section I. Purpose and Scope: Reference to Fund B will be removed as Section 218.421 was repealed earlier this year and the Fund B Trust Fund has been terminated.
2. Within Section II. Overview of Florida PRIME: A citation to Section 215.47(9) needs to be corrected to Section 215.47(10) to reflect the correct reference to the applicable fiduciary standards.

While it is not expected that the IPS will change frequently, it is a living, breathing document that should be reviewed periodically to ensure it remains appropriate and relevant. Overall, we continue to believe the Florida PRIME IPS is robust and in line with the goals and objectives of investment pool, and continue to find the Policy to be an effective guiding document for the management of Florida PRIME.
Participant Local Government Advisory Council

The Participant Local Government Advisory Council (PLGAC) was formed in 2009 to provide additional oversight to the Florida SBA on Florida PRIME and was statutorily repealed on March 30, 2018. The PLGAC consisted of members from local governments appointed by the Board of Trustees and advised the SBA on matters related to Florida PRIME including participant communication, investment policy statement, investment approach, compliance policies and procedures, and other matters that need their attention. As we entered the ninth year since the formation of the PLGAC, the recommendation by the existing members of the PLGAC was to repeal the Council. The recommendation was also to continue to instead rely on the oversight and advice provided by the Investment Advisory Council (IAC). The IAC will continue to review Florida PRIME performance and risk on a quarterly basis and the Best Practices Review on an annual basis, as they do in the current structure. Aon Hewitt agrees with this approach. Since we began our Best Practices Review, the Florida PRIME has implemented many changes and enhancements to ensure that participants are receiving the best a local government investment pool can offer in terms of investment strategy, investment risk, oversight and compliance, education, communication, and technology. We have made very few recommendations in the past couple years as a result of our review, which is an indication that Florida PRIME has reached a target state wherein it is functioning at the very highest level, performing well, and delivering to participants what they need. For all these reasons, we are supportive of the repeal of the PLGAC and the suggested continued reliance on the IAC for continued oversight and council to the SBA on Florida PRIME.
# Relationship Overview

<table>
<thead>
<tr>
<th>Florida PRIME Assets:</th>
<th>$11.6 billion (as of 3/31/18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>737 Participants</td>
<td></td>
</tr>
<tr>
<td>1,394 Accounts</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Investment Manager</th>
<th>Paige Wilhelm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Senior Vice President</td>
</tr>
<tr>
<td></td>
<td>Senior Portfolio Manager</td>
</tr>
<tr>
<td></td>
<td>Federated Investment Counseling</td>
</tr>
</tbody>
</table>

- Weekly Market Commentary
- Monthly Newsletter
- Quarterly Review
- Marketing Support

## 1st Quarter 2018 Event

**Jan. 30- Feb. 20** Florida Council of Business Affairs (COBA) (St. Augustine)
On March 21\textsuperscript{st} The Fed raised the federal funds rate range for the 1st time in 2018.

As a part of our ongoing campaign, we launched an email to inform Florida PRIME participants of the news.

With past rate hikes, these higher yields were quickly reflected in the portfolio, enhancing participants’ working capital.
Outreach to Florida School Officials
Every year, Federated advertises in FASBO (Florida Association of School Business Officials) Magazine, the organization’s biggest issue of the year delivered to all superintendents and school districts in the State of Florida. Federated uses this opportunity to stress the key message of Florida PRIME: “The Premier Cash Management Solution for Florida Public Entities.”

- Over 2,000 Florida PRIME fact sheets were shipped via U.S. Postal Service on April 27, 2018.
- Fact sheet was emailed along with the 2018 Spring/Summer digital issue of FASBO Magazine.
- Additional distribution will take place at the 2018 Annual Conference from October 2-5, 2018 in Cape Coral.
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location</th>
<th>Est. Number of Attendees</th>
<th>Federated/Florida PRIME Exhibit and/or Sponsorship</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 30 – June 2</td>
<td>Florida City and County Management Association Annual Conference</td>
<td>Orlando</td>
<td>250</td>
<td>✓</td>
</tr>
<tr>
<td>June 11 – 14</td>
<td>Florida Association of Special Districts</td>
<td>Orlando</td>
<td>400</td>
<td>✓</td>
</tr>
<tr>
<td>June 11 – 15</td>
<td>Florida School Finance Officers Association (FSFOA)</td>
<td>Jacksonville</td>
<td>250</td>
<td>✓</td>
</tr>
<tr>
<td>June 16 – 20</td>
<td>Florida Government Finance Officers Association Annual Conference</td>
<td>Orlando</td>
<td>800</td>
<td>✓</td>
</tr>
<tr>
<td>June 26 – 28</td>
<td>Florida Court Clerks &amp; Comptrollers Summer Conference</td>
<td>West Palm Beach</td>
<td>300</td>
<td>✓</td>
</tr>
<tr>
<td>August 15 – 18</td>
<td>Florida League of Cities 2017 Annual Conference</td>
<td>Orlando</td>
<td>1,000</td>
<td>✓</td>
</tr>
<tr>
<td>TBD</td>
<td>Florida Council of Business Affairs (COBA)</td>
<td>TBD</td>
<td>150</td>
<td>✓</td>
</tr>
<tr>
<td>October 2 – 5</td>
<td>Florida Association of School Business Officials (FASBO) 52nd Anniversary Conference</td>
<td>Cape Coral</td>
<td>300</td>
<td>✓</td>
</tr>
<tr>
<td>November 5 – 9</td>
<td>Florida School Finance Officers Association</td>
<td>Fort Myers</td>
<td>250</td>
<td>✓</td>
</tr>
<tr>
<td>November 27 – 30</td>
<td>Florida School Boards/Superintendents Joint Conference</td>
<td>Tampa</td>
<td>600</td>
<td>✓</td>
</tr>
</tbody>
</table>
Fund Flows
Quarter Ending 3/31/18

Cash Flows as of 3/31/2018

<table>
<thead>
<tr>
<th></th>
<th>First Quarter</th>
<th>Fiscal YTD*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening Balance</td>
<td>$11,428,954,534</td>
<td>$9,329,349,587</td>
</tr>
<tr>
<td>Participant Deposits</td>
<td>$4,862,785,763</td>
<td>$18,036,255,287</td>
</tr>
<tr>
<td>Gross Earnings</td>
<td>$51,350,083</td>
<td>$113,250,674</td>
</tr>
<tr>
<td>Participant Withdrawals</td>
<td>($4,756,284,139)</td>
<td>($15,890,581,594)</td>
</tr>
<tr>
<td>Fees</td>
<td>($983,520)</td>
<td>($2,451,234)</td>
</tr>
<tr>
<td>Closing Balance (3/31/2018)</td>
<td>$11,585,822,722</td>
<td>$11,585,822,722</td>
</tr>
<tr>
<td>Change</td>
<td>$156,868,188</td>
<td>$2,256,473,135</td>
</tr>
</tbody>
</table>

*Period July 2017 – March 2018
Growth in Net Asset Value

Fund Value ($ Millions)

<table>
<thead>
<tr>
<th>Month</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>$12,160.79</td>
<td></td>
<td>$11,585.82</td>
<td></td>
</tr>
<tr>
<td>February</td>
<td>$11,996.15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>$11,585.82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>April</td>
<td>$7,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>May</td>
<td>$6,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>June</td>
<td>$5,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>July</td>
<td>$10,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>August</td>
<td>$11,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>September</td>
<td>$12,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>October</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>November</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>December</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Florida PRIME Portfolio Review
In a quarter in which equity markets seemed to be looking for reasons to be jittery, money markets took a more calm and collected approach. A bump in wage growth in January caused sharp volatility in stocks, but cash investors paid more attention to the Federal Reserve’s communication that other measures of inflation were still modest and that it likely would continue on a deliberate and slow tightening path. Its emphasis on continuity and data dependence took on extra significance in the quarter as the Fed came under new leadership with Jerome Powell succeeding Janet Yellen. In March, Chair Powell oversaw his first Federal Open Market Committee meeting and his first hike, as policymakers raised the target range of the federal funds rate from 1.25-50% to 1.50-75%. In announcing its decision, the Fed cited strong labor market conditions and robust business and consumer confidence, but noted consumer spending had moderated and inflation still remained below its target. Projections for steady growth in gross domestic product (GDP), inflation and employment contributed to expectations for a modest number of rate increases in 2018 and 2019, likely three in each. A brewing potential global trade war did not have a tangible effect on the money markets; however, they were significantly affected by a spike in Treasury issuance as government borrowing needs jumped due to tax reform, increased spending and a widening federal deficit.

Issuance also was affected by the U.S. Treasury’s need to replenish its cash balance and pay back the Fed as the central bank ramped up the magnitude of monthly reductions in its balance sheet. Treasury officials indicated that a quarter to a third of the tapering repayments could be reissued as Treasury bills, adding to the supply at the front end of the yield curve. All of this pushed T-bill yields to strong levels, with the 1-month breaching 1.50% in late February. Throughout the reporting period, municipal issuers, state and local governments, and investors continued to examine the details and ramifications of the new tax code set into law in December as to what impact it may have on tax-free securities.

During the three months ended March 31, 2018, the 1-month London interbank offered rate (Libor) rose from 1.56% to 1.88% and 3-month Libor rose from 1.69% to 2.31%. The short end of the Treasury yield curve also increased over the quarter, with 1-month and 3-month Treasury yields rising from 1.25% to 1.71% and 1.45% to 1.76%, respectively.
**Credit Quality**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1+</td>
<td>56.8%</td>
</tr>
<tr>
<td>A-1</td>
<td>43.2%</td>
</tr>
</tbody>
</table>

**Top 10 Holdings (ex Repos)**

<table>
<thead>
<tr>
<th>Holding</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States Treasury</td>
<td>12.1%</td>
</tr>
<tr>
<td>Societe Generale, Paris</td>
<td>5.1%</td>
</tr>
<tr>
<td>Mitsubishi UFJ Financial Group, Inc.</td>
<td>5.0%</td>
</tr>
<tr>
<td>Royal Bank of Canada</td>
<td>5.0%</td>
</tr>
<tr>
<td>Mizuho Financial Group, Inc.</td>
<td>4.7%</td>
</tr>
<tr>
<td>JPMorgan Chase &amp; Co.</td>
<td>4.6%</td>
</tr>
<tr>
<td>Sumitomo Mitsui Financial Group, Inc.</td>
<td>4.4%</td>
</tr>
<tr>
<td>Wells Fargo &amp; Co.</td>
<td>4.4%</td>
</tr>
<tr>
<td>Federated Institutional Prime Value Obligations Fund</td>
<td>3.9%</td>
</tr>
<tr>
<td>Old Line Funding, LLC</td>
<td>3.7%</td>
</tr>
</tbody>
</table>

**Total % of Portfolio**: 52.9%

**Portfolio Composition**

- Government: 12.1%
- Bank Instrument - Fixed: 11.2%
- Asset Backed CP - Fixed: 5.7%
- Corporate CP - Fixed: 8.0%
- Asset Backed CP - Floating: 16.4%
- Bank Instrument - Floating: 5.7%
- Corporate CP - Floating: 8.0%
- Money Market Mutual Funds: 10.7%
- Corporate Notes - Floating: 6.0%
- Repo: 4.0%

**Maturity Schedule**

<table>
<thead>
<tr>
<th>Maturity Schedule</th>
<th>1-7 days</th>
<th>8-30 days</th>
<th>31-90 days</th>
<th>91-180 days</th>
<th>181+ days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>33.7%</td>
<td>25.4%</td>
<td>27.1%</td>
<td>13.0%</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

**Weighted Average Maturity (WAM)**: 42.4 days
**Weighted Average Life (WAL)**: 90.2 days

**Top Country Exposure**

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>16.6%</td>
</tr>
<tr>
<td>Canada</td>
<td>14.6%</td>
</tr>
<tr>
<td>France</td>
<td>6.5%</td>
</tr>
<tr>
<td>Australia</td>
<td>3.9%</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>3.1%</td>
</tr>
<tr>
<td>Belgium</td>
<td>2.6%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>1.8%</td>
</tr>
<tr>
<td>Germany</td>
<td>1.5%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>0.6%</td>
</tr>
<tr>
<td>Sweden</td>
<td>0.3%</td>
</tr>
</tbody>
</table>

**Total % of Portfolio**: 51.6%
# Performance vs. Index

**Period Ending 3/31/18**

<table>
<thead>
<tr>
<th>Net Returns (%) as of 3/31/18</th>
<th>1-month</th>
<th>3-month</th>
<th>1-year</th>
<th>3-years</th>
<th>5-years</th>
<th>10-years</th>
<th>Since Jan. 1996</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida PRIME 30-Day Average Net Yield</td>
<td>1.80%</td>
<td>1.73%</td>
<td>1.40%</td>
<td>0.84%</td>
<td>0.57%</td>
<td>0.59%</td>
<td>2.59%</td>
</tr>
<tr>
<td>S&amp;P AAA/AA Rated GIP All 30-Day Net Index</td>
<td>1.50%</td>
<td>1.39%</td>
<td>1.09%</td>
<td>0.57%</td>
<td>0.36%</td>
<td>0.43%</td>
<td>2.38%</td>
</tr>
<tr>
<td>Above (Below) Benchmark</td>
<td>0.30%</td>
<td>0.35%</td>
<td>0.31%</td>
<td>0.27%</td>
<td>0.21%</td>
<td>0.17%</td>
<td>0.22%</td>
</tr>
</tbody>
</table>

Notes: Annualized 1-month and 3-month performance figures; S&P AAA & AA GIP All 30-Day Net Yield Index for all time periods shown.
### Stress Test Results

**as of 3/29/18**

<table>
<thead>
<tr>
<th>Date of Stress Tests:</th>
<th>31-Jan</th>
<th>29-Feb</th>
<th>29-Mar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shadow NAV at Time of Tests:</td>
<td>0.99617</td>
<td>0.99636</td>
<td>0.99673</td>
</tr>
</tbody>
</table>

#### Stress Testing Results During the Period

<table>
<thead>
<tr>
<th>Pot of Shares Redeemed</th>
<th>Redemptions Only</th>
<th>Weekly Liquidity</th>
<th>Stress NAV</th>
<th>Weekly Liquidity</th>
<th>Stress NAV</th>
<th>Weekly Liquidity</th>
<th>Stress NAV</th>
<th>Weekly Liquidity</th>
<th>Stress NAV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jan</td>
<td>Feb</td>
<td>Mar</td>
<td>Jan</td>
<td>Feb</td>
<td>Mar</td>
<td>Jan</td>
<td>Feb</td>
<td>Mar</td>
</tr>
<tr>
<td>0%</td>
<td>0.00007</td>
<td>0.00008</td>
<td>0.00007</td>
<td>37.47%</td>
<td>30.24%</td>
<td>30.38%</td>
<td>0.99954</td>
<td>0.99955</td>
<td>0.99955</td>
</tr>
<tr>
<td>10%</td>
<td>0.99999</td>
<td>0.99999</td>
<td>0.99999</td>
<td>30.71%</td>
<td>30.03%</td>
<td>30.98%</td>
<td>0.99999</td>
<td>0.99999</td>
<td>0.99999</td>
</tr>
<tr>
<td>20%</td>
<td>0.99989</td>
<td>0.99989</td>
<td>0.99989</td>
<td>30.00%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>0.99989</td>
<td>0.99989</td>
<td>0.99989</td>
</tr>
<tr>
<td>30%</td>
<td>0.99996</td>
<td>0.99996</td>
<td>0.99996</td>
<td>30.00%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>0.99996</td>
<td>0.99996</td>
<td>0.99996</td>
</tr>
<tr>
<td>40%</td>
<td>0.99994</td>
<td>0.99994</td>
<td>0.99994</td>
<td>30.00%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>0.99994</td>
<td>0.99994</td>
<td>0.99994</td>
</tr>
</tbody>
</table>

#### Change in Interest Rates

<table>
<thead>
<tr>
<th>Pot of Shares Redeemed</th>
<th>Interest Rates</th>
<th>Stress NAV</th>
<th>Weekly Liquidity</th>
<th>Stress NAV</th>
<th>Weekly Liquidity</th>
<th>Stress NAV</th>
<th>Weekly Liquidity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jan</td>
<td>Feb</td>
<td>Mar</td>
<td>Jan</td>
<td>Feb</td>
<td>Mar</td>
<td>Jan</td>
</tr>
<tr>
<td>0%</td>
<td>0.99994</td>
<td>0.99993</td>
<td>0.99993</td>
<td>30.71%</td>
<td>30.03%</td>
<td>30.71%</td>
<td>0.99993</td>
</tr>
<tr>
<td>10%</td>
<td>0.99906</td>
<td>0.99905</td>
<td>0.99905</td>
<td>30.00%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>0.99906</td>
</tr>
<tr>
<td>20%</td>
<td>0.99893</td>
<td>0.99892</td>
<td>0.99892</td>
<td>30.00%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>0.99893</td>
</tr>
<tr>
<td>30%</td>
<td>0.99880</td>
<td>0.99879</td>
<td>0.99879</td>
<td>30.00%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>0.99880</td>
</tr>
<tr>
<td>40%</td>
<td>0.99867</td>
<td>0.99866</td>
<td>0.99866</td>
<td>30.00%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>0.99867</td>
</tr>
</tbody>
</table>

#### Floating Spread Widening

<table>
<thead>
<tr>
<th>Pot of Shares Redeemed</th>
<th>Floating Spread Widening</th>
<th>Stress NAV</th>
<th>Weekly Liquidity</th>
<th>Stress NAV</th>
<th>Weekly Liquidity</th>
<th>Stress NAV</th>
<th>Weekly Liquidity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jan</td>
<td>Feb</td>
<td>Mar</td>
<td>Jan</td>
<td>Feb</td>
<td>Mar</td>
<td>Jan</td>
</tr>
<tr>
<td>0%</td>
<td>0.99997</td>
<td>0.99996</td>
<td>0.99996</td>
<td>30.00%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>0.99997</td>
</tr>
<tr>
<td>10%</td>
<td>0.99985</td>
<td>0.99985</td>
<td>0.99985</td>
<td>30.00%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>0.99985</td>
</tr>
<tr>
<td>20%</td>
<td>0.99973</td>
<td>0.99973</td>
<td>0.99973</td>
<td>30.00%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>0.99973</td>
</tr>
<tr>
<td>30%</td>
<td>0.99962</td>
<td>0.99962</td>
<td>0.99962</td>
<td>30.00%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>0.99962</td>
</tr>
<tr>
<td>40%</td>
<td>0.99951</td>
<td>0.99951</td>
<td>0.99951</td>
<td>30.00%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>0.99951</td>
</tr>
</tbody>
</table>

#### % of Orig. Portfolio Stressed

<table>
<thead>
<tr>
<th>Test</th>
<th>% of Orig. Portfolio Stressed</th>
<th>Stress NAV</th>
<th>Weekly Liquidity</th>
<th>Stress NAV</th>
<th>Weekly Liquidity</th>
<th>Stress NAV</th>
<th>Weekly Liquidity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jan</td>
<td>Feb</td>
<td>Mar</td>
<td>Jan</td>
<td>Feb</td>
<td>Mar</td>
<td>Jan</td>
</tr>
<tr>
<td>Redemptions Only</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>0.99997</td>
</tr>
<tr>
<td>Change in Int. Rates</td>
<td>82.0%</td>
<td>80.0%</td>
<td>82.2%</td>
<td>30.71%</td>
<td>30.03%</td>
<td>30.71%</td>
<td>0.99993</td>
</tr>
<tr>
<td>Credit Event</td>
<td>23.8%</td>
<td>19.2%</td>
<td>8.1%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>0.99995</td>
</tr>
<tr>
<td>Floating Spread Widening</td>
<td>27.1%</td>
<td>29.0%</td>
<td>34.0%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>0.99987</td>
</tr>
<tr>
<td>Combination</td>
<td>52.0%</td>
<td>91.3%</td>
<td>33.1%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>30.00%</td>
<td>0.99982</td>
</tr>
</tbody>
</table>
B. Escalation Procedures:
If (1) any deviation between the NAV and the market based NAV in excess of $0.0040 per share occurs, or (2) Weekly Liquid assets drop below 30%, Federated will enact escalation procedures for Florida PRIME.

C. Assessment of Florida PRIME’s Ability to Withstand Events Reasonably Likely to Occur During the Following Year:
Unless highlighted above for further discussion, the Adviser has determined that Florida PRIME is structured in such a way that the occurrence of the events, described more fully above, which the Adviser believes are reasonably likely to occur during the next 12 months, would not result in Florida PRIME’s Weekly Liquid Assets falling below 10% or Florida PRIME failing to minimize principal volatility.

D. Test Descriptions:
- Unusual Redemption Activity: Resulting NAV & liquidity levels following redemptions equal to 40% in 10% increments
- Change in Interest Rates: Resulting NAV & liquidity levels following a change in rates of 0.75%.
- Credit Event: UK and Euro bank spreads widen by 0.50%.
- Floater Spread Widening: Resulting NAV & liquidity levels following a widening of floater spreads off of the applicable index of 0.25%.
- Combination: Change in Interest Rates, Credit Event, and Floater Spread Widening combined.

E. Redemption Funding Method:
Redemptions - Sell Daily Liquidity down to 0 percent then Weekly Liquidity down to 30 percent then based on Final Maturity Date.
To: Ash Williams  
From: Michael McCauley  
cc: Senior Leadership Group  
Date: May 22, 2018  
Subject: Annual Review and Approval of Florida PRIME Investment Policy Statement (IPS)

With respect to Florida PRIME, Section 218.409 Florida Statutes requires:

*The trustees shall ensure that the board or a professional money management firm administers the trust fund on behalf of the participants. The board or a professional money management firm shall have the power to invest such funds in accordance with a written investment policy. The investment policy shall be updated annually to conform to best investment practices.* [s. 218.409(2)(a), Florida Statutes]

*The investment policy shall be reviewed and approved annually by the trustees or when market changes dictate, and in each event the investment policy shall be reviewed by the Investment Advisory Council.* [s. 218.409(2)(d), Florida Statutes]

Although there are no investment policy changes recommended at this time for the Florida PRIME Investment Policy Statement (IPS) (attached), a couple of statutory citations need updating:

1) Section 215.47(9) needs to reflect the correct reference to the applicable fiduciary standards contained in 215.47(10). The current IPS’ Overview section references paragraph (9) instead of paragraph (10) of the statute, which are included below for reference:

*(9) Investments in any securities authorized by this section may be under repurchase agreements or reverse repurchase agreements.*

*(10) Investments made by the State Board of Administration shall be designed to maximize the financial return to the fund consistent with the risks incumbent in each investment and shall be designed to preserve an appropriate diversification of the portfolio. The board shall discharge its duties with respect to a plan solely in the interest of its participants and beneficiaries. The board in performing the above investment duties shall comply with the fiduciary standards set forth in the Employee Retirement Income Security Act of 1974 at 29 U.S.C. s. 1104(a)(1)(A) through (C). In case of conflict with other provisions of law authorizing investments, the investment and fiduciary standards set forth in this subsection shall prevail.*

2) Section 218.421 was repealed earlier this year and the Fund B Trust Fund has been terminated. The referenced language needs to be stricken from the Florida PRIME IPS.

Let me know if you have any questions.

Attachments
Investment Policy Statement
Local Government Surplus Funds Trust Fund (Non-Qualified)
Effective June 13, 2018

I. Purpose and Scope

The purpose of this Investment Policy Statement (“Policy”) is to set forth the investment objective, investment strategies, and authorized portfolio securities for the Local Government Surplus Funds Trust Fund (“Florida PRIME”). The Policy also describes the risks associated with an investment in Florida PRIME. This Policy does not relate to Fund B as defined in Section 218.421, Florida Statutes.

II. Overview of Florida PRIME

The Local Government Surplus Funds Trust Fund was created by an Act of the Florida Legislature effective October 1, 1977 (Chapter 218, Part IV, Florida Statutes). The State Board of Administration (“SBA”) is charged with the powers and duties to administer and invest Florida PRIME, in accordance with the statutory fiduciary standards of care as contained in Section 215.47(109), Florida Statutes. The SBA has contracted with Federated Investment Counseling (the “Investment Manager”) to provide investment advisory services for Florida PRIME.

Florida PRIME is governed by Chapters 215 and 218, Florida Statutes, and Chapter 19-7 of the Florida Administrative Code (collectively, “Applicable Florida Law”).

III. Roles and Responsibilities

The Board of Trustees of the SBA (“Trustees”) consists of the Governor, as Chairman, the Chief Financial Officer, as Treasurer, and the Attorney General, as Secretary. The Trustees will annually certify that Florida PRIME is in compliance with the requirements of Chapter 218, Florida Statutes, and that the management of Florida PRIME is in accord with best investment practices.

The Trustees delegate the administrative and investment authority to manage Florida PRIME to the Executive Director of the SBA, subject to Applicable Florida Law. The Trustees appoint an Investment Advisory Council and a Participant Local Government Advisory Council. Both Councils will, at least annually, review this Policy and any proposed changes prior to its presentation to the Trustees and will undertake other duties set forth in Applicable Florida Law.

IV. Amortized Cost Accounting


GASB 31 outlines the two options for accounting and reporting for money market investment pools as either “2a-7 like” or fluctuating net asset value (“NAV”). GASB 31 describes a “2a-7 like” pool as an “external investment pool that is not registered with the Securities and Exchange Commission (“SEC”) as an investment company, but nevertheless has a policy that it will, and does, operate in a manner consistent with Rule 2a-7 under the Investment Company Act of 1940 (the “1940 Act”).” Rule 2a-7 is the rule that permits money market funds to use amortized cost to maintain a constant NAV of $1.00 per share, provided that such funds meet certain conditions.

In December 2015, GASB issued Statement 79, “Certain External Investment Pools and Pool Participants,” which delinks the accounting treatment of external investment pools from Rule 2a-7, and
establishes criteria for the use of amortized cost to value portfolio assets of an external pool. GASB 79 also made clear that rounding unit value up or down to the nearest penny to maintain a stable NAV of $1.00 per share for issuances and redemptions of units is an operational decision for an external investment pool, rather than an accounting matter. GASB 79 also specifies, however, that seeking to maintain a stable price of $1.00 per share is one of the criteria that an external investment pool must meet as a condition to valuing all portfolio assets at amortized cost for financial reporting purposes.

Florida PRIME will seek to operate in a manner consistent with the criteria and requirements in GASB 79, including diversification, credit quality and maturity conditions. Accordingly, it is thereby permitted to value portfolio assets at amortized cost method.

V. Investment Objective

The primary investment objectives for Florida PRIME, in priority order, are safety, liquidity, and competitive returns with minimization of risks. Investment performance of Florida PRIME will be evaluated on a monthly basis against the Standard & Poor’s U.S. AAA & AA Rated GIP All 30 Day Net Yield Index. While there is no assurance that Florida PRIME will achieve its investment objectives, it endeavors to do so by following the investment strategies described in this Policy.

VI. Investment Strategies & Specific Limitations

The Investment Manager will invest Florida PRIME’s assets in short-term, high-quality fixed income securities. All Florida PRIME assets (100 percent) will be U.S. dollar-denominated. To be considered high-quality, a security must be rated in the highest short-term rating category by one or more nationally recognized statistical rating organizations (“NRSROs”), or be deemed to be of comparable quality thereto by the Investment Manager, subject to Section 215.47(1)(j), Florida Statutes. The Investment Manager also may enter into special transactions for Florida PRIME, like repurchase agreements. Each repurchase agreement counterparty must have an explicit issuer or counterparty credit rating in the highest short-term rating category from Standard & Poor's. Certain of the fixed-income securities in which Florida PRIME invests pay interest at a rate that is periodically adjusted (“Adjustable Rate Securities”).

The Investment Manager will manage credit risk by purchasing only high quality securities. The Investment Manager will perform a credit analysis to develop a database of issuers and securities that meet the Investment Manager’s standard for minimal credit risk. The Investment Manager monitors the credit risks of all Florida PRIME’s portfolio securities on an ongoing basis by reviewing periodic financial data, issuer news and developments, and ratings of certain NRSROs. The Investment Manager will utilize a “new products” or similar committee to review and approve new security structures prior to an investment of Florida PRIME’s assets in such securities. The Investment Manager will periodically consider and follow best practices in connection with minimal credit risk determinations (e.g., such as those described in Appendix I of the Investment Company Institute's 2009, Report of the Money Market Working Group).

The Investment Manager will manage interest rate risk by purchasing only short-term fixed income securities. The Investment Manager will target a dollar-weighted average maturity range for Florida PRIME based on its interest rate outlook. The Investment Manager will formulate its interest rate outlook by analyzing a variety of factors, such as current and expected U.S. economic growth; current and expected interest rates and inflation; and the Federal Reserve Board’s monetary policy. The Investment Manager will generally shorten Florida PRIME’s dollar-weighted average maturity when it expects interest rates to rise and extend Florida PRIME’s dollar-weighted average maturity when it expects interest rates to fall. In order to meet the investment grade ratings criteria of Standard & Poor’s for a pool, the remaining maturity of securities purchased by the Investment Manager shall not exceed 762 days for government floating rate notes/variable rate notes and will not exceed 397 days for all other securities; provided, however, that if not required by the ratings criteria of the applicable NRSRO that is providing
an investment grade rating to the pool and to the extent consistent with the portfolio criteria of GASB 79, longer term floating rate/variable rate notes that are U.S. government securities may be owned by Florida PRIME.

The Investment Manager will exercise reasonable care to maintain (i) a dollar weighted average maturity (“DWAM”) of 60 days or less; and (ii) a maximum weighted average life (WAL) within the range of 90-120 days, depending on the levels of exposure and ratings of certain Adjustable Rate Securities. The maximum WAL will depend upon the percentage exposures to government and non-government Adjustable Rate Securities, with sovereign (government) Adjustable Rate Securities rated AA- and higher allowed a 120-day limit, and non-sovereign (corporate) Adjustable Rate Securities (and sovereign Adjustable Rate Securities rated below AA-) restricted to a 90-day limit. The portfolio’s maximum WAL will be based on a weighted average of the percentage exposures to each type of floating-rate instrument.

For purposes of calculating DWAM, the maturity of an Adjustable Rate Security generally will be the period remaining until its next interest rate adjustment. For purposes of calculating WAL, the maturity of an Adjustable Rate Security will be its stated final maturity, without regard to interest rate adjustments; accordingly, the WAL limitation could serve to restrict Florida PRIME’s ability to invest in Adjustable Rate Securities.

The Investment Manager will exercise reasonable care to limit exposure to not more than 25% of Florida PRIME’s assets in a single industry sector, with the exception that the Investment Manager may invest more than 25% in the financial services industry sector, which includes banks, broker-dealers, and finance companies. This higher limit is in recognition of the large outstanding value of money fund instruments issued by financial services firms. Government securities are not considered to be an industry.

The Investment Manager will exercise reasonable care to not acquire a security, other than (i) a Daily Liquid Asset, if immediately after the acquisition Florida PRIME would have invested less than 10% of its total assets in Daily Liquid Assets; (ii) a Weekly Liquid Asset, if immediately after the acquisition Florida PRIME would have invested less than 30% of its total assets in Weekly Liquid Assets. Daily Liquid Assets include cash, direct obligations of the U.S. government and securities that convert to cash in one business day. Weekly Liquid Assets include cash, direct obligations of the U.S. government, certain government securities with remaining maturities of 60 business days or less and securities that convert to cash in five business days.

Florida PRIME shall seek to hold liquid assets sufficient to meet reasonably foreseeable redemptions, based upon knowledge of the expected cash needs of participants.

In buying and selling portfolio securities for Florida PRIME, the Investment Manager will comply with (i) the diversification, maturity and credit quality criteria in GASB 79, (ii) the requirements imposed by any NRSRO that rates Florida PRIME to ensure that it maintains a AAAm rating (or the equivalent) and (iii) the investment limitations imposed by Section 215.47, Florida Statutes except to the extent, as permitted by Section 215.44(3), the trust instrument of Florida PRIME and this investment policy statement specifically authorize investments in addition to those authorized by Section 215.47.

The Investment Manager generally will comply with the following diversification limitations that are additional to those set forth in GASB 79. First, at least 50% of Florida PRIME assets will be invested in securities rated “A-1+” or those deemed to be of comparable credit quality thereto by the Investment Manager (i.e., so long as such deeming is consistent with the requirements of the NRSRO’s AAAm (or
equivalent) rating criteria), subject to Section 215.47(1)(j), Florida Statutes. The Investment Manager will document each instance in which a security is deemed to be of comparable credit quality and its basis for such a determination. Second, exposure to any single non-governmental issuer (other than a money market mutual fund) will not exceed 5% and exposure to any single money market mutual fund will not exceed 10% of Florida PRIME assets.

**VII. Portfolio Securities and Special Transactions**

The Investment Manager will purchase only fixed income securities for Florida PRIME, and may engage in special transactions, for any purpose that is consistent with Florida PRIME’s investment objective.

Fixed income securities are securities that pay interest, dividends or distributions at a specified rate. The rate may be a fixed percentage of the principal or adjusted periodically. In addition, the issuer of a short-term fixed income security must repay the principal amount of the security, normally within a specified time. The fixed income securities in which Florida PRIME may invest include corporate debt securities, bank instruments, asset backed securities, U.S. Treasury securities, U.S. government agency securities, insurance contracts, municipal securities, foreign securities, mortgage backed securities, and shares of money market mutual funds. However, Florida PRIME is not permitted to buy such fixed income securities to the extent that they require Florida PRIME to be a qualified institutional buyer.

Special transactions are transactions into which Florida PRIME may enter, including, but not limited to, repurchase agreements and delayed delivery transactions.

For a more detailed description of Florida PRIME’s portfolio securities and special transactions, please see “Additional Information Regarding Florida PRIME’s Principal Securities” at Appendix A.

**VIII. Risks Associated with Florida PRIME**

An investment in Florida PRIME is subject to certain risks. Any investor in Florida PRIME should specifically consider, among other things, the following principal risks before making a decision to purchase shares of Florida PRIME.

**Risk that Florida PRIME will not Maintain a Stable Net Asset Value**

Although the Investment Manager attempts to manage Florida PRIME such that it maintains a stable NAV of $1.00 per share, there is no guarantee that it will be able to do so. Florida PRIME is not registered under the 1940 Act or regulated by the SEC.

**Interest Rate Risks**

The prices of the fixed income securities in which Florida PRIME will invest rise and fall in response to changes in the interest rates paid by similar securities. Generally, when interest rates rise, prices of fixed income securities fall. However, market factors, such as demand for particular fixed income securities, may cause the price of certain fixed income securities to fall while the price of other securities rise or remain unchanged. Interest rate changes have a greater effect on the price of fixed income securities with longer maturities.

**Credit Risks**

Credit risk is the possibility that an issuer of a fixed income security held by Florida PRIME will default on the security by failing to pay interest or principal when due. If an issuer defaults, Florida PRIME will lose money.
Liquidity Risks

Trading opportunities are more limited for fixed income securities that are not widely held. These features make it more difficult to sell or buy securities at a favorable price or time. Consequently, Florida PRIME may have to accept a lower price to sell a security, sell other securities to raise cash or give up an investment opportunity, any of which could have a negative effect on Florida PRIME’s performance.

Concentration Risks

A substantial part of Florida PRIME may be comprised of securities issued by companies in the financial services industry, companies with similar characteristics, or securities credit enhanced by banks or companies with similar characteristics. As a result, Florida PRIME may be more susceptible to any economic, business, or political risks or other developments that generally affect finance companies. Developments affecting companies in the financial services industry or companies with similar characteristics might include changes in interest rates, changes in the economic cycle affecting credit losses and regulatory changes.

Risks of Foreign Investing

Foreign securities pose additional risks because foreign economic or political conditions may be less favorable than those of the United States. Securities in foreign markets also may be subject to taxation policies that reduce returns for U.S. investors.

Call Risks

If a fixed income security is called, Florida PRIME may have to reinvest the proceeds in other fixed income securities with lower interest rates, higher credit risks or other less favorable characteristics.

Prepayment Risks

Unlike traditional fixed income securities, which pay a fixed rate of interest until maturity (when the entire principal amount is due), payments on asset-backed securities include both interest and a partial payment of principal. Partial payment of principal may be comprised of scheduled principal payments as well as unscheduled payments from voluntary prepayment, refinancing, or foreclosure of the underlying loans. If Florida PRIME receives unscheduled prepayments, it may have to reinvest the proceeds in other fixed income securities with lower interest rates, higher credit risks or other less favorable characteristics.

Risks Associated with Amortized Cost Method of Valuation

Florida PRIME will use the amortized cost method to determine the value of its portfolio securities. Under this method, portfolio securities are valued at the acquisition cost as adjusted for amortization of premium or accumulation of discount rather than at current market value. Accordingly, neither the amount of daily income nor the NAV is affected by any unrealized appreciation or depreciation of the portfolio. In periods of declining interest rates, the indicated daily yield on shares computed by dividing the annualized daily income on Florida PRIME’s portfolio by the NAV, as computed above, may tend to be higher than a similar computation made by using a method of valuation based on market prices and estimates. In periods of rising interest rates, the opposite may be true.

Changing Distribution Level Risk

There is no guarantee that Florida PRIME will provide a certain level of income or that any such income will exceed the rate of inflation. Further, Florida PRIME's yield will vary. A low interest rate environment may prevent Florida PRIME from providing a positive yield or paying expenses out of current income.
Throughout this section, it shall be understood that actions described as being taken by Florida PRIME refer to actions taken by the Investment Manager on behalf of Florida PRIME.

For additional information regarding Florida PRIME’s principal securities and associated risks, please see Appendix A.

**IX. Controls and Escalation Procedures**

Section 218.409(2), Florida Statutes requires this Policy to document a system of internal controls designed to prevent the loss of public funds arising from fraud, employee error, misrepresentation by third parties, unanticipated changes in financial markets, or imprudent actions by employees and officers of the board or a professional money management firm. The controls include formal escalation reporting guidelines for all employees to address material impacts on Florida PRIME that require reporting and action.

The SBA has engaged BNY Mellon (“Custodian”) to provide asset safekeeping, custody, fund accounting and performance measurement services to Florida PRIME. The Custodian will mark to market the portfolio holdings of Florida PRIME on a daily basis and will daily communicate both amortized cost price and mark to market price, so that the SBA and the Investment Manager can monitor the deviations between the amortized cost price and market price. By contractual agreement, the Investment Manager will reconcile accounting and performance measurement reports with the Custodian on at least a monthly basis, under the supervision of the SBA.

The NRSRO that rates Florida PRIME will perform regular independent surveillance of Florida PRIME. The SBA and an independent investment consultant will regularly monitor the Investment Manager with respect to performance and organizational factors according to SBA manager monitoring policies.

The SBA and third parties used to materially implement Florida PRIME will maintain internal control, fraud and ethics policies and procedures designed to prevent the loss of public funds.

The Executive Director will develop policies and procedures to:

- Identify, monitor and control/mitigate key investment and operational risks.
- Maintain an appropriate and effective risk management and compliance program that identifies, evaluates and manages risks within business units and at the enterprise level.
- Maintain an appropriate and effective control environment for SBA investment and operational responsibilities.
- Approve risk allocations and limits, including total fund and asset class risk budgets.

The Executive Director will appoint a Chief Risk and Compliance Officer, whose selection, compensation and termination will be affirmed by the Board, to assist in the execution of the responsibilities enumerated in the preceding list. For day-to-day executive and administrative purposes, the Chief Risk and Compliance Officer will proactively work with the Executive Director and designees to ensure that issues are promptly and thoroughly addressed by management. On at least a quarterly basis, the Chief Risk and Compliance Officer will provide reports to the Investment Advisory Council, Audit Committee and Board, and is authorized to directly access these bodies at any time as appropriate to ensure the integrity and effectiveness of risk management and compliance functions.
Pursuant to written SBA policy, the Executive Director will organize an Investment Oversight Group to regularly review, document and formally escalate compliance exceptions and events that may have a material impact on Florida PRIME. Minutes of the Investment Oversight Group’s meetings and a listing of meeting participants shall be timely posted on the Florida PRIME website.

The Investment Oversight Group will meet and report monthly to the Executive Director, except upon the occurrence of a material event. The SBA and the Investment Manager have an affirmative duty to immediately disclose any material impact on Florida PRIME to the participants, including, but not limited to:

1. When the deviation between the market value and amortized cost of Florida PRIME exceeds 0.25%, according to pricing information provided by the Custodian, the Investment Manager will establish a formal action plan. The Investment Oversight Group will review the formal action plan and prepare a recommendation for the Executive Director’s consideration.

2. When the deviation between the market value and amortized cost of Florida PRIME exceeds 0.50%, according to pricing information provided by the Custodian, the Executive Director will promptly consider what action, if any, will be initiated. Where the Executive Director believes the extent of any deviation from Florida PRIME's amortized cost price per share may result in material dilution or other unfair results to investors or existing shareholders, he will cause Florida PRIME to take such action as he deems appropriate to eliminate or reduce to the extent reasonably practicable such dilution or unfair results.

3. The Investment Manager will perform daily compliance monitoring to ensure that investment practices comply with the requirements of this Policy, according to documented compliance procedures. The Investment Manager will provide regular compliance reports and will communicate compliance exceptions within 24 hours of identification to the Investment Oversight Group. Additionally, the Investment Oversight Group will periodically conduct independent compliance reviews.

4. In the event that a security receives a credit rating downgrade and ceases to be in the highest rating category, or the Investment Manager determines that the security is no longer of comparable quality to the highest short-term rating category (in either case, a “Downgrade”), the Investment Manager will reassess whether the security continues to present minimal credit risk and will cause Florida PRIME to take any actions determined by the Investment Manager to be in the best interest of Florida PRIME; provided however, that the Investment Manager will not be required to make such reassessments if Florida PRIME disposes of the security (or the security matures) within five business days of the Downgrade.

5. In the event that a security no longer meets the criteria for purchase due to default, event of insolvency, a determination that the security no longer presents minimal credit risks, or other material event (“Affected Security”), the Investment Manager must dispose of the security as soon as practical, consistent with achieving an orderly disposition of the security, by sale, exercise of a demand feature or otherwise, and the requirements of GASB 79. An Affected Security may be held only if the Executive Director has determined, based upon a recommendation from the Investment Manager and the Investment Oversight Group, that it would not be in the best interest of Florida PRIME to dispose of the security taking into account market conditions that may affect an orderly disposition.

6. The Investment Manager will monthly stress test Florida PRIME and at least quarterly report the results of the stress tests to the Investment Oversight Group. Stress tests must be conducted for at least the following events, or combinations of events (i) a change in short-term interest rates; (ii) an increase in net shareholder redemptions; (iii) downgrades or defaults; and (iv)
changes between a benchmark overnight interest rate and the interest rates on securities held by Florida PRIME.

The Investment Manager will at least annually provide the Investment Oversight Group with: (i) their documented compliance procedures; (ii) an assessment of Florida PRIME's ability to withstand events reasonably likely to occur in the coming year and (iii) their list of NRSROs utilized as a component of the credit risk monitoring process.

The Executive Director’s delegated authority as described in this section is intended to provide him with sufficient authority and operating flexibility to make professional investment decisions in response to changing market and economic conditions. Nonetheless, the Trustees will at least monthly review and approve management summaries of material impacts on Florida PRIME, any actions or escalations taken thereon, and carry out such duties and make such determinations as are otherwise necessary under applicable law, regulation or rule.

Pursuant to Florida law, the Auditor General will conduct an annual financial audit of Florida PRIME, which will include testing for compliance with this Policy.

X. Deposits and Withdrawals

Investors should refer to the separate Florida PRIME Operating Procedures for detailed descriptions regarding how to make deposits in and withdrawals from Florida PRIME, including (1) any fees and limitations that may be imposed with respect thereto; and (2) reports provided to participants.

XI. Management Reporting

The Executive Director will be responsible for providing the formal periodic reports to the Trustees, legislative committees and other entities:

1. An annual report on the SBA and its investment portfolios, including that of Florida PRIME.
3. Special reports pursuant to Chapter 218, Florida Statutes.
Appendix A
Additional Information Regarding Florida PRIME’s Principal Securities

Throughout this appendix it shall be understood that actions described as being taken by Florida PRIME refer to actions taken by the Investment Manager on behalf of Florida PRIME.

FIXED INCOME SECURITIES

Corporate Debt Securities

Corporate debt securities are fixed income securities issued by businesses. Notes, bonds, debentures and commercial paper are the most prevalent types of corporate debt securities. Florida PRIME also may purchase interests in bank loans to companies.

COMMERCIAL PAPER

Commercial paper is an issuer’s obligation with a maturity of generally less than 270 days. Companies typically issue commercial paper to pay for current expenditures. Most issuers constantly reissue their commercial paper and use the proceeds (or bank loans) to repay maturing paper. If the issuer cannot continue to obtain liquidity in this fashion, its commercial paper may default.

DEMAND INSTRUMENTS

Demand instruments are corporate debt securities that the issuer must repay upon demand. Other demand instruments require a third party, such as a dealer or bank, to repurchase the security for its face value upon demand. Florida PRIME treats demand instruments as short-term securities, even though their stated maturity may extend beyond one year.

Bank Instruments

Bank instruments are unsecured interest bearing deposits with banks. Bank instruments include, but are not limited to, bank accounts, time deposits, certificates of deposit and banker’s acceptances. Yankee instruments are denominated in U.S. dollars and issued by U.S. branches of foreign banks. Eurodollar instruments are denominated in U.S. dollars and issued by non-U.S. branches of U.S. or foreign banks.

Florida PRIME will not invest in instruments of domestic and foreign banks and savings and loans unless they have capital, surplus, and undivided profits of over $100,000,000, or if the principal amount of the instrument is insured by the Bank Insurance Fund or the Savings Association Insurance Fund which are administered by the Federal Deposit Insurance Corporation. These instruments may include Eurodollar Certificates of Deposit, Yankee Certificates of Deposit, and Euro-dollar Time Deposits.

Florida PRIME shall further limit its investments in bank instruments consistent with the requirements of GASB 79.

Asset Backed Securities

Asset backed securities are payable from pools of obligations, most of which involve consumer or commercial debts. However, almost any type of fixed income assets (including other fixed income securities) may be used to create an asset backed security. Asset backed securities may take the form of commercial paper, notes or pass-through certificates.
Government Securities

Government security means any security issued or guaranteed as to principal or interest by the United States, or by a person controlled or supervised by and acting as an instrumentality of the Government of the United States pursuant to authority granted by the Congress of the United States; or any certificate of deposit for any of the foregoing.

U.S. Treasury Securities

U.S. Treasury securities are direct obligations of the federal government of the United States. U.S. Treasury securities are generally regarded as having the lowest credit risks.

Agency Securities

Agency securities are issued or guaranteed by a federal agency or other government sponsored entity (GSE) acting under federal authority. Some GSE securities are supported by the full faith and credit of the United States. These include securities issued by the Government National Mortgage Association, Small Business Administration, Farm Credit System Financial Assistance Corporation, Farmer's Home Administration, Federal Financing Bank, General Services Administration, Department of Housing and Urban Development, Export-Import Bank, Overseas Private Investment Corporation, and Washington Metropolitan Area Transit Authority.

Other GSE securities receive support through federal subsidies, loans or other benefits. For example, the U.S. Treasury is authorized to purchase specified amounts of securities issued by (or otherwise make funds available to) the Federal Home Loan Bank System, Federal Home Loan Mortgage Corporation, Federal National Mortgage Association, Student Loan Marketing Association, and Tennessee Valley Authority in support of such obligations.

A few GSE securities have no explicit financial support, but are regarded as having implied support because the federal government sponsors their activities. These include securities issued by the Farm Credit System, Financing Corporation, and Resolution Funding Corporation.

Investors regard agency securities as having low credit risks, but not as low as Treasury securities. Florida PRIME treats mortgage-backed securities guaranteed by a GSE as if issued or guaranteed by a federal agency. Although such a guarantee protects against credit risks, it does not reduce market risks.

Insurance Contracts

Insurance contracts include guaranteed investment contracts, funding agreements and annuities. Florida PRIME treats these contracts as fixed income securities.

Municipal Securities

Municipal securities are issued by states, counties, cities and other political subdivisions and authorities.

Foreign Securities

Foreign securities are U.S. dollar-denominated securities of issuers based outside the United States. Florida PRIME considers an issuer to be based outside the United States if:

- it is organized under the laws of, or has a principal office located in, another country;
- the principal trading market for its securities is in another country; or
• it (or its subsidiaries) derived in its most current fiscal year at least 50% of its total assets, capitalization, gross revenue or profit from goods produced, services performed or sales made in another country.

Mortgage Backed Securities

Mortgage backed securities represent interests in pools of mortgages. The mortgages that comprise a pool normally have similar interest rates, maturities and other terms. Mortgages may have fixed or adjustable interest rates. Interests in pools of adjustable rate mortgages are known as ARMs.

Zero Coupon Securities

Certain of the fixed income securities in which Florida PRIME invests are zero coupon securities. Zero coupon securities do not pay interest or principal until final maturity, unlike debt securities that provide periodic payments of interest (referred to as a “coupon payment”). Investors buy zero coupon securities at a price below the amount payable at maturity. The difference between the purchase price and the amount paid at maturity represents interest on the zero coupon security. Investors must wait until maturity to receive interest and principal, which increases the interest rate and credit risks of a zero coupon security.

Callable Securities

Certain of the fixed income securities in which Florida PRIME invests are callable at the option of the issuer. Callable securities are subject to reinvestment risks.

144A Securities

The SBA has determined that Florida PRIME constitutes (i) an “accredited investor” as defined in Rule 501(a)(7) promulgated under the Securities Act of 1933, as amended (the “Securities Act”), as long as Florida PRIME has total assets in excess of $5,000,000 and (ii) a “qualified purchaser” as defined in Section 2(a)(51)(A)(iv) of the 1940 Act, as long as Florida PRIME in the aggregate owns and invests on a discretionary basis not less than $25,000,000 in investments, but does not constitute a “qualified institutional buyer” as defined in Rule 144A(a)(1) promulgated under the Securities Act. Florida PRIME is restricted from purchasing or acquiring securities or investments that would require Florida PRIME to represent in connection with such purchase or acquisition that it is a “qualified institutional buyer” as defined in Rule 144A(a)(1) promulgated under the Securities Act.

Money Market Mutual Funds

Florida PRIME may invest in shares of registered investment companies that are money market mutual funds, including those that are affiliated with the Investment Manager, as an efficient means of implementing its investment strategies and/or managing its uninvested cash. These other money market mutual funds are managed independently of Florida PRIME and incur additional fees and/or expenses that would, therefore, be borne indirectly by Florida PRIME in connection with such investment. However, the Investment Manager believes that the benefits and efficiencies of this approach should outweigh the potential additional fees and/or expenses. The Investment Manager must obtain prior written consent of the SBA to invest Florida PRIME in money market mutual funds that are “affiliated persons” of the Investment Manager.

SPECIAL TRANSACTIONS

The Investment Manager on behalf of Florida PRIME may engage in the following special transactions.
Repurchase Agreements

A repurchase agreement is a transaction in which Florida PRIME buys a security from a dealer or bank and agrees to sell the security back at a mutually agreed-upon time and price. The repurchase price exceeds the sale price, reflecting Florida PRIME’s return on the transaction. This return is unrelated to the interest rate on the underlying security. Florida PRIME will enter into repurchase agreements only with banks and other recognized financial institutions, such as securities dealers, deemed creditworthy by the Investment Manager. The securities that are subject to the repurchase transactions are limited to securities in which Florida PRIME would be permitted to invest, except that such securities may have a maturity longer than would otherwise be permitted for Florida PRIME to own.

Florida PRIME’s custodian or subcustodian will take possession of the securities subject to repurchase agreements. The Investment Manager or subcustodian will monitor the value of the underlying security each day to ensure that the value of the security always equals or exceeds the repurchase price.

Repurchase agreements are subject to credit risks.

Delayed Delivery Transactions

Delayed delivery transactions, including when-issued transactions, are arrangements in which Florida PRIME buys securities for a set price, with payment and delivery of the securities scheduled for a future time. During the period between purchase and settlement, no payment is made by Florida PRIME to the issuer and no interest accrues to Florida PRIME. Florida PRIME records the transaction when it agrees to buy the securities and reflects their value in determining the price of its units. Settlement dates may not be more than seven business days after entering into these transactions; nonetheless, the market values of the securities bought may vary from the purchase prices. Therefore, delayed delivery transactions create interest rate risks for Florida PRIME. Delayed delivery transactions also involve credit risks in the event of a counterparty default.

Asset Coverage

In order to secure its obligations in connection with special transactions, Florida PRIME will either own the underlying assets, enter into an offsetting transaction or set aside readily marketable securities with a value that equals or exceeds Florida PRIME’s obligations. Unless Florida PRIME has other readily marketable assets to set aside, it cannot trade assets used to secure such obligations without terminating a special transaction. This may cause Florida PRIME to miss favorable trading opportunities or to realize losses on special transactions.
Private Equity Asset Class Review
John Bradley, SIO Strategic Investments & Private Equity

Investment Advisory Council
June 11, 2018
• PE Policy, Benchmarking and Structure
  – Goals/Objectives
  – Benchmarks
  – Staffing
• Asset Class Investment Process
  – Annual Investment Plan
  – Sourcing
  – Monitoring
  – Fees
• Asset Class Portfolio
  – Investment Types
  – Portfolio Composition
  – Performance
• Asset Class Sub-Strategies
  – Buyouts/Growth Equity
  – Venture Capital
  – Distressed/Turnaround
  – Secondary
Private Equity Policy

- Policy target allocation: 6% of total fund
- Allocation range: 2% - 9% of total fund
- 12/31/17 allocation: ~6.5% of total fund ($10.9 billion)

Per Policy:
- Private Equity shall utilize a prudent process to maximize long-term access to attractive risk-adjusted investment opportunities through use of business partners with appropriate:
  - Financial, operational and investment experience and resources
  - Alignment of interests
  - Transparency and repeatability of investment process, and
  - Controls on leverage
Goals/Objectives

• Asset Class Goals/Objectives
  – Create a portfolio that outperforms both our primary and secondary benchmarks while remaining within the bounds of our asset class risk budget
  – Construct the program to avoid concentrated exposure to a particular vintage year, manager, strategy or geography
  – Establish prudent portfolio diversification while minimizing proliferation of manager relationships
Benchmarks

• Benchmark
  – Primary: MSCI ACWI IMI + 300bps premium
    • Current benchmark of the Global Equity asset class plus an illiquidity premium
    • Opportunity cost benchmark
  – Secondary: Cambridge Associates Benchmark
    • Cambridge Associates Global Private Equity and Venture Capital Index
    • Peer benchmark
    • Measures effectiveness of staff in selecting managers
Staffing

• Staff of six investment professionals
  – Senior Investment Officer
  – Three Senior Portfolio Managers
  – One Portfolio Manager
  – One Senior Analyst
  – Administrative Assistant

• Cambridge Associates
  – Market research
  – Fund due diligence
  – Quarterly performance review
  – Semi-Annual strategy review
Private Equity Investment Process

- Initial screening
- Full diligence
- Legal negotiation
- Closing
- Annual meetings
- Advisory Boards
- Cambridge review
- SBA compliance
- Pacing model
- Portfolio priorities
- GP focus list
- Forward calendar
- Proactive
- Reactive
- Pacing model
- Portfolio priorities
- GP focus list
- Forward calendar
- Proactive
- Reactive
- Pacing model
- Portfolio priorities
- GP focus list
- Forward calendar
- Proactive
- Reactive
- Pacing model
- Portfolio priorities
- GP focus list
- Forward calendar
- Proactive
- Reactive
- Pacing model
- Portfolio priorities
- GP focus list
- Forward calendar
- Proactive
- Reactive
Private Equity Process

• Annual Investment Plan
  – Serves as the roadmap for future years
  • Numerous inputs, including:
    – Portfolio Const. Model
    – Priority Rankings
    – Focus List
    – Forward Calendar

<table>
<thead>
<tr>
<th>Geography</th>
<th>Large Buyout Priority</th>
<th>Mid-Mkt Buyout Priority</th>
<th>Small Buyout Priority</th>
<th>Growth Equity Priority</th>
<th>Venture Capital Priority</th>
<th>Distressed / Turnaround Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>Low Priority</td>
<td>Medium Priority</td>
<td>High Priority</td>
<td>Low Priority</td>
<td>Medium Priority</td>
<td>High Priority</td>
</tr>
<tr>
<td>Europe</td>
<td>Low Priority</td>
<td>Medium Priority</td>
<td>High Priority</td>
<td>Low Priority</td>
<td>Medium Priority</td>
<td>Medium Priority</td>
</tr>
<tr>
<td>Asia</td>
<td>Medium Priority</td>
<td>High Priority</td>
<td>High Priority</td>
<td>High Priority</td>
<td>High Priority</td>
<td>Low Priority</td>
</tr>
<tr>
<td>ROW</td>
<td>Low Priority</td>
<td>Low Priority</td>
<td>Low Priority</td>
<td>Low Priority</td>
<td>Low Priority</td>
<td>Low Priority</td>
</tr>
</tbody>
</table>
Private Equity Process

• Sourcing
  – Vast majority of investments sourced proactively
  – Invested in three funds in 2017 managed by general partners that were new to the PE program
  – To find these three new GPs:
    • 183 funds received
    • 97 meetings/calls
    • 7 due diligence process
    • 3 new investments
Private Equity Process

• Monitoring
  – Review of all capital calls and distributions
  – Portfolio company tracking sheet
  – Amendments and consents
  – Attendance at annual meetings
  – Participation on advisory boards
  – Quarterly update calls
  – In-person updates
  – Cambridge Associates strategy meetings
  – SBA Risk Management and Compliance
Private Equity Fees

- **Fees**
  - Chart below shows general market fee schedule
  - SBA private equity fees at the bottom end of the range

<table>
<thead>
<tr>
<th>Direct GPs</th>
<th>Mgmt Fee</th>
<th>Preferred Return</th>
<th>Carried Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buyout</td>
<td>1.5% - 2.0%</td>
<td>8%</td>
<td>20%</td>
</tr>
<tr>
<td>Venture</td>
<td>2.0% - 2.5%</td>
<td>--</td>
<td>20% - 30%</td>
</tr>
<tr>
<td>Distressed</td>
<td>1.5% - 2.0%</td>
<td>8%</td>
<td>20% - 30%</td>
</tr>
<tr>
<td>Secondary</td>
<td>1.0% - 2.0%</td>
<td>8% - 10%</td>
<td>10% - 15%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fund-of-Funds</th>
<th>Mgmt Fee</th>
<th>Preferred Return</th>
<th>Carried Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buyout</td>
<td>0.5% - 1.0%</td>
<td>8%</td>
<td>5% - 10%</td>
</tr>
<tr>
<td>Venture</td>
<td>0.5% - 1.0%</td>
<td>0% - 8%</td>
<td>5% - 10%</td>
</tr>
</tbody>
</table>

- **Focus on alignment and appropriateness**
  - Manager fees
  - Partnership expenses
  - Other fees (transaction, monitoring, board of directors, etc.)
Investment Strategies

- Four sub-strategies within the portfolio
  - Buyouts/Growth Equity
    - Focused on more established businesses
    - Typically control investments
    - Often utilize leverage
  - Venture Capital
    - Early stage investments in start-up companies
    - Non-control
    - No leverage
  - Distressed/Turnarounds
    - Control investing in underperforming companies
    - Heavy focus on operations
    - Leverage not typical at time of purchase; will often recap prior to sale
  - Secondary Funds
    - Purchase of stakes in private equity funds from limited partners
    - Secondary buyer assumes all future cash flow obligations from seller
Portfolio Composition and Performance

PE Portfolio
• $10.9b NAV (12/31/17)
• $6.7b Unfunded
• 184 funds
• 68 GPs (48 core)

Geographic Focus
• 10 - Global
• 29 - U.S.
• 8 - Europe
• 3 - Asia

Sector Focus
• 28 - Generalist
• 12 - Technology
• 4 - Energy
• 1 – Financials
• 2 – Consumer/Retail
• 1 – Health Care
<table>
<thead>
<tr>
<th>Portfolio @ 6/30/11</th>
<th>Portfolio @ 12/31/17</th>
</tr>
</thead>
<tbody>
<tr>
<td>$5.77 billion NAV</td>
<td>$10.9 Billion NAV</td>
</tr>
<tr>
<td>59 active relationships</td>
<td>48 active relationships</td>
</tr>
<tr>
<td>16 large buyout GPs 31.2% of NAV</td>
<td>7 large buyout GPs 12.7% of NAV</td>
</tr>
<tr>
<td>7 small buyout GP</td>
<td>14 small buyout GPs</td>
</tr>
<tr>
<td>9 sector focused GPs</td>
<td>20 sector focused GPs</td>
</tr>
<tr>
<td>European Portfolio 10 large pan-European GPs 1 small regional GP</td>
<td>European Portfolio 1 large pan-European GP 7 small regional GPs</td>
</tr>
</tbody>
</table>
### Current Allocations and Targets

<table>
<thead>
<tr>
<th></th>
<th>12/31/17 NAV</th>
<th>%</th>
<th>Total Exposure</th>
<th>%</th>
<th>Target Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buyouts*</td>
<td>$ 7,190</td>
<td>66%</td>
<td>$ 11,596</td>
<td>66%</td>
<td>65%</td>
</tr>
<tr>
<td>Venture Capital</td>
<td>$ 2,186</td>
<td>20%</td>
<td>$ 2,833</td>
<td>16%</td>
<td>10%</td>
</tr>
<tr>
<td>Distressed</td>
<td>$ 1,023</td>
<td>9%</td>
<td>$ 2,201</td>
<td>12%</td>
<td>15%</td>
</tr>
<tr>
<td>Secondary</td>
<td>$ 534</td>
<td>5%</td>
<td>$ 1,012</td>
<td>6%</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$ 10,935</strong></td>
<td>5%</td>
<td><strong>$ 17,643</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Buyout sub-target: 85% funds 15% co-investments
## Commitment Pacing

Estimated pacing over the next three fiscal years in-line with asset class target allocations

Actual timing of fundraises will vary depending on market conditions

<table>
<thead>
<tr>
<th></th>
<th>FY 18/19</th>
<th>FY 19/20</th>
<th>FY 20/21</th>
<th>Total</th>
<th>3 year avg.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buyout</strong></td>
<td>$1,235</td>
<td>$1,055</td>
<td>$1,320</td>
<td>$3,610</td>
<td>$1,203</td>
</tr>
<tr>
<td><strong>Funds</strong></td>
<td>$1,035</td>
<td>$855</td>
<td>$1,095</td>
<td>$2,985</td>
<td>$995</td>
</tr>
<tr>
<td><strong>Co-investments</strong></td>
<td>$200</td>
<td>$200</td>
<td>$225</td>
<td>$625</td>
<td>$208</td>
</tr>
<tr>
<td><strong>Venture Capital</strong></td>
<td>$95</td>
<td>$175</td>
<td>$105</td>
<td>$375</td>
<td>$125</td>
</tr>
<tr>
<td><strong>Distressed</strong></td>
<td>$350</td>
<td>$260</td>
<td>$350</td>
<td>$960</td>
<td>$320</td>
</tr>
<tr>
<td><strong>Secondary</strong></td>
<td>$200</td>
<td>$50</td>
<td>$50</td>
<td>$300</td>
<td>$100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$1,880</td>
<td>$1,540</td>
<td>$1,825</td>
<td>$5,245</td>
<td>$1,761</td>
</tr>
</tbody>
</table>
Total Sector Exposure
As of December 31, 2017

- Portfolio sector exposure is similar to that of the Cambridge PE/VC benchmark
- Relative to the asset class primary benchmark, PE managers have a large overweight to technology (+20%) and a large underweight to the financials sector (-10%).

Source: Cambridge Associates and MSCI
The portfolio remains tilted to North America. We expect exposures in Europe and Asia to grow over time.

Source: Cambridge Associates and MSCI
GP Concentration

- Total portfolio is diversified by GP
- The largest 15 exposures represent 57% of portfolio NAV
- Lexington Partners is the largest GP relationship in the portfolio (10%)
  - 76% co-investments
  - 24% secondary

<table>
<thead>
<tr>
<th>General Partner</th>
<th>12/31/17 NAV</th>
<th>% of PE Portfolio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lexington Partners</td>
<td>1,124,825,651</td>
<td>10%</td>
</tr>
<tr>
<td>Grove Street Advisors</td>
<td>791,303,298</td>
<td>7%</td>
</tr>
<tr>
<td>SVB Capital</td>
<td>569,637,686</td>
<td>5%</td>
</tr>
<tr>
<td>Thoma Bravo</td>
<td>508,405,948</td>
<td>5%</td>
</tr>
<tr>
<td>TrueBridge Ventures</td>
<td>433,265,886</td>
<td>4%</td>
</tr>
<tr>
<td>Fairview Capital</td>
<td>415,941,080</td>
<td>4%</td>
</tr>
<tr>
<td>Hellman &amp; Freidman</td>
<td>366,974,109</td>
<td>3%</td>
</tr>
<tr>
<td>Warburg Pincus</td>
<td>331,230,587</td>
<td>3%</td>
</tr>
<tr>
<td>Ares Management</td>
<td>303,243,825</td>
<td>3%</td>
</tr>
<tr>
<td>Ardan</td>
<td>277,992,039</td>
<td>3%</td>
</tr>
<tr>
<td>Carlyle Group</td>
<td>237,656,231</td>
<td>2%</td>
</tr>
<tr>
<td>Insight</td>
<td>231,146,101</td>
<td>2%</td>
</tr>
<tr>
<td>Blackstone Group</td>
<td>229,791,900</td>
<td>2%</td>
</tr>
<tr>
<td>RCP Advisors</td>
<td>224,203,733</td>
<td>2%</td>
</tr>
<tr>
<td>Advent Intl.</td>
<td>217,114,141</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6,262,732,215</strong></td>
<td><strong>57%</strong></td>
</tr>
</tbody>
</table>
Private Equity Program Performance
As of December 31, 2017

- Since inception the asset class has committed over $24b to 236 funds
- $17.6b called to date
- $16.3b distributed; 0.9x DPI
- $10.9b in remaining value; 1.5x TVPI
- Value creation to date of $9.6b
Private Equity Performance

Asset Class - Net Managed and Benchmark Returns (IRRs) as of December 31, 2017

18.2% 27.1%
14.2% 12.4%
15.8% 16.2%
11.3% 12.0%
13.0% 12.5%

1 Year 3 years 5 years 10 years Since Inception

Private Equity Asset Class Benchmark

Note: Asset class IRR performance data is provided by Cambridge Associates. Benchmark IRRs are provided by the Florida State Board of Administration. The PE benchmark is currently the Custom Iran- and Sudan-free ACWI IMI + 300bps. From July 2010 through June 2014 the benchmark was the Russell 3000 + 300 bps. Prior to July 2010, the benchmark was the Russell 3000 + 450 bps. Prior to November 1999, Private Equity was part of the Domestic Equities asset class and its benchmark was the Domestic Equities target index + 750 bps.

Please see Appendix for performance of the Legacy or pre-asset class portfolio.
Since inception of the asset class, the SBA has outperformed vintage year benchmarks in 13 out of 18 years (72%).
Buyout Portfolio Targets

- Buyout: 55%
- Distressed: 15%
- Co-investments: 10%
- Venture Capital: 10%
- Secondary: 10%

- Large Buyout: 25%
- Middle-Market Buyout: 35%
- Small Buyout: 40%
## Buyout Portfolio

<table>
<thead>
<tr>
<th>Firm</th>
<th>Geographic Focus</th>
<th>Sector Focus</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advent International</td>
<td>Europe</td>
<td>Generalist</td>
<td></td>
</tr>
<tr>
<td>Blackstone Group</td>
<td>Global</td>
<td>Generalist</td>
<td></td>
</tr>
<tr>
<td>The Carlyle Group</td>
<td>U.S.</td>
<td>Generalist</td>
<td></td>
</tr>
<tr>
<td>CVC</td>
<td>Europe</td>
<td>Generalist</td>
<td></td>
</tr>
<tr>
<td>Hellman &amp; Friedman</td>
<td>U.S.</td>
<td>Generalist</td>
<td></td>
</tr>
<tr>
<td>KKR Asia</td>
<td>Asia</td>
<td>Generalist</td>
<td></td>
</tr>
<tr>
<td>Silver Lake</td>
<td>U.S.</td>
<td>Technology</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Firm</th>
<th>Geographic Focus</th>
<th>Sector Focus</th>
<th>Middle-Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABRY Partners</td>
<td>U.S.</td>
<td>TMT</td>
<td>12 GPs – Target of 12</td>
</tr>
<tr>
<td>Ardan</td>
<td>Europe</td>
<td>Generalist</td>
<td></td>
</tr>
<tr>
<td>Berkshire Partners</td>
<td>U.S.</td>
<td>Generalist</td>
<td></td>
</tr>
<tr>
<td>Charlesbank</td>
<td>U.S.</td>
<td>Generalist</td>
<td></td>
</tr>
<tr>
<td>Denham</td>
<td>U.S.</td>
<td>Energy</td>
<td></td>
</tr>
<tr>
<td>EnCap</td>
<td>U.S.</td>
<td>Energy</td>
<td></td>
</tr>
<tr>
<td>FS Equity</td>
<td>U.S.</td>
<td>Consumer</td>
<td></td>
</tr>
<tr>
<td>InvestIndustrial</td>
<td>Europe</td>
<td>Generalist</td>
<td></td>
</tr>
<tr>
<td>Montagu</td>
<td>Europe</td>
<td>Generalist</td>
<td></td>
</tr>
<tr>
<td>Siris</td>
<td>U.S.</td>
<td>Technology</td>
<td></td>
</tr>
<tr>
<td>Stone Point</td>
<td>U.S.</td>
<td>Financials</td>
<td></td>
</tr>
<tr>
<td>Thoma Bravo</td>
<td>U.S.</td>
<td>Technology</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Firm</th>
<th>Geographic Focus</th>
<th>Sector Focus</th>
<th>Small</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accel KKR</td>
<td>U.S.</td>
<td>Technology</td>
<td>14 GPs – Target of 18</td>
</tr>
<tr>
<td>Asia Alternatives</td>
<td>Asia</td>
<td>Generalist</td>
<td></td>
</tr>
<tr>
<td>Carnelian</td>
<td>U.S.</td>
<td>Energy</td>
<td></td>
</tr>
<tr>
<td>Cortec</td>
<td>U.S.</td>
<td>Generalist</td>
<td></td>
</tr>
<tr>
<td>Cressey &amp; Co.</td>
<td>U.S.</td>
<td>Health Care</td>
<td></td>
</tr>
<tr>
<td>Deutsche Beteiligungs</td>
<td>Europe</td>
<td>Generalist</td>
<td></td>
</tr>
<tr>
<td>Equistone</td>
<td>Europe</td>
<td>Generalist</td>
<td></td>
</tr>
<tr>
<td>Francisco Partners</td>
<td>U.S.</td>
<td>Technology</td>
<td></td>
</tr>
<tr>
<td>Post Oak</td>
<td>U.S.</td>
<td>Energy</td>
<td></td>
</tr>
<tr>
<td>Rubicon</td>
<td>U.S.</td>
<td>Technology</td>
<td></td>
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<tr>
<td>Thoma Bravo</td>
<td>U.S.</td>
<td>Technology</td>
<td></td>
</tr>
<tr>
<td>TPG</td>
<td>Global</td>
<td>Generalist</td>
<td></td>
</tr>
<tr>
<td>Waterland</td>
<td>Europe</td>
<td>Generalist</td>
<td></td>
</tr>
<tr>
<td>Warburg Pincus</td>
<td>Global</td>
<td>Generalist</td>
<td></td>
</tr>
</tbody>
</table>
Buyout Portfolio

Exposure by Sector

- Information Technology, 32.1%
- Consumer Discretionary, 15.8%
- Energy, 14.5%
- Industrials, 10.1%
- Financials, 9.0%
- Consumer Staples, 3.2%
- Materials, 3.1%
- Health Care, 9.8%
- Telecommunication Services, 1.2%
- Utilities, 1.2%
- Other, 1.1%

U.S. and Canada, 76.7%
Europe, 15.3%
Asia, 7.0%
Other, 1.1%

Exposure by Size

- Large Buyout, 30%
- Middle-Market Buyout, 35%
- Small Buyout, 36%

Portfolio Commentary

- The information technology, consumer and energy sectors make up the largest exposures in the portfolio.
- Portfolio balanced by size, which is unique for a plan of our size.
- Portfolio weighted heavily towards North America, but we continue to proactively source opportunities in Europe and Asia.

*Exposure weightings by NAV as of 12/31/17
Buyout Portfolio Performance
As of December 31, 2017

(\textit{net IRRs})

<table>
<thead>
<tr>
<th></th>
<th>1yr</th>
<th>3yr</th>
<th>5yr</th>
<th>10yr</th>
<th>Since Inception</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>U.S. Buyouts</strong></td>
<td>20.0%</td>
<td>15.9%</td>
<td>16.3%</td>
<td>11.1%</td>
<td>12.3%</td>
</tr>
<tr>
<td><strong>Non-U.S. Buyouts</strong></td>
<td>27.3%</td>
<td>17.8%</td>
<td>16.8%</td>
<td>11.4%</td>
<td>11.3%</td>
</tr>
<tr>
<td><strong>U.S. Growth Equity</strong></td>
<td>15.3%</td>
<td>14.9%</td>
<td>17.0%</td>
<td>13.0%</td>
<td>13.0%</td>
</tr>
<tr>
<td><strong>Non-U.S. Growth Equity</strong></td>
<td>15.3%</td>
<td>10.6%</td>
<td>11.1%</td>
<td>--</td>
<td>6.9%</td>
</tr>
<tr>
<td><strong>Total Buyouts</strong></td>
<td>20.8%</td>
<td>15.6%</td>
<td>16.0%</td>
<td>11.2%</td>
<td>12.4%</td>
</tr>
<tr>
<td><strong>CA Benchmark</strong></td>
<td>20.1%</td>
<td>12.0%</td>
<td>12.9%</td>
<td>8.8%</td>
<td>12.1%</td>
</tr>
</tbody>
</table>

• Overall outperformance vs. the benchmark
• Non-U.S. Buyouts have outperformed U.S. peers (helped by € appreciation)
• Alpha over public markets (PME) of 480 bps
• DPI of 0.9x and TVPI of 1.5x

Public Market Equivalent (PME) Comparison (Since Inception)

<table>
<thead>
<tr>
<th></th>
<th>Distributed/Paid-In</th>
<th>Total Value/Paid-In</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>U.S. Growth Equity</strong></td>
<td>0.7x</td>
<td>1.5x</td>
</tr>
<tr>
<td><strong>Non-U.S. Growth Equity</strong></td>
<td>0.4x</td>
<td>1.2x</td>
</tr>
<tr>
<td><strong>U.S. Buyouts</strong></td>
<td>1.0x</td>
<td>1.6x</td>
</tr>
<tr>
<td><strong>Non-U.S. Buyouts</strong></td>
<td>0.7x</td>
<td>1.4x</td>
</tr>
<tr>
<td><strong>Total Buyouts</strong></td>
<td>0.9x</td>
<td>1.5x</td>
</tr>
</tbody>
</table>

Alpha over MSCI ACWI IMI (IRR%)

4.8%
Venture Capital Portfolio

Portfolio Commentary

- Four active separate account/fund-of-fund relationships: TrueBridge, Silicon Valley Bank, Fairview Capital and Tiger Iron
- Majority of the venture portfolio is focused on IT with a slight tilt towards the enterprise.
- Over half the portfolio is located in centers of innovation (Silicon Valley, Boston and NYC)
- 80% of the portfolio is invested in early and expansion stage companies

Exposure by Sector

Exposure by Geography

Exposure by Stage

*Exposure weightings by NAV as of 12/31/17
Venture Capital Portfolio Performance
As of December 31, 2017

<table>
<thead>
<tr>
<th>(net IRRs)</th>
<th>1yr</th>
<th>3yr</th>
<th>5yr</th>
<th>10yr</th>
<th>Since Inception</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venture Capital</td>
<td>15.3%</td>
<td>14.9%</td>
<td>17.0%</td>
<td>13.0%</td>
<td>13.0%</td>
</tr>
<tr>
<td>CA Benchmark</td>
<td>11.7%</td>
<td>8.9%</td>
<td>16.7%</td>
<td>12.4%</td>
<td>12.1%</td>
</tr>
</tbody>
</table>

- Short-term outperformance vs. the benchmark
- Underperformance vs. the PME by 430 bps (Annualized performance of S&P 500 IT Index: 5-yr = 27%; 10-yr = 18%)
- Distributions (0.5x DPI) continue to trail other strategies

Public Market Equivalent (PME) Comparison (Since Inception)

Alpha over S&P 500 IT Index (IRR%)
Distressed/Turnaround Portfolio

We continue to focus on increasing exposure to distressed funds
- Industrials and consumer discretionary sectors make up the bulk of sector exposure
- Focus on control and driving value through operations - not a trading strategy
- Variety of strategies represented: debt-for-control, purchasing assets out of a bankruptcy process (363 sale), out-of-court restructurings, negative EBITDA companies, carve-outs of underperforming businesses, and complex situations

*Sector and Geographic weightings by NAV as of 12/31/17
Distressed/Turnaround Portfolio Performance
As of December 31, 2017

Exposure weightings by NAV as of 12/31/17

<table>
<thead>
<tr>
<th>Exposure Weighting</th>
<th>12.5%</th>
<th>0.0%</th>
<th>2.0%</th>
<th>4.0%</th>
<th>6.0%</th>
<th>8.0%</th>
<th>10.0%</th>
<th>12.0%</th>
<th>14.0%</th>
</tr>
</thead>
</table>

Alpha over MSCI ACWI IMI (IRR%)

<table>
<thead>
<tr>
<th>Period</th>
<th>Since Inception</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distressed/Turnaround</td>
<td>21.5% 15.3% 16.2% 12.3% 20.6%</td>
</tr>
<tr>
<td>CA Benchmark</td>
<td>13.2% 8.5% 10.2% 9.4% 10.8%</td>
</tr>
</tbody>
</table>

Public Market Equivalent (PME) Comparison (Since Inception)

- Overall outperformance vs. the benchmarks
- Alpha over the public markets (PME) of 1,250 bps
- Distributions received greater than contributed capital (DPI 1.2x)
- 1.7x TVPI leads overall PE portfolio

*Exposure weightings by NAV as of 12/31/17*
Secondary Portfolio

- Highly diversified portfolio with more than 1,000 underlying private equity funds
- Very competitive market
- Secondary market pricing has increased over the last few years
- Leveraging secondary relationships to operate more tactically

<table>
<thead>
<tr>
<th>Firm</th>
<th>Strategy/Market</th>
<th>Geographic Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ardian</td>
<td>Large</td>
<td>Global</td>
</tr>
<tr>
<td>Lexington Partners</td>
<td>Large</td>
<td>Global</td>
</tr>
</tbody>
</table>

% of Secondary Portfolio (by NAV)

- Ardian, 38%
- Lexington Partners, 62%
Secondary Portfolio Performance
As of December 31, 2017

<table>
<thead>
<tr>
<th></th>
<th>1yr</th>
<th>3yr</th>
<th>5yr</th>
<th>10yr</th>
<th>Since Inception</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary</td>
<td>16.9%</td>
<td>10.7%</td>
<td>12.2%</td>
<td>8.8%</td>
<td>15.9%</td>
</tr>
<tr>
<td>CA Benchmark</td>
<td>17.4%</td>
<td>10.0%</td>
<td>12.3%</td>
<td>10.2%</td>
<td>12.8%</td>
</tr>
</tbody>
</table>

- Performance consistent with the benchmarks (excluding 10-year)
- Alpha over public markets (PME) of 710 bps
- DPI of 1.1x and TVPI of 1.5x

![Bar chart showing Distributed/Paid-In and Total Value/Paid-In for Secondary performance](chart1.png)

![Bar chart showing Alpha over MSCI ACWI IMI (IRR%)](chart2.png)
Appendix
### Private Equity Aggregates

#### Dollar-Weighted Performance (IRRs) as of December 31, 2017

<table>
<thead>
<tr>
<th>Inception Date</th>
<th>Market Value (in Millions)</th>
<th>1yr</th>
<th>3yr</th>
<th>5yr</th>
<th>10yr</th>
<th>Since Inception</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Private Equity</td>
<td>1/27/1989</td>
<td>$10,944</td>
<td>18.2%</td>
<td>14.2%</td>
<td>15.4%</td>
<td>10.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Custom Iran- and Sudan-free ACWI IMI +300bps</td>
</tr>
<tr>
<td>Private Equity Legacy Portfolio</td>
<td>1/27/1989</td>
<td>$9</td>
<td>-10.8%</td>
<td>-15.4%</td>
<td>-17.9%</td>
<td>-8.6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Custom Iran- and Sudan-free ACWI IMI +300bps</td>
</tr>
<tr>
<td>Private Equity Asset Class Portfolio</td>
<td>8/31/2000</td>
<td>$10,935</td>
<td>18.2%</td>
<td>14.2%</td>
<td>15.8%</td>
<td>11.3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Custom Iran- and Sudan-free ACWI IMI +300bps</td>
</tr>
</tbody>
</table>

Note: Asset class IRR performance data is provided by Cambridge Associates. Benchmark IRRs are provided by the Florida State Board of Administration. The PE benchmark is currently the Custom Iran- and Sudan-free ACWI IMI + 300bps. From July 2010 through June 2014 the benchmark was the Russell 3000 + 300 bps. Prior to July 2010, the benchmark was the Russell 3000 + 450 bps. Prior to November 1999, Private Equity was part of the Domestic Equity asset class and its benchmark was the Domestic Equity target index + 750 bps.
# Private Equity Partnership Performance

As of December 31, 2017

Note: Manager IRR performance data is provided by Cambridge Associates.

<table>
<thead>
<tr>
<th>Private Investments Partnerships</th>
<th>Commitment ($)</th>
<th>Current NAV ($)</th>
<th>TVPI</th>
<th>Net IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>3i Europartners Vb, L.P.</td>
<td>77,440,017</td>
<td>0</td>
<td>0.97</td>
<td>-0.6%</td>
</tr>
<tr>
<td>3i Growth Capital Fund, L.P.</td>
<td>54,440,286</td>
<td>0</td>
<td>0.93</td>
<td>-2.0%</td>
</tr>
<tr>
<td>ABRY Partners VII, L.P.</td>
<td>75,000,000</td>
<td>29,610,662</td>
<td>1.81</td>
<td>15.6%</td>
</tr>
<tr>
<td>ABRY Partners VIII, L.P.</td>
<td>75,000,000</td>
<td>67,234,522</td>
<td>1.17</td>
<td>8.9%</td>
</tr>
<tr>
<td>Accel-KKR Capital Partners V</td>
<td>50,000,000</td>
<td>9,217,013</td>
<td>0.98</td>
<td>NA</td>
</tr>
<tr>
<td>Accel-KKR Structured Capital Partners II, LP</td>
<td>25,000,000</td>
<td>10,009,662</td>
<td>1.12</td>
<td>7.9%</td>
</tr>
<tr>
<td>Advent International Global Private Equity VIII-D</td>
<td>150,000,000</td>
<td>72,688,421</td>
<td>1.07</td>
<td>12.7%</td>
</tr>
<tr>
<td>Advent International GPE VI-D, L.P.</td>
<td>58,000,000</td>
<td>27,488,976</td>
<td>2.10</td>
<td>17.4%</td>
</tr>
<tr>
<td>Advent International GPE VII-D, L.P.</td>
<td>102,335,815</td>
<td>116,936,744</td>
<td>1.70</td>
<td>18.7%</td>
</tr>
<tr>
<td>American Industrial Partners Capital Fund VI, L.P.</td>
<td>50,000,000</td>
<td>28,117,687</td>
<td>0.99</td>
<td>-2.0%</td>
</tr>
<tr>
<td>Apax VIII-B, L.P.</td>
<td>157,584,000</td>
<td>177,683,287</td>
<td>1.39</td>
<td>13.5%</td>
</tr>
<tr>
<td>Apollo Investment Fund IX, L.P.</td>
<td>200,000,000</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Apollo Investment Fund V, L.P.</td>
<td>150,000,000</td>
<td>0</td>
<td>2.66</td>
<td>38.8%</td>
</tr>
<tr>
<td>Apollo Investment Fund VI L.P.</td>
<td>200,000,000</td>
<td>0</td>
<td>1.70</td>
<td>9.5%</td>
</tr>
<tr>
<td>Apollo Investment Fund VII, L.P.</td>
<td>200,000,000</td>
<td>0</td>
<td>2.02</td>
<td>23.8%</td>
</tr>
<tr>
<td>Apollo Investment Fund VIII, L.P.</td>
<td>200,000,000</td>
<td>176,784,104</td>
<td>1.35</td>
<td>19.8%</td>
</tr>
<tr>
<td>Ardian LBO Fund VI, L.P</td>
<td>98,905,446</td>
<td>39,673,199</td>
<td>1.00</td>
<td>-0.8%</td>
</tr>
<tr>
<td>Ardian Secondary Fund VI, L.P</td>
<td>150,000,000</td>
<td>100,581,389</td>
<td>1.36</td>
<td>14.6%</td>
</tr>
<tr>
<td>Ares Corporate Opportunities Fund III, L.P.</td>
<td>100,000,000</td>
<td>103,348,759</td>
<td>2.65</td>
<td>23.8%</td>
</tr>
<tr>
<td>Ares Corporate Opportunities Fund IV, L.P.</td>
<td>200,000,000</td>
<td>173,280,762</td>
<td>1.49</td>
<td>15.7%</td>
</tr>
<tr>
<td>Ares Corporate Opportunities Fund V</td>
<td>200,000,000</td>
<td>26,614,304</td>
<td>0.96</td>
<td>NA</td>
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<tr>
<td>ASF VII, L.P</td>
<td>150,000,000</td>
<td>39,459,111</td>
<td>1.22</td>
<td>21.0%</td>
</tr>
<tr>
<td>Asia Alternatives FL Investor II, LP</td>
<td>200,000,000</td>
<td>2,617,404</td>
<td>0.88</td>
<td>NA</td>
</tr>
</tbody>
</table>
Private Equity Partnership Performance  
As of December 31, 2017

<table>
<thead>
<tr>
<th>Private Investments Partnerships</th>
<th>Commitment ($)</th>
<th>Current NAV ($)</th>
<th>TVPI</th>
<th>Net IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia Alternatives FL Investor, LP</td>
<td>200,000,000</td>
<td>123,069,430</td>
<td>1.24</td>
<td>15.0%</td>
</tr>
<tr>
<td>Atlas Capital Resources II</td>
<td>20,000,000</td>
<td>12,557,644</td>
<td>1.31</td>
<td>18.0%</td>
</tr>
<tr>
<td>AXA LBO Fund V, L.P.</td>
<td>76,858,858</td>
<td>76,680,070</td>
<td>1.45</td>
<td>12.9%</td>
</tr>
<tr>
<td>AXA Secondary Fund V, L.P.</td>
<td>100,000,000</td>
<td>21,598,269</td>
<td>1.63</td>
<td>17.7%</td>
</tr>
<tr>
<td>BC European Capital IX, L.P.</td>
<td>101,118,077</td>
<td>0</td>
<td>1.09</td>
<td>5.8%</td>
</tr>
<tr>
<td>Berkshire Fund IX, L.P.</td>
<td>110,000,000</td>
<td>26,433,446</td>
<td>0.96</td>
<td>NA</td>
</tr>
<tr>
<td>Berkshire Fund VIII, L.P.</td>
<td>60,000,000</td>
<td>49,999,347</td>
<td>1.43</td>
<td>12.3%</td>
</tr>
<tr>
<td>Blackstone Capital Partners V, L.P.</td>
<td>150,000,000</td>
<td>0</td>
<td>1.60</td>
<td>7.1%</td>
</tr>
<tr>
<td>Blackstone Capital Partners VI, L.P.</td>
<td>200,000,000</td>
<td>190,567,763</td>
<td>1.49</td>
<td>13.1%</td>
</tr>
<tr>
<td>Blackstone Capital Partners VII, L.P.</td>
<td>180,000,000</td>
<td>39,224,137</td>
<td>1.05</td>
<td>9.0%</td>
</tr>
<tr>
<td>Carlyle Asia Growth Partners IV, L.P.</td>
<td>75,000,000</td>
<td>37,917,664</td>
<td>1.31</td>
<td>6.6%</td>
</tr>
<tr>
<td>Carlyle Europe Partners III, L.P.</td>
<td>66,000,377</td>
<td>0</td>
<td>1.61</td>
<td>12.9%</td>
</tr>
<tr>
<td>Carlyle Partners III, L.P.</td>
<td>200,000,000</td>
<td>0</td>
<td>2.30</td>
<td>22.8%</td>
</tr>
<tr>
<td>Carlyle Partners IV, L.P.</td>
<td>75,000,000</td>
<td>1,454,014</td>
<td>2.02</td>
<td>13.1%</td>
</tr>
<tr>
<td>Carlyle Partners V, L.P.</td>
<td>200,000,000</td>
<td>0</td>
<td>1.81</td>
<td>13.5%</td>
</tr>
<tr>
<td>Carlyle Partners VI, L.P.</td>
<td>200,000,000</td>
<td>198,284,553</td>
<td>1.25</td>
<td>13.0%</td>
</tr>
<tr>
<td>Carnelian Energy Capital II</td>
<td>40,000,000</td>
<td>3,208,739</td>
<td>1.03</td>
<td>NA</td>
</tr>
<tr>
<td>Charlesbank Equity Fund IX, L.P.</td>
<td>105,000,000</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Charlesbank Equity Fund VII, L.P.</td>
<td>75,000,000</td>
<td>43,172,238</td>
<td>2.07</td>
<td>23.3%</td>
</tr>
<tr>
<td>Charlesbank Equity Fund VIII, L.P.</td>
<td>85,000,000</td>
<td>74,217,188</td>
<td>1.15</td>
<td>9.8%</td>
</tr>
<tr>
<td>Charlesbank Fund IX Overage Allocation Program</td>
<td>10,000,000</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Charterhouse Capital Partners IX, L.P.</td>
<td>90,366,890</td>
<td>0</td>
<td>1.35</td>
<td>13.7%</td>
</tr>
<tr>
<td>Cortec Group Fund V, L.P.</td>
<td>50,000,000</td>
<td>168,287,385</td>
<td>3.85</td>
<td>40.1%</td>
</tr>
</tbody>
</table>

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# Private Equity Partnership Performance

As of December 31, 2017

<table>
<thead>
<tr>
<th>Private Investments Partnerships</th>
<th>Commitment ($)</th>
<th>Current NAV ($)</th>
<th>TVPI</th>
<th>Net IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cortec Group Fund VI, L.P.</td>
<td>75,000,000</td>
<td>18,709,466</td>
<td>0.92</td>
<td>-6.8%</td>
</tr>
<tr>
<td>Cressey &amp; Company Fund IV, L.P.</td>
<td>50,000,000</td>
<td>42,533,161</td>
<td>2.05</td>
<td>22.7%</td>
</tr>
<tr>
<td>Cressey &amp; Company Fund V LP</td>
<td>75,000,000</td>
<td>57,003,175</td>
<td>1.22</td>
<td>15.1%</td>
</tr>
<tr>
<td>CVC Capital Partners VI, L.P.</td>
<td>102,645,517</td>
<td>81,466,028</td>
<td>1.19</td>
<td>14.6%</td>
</tr>
<tr>
<td>CVC Capital Partners VII</td>
<td>94,927,697</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>CVC European Equity Partners V, L.P.</td>
<td>102,826,253</td>
<td>33,274,153</td>
<td>1.84</td>
<td>15.6%</td>
</tr>
<tr>
<td>CVE-Kauffman Fellows Endowment Fund II, L.P.</td>
<td>100,000,000</td>
<td>148,760,441</td>
<td>1.81</td>
<td>13.3%</td>
</tr>
<tr>
<td>DCPF VI Oil and Gas Co-investment Fund LP</td>
<td>50,000,000</td>
<td>45,301,688</td>
<td>1.49</td>
<td>21.1%</td>
</tr>
<tr>
<td>Denham Commodity Partners Fund VI, L.P.</td>
<td>100,000,000</td>
<td>70,355,314</td>
<td>1.17</td>
<td>8.1%</td>
</tr>
<tr>
<td>Denham Oil &amp; Gas Fund LP</td>
<td>100,000,000</td>
<td>34,612,080</td>
<td>1.06</td>
<td>7.4%</td>
</tr>
<tr>
<td>EnCap Energy Capital Fund IX, L.P.</td>
<td>75,000,000</td>
<td>58,703,667</td>
<td>1.37</td>
<td>16.7%</td>
</tr>
<tr>
<td>EnCap Energy Capital Fund VIII, L.P.</td>
<td>75,000,000</td>
<td>33,763,090</td>
<td>0.92</td>
<td>-2.9%</td>
</tr>
<tr>
<td>EnCap Energy Capital Fund X, L.P.</td>
<td>100,000,000</td>
<td>63,758,771</td>
<td>1.15</td>
<td>15.3%</td>
</tr>
<tr>
<td>EnCap Energy Capital Fund XI, L.P.</td>
<td>100,000,000</td>
<td>2,656,058</td>
<td>0.75</td>
<td>NA</td>
</tr>
<tr>
<td>EnCap Flatrock Midstream Fund III</td>
<td>50,000,000</td>
<td>29,657,868</td>
<td>1.40</td>
<td>28.5%</td>
</tr>
<tr>
<td>EnCap Flatrock Midstream Fund IV</td>
<td>65,000,000</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Energy Capital Partners II, L.P.</td>
<td>100,000,000</td>
<td>44,433,821</td>
<td>1.75</td>
<td>12.5%</td>
</tr>
<tr>
<td>Energy Capital Partners III, L.P.</td>
<td>150,000,000</td>
<td>101,060,567</td>
<td>1.25</td>
<td>13.5%</td>
</tr>
<tr>
<td>EnerVest Energy Institutional Fund XII, Ltd</td>
<td>60,000,000</td>
<td>1</td>
<td>0.63</td>
<td>-20.4%</td>
</tr>
<tr>
<td>EnerVest Energy Institutional Fund XIII, Ltd</td>
<td>100,000,000</td>
<td>1</td>
<td>0.09</td>
<td>-99.7%</td>
</tr>
<tr>
<td>EnerVest Energy Institutional Fund XIV</td>
<td>100,000,000</td>
<td>88,035,805</td>
<td>1.10</td>
<td>6.7%</td>
</tr>
<tr>
<td>Equistone European Fund V</td>
<td>74,366,455</td>
<td>73,954,706</td>
<td>1.30</td>
<td>18.9%</td>
</tr>
<tr>
<td>European Private Equity Opportunities I, L.P.</td>
<td>49,181,385</td>
<td>8,816,827</td>
<td>0.93</td>
<td>NA</td>
</tr>
</tbody>
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## Private Equity Partnership Performance

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<tbody>
<tr>
<td>Fairview Special Opportunities Fund II</td>
<td>87,000,000</td>
<td>49,321,254</td>
<td>1.01</td>
<td>0.8%</td>
</tr>
<tr>
<td>Fairview Special Opportunities Fund, L.P.</td>
<td>220,000,000</td>
<td>274,451,505</td>
<td>1.67</td>
<td>17.9%</td>
</tr>
<tr>
<td>Fairview Ventures Fund II, L.P.</td>
<td>50,000,000</td>
<td>24,256,856</td>
<td>1.40</td>
<td>4.5%</td>
</tr>
<tr>
<td>Fairview Ventures III, L.P.</td>
<td>75,000,000</td>
<td>67,911,465</td>
<td>1.99</td>
<td>13.9%</td>
</tr>
<tr>
<td>First Reserve Fund XI, L.P.</td>
<td>100,000,000</td>
<td>5,684,767</td>
<td>0.66</td>
<td>-9.1%</td>
</tr>
<tr>
<td>First Reserve Fund XII, L.P.</td>
<td>200,000,000</td>
<td>52,275,868</td>
<td>0.69</td>
<td>-8.4%</td>
</tr>
<tr>
<td>Francisco Partners III, L.P.</td>
<td>75,000,000</td>
<td>58,536,346</td>
<td>2.19</td>
<td>20.7%</td>
</tr>
<tr>
<td>Francisco Partners IV, LP</td>
<td>75,000,000</td>
<td>78,140,807</td>
<td>1.27</td>
<td>18.2%</td>
</tr>
<tr>
<td>Francisco Partners V, L.P.</td>
<td>75,000,000</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>FS Equity Partners V, L.P.</td>
<td>50,000,000</td>
<td>0</td>
<td>2.10</td>
<td>16.1%</td>
</tr>
<tr>
<td>FS Equity Partners VI, L.P.</td>
<td>75,000,000</td>
<td>115,857,969</td>
<td>3.03</td>
<td>25.8%</td>
</tr>
<tr>
<td>FS Equity Partners VII, L.P.</td>
<td>100,000,000</td>
<td>67,443,113</td>
<td>1.05</td>
<td>3.6%</td>
</tr>
<tr>
<td>Gores Capital Partners II, L.P.</td>
<td>50,000,000</td>
<td>0</td>
<td>1.14</td>
<td>3.8%</td>
</tr>
<tr>
<td>Gores Capital Partners III, L.P.</td>
<td>125,000,000</td>
<td>0</td>
<td>1.00</td>
<td>-0.1%</td>
</tr>
<tr>
<td>Gores Capital Partners, L.P.</td>
<td>50,000,000</td>
<td>0</td>
<td>1.30</td>
<td>8.4%</td>
</tr>
<tr>
<td>Green Equity Investors IV, L.P.</td>
<td>100,000,000</td>
<td>0</td>
<td>1.78</td>
<td>10.7%</td>
</tr>
<tr>
<td>Green Equity Investors V, L.P.</td>
<td>100,000,000</td>
<td>0</td>
<td>1.94</td>
<td>17.4%</td>
</tr>
<tr>
<td>Green Equity Investors VI, L.P.</td>
<td>200,000,000</td>
<td>0</td>
<td>1.25</td>
<td>12.3%</td>
</tr>
<tr>
<td>Grove Street Partners Buyout II, L.P.</td>
<td>200,000,000</td>
<td>166,589,129</td>
<td>1.40</td>
<td>13.9%</td>
</tr>
<tr>
<td>Grove Street Partners Buyout, L.P.</td>
<td>150,000,000</td>
<td>61,545,424</td>
<td>1.53</td>
<td>9.9%</td>
</tr>
<tr>
<td>Grove Street Partners Ventures II, L.P.</td>
<td>200,000,000</td>
<td>291,779,807</td>
<td>2.14</td>
<td>19.4%</td>
</tr>
<tr>
<td>Grove Street Partners Ventures III, L.P.</td>
<td>150,000,000</td>
<td>162,514,059</td>
<td>1.29</td>
<td>12.2%</td>
</tr>
<tr>
<td>Grove Street Partners Ventures, L.P.</td>
<td>200,000,000</td>
<td>108,874,879</td>
<td>1.61</td>
<td>7.8%</td>
</tr>
</tbody>
</table>

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# Private Equity Partnership Performance

As of December 31, 2017

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</tr>
</thead>
<tbody>
<tr>
<td>Hellman &amp; Friedman Capital Partners V, L.P.</td>
<td>75,000,000</td>
<td>1,198,075</td>
<td>2.74</td>
<td>29.4%</td>
</tr>
<tr>
<td>Hellman &amp; Friedman Capital Partners VI, L.P.</td>
<td>100,000,000</td>
<td>0</td>
<td>1.79</td>
<td>12.6%</td>
</tr>
<tr>
<td>Hellman &amp; Friedman Capital Partners VII, L.P.</td>
<td>200,000,000</td>
<td>267,221,262</td>
<td>2.23</td>
<td>24.8%</td>
</tr>
<tr>
<td>Hellman &amp; Friedman Capital Partners VIII, L.P.</td>
<td>200,000,000</td>
<td>98,554,772</td>
<td>1.16</td>
<td>51.8%</td>
</tr>
<tr>
<td>Hicks, Muse, Tate &amp; Furst Equity Fund V, L.P.</td>
<td>25,000,000</td>
<td>0</td>
<td>1.77</td>
<td>21.0%</td>
</tr>
<tr>
<td>Inflexion Buyout Fund IV, L.P.</td>
<td>52,587,527</td>
<td>40,576,837</td>
<td>1.27</td>
<td>25.4%</td>
</tr>
<tr>
<td>Inflexion Enterprise Fund IV</td>
<td>19,982,149</td>
<td>5,710,255</td>
<td>0.95</td>
<td>-19.8%</td>
</tr>
<tr>
<td>Inflexion Partnership Capital Fund I, L.P.</td>
<td>26,372,724</td>
<td>14,648,500</td>
<td>1.21</td>
<td>18.0%</td>
</tr>
<tr>
<td>Insight Venture Partners Growth-Buyout Coinvestment Fund, L.P.</td>
<td>50,000,000</td>
<td>58,257,159</td>
<td>1.56</td>
<td>31.3%</td>
</tr>
<tr>
<td>Insight Venture Partners IX, L.P.</td>
<td>75,000,000</td>
<td>79,306,286</td>
<td>1.31</td>
<td>18.7%</td>
</tr>
<tr>
<td>Insight Venture Partners VIII, L.P.</td>
<td>75,000,000</td>
<td>93,582,656</td>
<td>1.55</td>
<td>13.5%</td>
</tr>
<tr>
<td>Investindustrial VI, L.P.</td>
<td>55,802,326</td>
<td>7,654,802</td>
<td>0.97</td>
<td>-2.5%</td>
</tr>
<tr>
<td>J.H. Whitney VII, L.P.</td>
<td>75,000,000</td>
<td>48,603,156</td>
<td>1.52</td>
<td>12.1%</td>
</tr>
<tr>
<td>Kelso Investment Associates VII, L.P.</td>
<td>50,000,000</td>
<td>0</td>
<td>1.73</td>
<td>12.2%</td>
</tr>
<tr>
<td>Kelso Investment Associates VIII, L.P.</td>
<td>100,000,000</td>
<td>0</td>
<td>1.58</td>
<td>13.8%</td>
</tr>
<tr>
<td>KKR Asian Fund II, L.P.</td>
<td>100,000,000</td>
<td>113,207,751</td>
<td>1.39</td>
<td>17.7%</td>
</tr>
<tr>
<td>KKR Asian Fund III, L.P.</td>
<td>150,000,000</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>KKR European Fund III, L.P.</td>
<td>58,757,859</td>
<td>0</td>
<td>1.05</td>
<td>1.8%</td>
</tr>
<tr>
<td>Kohlberg Investors V, L.P.</td>
<td>45,000,000</td>
<td>0</td>
<td>1.06</td>
<td>1.2%</td>
</tr>
<tr>
<td>Kohlberg Investors VI, L.P.</td>
<td>50,000,000</td>
<td>0</td>
<td>1.67</td>
<td>15.8%</td>
</tr>
<tr>
<td>KPS Special Situations Fund IV, L.P.</td>
<td>150,000,000</td>
<td>45,208,385</td>
<td>1.29</td>
<td>26.4%</td>
</tr>
<tr>
<td>KPS Special Situations Supplemental Fund III, L.P.</td>
<td>50,000,000</td>
<td>24,087,605</td>
<td>2.17</td>
<td>20.4%</td>
</tr>
<tr>
<td>LCP FSBA Co-Invest Account</td>
<td>200,000,000</td>
<td>45,346,998</td>
<td>1.32</td>
<td>55.5%</td>
</tr>
</tbody>
</table>

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<tr>
<td>Lexington Capital Partners IV, L.P.</td>
<td>200,000,000</td>
<td>0</td>
<td>1.78</td>
<td>20.2%</td>
</tr>
<tr>
<td>Lexington Capital Partners V, L.P.</td>
<td>100,000,000</td>
<td>4,997,783</td>
<td>1.69</td>
<td>19.0%</td>
</tr>
<tr>
<td>Lexington Capital Partners VI, L.P.</td>
<td>100,000,000</td>
<td>16,007,565</td>
<td>1.35</td>
<td>6.4%</td>
</tr>
<tr>
<td>Lexington Capital Partners VII, L.P.</td>
<td>200,000,000</td>
<td>74,003,196</td>
<td>1.55</td>
<td>14.6%</td>
</tr>
<tr>
<td>Lexington Capital Partners VIII, L.P.</td>
<td>250,000,000</td>
<td>123,537,092</td>
<td>1.32</td>
<td>27.9%</td>
</tr>
<tr>
<td>Lexington Co-Investment Partners (Pools I &amp; II), L.P.</td>
<td>500,000,000</td>
<td>0</td>
<td>1.35</td>
<td>6.3%</td>
</tr>
<tr>
<td>Lexington Co-Investment Partners 2005 (Pool III), L.P.</td>
<td>500,000,000</td>
<td>528,829,601</td>
<td>1.74</td>
<td>20.9%</td>
</tr>
<tr>
<td>Lexington Co-Investment Partners 2005 (Pools I &amp; II), L.P.</td>
<td>500,000,000</td>
<td>111,650,365</td>
<td>1.32</td>
<td>4.4%</td>
</tr>
<tr>
<td>Lexington Co-Investment Partners 2005 Pool IV</td>
<td>500,000,000</td>
<td>135,257,151</td>
<td>1.13</td>
<td>NA</td>
</tr>
<tr>
<td>Lexington Co-Investment Partners II (Pools III &amp; IV), L.P.</td>
<td>500,000,000</td>
<td>38,550,691</td>
<td>2.23</td>
<td>23.6%</td>
</tr>
<tr>
<td>Lexington Middle Market Investors III, L.P.</td>
<td>100,000,000</td>
<td>46,645,209</td>
<td>1.37</td>
<td>17.7%</td>
</tr>
<tr>
<td>Lightbay Investment Partners LP</td>
<td>50,000,000</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Lindsay, Goldberg &amp; Bessemer II, L.P.</td>
<td>100,000,000</td>
<td>0</td>
<td>1.48</td>
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</tr>
<tr>
<td>Lindsay, Goldberg &amp; Bessemer III, L.P.</td>
<td>100,000,000</td>
<td>0</td>
<td>1.18</td>
<td>6.8%</td>
</tr>
<tr>
<td>Montagu Private Equity IV, L.P.</td>
<td>56,819,796</td>
<td>35,125,889</td>
<td>1.51</td>
<td>14.1%</td>
</tr>
<tr>
<td>Montagu V</td>
<td>111,109,877</td>
<td>31,060,759</td>
<td>1.11</td>
<td>19.6%</td>
</tr>
<tr>
<td>New Mountain Partners II, L.P.</td>
<td>50,000,000</td>
<td>1,836,882</td>
<td>2.07</td>
<td>13.7%</td>
</tr>
<tr>
<td>New Mountain Partners III, L.P.</td>
<td>100,000,000</td>
<td>68,990,057</td>
<td>2.02</td>
<td>13.6%</td>
</tr>
<tr>
<td>New Mountain Partners IV, L.P.</td>
<td>100,000,000</td>
<td>105,197,494</td>
<td>1.34</td>
<td>20.5%</td>
</tr>
<tr>
<td>OpCapita Consumer Opportunities Fund II</td>
<td>38,251,366</td>
<td>10,697,490</td>
<td>0.91</td>
<td>-20.4%</td>
</tr>
<tr>
<td>OpenView Venture Partners IV, L.P.</td>
<td>25,000,000</td>
<td>18,263,262</td>
<td>1.08</td>
<td>4.9%</td>
</tr>
<tr>
<td>OpenView Venture Partners V, L.P.</td>
<td>25,000,000</td>
<td>3,498,249</td>
<td>0.91</td>
<td>NA</td>
</tr>
<tr>
<td>PAI Europe V, L.P.</td>
<td>42,563,071</td>
<td>0</td>
<td>1.30</td>
<td>7.0%</td>
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<tr>
<td>Pantheon Global Secondary Fund IV, L.P.</td>
<td>100,000,000</td>
<td>27,284,742</td>
<td>1.57</td>
<td>14.5%</td>
</tr>
<tr>
<td>Pantheon Venture Partners II, L.P.</td>
<td>100,000,000</td>
<td>48,200,706</td>
<td>1.58</td>
<td>7.5%</td>
</tr>
<tr>
<td>Paul Capital Top Tier Investments II, L.P.</td>
<td>120,000,000</td>
<td>14,858,338</td>
<td>1.36</td>
<td>4.5%</td>
</tr>
<tr>
<td>Paul Capital Top Tier Investments III, L.P.</td>
<td>75,000,000</td>
<td>25,374,588</td>
<td>1.34</td>
<td>5.1%</td>
</tr>
<tr>
<td>Paul Capital Top Tier Investments IV, L.P.</td>
<td>100,000,000</td>
<td>95,177,556</td>
<td>2.04</td>
<td>15.2%</td>
</tr>
<tr>
<td>Paul Capital Top Tier Special Opportunities Fund, L.P.</td>
<td>12,450,000</td>
<td>2,383,816</td>
<td>0.62</td>
<td>-7.7%</td>
</tr>
<tr>
<td>Peak Rock Capital Credit Fund II</td>
<td>20,000,000</td>
<td>153,177</td>
<td>0.98</td>
<td>NA</td>
</tr>
<tr>
<td>Peak Rock Capital Fund II, L.P.</td>
<td>80,000,000</td>
<td>3,570,594</td>
<td>0.93</td>
<td>NA</td>
</tr>
<tr>
<td>Permira European Fund IV, L.P.</td>
<td>64,037,705</td>
<td>0</td>
<td>1.56</td>
<td>8.3%</td>
</tr>
<tr>
<td>Permira V, LP</td>
<td>136,860,690</td>
<td>110,600,007</td>
<td>1.37</td>
<td>13.2%</td>
</tr>
<tr>
<td>Platinum Equity Capital Partners II, L.P.</td>
<td>75,000,000</td>
<td>12,155,257</td>
<td>1.64</td>
<td>12.8%</td>
</tr>
<tr>
<td>Platinum Equity Capital Partners III, L.P.</td>
<td>200,000,000</td>
<td>159,998,619</td>
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<td>36.1%</td>
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<tr>
<td>Platinum Equity Capital Partners, L.P.</td>
<td>50,000,000</td>
<td>0</td>
<td>2.91</td>
<td>60.2%</td>
</tr>
<tr>
<td>Pomona Capital VI (Combined), L.P.</td>
<td>50,000,000</td>
<td>9,884,531</td>
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<td>5.2%</td>
</tr>
<tr>
<td>Pomona Capital VII (Combined), L.P.</td>
<td>50,000,000</td>
<td>2,726,386</td>
<td>1.30</td>
<td>7.8%</td>
</tr>
<tr>
<td>Post Oak Energy Partners II, LP</td>
<td>25,000,000</td>
<td>34,169,407</td>
<td>1.80</td>
<td>51.2%</td>
</tr>
<tr>
<td>Post Oak Energy Partners III, LP</td>
<td>60,000,000</td>
<td>31,507,784</td>
<td>1.23</td>
<td>38.9%</td>
</tr>
<tr>
<td>Post Oak Energy Partners IV, LP</td>
<td>60,000,000</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Providence Equity Partners VI, L.P.</td>
<td>50,000,000</td>
<td>0</td>
<td>1.46</td>
<td>7.3%</td>
</tr>
<tr>
<td>Providence Equity Partners VII, L.P.</td>
<td>200,000,000</td>
<td>171,543,355</td>
<td>1.56</td>
<td>21.2%</td>
</tr>
<tr>
<td>RCP Advisors Fund IV, L.P.</td>
<td>50,000,000</td>
<td>16,731,218</td>
<td>1.81</td>
<td>13.0%</td>
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<tr>
<td>RCP Advisors Fund IX, L.P.</td>
<td>50,000,000</td>
<td>29,795,660</td>
<td>1.10</td>
<td>7.5%</td>
</tr>
<tr>
<td>RCP Advisors Fund V, L.P.</td>
<td>50,000,000</td>
<td>30,599,320</td>
<td>1.79</td>
<td>15.3%</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Private Investments Partnerships</th>
<th>Commitment ($)</th>
<th>Current NAV ($)</th>
<th>TVPI</th>
<th>Net IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCP Advisors Fund VI, L.P.</td>
<td>50,000,000</td>
<td>40,720,270</td>
<td>1.61</td>
<td>13.1%</td>
</tr>
<tr>
<td>RCP Advisors Fund VII, L.P.</td>
<td>50,000,000</td>
<td>51,429,145</td>
<td>1.64</td>
<td>16.6%</td>
</tr>
<tr>
<td>RCP Advisors Fund VIII, L.P.</td>
<td>50,000,000</td>
<td>41,007,598</td>
<td>1.29</td>
<td>12.3%</td>
</tr>
<tr>
<td>RCP Advisors Fund X</td>
<td>50,000,000</td>
<td>13,920,522</td>
<td>0.84</td>
<td>-20.3%</td>
</tr>
<tr>
<td>Ripplewood Partners II, L.P.</td>
<td>100,000,000</td>
<td>0</td>
<td>1.19</td>
<td>6.2%</td>
</tr>
<tr>
<td>Riverside Capital Appreciation Fund 2008, L.P.</td>
<td>75,000,000</td>
<td>0</td>
<td>1.32</td>
<td>8.2%</td>
</tr>
<tr>
<td>Riverside Capital Appreciation Fund VI, L.P.</td>
<td>75,000,000</td>
<td>70,309,402</td>
<td>1.48</td>
<td>18.9%</td>
</tr>
<tr>
<td>Riverside Europe Fund IV, L.P.</td>
<td>49,699,937</td>
<td>0</td>
<td>1.04</td>
<td>1.5%</td>
</tr>
<tr>
<td>Rubicon Technology Partners II</td>
<td>76,000,000</td>
<td>8,970,258</td>
<td>0.88</td>
<td>NA</td>
</tr>
<tr>
<td>Rubicon Technology Partners L.P.</td>
<td>50,000,000</td>
<td>47,777,536</td>
<td>1.12</td>
<td>6.2%</td>
</tr>
<tr>
<td>Searchlight Partners II, L.P.</td>
<td>100,000,000</td>
<td>50,483,104</td>
<td>1.44</td>
<td>34.9%</td>
</tr>
<tr>
<td>Silicon Valley Bank Capital Partners III, L.P.</td>
<td>22,500,000</td>
<td>18,873,523</td>
<td>1.05</td>
<td>2.6%</td>
</tr>
<tr>
<td>Silicon Valley Bank Capital Partners IV</td>
<td>25,000,000</td>
<td>801,078</td>
<td>0.89</td>
<td>NA</td>
</tr>
<tr>
<td>Silicon Valley Bank Overage Fund</td>
<td>100,500,000</td>
<td>86,280,459</td>
<td>1.31</td>
<td>10.7%</td>
</tr>
<tr>
<td>Silicon Valley Bank SIF V, L.P.</td>
<td>125,000,000</td>
<td>158,653,651</td>
<td>1.67</td>
<td>14.5%</td>
</tr>
<tr>
<td>Silicon Valley Bank SIF V-A Opportunity, L.P.</td>
<td>50,000,000</td>
<td>71,764,629</td>
<td>2.09</td>
<td>20.3%</td>
</tr>
<tr>
<td>Silicon Valley Bank SIF VI-A</td>
<td>125,000,000</td>
<td>141,010,173</td>
<td>1.31</td>
<td>11.8%</td>
</tr>
<tr>
<td>Silicon Valley Bank SIF VII, L.P.</td>
<td>125,000,000</td>
<td>78,936,760</td>
<td>1.02</td>
<td>1.6%</td>
</tr>
<tr>
<td>Silicon Valley Bank SIF VIII</td>
<td>100,000,000</td>
<td>13,317,413</td>
<td>0.92</td>
<td>-12.6%</td>
</tr>
<tr>
<td>Silver Lake Partners IV, L.P.</td>
<td>100,000,000</td>
<td>109,720,998</td>
<td>1.48</td>
<td>26.4%</td>
</tr>
<tr>
<td>Silver Lake Partners V, L.P.</td>
<td>140,000,000</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Siris Partners III</td>
<td>75,000,000</td>
<td>51,005,285</td>
<td>1.09</td>
<td>9.5%</td>
</tr>
<tr>
<td>Snow Phipps II, L.P.</td>
<td>50,000,000</td>
<td>0</td>
<td>1.37</td>
<td>14.6%</td>
</tr>
</tbody>
</table>

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## Private Equity Partnership Performance

As of December 31, 2017

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<table>
<thead>
<tr>
<th>Private Investments Partnerships</th>
<th>Commitment ($)</th>
<th>Current NAV ($)</th>
<th>TVPI</th>
<th>Net IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summit Partners Growth Equity Fund VIII-A, L.P.</td>
<td>125,000,000</td>
<td>0</td>
<td>1.52</td>
<td>32.0%</td>
</tr>
<tr>
<td>TA Associates XI, L.P.</td>
<td>100,000,000</td>
<td>0</td>
<td>1.55</td>
<td>19.7%</td>
</tr>
<tr>
<td>The Energy &amp; Minerals Group Fund III, L.P.</td>
<td>85,000,000</td>
<td>68,435,902</td>
<td>0.91</td>
<td>-3.3%</td>
</tr>
<tr>
<td>The Rise Fund I, L.P.</td>
<td>25,000,000</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Thoma Bravo Discover Fund II L.P.</td>
<td>75,000,000</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Thoma Bravo Discover Fund, L.P.</td>
<td>50,000,000</td>
<td>37,435,807</td>
<td>1.20</td>
<td>15.7%</td>
</tr>
<tr>
<td>Thoma Bravo Fund IX, L.P.</td>
<td>50,000,000</td>
<td>7,550,344</td>
<td>4.08</td>
<td>48.1%</td>
</tr>
<tr>
<td>Thoma Bravo Fund X, L.P.</td>
<td>100,000,000</td>
<td>61,629,474</td>
<td>3.01</td>
<td>38.5%</td>
</tr>
<tr>
<td>Thoma Bravo Fund XI, L.P.</td>
<td>150,000,000</td>
<td>213,062,017</td>
<td>1.58</td>
<td>21.2%</td>
</tr>
<tr>
<td>Thoma Bravo Overage Fund, L.P.</td>
<td>45,000,000</td>
<td>40,526,041</td>
<td>2.43</td>
<td>32.1%</td>
</tr>
<tr>
<td>Thoma Bravo Special Opportunities Fund II, L.P.</td>
<td>50,000,000</td>
<td>68,394,076</td>
<td>1.45</td>
<td>20.1%</td>
</tr>
<tr>
<td>Thoma Bravo XII</td>
<td>150,000,000</td>
<td>78,706,835</td>
<td>1.09</td>
<td>9.0%</td>
</tr>
<tr>
<td>Thoma Cressey Fund VIII, L.P.</td>
<td>50,000,000</td>
<td>1,101,355</td>
<td>2.92</td>
<td>18.3%</td>
</tr>
<tr>
<td>Thomas H. Lee Equity Fund V, L.P.</td>
<td>50,000,000</td>
<td>0</td>
<td>1.63</td>
<td>13.4%</td>
</tr>
<tr>
<td>Thomas H. Lee Equity Fund VI L.P.</td>
<td>75,000,000</td>
<td>0</td>
<td>1.89</td>
<td>12.3%</td>
</tr>
<tr>
<td>Tiger Iron Special Opportunities Fund, L.P.</td>
<td>68,460,000</td>
<td>18,392,934</td>
<td>0.90</td>
<td>-17.1%</td>
</tr>
<tr>
<td>TowerBrook Investors II, L.P.</td>
<td>75,000,000</td>
<td>5,975,599</td>
<td>1.80</td>
<td>9.5%</td>
</tr>
<tr>
<td>TowerBrook Investors III, L.P.</td>
<td>150,000,000</td>
<td>41,448,033</td>
<td>1.47</td>
<td>9.7%</td>
</tr>
<tr>
<td>TowerBrook Investors IV, L.P.</td>
<td>190,000,000</td>
<td>82,722,748</td>
<td>1.37</td>
<td>31.5%</td>
</tr>
<tr>
<td>TPG Growth Fund II, L.P.</td>
<td>100,000,000</td>
<td>150,176,189</td>
<td>1.95</td>
<td>21.1%</td>
</tr>
<tr>
<td>TPG Growth Fund III, L.P.</td>
<td>100,000,000</td>
<td>57,967,148</td>
<td>1.14</td>
<td>15.1%</td>
</tr>
<tr>
<td>TPG Growth IV, L.P.</td>
<td>100,000,000</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>TPG Partners IV, L.P.</td>
<td>50,000,000</td>
<td>0</td>
<td>1.89</td>
<td>14.3%</td>
</tr>
</tbody>
</table>
# Private Equity Partnership Performance

As of December 31, 2017

<table>
<thead>
<tr>
<th>Private Investments Partnerships</th>
<th>Commitment ($)</th>
<th>Current NAV ($)</th>
<th>TVPI</th>
<th>Net IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPG Partners V, L.P.</td>
<td>100,000,000</td>
<td>0</td>
<td>1.18</td>
<td>2.6%</td>
</tr>
<tr>
<td>TPG Partners VI, L.P.</td>
<td>200,000,000</td>
<td>0</td>
<td>1.42</td>
<td>11.3%</td>
</tr>
<tr>
<td>Trident V, L.P.</td>
<td>75,000,000</td>
<td>74,139,482</td>
<td>1.58</td>
<td>11.3%</td>
</tr>
<tr>
<td>Trident VI Fund, L.P.</td>
<td>75,000,000</td>
<td>72,955,750</td>
<td>1.29</td>
<td>16.8%</td>
</tr>
<tr>
<td>Trident VII, L.P.</td>
<td>75,000,000</td>
<td>7,319,579</td>
<td>0.89</td>
<td>NA</td>
</tr>
<tr>
<td>TrueBridge Capital FSA, LLC</td>
<td>35,000,000</td>
<td>17,238,638</td>
<td>1.31</td>
<td>29.5%</td>
</tr>
<tr>
<td>TrueBridge Capital Partners Fund V, L.P.</td>
<td>100,000,000</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>TrueBridge FLSBA Special Purpose, LLC</td>
<td>47,972,078</td>
<td>75,255,779</td>
<td>2.08</td>
<td>19.9%</td>
</tr>
<tr>
<td>TrueBridge Special Purpose II (F)</td>
<td>22,500,000</td>
<td>22,960,324</td>
<td>1.51</td>
<td>19.7%</td>
</tr>
<tr>
<td>Truebridge-Kauffman Fellows Endowment Fund IV</td>
<td>125,000,000</td>
<td>42,805,534</td>
<td>0.95</td>
<td>-5.8%</td>
</tr>
<tr>
<td>TrueBridge-Kauffman Fellows Fund III, L.P.</td>
<td>125,000,000</td>
<td>126,245,170</td>
<td>1.16</td>
<td>6.1%</td>
</tr>
<tr>
<td>W Capital Partners III, L.P.</td>
<td>75,000,000</td>
<td>67,874,780</td>
<td>1.37</td>
<td>15.6%</td>
</tr>
<tr>
<td>Warburg Pincus China</td>
<td>68,000,000</td>
<td>22,700,517</td>
<td>1.06</td>
<td>13.7%</td>
</tr>
<tr>
<td>Warburg Pincus Private Equity Fund XI, L.P.</td>
<td>200,000,000</td>
<td>184,067,191</td>
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<td>13.5%</td>
</tr>
<tr>
<td>Warburg Pincus Private Equity Fund XII, L.P.</td>
<td>87,000,000</td>
<td>45,070,543</td>
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<td>6.0%</td>
</tr>
<tr>
<td>Warburg Pincus Private Equity IX, L.P.</td>
<td>75,000,000</td>
<td>8,132,659</td>
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</tr>
<tr>
<td>Warburg Pincus Private Equity X, L.P.</td>
<td>150,000,000</td>
<td>71,259,677</td>
<td>1.54</td>
<td>8.2%</td>
</tr>
<tr>
<td>Waterland Private Equity Fund VII C.V.</td>
<td>105,475,219</td>
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<td>NA</td>
</tr>
<tr>
<td>Waterland Private Equity VI Overflow Feeder Fund L.P.</td>
<td>28,974,931</td>
<td>5,731</td>
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<td>-79.1%</td>
</tr>
<tr>
<td>Waterland Private Equity VI, L.P.</td>
<td>61,110,432</td>
<td>27,719,206</td>
<td>1.17</td>
<td>15.9%</td>
</tr>
<tr>
<td>Wellspring Capital Partners III, L.P.</td>
<td>50,000,000</td>
<td>0</td>
<td>2.19</td>
<td>27.1%</td>
</tr>
<tr>
<td>Wellspring Capital Partners IV, L.P.</td>
<td>75,000,000</td>
<td>0</td>
<td>1.40</td>
<td>6.6%</td>
</tr>
<tr>
<td>Wellspring Capital Partners V, L.P.</td>
<td>150,000,000</td>
<td>66,609,560</td>
<td>1.58</td>
<td>17.8%</td>
</tr>
<tr>
<td>Willis Stein &amp; Partners III, L.P.</td>
<td>100,000,000</td>
<td>0</td>
<td>1.01</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

Note: Manager IRR performance data is provided by Cambridge Associates.
# Private Equity Partnership Performance

As of December 31, 2017

<table>
<thead>
<tr>
<th>Private Investments Partnerships (Legacy Portfolio)</th>
<th>Commitment ($)</th>
<th>Current NAV ($)</th>
<th>TVPI</th>
<th>Net IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate Partners, L.P.</td>
<td>149,192,410</td>
<td>0</td>
<td>2.13</td>
<td>12.4%</td>
</tr>
<tr>
<td>Liberty Partners Pool I</td>
<td>205,666,600</td>
<td>0</td>
<td>2.35</td>
<td>20.7%</td>
</tr>
<tr>
<td>Liberty Partners Pool II</td>
<td>359,789,821</td>
<td>0</td>
<td>1.61</td>
<td>10.7%</td>
</tr>
<tr>
<td>Carlyle Partners II, L.P.</td>
<td>200,000,000</td>
<td>0</td>
<td>2.30</td>
<td>20.1%</td>
</tr>
<tr>
<td>Centre Capital Investors II, L.P.</td>
<td>200,000,000</td>
<td>0</td>
<td>0.81</td>
<td>-4.1%</td>
</tr>
<tr>
<td>Hicks, Muse, Tate &amp; Furst Equity Fund III, L.P.</td>
<td>200,000,000</td>
<td>0</td>
<td>0.89</td>
<td>-1.8%</td>
</tr>
<tr>
<td>Liberty Partners Pool III</td>
<td>506,208,481</td>
<td>0</td>
<td>1.02</td>
<td>0.4%</td>
</tr>
<tr>
<td>Ripplewood Partners, L.P.</td>
<td>100,000,000</td>
<td>0</td>
<td>1.74</td>
<td>13.6%</td>
</tr>
<tr>
<td>Cypress Equity Group Trust</td>
<td>15,000,000</td>
<td>0</td>
<td>2.15</td>
<td>16.1%</td>
</tr>
<tr>
<td>Thomas H. Lee Equity Fund IV, L.P.</td>
<td>100,000,000</td>
<td>0</td>
<td>0.87</td>
<td>-2.6%</td>
</tr>
<tr>
<td>Apollo Investment Fund IV, L.P.</td>
<td>250,000,000</td>
<td>0</td>
<td>1.52</td>
<td>6.8%</td>
</tr>
<tr>
<td>Hicks, Muse, Tate &amp; Furst Equity Fund IV, L.P.</td>
<td>400,000,000</td>
<td>0</td>
<td>0.63</td>
<td>-8.8%</td>
</tr>
<tr>
<td>Willis Stein &amp; Partners II, L.P.</td>
<td>40,000,000</td>
<td>0</td>
<td>0.58</td>
<td>-9.7%</td>
</tr>
<tr>
<td>TSG Capital Fund III, L.P.</td>
<td>100,000,000</td>
<td>0</td>
<td>0.54</td>
<td>-13.7%</td>
</tr>
<tr>
<td>Green Equity Investors III, L.P.</td>
<td>60,000,000</td>
<td>0</td>
<td>2.31</td>
<td>21.9%</td>
</tr>
<tr>
<td>Chartwell Capital Investors II, L.P.</td>
<td>50,000,000</td>
<td>0</td>
<td>1.34</td>
<td>4.7%</td>
</tr>
<tr>
<td>Liberty Partners Pool IV</td>
<td>195,075,745</td>
<td>0</td>
<td>0.67</td>
<td>-19.2%</td>
</tr>
<tr>
<td>Liberty Partners Pool V</td>
<td>329,664,359</td>
<td>0</td>
<td>1.14</td>
<td>2.7%</td>
</tr>
<tr>
<td>Liberty Partners Pool VI</td>
<td>595,484,687</td>
<td>275,000</td>
<td>0.86</td>
<td>-6.6%</td>
</tr>
<tr>
<td>Liberty Partners Pool VII</td>
<td>290,808,542</td>
<td>8,999,264</td>
<td>0.85</td>
<td>-7.4%</td>
</tr>
<tr>
<td>Liberty Partners Group II, L.P.</td>
<td>9,766,830</td>
<td>0</td>
<td>0.00</td>
<td>-100.0%</td>
</tr>
</tbody>
</table>

Note: Manager IRR performance data is provided by Cambridge Associates.
The FSBA PE Portfolio has outperformed the benchmark across time periods on a time-weighted and dollar weighted basis. This outperformance has been particularly strong over the last 3 years.

Note: Time weighted performance data (above left graph) is provided by the Florida State Board of Administration and BNY Mellon. Dollar weighted performance data (above right graph) is provided by C|A. Benchmark performance data – both time weighted and dollar weighted – is provided by the Florida State Board of Administration.

The Private Equity benchmark is currently the Custom Iran- and Sudan-free ACWI IMI + 300 basis points. From July 2010 through June 2014, the benchmark was the Russell 3000 + 300 basis points. Prior to July 2010, the benchmark was the Russell 3000 + 450 basis points. Prior to November 1999, Private Equity was part of the Domestic Equities asset class and its benchmark was the Domestic Equities target index + 750 basis points.
Strong performance across strategies; non-U.S. growth equity, which remains immature, emerging from the j-curve.

Note: Asset class IRR performance data is provided by C|A, dollar weighted, and net of fees.
The FSBA has outperformed vintage year benchmarks for each of the last 10 years.

Note: Vintage Year IRR performance data and CA Median data is provided by CA and is net of fees.
The PE portfolio’s performance ranks high relative to other private investment portfolios across time periods.

| Performance Relative to C|A Clients | As of September 30, 2017 |
|--------------------------|------------------------|
| **Notes:** |
| AACR refers to the Average Annual Compound Return of the index, which represents the annualized rate at which capital has compounded over time. |
| For quartile rankings, FSBA returns are compared to C|A client returns. All returns are End-to-End IRRs. C|A client private investment returns include private investment fund programs with at least 10 private investment funds per portfolio that received performance reports as of 09/30/2017. Terminated client returns are not included due to unavailability of data. |
| The performance of C|A’s clients may be attributable to factors other than C|A’s advice because C|A’s clients may or may not follow this advice. Similarly, client performance may include investments made prior to client’s relationship with C|A. Past performance is not necessarily a guide to future performance. The performance data is net of investment managers’ fees but has not been adjusted to reflect C|A’s advisory fees and other expenses that a client may incur. |

### Performance Relative to C|A Clients

<table>
<thead>
<tr>
<th>Portfolio</th>
<th>10 YEARS</th>
<th>5 YEARS</th>
<th>3 YEARS</th>
<th>1 YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSBA Total PE Asset Class Portfolio</td>
<td>11.2%</td>
<td>15.7%</td>
<td>13.7%</td>
<td>17.4%</td>
</tr>
<tr>
<td>Quartile Ranking</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
</tr>
<tr>
<td>FSBA PE Total Portfolio</td>
<td>9.8%</td>
<td>15.3%</td>
<td>13.7%</td>
<td>17.4%</td>
</tr>
<tr>
<td>Quartile Ranking</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
</tr>
<tr>
<td>S&amp;P 500 AACR</td>
<td>7.4%</td>
<td>14.2%</td>
<td>10.8%</td>
<td>18.6%</td>
</tr>
<tr>
<td>MSCI ACWI IMI (N) AACR</td>
<td>4.2%</td>
<td>10.4%</td>
<td>7.7%</td>
<td>18.7%</td>
</tr>
<tr>
<td>Sample Size</td>
<td>339</td>
<td>382</td>
<td>396</td>
<td>402</td>
</tr>
</tbody>
</table>

Notes:
- AACR refers to the Average Annual Compound Return of the index, which represents the annualized rate at which capital has compounded over time.
- For quartile rankings, FSBA returns are compared to C|A client returns. All returns are End-to-End IRRs. C|A client private investment returns include private investment fund programs with at least 10 private investment funds per portfolio that received performance reports as of 09/30/2017. Terminated client returns are not included due to unavailability of data.
- The performance of C|A’s clients may be attributable to factors other than C|A’s advice because C|A’s clients may or may not follow this advice. Similarly, client performance may include investments made prior to client’s relationship with C|A. Past performance is not necessarily a guide to future performance. The performance data is net of investment managers’ fees but has not been adjusted to reflect C|A’s advisory fees and other expenses that a client may incur.
EXPOSURES AND PACING
The PE Portfolio’s NAV exposure stood at ~6.7% of FRS total assets, roughly in line with the 6% target allocation.

Source: FRS annual market values were provided by FSBA as of December 31, 2017. Note: This data is based on aggregating cash flows for paid-in capital and distributions as tracked by C|A. Unfunded capital amounts may not match C|A performance reports due to fees, recallable distributions, and secondary sale transactions. Based on preliminary December 31, 2017 data, adjusted for recent secondary sale. Includes subsequent commitments through March 31, 2018.
Note(s): Assumptions used in CJA's private equity exposure modeling are proprietary. Estimates provided by the modeling are illustrative only (not predictive) and intended to help guide (not strictly determine) commitment pacing decisions. Historical data as of September 30, 2017. Commitments made during 4Q are assumed to be 100% unfunded as of December 31, 2017.
FSBA Private Equity Program Status

As of December 31, 2017

- Since the PE Asset Class Portfolio’s inception, $24.4 billion has been committed to 236 funds.
- Managers have called ~72% of commitments ($17.6 billion) and distributed $16.3 billion, representing a D/PI (Distributions to Paid In) ratio of 0.92X.
- “Value Creation” represents the dollar amount in excess of paid in capital, generated by the portfolio in the form of distributions and NAV. Since inception, the PE Asset Class Portfolio has created $9.6 billion of “value”.

- Since inception, the Total PE Portfolio has committed $28.7 billion to 257 funds.
- Managers have called ~79% of total commitments, or $22.8 billion, and distributed $22.1 billion, for a DPI of 0.97X.
- Since inception, the total program has created $10.2 billion of “value”.

Note: This data is based on aggregating cash flows for paid-in capital and distributions as tracked by C|A. Difference between cumulative commitment and cumulative paid-in represents unfunded capital. Unfunded capital amounts may not match C|A performance reports due to recallable distributions and secondary sales (Project Prime, Project Spear, Project Buccaneer, and Project Palace). Based on final December 31, 2017 data. Includes subsequent commitments through March 31, 2018.
The PE program generated a net cash flow of $707.4 million through 4Q17, outpacing 2015 as the largest net positive flow since inception.

Note: Based on preliminary December 31, 2017 data.
The Total PE Asset Class portfolio is overweight North America vs. other geographies relative to benchmarks. Asia, in particular, is underweight.

The Total PE Asset Class portfolio sector exposures are roughly aligned with the CA PE/VC benchmarks. Technology exposure is double the public benchmark.

The Total PE Asset Class portfolio is overweight buyouts and underweight early stage venture relative to the CA PE/VC Benchmark.
**Venture Capital Exposure**

**EXPOSURE BY GEOGRAPHY**

<table>
<thead>
<tr>
<th>Region</th>
<th>NAV</th>
<th>Total Exposure (NAV+Unfunded)</th>
<th>CA VC Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>8.8%</td>
<td>16.8%</td>
<td></td>
</tr>
<tr>
<td>Asia</td>
<td>6.3%</td>
<td>7.6%</td>
<td></td>
</tr>
<tr>
<td>Other US</td>
<td>8.6%</td>
<td>9.5%</td>
<td></td>
</tr>
<tr>
<td>NYC</td>
<td>41.4%</td>
<td>41.0%</td>
<td></td>
</tr>
<tr>
<td>New England</td>
<td>6.6%</td>
<td>6.3%</td>
<td></td>
</tr>
<tr>
<td>Silicon Valley/CA</td>
<td>5.1%</td>
<td>5.1%</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Data based on fund level information. FSBA data uses market values as of December 31, 2017. Excludes exposures to Project Buccaneer, Project Spear, Project Palace, Project Prime, and Legacy funds. CA VC Benchmark represents the preliminary Cambridge Associates Global Venture Capital Benchmark. Benchmark weights are calculated based on aggregated underlying investment positions. Includes subsequent commitments through March 31, 2018.

**EXPOSURE BY SECTOR**

<table>
<thead>
<tr>
<th>Sector</th>
<th>NAV</th>
<th>Total Exposure (NAV+Unfunded)</th>
<th>CA VC Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare</td>
<td>46.9%</td>
<td>45.5%</td>
<td></td>
</tr>
<tr>
<td>IT - Enterprise</td>
<td>40.5%</td>
<td>37.6%</td>
<td></td>
</tr>
<tr>
<td>IT - Consumer</td>
<td>21.7%</td>
<td>12.9%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>12.4%</td>
<td>11.8%</td>
<td></td>
</tr>
</tbody>
</table>

**EXPOSURE BY STAGE**

<table>
<thead>
<tr>
<th>Stage</th>
<th>NAV</th>
<th>Total Exposure (NAV+Unfunded)</th>
<th>CA VC Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early (Angel/Seed/Series A)</td>
<td>2.7%</td>
<td>50.1%</td>
<td></td>
</tr>
<tr>
<td>Expansion (Series B-C)</td>
<td>11.9%</td>
<td>50.9%</td>
<td></td>
</tr>
<tr>
<td>Late Stage (Series D or later)</td>
<td>12.3%</td>
<td>31.5%</td>
<td></td>
</tr>
<tr>
<td>Public/Other</td>
<td>31.6%</td>
<td>31.5%</td>
<td></td>
</tr>
</tbody>
</table>

**As of December 31, 2017**

**COMMENTARY**

- Venture capital NAV represents 20.0% of the total PE program NAV and 1.4% of the FRS total assets.
- FSBA's venture exposure is underweight healthcare, relative to the CA VC benchmark. The exposure is overweight late and expansion stage and underweight early stage.
- FSBA’s venture exposure is underweight Asia and Europe relative to the CA VC benchmark.
Increasingly Diversified Across Sub-Asset Classes

FSBA’s PI Asset Allocation by NAV Over Time

As at December 31, 2017. Calculated in USD.

As NAV has grown over the past five years, portfolio has become increasingly diversified by geography and asset class.

Note: Excludes exposures to Project Buccaneer, Project Spear, Project Palace, Project Prime and Legacy funds. Includes subsequent commitments through March 31, 2018.
Across the PE Portfolio, energy exposure accounts for 10% of NAV.

Exposures are generally in-line with C|A’s Private Equity Energy benchmark. Services and mining are underweight due to the volatility associated with those sectors.
CURRENT MARKET ENVIRONMENT
Long term performance of private equity continues to be strong versus the public markets.

U.S. Private Equity: Periodic Rates of Return

As of September 30, 2017

CA U.S. Private Equity (Top Two Quartiles)  CA U.S. Private Equity Index ®  S&P 500  Russell 2000 ®

Sources: Cambridge Associates LLC, Frank Russell Company, Standard & Poor's and Thomson Reuters Datastream.
Notes: Pooled private investment periodic returns are net of fees, expenses and carried interest. Multi-Year Annualized Returns are generated for time periods ending September 30, 2017.
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U.S. Venture Capital: Periodic Rates of Return

As of September 30, 2017

<table>
<thead>
<tr>
<th>Periodicity</th>
<th>CA U.S. Venture Capital (Top Two Quartiles)</th>
<th>CA U.S. Venture Capital Index®</th>
<th>S&amp;P 500</th>
<th>Russell 2000®</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-Year</td>
<td>14.8</td>
<td>10.0</td>
<td>11.4</td>
<td>8.8</td>
</tr>
<tr>
<td>10-Year</td>
<td>14.7</td>
<td>9.1</td>
<td>7.4</td>
<td>7.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-Year</td>
<td>22.6</td>
<td>14.8</td>
<td>14.2</td>
<td>13.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-Year</td>
<td>16.7</td>
<td>10.8</td>
<td>10.8</td>
<td>12.2</td>
</tr>
</tbody>
</table>

Sources: Cambridge Associates LLC Private Investments Database, Frank Russell Company, Standard & Poor’s and Thomson Reuters Datastream.

Notes: Pooled private investment periodic returns are net of fees, expenses, and carried interest. Multi-year annualized returns are generated for time periods ending September 30, 2017.

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Global Private Equity Fundraising

Fundraising globally back to peak levels of 2007 and 2008

CAPITAL COMMITMENTS TO GLOBAL PRIVATE EQUITY FUNDS
1990-2018 • US Dollar (billions)

Sources: Asset Alternatives, Inc., The Private Equity Analyst, and WSJ Pro.
Note: Private equity includes buyouts, venture capital, mezzanine, private credit, and fund of funds.
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Fundraising in the U.S. PE markets remains robust.

U.S. Private Equity Fundraising

Notes: Commitments for 2017 are based on data from Buyouts.
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Co-Investments *Easily* One-Quarter of All PI Activity, Not Going Away

U.S. PRIVATE EQUITY & CO-INVESTMENT VOLUMES
AS OF DECEMBER 31, 2017

![chart showing co-investment activity]

**Sources:** Cambridge Associates LLC, Dow Jones & Company, Inc., and Buyouts Vol. 31, No. 1.

**Notes:** USPE Commitments for 2017 are based on data from Buyouts and co-investment activity is based on Cambridge Associates co-investment team deal flow.

*Called capital for 2017 is annualized and based on the $83 billion that has been called as of September 30, 2017. Copyright © 2018 by Cambridge Associates LLC. All rights reserved.*
Co-Investing Offers Improved Returns via Reduced Cost of Access

- Potential to re-capture up to 0.2x in multiple on invested capital and hundreds of basis points of return. Due to the variables in the internal rate of return (IRR) calculation, including the timing of cash flows the impact of management fees, the average return spread between gross fund IRRs and net fund IRRs is approximately 7%, but ranges from 2% to 25%.

Gross to Net IRR Spread

Sources: Cambridge Associates LLC Private Investments Database.
Notes: Calculated as the spread between gross company-level returns and net fund level returns using 622 U.S. Private Equity Funds, 1,043 U.S. Venture Capital Funds, 443 Ex. U.S. Private Equity Funds, and 146 Ex. U.S. Venture Capital Funds. The sample excludes funds that do not provide company-level data.
Private Equity “On the 7s” — The Fading Dominance of the Consumer and the Rise of Tech

Source: Cambridge Associates LLC
As of September 30, 2017

Capital invested by US Buyouts and Growth Equity funds in each year; 2017 represents only the first nine months. The totals do not add to 100% because “other” sector investments have been excluded from the analysis. “Other” includes energy, limited partnership interests, portfolio, real estate, and utilities.
Purchase price multiples and use of leverage have crept up to pre crisis levels.

U.S. Private Equity Commitments, EBITDA Purchase Price, and Leverage Multiples
As of September 30, 2017

- Capital Commitments (US$ Billions) vs. Average Purchase Price Multiple (RHS) vs. Average Leverage (RHS)
- Notes: Purchase price multiple is defined as enterprise value over EBITDA and leverage multiple is defined as net debt over EBITDA. Commitments as of September 30, 2017 are an estimate based on data from Buyouts.
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### Portfolio diversification has helped investors over the long term

Source: Cambridge Associates LLC Private Investments Database

Note: Data as of September 30, 2017. Internal rates of return are since inception returns net of fees, expenses, and carried interest. Energy includes global private equity energy and energy upstream and royalties. Private equity includes buyouts, growth equity, private equity energy, and subordinated capital funds. Years refer to asset class vintage years and vintage year funds formed since 2014 are too young to have produced meaningful returns.
FRS INVESTMENT PLAN
and
MyFRS FINANCIAL GUIDANCE PROGRAM
Office of Defined Contribution Programs

Daniel Beard, Chief of Defined Contribution Programs
Walter Kelleher, Director of Educational Services

Investment Advisory Council Meeting
June 2018
The State of Florida offers its public employees the option of participating in one of two retirement plans.

**Traditional Defined Benefit Plan**
- Funded by mandatory employer and employee contributions
- Has been in existence since the early 1970’s
- Assets: $160.3 B (as of 3/31/18)

**401(a) Defined Contribution Plan**
- Funded by mandatory employer and employee contributions
- Has been in existence since July 2002
- Assets: $10.7 B (as of 3/31/18)
PENSION PLAN AND INVESTMENT PLAN

• New employees, at the time of hire, make an initial choice to enroll in one of the two Plans – the Pension Plan or Investment Plan.

• The Division of Retirement within the Department of Management Services is responsible for the day-to-day administration of the Pension Plan.

• The State Board of Administration (SBA) is responsible for the day-to-day administration of the Investment Plan.
  – All major components – recordkeeping, custodian services, benefit payments are outsourced as mandated by Florida Statutes.
GOVERNANCE

• Section 121.4501 – Florida Legislature passed legislation in 2000 mandating the establishment of a defined contribution plan under the FRS. It also included provisions for an educational component for ALL FRS employees.
  – Directed that the State Board of Administration Trustees (Trustees) would be the responsible governing entity.

• Executive Director & CIO (ED & CIO)
  – Delegated authority by Trustees to oversee the implementation and ongoing oversight of the Investment Plan.

• Deputy Executive Director (DED)
  – Provides guidance and input on Investment Plan activities.
GOVERNANCE

• Chief of Defined Contribution Programs
  – Delegated authority by ED & CIO to oversee the administrative duties and responsibilities for the contract management of all services providers for the Investment Plan and the Financial Guidance Program.

• Investment Advisory Council (IAC)
  – Sections 121.4501(12) and (14) – states role of the IAC to the Investment Plan:
    • Assist the SBA with administering the Investment Plan.
    • May provide comments on recommendations on providers and investment products.
    • Will review any proposed changes to the Investment Policy Statement and present the result of the review to the Trustees.
## FLORIDA RETIREMENT SYSTEM
(as of March 31, 2018)

### Participating Employers
- State - 57
- County Agencies – 396
- School Boards – 67
- Community Colleges – 28
- Cities – 173
- Independent Hospitals – 2
- Special Districts – 264
- Other - 12

### Plan

<table>
<thead>
<tr>
<th>Plan</th>
<th>Members</th>
<th>Retirees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment Plan – 1 year vesting (Defined Contribution)</td>
<td>189,208</td>
<td>124,549</td>
</tr>
<tr>
<td>Pension Plan – 8 year vesting (Defined Benefit)</td>
<td>515,310</td>
<td>432,060</td>
</tr>
</tbody>
</table>
OVERVIEW OF THE INVESTMENT PLAN ADMINISTRATION

Daniel Beard
Chief of Defined Contributions Programs
FRS INVESTMENT PLAN SNAPSHOT
(Inception to March 31, 2018)

Assets: $10.653 B

Distributions: $11.665 B
- $7.03 B Rollover (60%)
- $4.64 B Lump Sum (40%)

Members: 189,208
- 130,046 Active
- 59,162 Inactive

Retirees: 124,549

Average Active Investment Plan:
- Female 64%
- Male 36%
- Age 46
- $56,304 balance
- 5.06 years of service
INVESTMENT PLAN ADMINISTRATION SERVICE PROVIDERS

Alight Solutions
- FRS Plan Choice Administrator
- Investment Plan Administrator (record keeper)
- Self Directed Brokerage Account (SDBA) provider

BNY Mellon
- Investment Plan Custodian Bank
- Benefit Disbursements
- Custody Separate Accounts

Division of Retirement
- Pension Plan Administrator
- Retirement payroll reporting
- Health Insurance Subsidy (HIS) Program
- Disability and In-Line of Duty death benefits for the Investment Plan
CHOICE STATISTICS
(as of March 31, 2018)

<table>
<thead>
<tr>
<th></th>
<th>Defaults</th>
<th>Active Enrollments-Pension Plan</th>
<th>Active Enrollments-Investment Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 12-13</td>
<td>56%</td>
<td>17%</td>
<td>27%</td>
</tr>
<tr>
<td>FY 13-14</td>
<td>57%</td>
<td>17%</td>
<td>26%</td>
</tr>
<tr>
<td>FY 14-15</td>
<td>59%</td>
<td>17%</td>
<td>25%</td>
</tr>
<tr>
<td>FY 15-16</td>
<td>57%</td>
<td>18%</td>
<td>23%</td>
</tr>
<tr>
<td>FY 16-17</td>
<td>56%</td>
<td>20%</td>
<td>23%</td>
</tr>
<tr>
<td>FY 17-18</td>
<td>57%</td>
<td>20%</td>
<td>24%</td>
</tr>
</tbody>
</table>

(thru March 31, 2018)
INVESTMENT PLAN MEMBERSHIP GROWTH

(% Membership Growth Year to Year)
(as of March 31, 2018)

<table>
<thead>
<tr>
<th>Year</th>
<th>Membership Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 12-13</td>
<td>150,721 4.3%</td>
</tr>
<tr>
<td>FY 13-14</td>
<td>157,227 4.1%</td>
</tr>
<tr>
<td>FY 14-15</td>
<td>163,456 3.8%</td>
</tr>
<tr>
<td>FY 15-16</td>
<td>169,576 3.6%</td>
</tr>
<tr>
<td>FY 16-17</td>
<td>177,218 4.3%</td>
</tr>
<tr>
<td>FY 17-18</td>
<td>189,208 6.3%</td>
</tr>
</tbody>
</table>

(thru March 2018)
ADMINISTRATION STATISTICS
(July 2017 through March 2018)

Alight Solutions
• Processed 1,117,907 member contributions postings totaling $318 M
• Mailed/e-mailed average of 183,572 quarterly statements
• Mailed 1,132,185 personalized communications
• Received 71,770 telephone calls

BNY Mellon
• Mailed 10,341 distribution checks
• Directed deposited 33,168 distribution payments
• Assets under custody- $10.050 B
Requests for Intervention

- Total Complaints Fiscal Year to March 31, 2018: 316
- Total Complaints Inception to Date: 4,224
- Top 6 Reasons for Filing Complaint:
  - Election Rescinds
  - Distributions
  - Criminal Forfeitures
  - Terminated Employment Prior to Election Receipt
  - Election Not Received
  - Requesting 3rd Election
OVERVIEW OF THE FINANCIAL GUIDANCE PROGRAM

Walter Kelleher
Director of Educational Services
FINANCIAL GUIDANCE PROGRAM SERVICE PROVIDERS

- **EY**
  - Financial planners
  - Provide unbiased financial planning guidance via telephone
  - Conduct retirement/financial planning workshops

- **GuidedChoice**
  - Online personal ADVISOR SERVICE

- **Alight Communications**
  - Design, printing, focus groups

- **MetLife**
  - Fixed lifetime annuities
  - Deferred lifetime annuities

---

MyFRS Financial Guidance Program For ALL FRS Pension and Investment Plan Members
MyFRS FINANCIAL GUIDANCE PROGRAM
(April 1, 2017-March 31, 2018)

INVESTMENT EDUCATION

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>EY FINANCIAL PLANNER CALLS</td>
<td>281,704</td>
<td>-11%</td>
</tr>
<tr>
<td># FINANCIAL PLANNING WORKSHOPS</td>
<td>527</td>
<td>-2%</td>
</tr>
<tr>
<td>ATTENDANCE FINANCIAL WORKSHOPS</td>
<td>16,524</td>
<td>-12%</td>
</tr>
<tr>
<td>WEBSITE HITS</td>
<td>2,534,552</td>
<td>+11%</td>
</tr>
<tr>
<td>WEBSITE CHATS</td>
<td>38,312</td>
<td>+20%</td>
</tr>
</tbody>
</table>

(%) change from previous 12 months)

11 Annuities purchased last 12 months - $1.5 million
104 Total Annuities purchased inception to date - $13.4 million
Education Highlights

- GuidedChoice new online Advisor Service provider
- Alight Solutions new online Choice Service provider
- MyFRS.com infrastructure moved to Amazon Web Services Cloud
OVERVIEW OF THE INVESTMENT PLAN
INVESTMENT FUND OPTIONS

Daniel Beard
Chief of Defined Contribution Programs
<table>
<thead>
<tr>
<th>11 Core Funds – White Labeled</th>
<th>11 Target Date Funds – White Labeled</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ FRS Money Market Fund (.06)</td>
<td>➢ FRS 2060 Retirement Date Fund (2060) (.11)</td>
</tr>
<tr>
<td>➢ FRS Inflation Adj. Multi-Assets Fund (.45)</td>
<td>➢ FRS 2055 Retirement Date Fund (2055) (.11)</td>
</tr>
<tr>
<td>➢ FRS Intermediate Bond Fund (.12)</td>
<td>➢ FRS 2050 Retirement Date Fund (2050) (.11)</td>
</tr>
<tr>
<td>➢ FRS U.S. Bond Enhanced Index Fund (.05)</td>
<td>➢ FRS 2045 Retirement Date Fund (2045) (.11)</td>
</tr>
<tr>
<td>➢ FRS Core Plus Bond Fund (.24)</td>
<td>➢ FRS 2040 Retirement Date Fund (2040) (.11)</td>
</tr>
<tr>
<td>➢ FRS U.S. Stock Market Index Fund (.02)</td>
<td>➢ FRS 2035 Retirement Date Fund (2035) (.13)</td>
</tr>
<tr>
<td>➢ FRS U.S. Large Cap Stock Fund (.28)</td>
<td>➢ FRS 2030 Retirement Date Fund (2030) (.15)</td>
</tr>
<tr>
<td>➢ FRS U.S. Small/Mid Cap Stock Fund (.59)</td>
<td>➢ FRS 2025 Retirement Date Fund (2025) (.16)</td>
</tr>
<tr>
<td>➢ FRS Foreign Stock Index Fund (.03)</td>
<td>➢ FRS 2020 Retirement Date Fund (2020) (.18)</td>
</tr>
<tr>
<td>➢ FRS Foreign Stock Fund (.50)</td>
<td>➢ FRS 2015 Retirement Date Fund (2015) (.19)</td>
</tr>
<tr>
<td>➢ FRS Global Stock Fund (.49)</td>
<td>➢ FRS Retirement Fund (2000) (.19)</td>
</tr>
</tbody>
</table>
FRS INVESTMENT PLAN AUM
(by Asset Class—in $millions)
(as of March 31, 2018)

- Retirement Date Funds, $4,726, 44%
- Domestic Stock Funds, $2,894, 27%
- International/Global Equities Funds, $863, 8%
- Fixed Income Funds, $636, 6%
- Real Assets Fund, $92, 1%
- Money Market Fund, 863, 8%
- Self-Directed Brokerage Accounts, $605, 6%

Asset allocation is a result of member investment selection.
FRS INVESTMENT PLAN MULTI-MANAGER FUNDS
(by % Allocations by Investment Manager)

FRS US Enhanced Bond Index Fund
- Prudential Core Conserv, 50%
- Blackrock US Debt Index, 50%

FRS Core Plus Fixed Income Fund
- Prudential High Quality Hi Yield, 20%
- Prudential Core Plus Fxd Inc, 30%
- Wells Cap Montgomery Fxd Inc, 50%

FRS Inflation Adjusted Multi-Assets Fund
- Blackrock US TIPS Index, 30%
- Principal Div. Real Asset Fund, 70%
FRS INVESTMENT PLAN MULTI-MANAGER FUNDS
(by % Allocations by Investment Manager)

FRS Large Cap Stock Fund
- The London Company, 15%
- QMA Value Equity, 14%
- Fidelity Growth Company, 19%
- Jennison Growth Equity, 19%
- BlkRck 1000 Index F, 8%
- AJO, 25%

FRS Small-Mid Cap Stock Fund
- Stephens Mid Cap Growth, 20%
- QMA MidCap Quantitative, 25%
- American Beacon SC Value, 25%
- T Rowe Price Small Cap Stock, 30%
CURRENT RETIREMENT DATE FUNDS
($ RDF Assets, % Members)
(as of March 31, 2018)

Retirement Fund, $385, 8%
2015 RDF, $331, 7%
2020 RDF, $615, 13%
2025 RDF, $699, 15%
2030 RDF, $644, 14%
2035 RDF, $600, 13%
2040 RDF, $523, 11%
2045 RDF, $512, 11%
2050 RDF, $285, 6%
2055 RDF, $125, 3%
TOTAL FUND ASSET ALLOCATION BY AGE
(as of March 31, 2018)
ASSET ALLOCATION BY GENDER
(as of March 31, 2018)
FRS RETIREMENT DATE FUNDS

Investment Manager Allocations

Effective July 1, 2018
<table>
<thead>
<tr>
<th>Investment Fund Categories</th>
<th>Average FRS Investment Fund Fees</th>
<th>Range of Average Mutual Fund Fees*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money Market Fund</td>
<td>0.06%</td>
<td>0.10% - 1.20%</td>
</tr>
<tr>
<td>Real Assets Fund</td>
<td>0.45%</td>
<td>0.62% - 1.79%</td>
</tr>
<tr>
<td>Fixed Income Funds</td>
<td>0.15%</td>
<td>0.25% - 1.36%</td>
</tr>
<tr>
<td>U.S. Stock Funds</td>
<td>0.29%</td>
<td>0.52% - 2.10%</td>
</tr>
<tr>
<td>Foreign Stock Funds</td>
<td>0.30%</td>
<td>0.52% - 2.30%</td>
</tr>
<tr>
<td>Retirement Date Funds</td>
<td>0.15%</td>
<td>0.16 – 1.59%</td>
</tr>
</tbody>
</table>

*Based on average Morningstar annual prospectus expenses as of 12/31/17 for mutual fund classes that are available in defined contribution plans.
### Asset Class Performance
(as of March 31, 2018)

<table>
<thead>
<tr>
<th></th>
<th>QTD</th>
<th>FYTD</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>Inception</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Fund</strong></td>
<td>-0.23%</td>
<td>7.91%</td>
<td>11.10%</td>
<td>6.62%</td>
<td>7.50%</td>
<td>7.07%</td>
</tr>
<tr>
<td><strong>Money Market</strong></td>
<td>0.43%</td>
<td>1.12%</td>
<td>1.41%</td>
<td>0.81%</td>
<td>0.56%</td>
<td>1.52%</td>
</tr>
<tr>
<td><strong>Real Assets &amp; TIPS</strong></td>
<td>-1.03%</td>
<td>3.11%</td>
<td>4.15%</td>
<td>1.01%</td>
<td>-0.45%</td>
<td>0.79% (7/1/14)</td>
</tr>
<tr>
<td><strong>Fixed Income</strong></td>
<td>-1.26%</td>
<td>0.12%</td>
<td>2.06%</td>
<td>2.25%</td>
<td>4.24%</td>
<td>4.71%</td>
</tr>
<tr>
<td><strong>Domestic Equities</strong></td>
<td>-0.04%</td>
<td>10.79%</td>
<td>14.58%</td>
<td>10.41%</td>
<td>13.35%</td>
<td>10.25%</td>
</tr>
<tr>
<td><strong>Global &amp; Intl Equities</strong></td>
<td>-0.07%</td>
<td>11.57%</td>
<td>18.52%</td>
<td>7.79%</td>
<td>8.12%</td>
<td>8.69%</td>
</tr>
<tr>
<td><strong>Retirement Date Funds</strong></td>
<td>-0.65%</td>
<td>7.50%</td>
<td>11.10%</td>
<td>6.62%</td>
<td>N.A.</td>
<td>5.42% (7/1/14)</td>
</tr>
<tr>
<td><strong>TF x RDFs</strong></td>
<td>0.14%</td>
<td>7.91%</td>
<td>11.23%</td>
<td>6.75%</td>
<td>N.A.</td>
<td>6.47% (7/1/14)</td>
</tr>
</tbody>
</table>
2018-19 INITIATIVES

Investment Option Updates
- Rolldown in RDF Glidepath allocations effective July 2, 2018
- Finalize recommended benchmark changes

Plan Administration Initiatives
- Conduct Focus Groups on New Hire Materials
- Continue Enhanced Website Security Development
- Continue Website Updates and Mobile Compatibility
- Issue ITN for Plan Choice and Investment Plan Administrator
- Issue ITN for Education Provider
FRS Investment Plan
Self-Directed Brokerage Account
(as of March 31, 2018)

Total Assets = $605.1 M
### TOTAL FUND ASSET ALLOCATION BY AGE AND GENDER
(as of March 31, 2018)

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th></th>
<th>Male</th>
<th>Female</th>
<th></th>
<th>Male</th>
<th>Female</th>
<th></th>
<th>Male</th>
<th>Female</th>
<th></th>
<th>Male</th>
<th>Female</th>
<th></th>
<th>Male</th>
<th>Female</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 65</td>
<td>32%</td>
<td>31%</td>
<td>30%</td>
<td>14%</td>
<td>17%</td>
<td>16%</td>
<td>3%</td>
<td>3%</td>
<td>1%</td>
<td>6%</td>
<td>1%</td>
<td>3%</td>
<td>6%</td>
<td>1%</td>
<td>3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55-65</td>
<td>40%</td>
<td>42%</td>
<td>27%</td>
<td>9%</td>
<td>10%</td>
<td>12%</td>
<td>3%</td>
<td>3%</td>
<td>5%</td>
<td>9%</td>
<td>3%</td>
<td>5%</td>
<td>10%</td>
<td>4%</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45-55</td>
<td>53%</td>
<td>57%</td>
<td>25%</td>
<td>4%</td>
<td>5%</td>
<td>6%</td>
<td>2%</td>
<td>4%</td>
<td>4%</td>
<td>10%</td>
<td>6%</td>
<td>4%</td>
<td>4%</td>
<td>4%</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-45</td>
<td>66%</td>
<td>71%</td>
<td>22%</td>
<td>2%</td>
<td>2%</td>
<td>3%</td>
<td>3%</td>
<td>2%</td>
<td>3%</td>
<td>3%</td>
<td>2%</td>
<td>3%</td>
<td>3%</td>
<td>2%</td>
<td>3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 35</td>
<td>73%</td>
<td>77%</td>
<td>18%</td>
<td>2%</td>
<td>2%</td>
<td>4%</td>
<td>18%</td>
<td>14%</td>
<td>3%</td>
<td>2%</td>
<td>3%</td>
<td>0%</td>
<td>14%</td>
<td>3%</td>
<td>2%</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
MEMBER INVESTMENT OPTIONS ALLOCATION BY AGE AND GENDER  
(as of March 31, 2018)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 35</td>
<td>62%</td>
<td>77%</td>
</tr>
<tr>
<td>35-45</td>
<td>43%</td>
<td>60%</td>
</tr>
<tr>
<td>45-55</td>
<td>31%</td>
<td>48%</td>
</tr>
<tr>
<td>55-65</td>
<td>36%</td>
<td>44%</td>
</tr>
<tr>
<td>Over 65</td>
<td>41%</td>
<td>52%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Retirement Date</th>
<th>Money Market</th>
<th>Real Assets</th>
<th>Fixed Income</th>
<th>Domestic Equities</th>
<th>International Equities</th>
<th>SDBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>43%</td>
<td>11%</td>
<td>19%</td>
<td>23%</td>
<td>17%</td>
<td>12%</td>
<td>7%</td>
</tr>
<tr>
<td>48%</td>
<td>8%</td>
<td>4%</td>
<td>10%</td>
<td>9%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>31%</td>
<td>18%</td>
<td>24%</td>
<td>19%</td>
<td>11%</td>
<td>8%</td>
<td>4%</td>
</tr>
<tr>
<td>44%</td>
<td>13%</td>
<td>15%</td>
<td>15%</td>
<td>6%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>41%</td>
<td>16%</td>
<td>13%</td>
<td>13%</td>
<td>6%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>52%</td>
<td>19%</td>
<td>15%</td>
<td>15%</td>
<td>8%</td>
<td>9%</td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- Retirement Date
- Money Market
- Real Assets
- Fixed Income
- Domestic Equities
- International Equities
- SDBA
## IMPACT OF MARKET CONDITIONS

Asset class allocation weights are derived by member selection, not any risk budget process. Benchmark returns reflect asset class weight based on AUM not specific target.

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>2Q17</th>
<th>3Q17</th>
<th>4Q17</th>
<th>1Q18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fund</td>
<td>2.96%</td>
<td>3.90%</td>
<td>4.09%</td>
<td>-0.23%</td>
</tr>
<tr>
<td>Money Market</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Real Assets</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Domestic Equities</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Global International Equities</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Total Fund Benchmark Return</td>
<td>2.72%</td>
<td>3.71%</td>
<td>4.07%</td>
<td>-0.80%</td>
</tr>
<tr>
<td>Total Fund Active Return</td>
<td>0.24</td>
<td>0.19</td>
<td>0.02</td>
<td>0.57</td>
</tr>
<tr>
<td>Market Detractors from Performance</td>
<td></td>
<td>Negative markets for natural resources and energy sectors</td>
<td>Active Global and International Equity funds underperform.</td>
<td>Equity market decline performance. Fed tightens.</td>
</tr>
</tbody>
</table>
State Board of Administration of Florida

FRS Investment Plan Review
May 2018
(This slide left blank intentionally)
FRS Investment Plan Review
Key Observations

- The FRS Investment Plan offers a diversified set of investment options across:
  - asset classes
  - investment styles (active / passive)
  - risk/return spectrum

- Tiered structure an effective tool to aide participants in portfolio construction
  - Each tier offers sufficient range of risk and return characteristics, allowing participants to form well-diversified portfolios within or across tiers

- Participants have access to low-cost options in each major asset class

- High utilization of the custom FRS Retirement Date funds is a positive
  - Suggests that participants prefer to have professional investment experts manage their portfolios

- Performance of the actively managed investment options has been favorable over both short- and long-term periods, and the investment categories rank competitively within their peer group universes
Investment Structure

- The investment structure of a participant-directed defined contribution plan refers to the number and types of options offered to participants.

- It is one of the most important components of the investment program as it will:
  - Shape how participants invest their assets
  - Impact the employees' perceived value of the Plan
  - Influence participants’ readiness for retirement

- We recommend a structure that:
  - Offers sufficient range of choice – low to high risk
  - Allows participants to form well-diversified portfolios
  - Does not burden or confuse the average participant
  - Meets broad participant demand to the extent that it is prudent
  - Uses compelling, low cost funds
Core Beliefs Start with Investment Structure Best Practices

Goal: balance the need for simplicity and the desire for flexibility

**Tiered Investment Structure**
- Target date investment options as QDIA
- Core options: Active and Passive

**Simplicity**

**Limited Choice**
- Can be Regional or Global asset classes

**Open Architecture**
- Best in class investment options

**Managed Accounts**
- Professional Asset Allocation support

**Extensive Flexibility**

Aon
Investment advice and consulting services provided by Aon Hewitt Investment Consulting, Inc., an Aon Company.
Investment Structure: Traditional Tiered Structure

- Tiered investment structures categorizes and communicates investment options in a manner that guides participants through investment option choices.

<table>
<thead>
<tr>
<th>Tier 1</th>
<th>Novice or Disinterested</th>
<th>Target Retirement Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 2</td>
<td>Knowledgeable and Cost Sensitive</td>
<td>Passive Funds</td>
</tr>
<tr>
<td>Tier 3</td>
<td>Active Investor</td>
<td>Active Funds</td>
</tr>
<tr>
<td>Tier 4</td>
<td>Investment Savvy</td>
<td>Self-Directed Brokerage</td>
</tr>
</tbody>
</table>

Observation:
- The FRS Investment Plan offers an appropriate range of options for all investor types of participants.
Member Investment Menu Behavioral Finance

Menu Consolidation
Fewer investment choices
Broader mandates in each choice

Delivers Better Outcomes
Greater diversification
Improved participation
Relevant asset allocation

Greater Diversification

- The number of fund holdings does not increase with the number of fund options, meaning more options does not mean better diversification
- Most extra menu choices are equity funds

Members typically invest in 3-4 funds regardless of how many fund options are available to them

1 2010 Hewitt Research Report: How Well are Employees Saving and Investing.
Trend Toward Offering Fewer Options

Observation:
- The FRS offers a sufficient number of options for participants to choose from and to construct a diversified investment portfolio.

*Counts target date funds as a single option.
What are the right Type of Options?

**DC Asset Class Prevalence (Percentage of Plans)**

| DC Plans 5000+ Participants | U.S. Fixed Income Active | 76% ✓ | U.S. Fixed Income Passive | 60% ✓ | Non-U.S. Fixed Income | 12% | Non-U.S./Global Equity Active | 85% ✓ | Non-U.S./Global Equity Passive | 59% ✓ | U.S. Equity Active | 83% ✓ | U.S. Equity Passive | 93% ✓ | Target Date Funds | 79% ✓ | Stable Value | 78% |
|-------------------------------|--------------------------|-------|---------------------------|-------|-----------------------|------|-----------------------------|-------|-------------------------------|-------|------------------------|-------|----------------------|-------|---------------------|-------|------------|
|                               | Money Market Fund        | 36% ✓ | Self-Directed Window      | 36% ✓ | Alternative Asset Class| 5% ✓ | TIPS                         | 33% ✓ | Real Estate Fund             | 19% ✓ | Emerging Markets          | 35%   | Balanced Fund           | 43%   |                       |       |            |

**Observation:**

- FRS’s investment options are diversified and cover the most prevalent asset classes

Source: Profit Sharing 401(k) Council of America (PSCA) 2016; 102 DC Plans with 5,000+ Participants

*FRS offers a Real Assets Fund that currently offers exposure to TIPS, commodities, real estate, infrastructure and natural resources*
DC Investment Menu Risk/Return Choice Spectrum

Risk (Variability of Returns)

Capital Preservation
- FRS MONEY MARKET FUND
- FRS U.S. BOND ENHANCED INDEX FUND
- Specialty Bond
- Bonds
- RDFs
- Inflation Sensitive
- Mid Cap Equity
- Large Cap Equity
- Global Equity
- International Equity
- Small Cap Equity
- FRS GLOBAL STOCK FUND
- FRS FOREIGN STOCK INDEX FUND
- FRS FOREIGN STOCK FUND
- FRS INFLATION ADJUSTED MULTI-ASSETS FUND
- FRS RETIREMENT DATE FUNDS
- FRS CORE PLUS BOND FUND
- FRS U.S. LARGE CAP STOCK FUND
- FRS U.S. STOCK MARKET INDEX FUND
- FRS U.S. SMALL/MID CAP STOCK FUND

Expected Return

Active Options
Passive Options
## FRS Investment Plan

### Tiered Structure

<table>
<thead>
<tr>
<th>Tier 1 Target Retirement Funds</th>
<th>Tier 2 Passive Tier</th>
<th>Tier 3 Active Tier</th>
<th>Tier 4 Self Directed Brokerage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Date Funds</td>
<td>Core Fixed Income</td>
<td>Capital Preservation</td>
<td>Self Directed Brokerage</td>
</tr>
<tr>
<td>FRS Retirement Funds</td>
<td>FRS U.S. Bond Enhanced Index Fund</td>
<td>FRS Money Market Fund</td>
<td>Self-Directed Brokerage Account</td>
</tr>
<tr>
<td></td>
<td>U.S. Equity</td>
<td>Fixed Income</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FRS U.S. Stock Market Index Fund</td>
<td>FRS Intermediate Bond Fund</td>
<td></td>
</tr>
<tr>
<td></td>
<td>International Equity</td>
<td>FRS Core Plus Bond Fund</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FRS Foreign Stock Index Fund</td>
<td>FRS Large Cap Stock Fund</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>U.S. Large Cap Equity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FRS Large Cap Stock Fund</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>U.S. Small/Mid Cap Equity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FRS Small/Mid Cap Stock Fund</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>International Equity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FRS Foreign Stock Fund</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Global Equity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FRS Global Stock Fund</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inflation Sensitive</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FRS Inflation Adjusted Multi-Assets Fund</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- Tier 1: Target Retirement Funds
- Tier 2: Passive Tier
- Tier 3: Active Tier
- Tier 4: Self Directed Brokerage

**FRS Investment Plan:**
- Target Date Funds
- Core Fixed Income
- U.S. Equity
- International Equity
- FRS Retirement Funds
- FRS U.S. Bond Enhanced Index Fund
- FRS U.S. Stock Market Index Fund
- FRS Foreign Stock Index Fund

**FRS Retirement Funds:**
- Capital Preservation
- Fixed Income
- U.S. Large Cap Equity
- U.S. Small/Mid Cap Equity
- International Equity
- Global Equity
- Inflation Sensitive
- FRS Money Market Fund
- FRS Intermediate Bond Fund
- FRS Core Plus Bond Fund
- FRS Large Cap Stock Fund
- FRS Small/Mid Cap Stock Fund
- FRS Foreign Stock Fund
- FRS Global Stock Fund
- FRS Inflation Adjusted Multi-Assets Fund

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Evolution of DC Investment Core Menu Design

<table>
<thead>
<tr>
<th>Asset-style menu</th>
<th>Asset-class menu</th>
<th>Objective based menu</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Large Cap Value, Index, Growth</td>
<td>Large Cap</td>
<td>Growth</td>
</tr>
<tr>
<td>-Small/Mid Cap Value, Core, Growth</td>
<td>Small/Mid Cap</td>
<td></td>
</tr>
<tr>
<td>-Non-US Value, Index, Growth</td>
<td>Non-US Equity</td>
<td></td>
</tr>
<tr>
<td>-High-Yield Bonds, Global REIT, Other Specialty Funds</td>
<td>Hybrid Equity</td>
<td></td>
</tr>
<tr>
<td>-Core Bond, Index, Real Estate</td>
<td>Core Plus Bond</td>
<td>Income</td>
</tr>
<tr>
<td>-Stable Value/Money Market</td>
<td>Capital Preservation</td>
<td>Capital Preservation</td>
</tr>
<tr>
<td>-Commodities, TIPS</td>
<td>Inflation</td>
<td>Inflation</td>
</tr>
</tbody>
</table>
### FRS Investment Plan Option Costs

<table>
<thead>
<tr>
<th>FRS Investment Plan Option</th>
<th>Investment Category</th>
<th>Investment Plan Fee*</th>
<th>Average Mutual Fund Fee**</th>
</tr>
</thead>
<tbody>
<tr>
<td>RDFs Target Date</td>
<td>0.15%</td>
<td>0.52%</td>
<td></td>
</tr>
<tr>
<td>FRS Money Market Fund</td>
<td>0.06%</td>
<td>0.31%</td>
<td></td>
</tr>
<tr>
<td>FRS Inflation Adjusted Multi-Assets Fund Multiple***</td>
<td>0.45%</td>
<td>0.70%***</td>
<td></td>
</tr>
<tr>
<td>FRS U.S. Bond Enhanced Index Passive U.S. Broad Market Core Fixed Income</td>
<td>0.05%</td>
<td>0.17%</td>
<td></td>
</tr>
<tr>
<td>FIAM Int. Duration Pool U.S. Broad Market Core Fixed Income</td>
<td>0.12%</td>
<td>0.52%</td>
<td></td>
</tr>
<tr>
<td>FRS Core Plus Fixed Income U.S. Broad Market Core Plus Fixed Income</td>
<td>0.24%</td>
<td>0.56%</td>
<td></td>
</tr>
<tr>
<td>FRS U.S. Large Cap Equity U.S. Large Cap Equity</td>
<td>0.28%</td>
<td>0.80%</td>
<td></td>
</tr>
<tr>
<td>FRS U.S. Stock Market Index Passive U.S. Large Equity Core</td>
<td>0.02%</td>
<td>0.35%</td>
<td></td>
</tr>
<tr>
<td>FRS Small/Mid Cap Equity U.S. SMID Cap Equity</td>
<td>0.59%</td>
<td>0.99%</td>
<td></td>
</tr>
<tr>
<td>FRS Foreign Stock Index Passive International Equity All</td>
<td>0.03%</td>
<td>0.29%</td>
<td></td>
</tr>
<tr>
<td>AF EuroPacific Growth Fund International Equity All</td>
<td>0.50%</td>
<td>0.97%</td>
<td></td>
</tr>
<tr>
<td>AF New Perspective Fund Global Equity All</td>
<td>0.49%</td>
<td>1.05%</td>
<td></td>
</tr>
</tbody>
</table>

### Observations

- Management fees are lower than the median as represented by Morningstar’s mutual fund universe for every investment category.

*Average fee of multiple products in category as of 3/31/2018.

**Source: AHIC’s annual mutual fund expense analysis as of 12/31/2017.

***No single appropriate universe exists. Average fee based on weighted average of underlying investment category fees in the FRS Inflation Adjusted Multi-Assets Fund.

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## FRS Asset Allocation as of 3/31/2018

<table>
<thead>
<tr>
<th>Fund Name</th>
<th>Market Value ($M)</th>
<th>Percent of Total</th>
<th>Participant Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRS Retirement Income Fund</td>
<td>$385</td>
<td>3.6%</td>
<td>8,178</td>
</tr>
<tr>
<td>FRS 2015 Retirement Date Fund</td>
<td>331</td>
<td>3.1</td>
<td>7,569</td>
</tr>
<tr>
<td>FRS 2020 Retirement Date Fund</td>
<td>615</td>
<td>5.8</td>
<td>12,925</td>
</tr>
<tr>
<td>FRS 2025 Retirement Date Fund</td>
<td>699</td>
<td>6.6</td>
<td>15,923</td>
</tr>
<tr>
<td>FRS 2030 Retirement Date Fund</td>
<td>644</td>
<td>6.0</td>
<td>16,728</td>
</tr>
<tr>
<td>FRS 2035 Retirement Date Fund</td>
<td>600</td>
<td>5.6</td>
<td>18,257</td>
</tr>
<tr>
<td>FRS 2040 Retirement Date Fund</td>
<td>523</td>
<td>4.9</td>
<td>18,227</td>
</tr>
<tr>
<td>FRS 2045 Retirement Date Fund</td>
<td>512</td>
<td>4.8</td>
<td>21,028</td>
</tr>
<tr>
<td>FRS 2050 Retirement Date Fund</td>
<td>285</td>
<td>2.7</td>
<td>18,913</td>
</tr>
<tr>
<td>FRS 2055 Retirement Date Fund</td>
<td>125</td>
<td>1.2</td>
<td>18,078</td>
</tr>
<tr>
<td>FRS 2060 Retirement Date Fund</td>
<td>8</td>
<td>0.1</td>
<td>1,897</td>
</tr>
<tr>
<td><strong>Tier I: Target Date Funds</strong></td>
<td><strong>$4,726</strong></td>
<td><strong>44.4%</strong></td>
<td><strong>--</strong></td>
</tr>
</tbody>
</table>

### Observation:
- High utilization of the custom FRS Retirement Date funds is a positive
## FRS Asset Allocation as of 3/31/2018 (cont’d)

<table>
<thead>
<tr>
<th></th>
<th>Market Value ($M)</th>
<th>Percent of Total</th>
<th>Participant Count</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRS U.S. Bond Enhanced Index Fund</strong></td>
<td>$242</td>
<td>2.3%</td>
<td>14,020</td>
</tr>
<tr>
<td><strong>FRS U.S. Stock Market Index Fund</strong></td>
<td>997</td>
<td>9.4%</td>
<td>36,513</td>
</tr>
<tr>
<td><strong>FRS Foreign Stock Index Fund</strong></td>
<td>344</td>
<td>3.2%</td>
<td>22,566</td>
</tr>
<tr>
<td><strong>Tier II: Index Funds</strong></td>
<td><strong>$1,583</strong></td>
<td><strong>14.9%</strong></td>
<td>--</td>
</tr>
<tr>
<td><strong>FRS Money Market Fund</strong></td>
<td>$863</td>
<td>8.1%</td>
<td>16,101</td>
</tr>
<tr>
<td><strong>FRS Inflation Adjusted Multi-Assets Fund</strong></td>
<td>92</td>
<td>0.9%</td>
<td>7,891</td>
</tr>
<tr>
<td><strong>FIAM Intermediate Duration Pool Fund</strong></td>
<td>98</td>
<td>0.9%</td>
<td>5,493</td>
</tr>
<tr>
<td><strong>FRS Core Plus Fixed Income Fund</strong></td>
<td>296</td>
<td>2.8%</td>
<td>14,643</td>
</tr>
<tr>
<td><strong>FRS U.S. Large Cap Stock Fund</strong></td>
<td>1,011</td>
<td>9.5%</td>
<td>32,050</td>
</tr>
<tr>
<td><strong>FRS U.S. Small/Mid Cap Stock Fund</strong></td>
<td>885</td>
<td>8.3%</td>
<td>30,507</td>
</tr>
<tr>
<td><strong>American Funds New Perspective Fund</strong></td>
<td>297</td>
<td>2.8%</td>
<td>16,829</td>
</tr>
<tr>
<td><strong>American Funds Euro-Pacific Growth Fund</strong></td>
<td>197</td>
<td>1.9%</td>
<td>14,037</td>
</tr>
<tr>
<td><strong>Tier III: Actively Managed Options</strong></td>
<td><strong>$3,739</strong></td>
<td><strong>35.2%</strong></td>
<td>--</td>
</tr>
<tr>
<td><strong>Tier IV: Self-Directed Brokerage Account</strong></td>
<td><strong>$605</strong></td>
<td>5.7%</td>
<td>3,143</td>
</tr>
<tr>
<td><strong>Total Plan</strong></td>
<td><strong>$10,653</strong></td>
<td><strong>100%</strong></td>
<td>--</td>
</tr>
</tbody>
</table>
Total Investment Plan Returns

Periods Ending 3/31/2018*

- **Total Fund**
- **Total Plan Aggregate Benchmark**
- **Relative Performance**

**Observations**

- The FRS Investment Plan outperformed the Total Plan Aggregate Benchmark over all trailing periods shown above, suggesting strong relative performance of the underlying fund options in which participants are investing.

- Aggregate benchmark returns are an average of the individual portfolio benchmark returns at their actual weights.

*Returns shown are net of fees.

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### Investment Category Returns and Ranks

<table>
<thead>
<tr>
<th>Periods Ending 3/31/2018*</th>
<th>1-Year</th>
<th>3-Years</th>
<th>5-Years</th>
<th>10-Years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cash</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iMoneyNet 1st Tier Inst’l Net Index</td>
<td>1.4</td>
<td>(1)</td>
<td>0.8</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>Real Assets</strong>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRS Custom Real Assets Index</td>
<td>4.1</td>
<td>4.0</td>
<td>--</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Fixed Income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Bond Index</td>
<td>1.8</td>
<td>(11)</td>
<td>2.1</td>
<td>(6)</td>
</tr>
<tr>
<td><strong>Domestic Equity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total U.S. Equities Index</td>
<td>14.6</td>
<td>13.1</td>
<td>10.4</td>
<td>(21)</td>
</tr>
<tr>
<td><strong>International/Global Equity</strong></td>
<td>18.5</td>
<td>16.8</td>
<td>7.8</td>
<td>(43)</td>
</tr>
</tbody>
</table>

*Returns shown are net of fees

**The returns for the Real Assets composite uses prehire data for all months prior to 7/1/2014, actual live data is used thereafter.

Note: Composite returns for the Retirement Date Funds and the SDBA are unavailable.
## Investment Option Relative Returns and Ranks

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Fund Option</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Relative Performance</td>
<td>Rank</td>
<td>Relative Performance</td>
<td>Rank</td>
<td>Relative Performance</td>
</tr>
<tr>
<td><strong>FRS Retirement Fund</strong></td>
<td>0.4</td>
<td>39</td>
<td>(0.2)</td>
<td>62</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>FRS 2015 Retirement Date Fund</strong></td>
<td>0.7</td>
<td>45</td>
<td>0.0</td>
<td>72</td>
<td>0.1</td>
</tr>
<tr>
<td><strong>FRS 2020 Retirement Date Fund</strong></td>
<td>0.7</td>
<td>28</td>
<td>0.2</td>
<td>41</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>FRS 2025 Retirement Date Fund</strong></td>
<td>0.8</td>
<td>20</td>
<td>0.3</td>
<td>26</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>FRS 2030 Retirement Date Fund</strong></td>
<td>0.7</td>
<td>30</td>
<td>0.4</td>
<td>22</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>FRS 2035 Retirement Date Fund</strong></td>
<td>0.8</td>
<td>29</td>
<td>0.6</td>
<td>21</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>FRS 2040 Retirement Date Fund</strong></td>
<td>0.6</td>
<td>25</td>
<td>0.4</td>
<td>24</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>FRS 2045 Retirement Date Fund</strong></td>
<td>0.5</td>
<td>34</td>
<td>0.4</td>
<td>19</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>FRS 2050 Retirement Date Fund</strong></td>
<td>0.5</td>
<td>33</td>
<td>0.4</td>
<td>21</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>FRS 2055 Retirement Date Fund</strong></td>
<td>0.5</td>
<td>48</td>
<td>0.4</td>
<td>33</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>FRS 2060 Retirement Date Fund</strong></td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>Cash</strong></td>
<td>FRS Money Market Fund</td>
<td>0.4</td>
<td>1</td>
<td>0.3</td>
<td>1</td>
</tr>
<tr>
<td><strong>Real Assets</strong></td>
<td>FRS Inflation Adjusted Multi-Assets Fund</td>
<td>0.1</td>
<td>--</td>
<td>(1.1)</td>
<td>--</td>
</tr>
<tr>
<td><strong>Fixed Income</strong></td>
<td>FRS U.S. Bond Enhanced Index Fund</td>
<td>0.1</td>
<td>27</td>
<td>0.1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>FIAM Intermediate Duration Pool Fund</td>
<td>(0.1)</td>
<td>71</td>
<td>0.3</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>FRS Core Plus Fixed Income Fund</td>
<td>0.7</td>
<td>25</td>
<td>0.6</td>
<td>20</td>
</tr>
<tr>
<td><strong>Domestic Equity</strong></td>
<td>FRS U.S. Stock Market Index Fund</td>
<td>0.1</td>
<td>53</td>
<td>0.1</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>FRS U.S. Large Cap Equity Fund</td>
<td>5.0</td>
<td>23</td>
<td>1.0</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>FRS U.S. Small/Mid Cap Equity Fund</td>
<td>0.4</td>
<td>42</td>
<td>1.3</td>
<td>26</td>
</tr>
<tr>
<td><strong>Int'l/Global Equity</strong></td>
<td>FRS Foreign Stock Index Fund</td>
<td>0.8</td>
<td>54</td>
<td>0.5</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>American Funds New Perspective Fund</td>
<td>5.7</td>
<td>18</td>
<td>2.7</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>American Funds Euro-Pacific Growth Fund</td>
<td>4.7</td>
<td>2</td>
<td>1.4</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: Relative returns shown above are net of fees. The returns for the Retirement Date Funds, Real Assets Fund, Core Plus Fixed Income Fund, U.S. Large Cap Equity Fund, and U.S. Small/Mid Cap Equity Fund use prehire data for all months prior to 7/1/2014, actual live data is used thereafter.
Investment Category and Fund Option Performance Observations

Observations

- The FRS Investment Plan options have all exhibited strong relative performance over both short- and long-term time periods
  - Exception includes the Real Assets investment option
    - Real Assets investment option trailed over the 3- and 5-year periods, primarily due to commodity exposure which struggled in 2015
- Each actively managed investment option, excluding the RDFs, ranked in the top 50th percentile amongst their respective peer universes over both the trailing 3- and 5-year periods
- The FRS index funds have performed in line with their respective benchmarks, as expected
Appendix
Defined contribution plans, *at a minimum*, should offer the investment option types listed above.

These investment types represent all major asset categories that span the risk and return spectrum and are the key ingredients of diversified portfolios.
Risk/Return Spectrum: Retirement Date Funds (RDFs)

**Observation:**

- The FRS Retirement Date Funds offer participants a one-stop offering to a diversified portfolio that can help them achieve their investment needs.

Note: The returns for the Retirement Date Funds use prehire data for all months prior to 7/1/2014, actual live data is used thereafter.

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Observation:
- The FRS offers a sufficient range of passively managed options across the risk and return spectrum for those participants who are focused on minimizing costs.
**Observation:**
- The FRS offers a sufficient range of actively managed funds across the risk and return spectrum for participants to develop a diversified portfolio.

Note: The returns for the Real Assets Fund uses prehire data for all months prior to 7/1/2014, actual live data is used thereafter.
1Q18: Equity Markets Pause and Volatility Returns

1Q18: Equity Markets Pause and Volatility Returns

Global stocks fell for the first quarter in eight while inflationary pressures, fears of rising interest rates and trade tensions between US and China weighed on markets.

Defensive stocks offered little protection as lower beta, higher dividend yield names in Staples and Telecom pulled markets lower. IT sector finished volatile quarter strong despite regulatory scrutiny and trade-related concerns.

Non-US Equity market returns helped by weakness in the US Dollar.

European stocks fell amid political uncertainty despite healthy GDP growth and declining unemployment rate.

Japan posted eighth consecutive quarter of growth, longest stretch in 28 years. Strong yen and trade war concerns pressured exporters.

Emerging markets rose for fifth consecutive quarter, the only major market to finish Q1 in positive territory.

Note: As of March 30, 2018. Based on Russell indices for domestic markets and MSCI IMI for Developed Ex-U.S. and Emerging Markets.
Aggregate Performance Summary

<table>
<thead>
<tr>
<th></th>
<th>1Q17</th>
<th>FYTD</th>
<th>CYTD</th>
<th>1 Yr</th>
<th>3 Yr</th>
<th>5 Yr</th>
<th>Incept.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Asset Class Return</td>
<td>-0.64</td>
<td>10.81</td>
<td>-0.64</td>
<td>16.04</td>
<td>8.92</td>
<td>10.09</td>
<td>11.87</td>
</tr>
<tr>
<td>Benchmark</td>
<td>-0.91</td>
<td>10.32</td>
<td>-0.91</td>
<td>15.04</td>
<td>8.29</td>
<td>9.38</td>
<td>10.94</td>
</tr>
<tr>
<td>Excess Return</td>
<td>0.27</td>
<td>0.49</td>
<td>0.27</td>
<td>1.00</td>
<td>0.63</td>
<td>0.70</td>
<td>0.93</td>
</tr>
<tr>
<td>Tracking Error</td>
<td></td>
<td></td>
<td></td>
<td>0.52</td>
<td>0.50</td>
<td>0.51</td>
<td></td>
</tr>
<tr>
<td>Return / Risk (IR)</td>
<td></td>
<td></td>
<td></td>
<td>1.09</td>
<td>1.26</td>
<td>1.61</td>
<td></td>
</tr>
</tbody>
</table>

Note: All returns through 03/30/2018. Inception 7/1/10. Benchmark is Custom Iran Sudan Free ACWI IMI Index.
## Active Strategy Performance Summary

<table>
<thead>
<tr>
<th>Active Strategy Group</th>
<th>Weight (% of Asset Class)</th>
<th>Excess Returns by Aggregate</th>
<th>What Happened this Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1Q 2018</td>
<td>1 Year</td>
</tr>
<tr>
<td>Foreign Developed Large Cap</td>
<td>22%</td>
<td>1.32%</td>
<td>4.59%</td>
</tr>
<tr>
<td>Emerging Markets</td>
<td>11%</td>
<td>-0.44%</td>
<td>-3.08%</td>
</tr>
<tr>
<td>Dedicated Global</td>
<td>8%</td>
<td>0.00%</td>
<td>-0.05%</td>
</tr>
<tr>
<td>Foreign Developed Small Cap</td>
<td>5%</td>
<td>-0.20%</td>
<td>0.19%</td>
</tr>
<tr>
<td>US Large Cap</td>
<td>5%</td>
<td>-0.22%</td>
<td>1.69%</td>
</tr>
<tr>
<td>Currency</td>
<td>4%</td>
<td>-0.30%</td>
<td>-1.40%</td>
</tr>
<tr>
<td>US Small Cap</td>
<td>2%</td>
<td>1.09%</td>
<td>-0.26%</td>
</tr>
<tr>
<td>Total Active Aggregate</td>
<td>54%</td>
<td>0.42%</td>
<td>1.30%</td>
</tr>
</tbody>
</table>

Note: All returns through 03/30/2018. Excess returns are relative to strategy group benchmark. Currency weight includes passively managed equity notional. Weights are relative to total equity assets under management.
Update on Initiatives

Provide Alpha
• Continue to implement aggregate structure enhancements
  – Completed funding of 2 Foreign Developed Large Cap Value strategies
  – Reduced exposure to selected strategies
  – Evaluating International Small Cap and Emerging Market Small Cap opportunities
  – Researching opportunities for additional internally managed strategies
• Completed upgrade of Trade Order Management system
• Evaluating roster of Transition Managers

Provide Liquidity
• Raised $3 Billion in 1Q18 (vs. $7.2bn in all of 2017) to support beneficiary payments as well as asset allocation resulting from equity market strength
Fixed Income Update
Katy Wojciechowski
Senior Investment Officer Fixed Income

Investment Advisory Council
June 11, 2018
12 Month Returns for the Fixed Income benchmark – Barclays Intermediate Aggregate through 04/30/2018 were (0.64)%. Fiscal YTD benchmark returns are (0.92)%

- All sectors posted negative absolute returns YTD, and only the ABS sector was positive on a 12 month basis.
- The Fixed Income asset class posts value added over all periods, up 18bp FYTD through 4/30/2018
- Treasury yields rose YTD led by the front end – 2.41 at the end of 2017 to 2.95 on the 10 Year Treasury at 4/30. Yield on the entire Benchmark is only 3.21% with a 4.45yr duration
Incremental yield for taking on credit risk is low as the reach for yield continued and global QE continues.

Foreign buyers are likely to continue to be a steady force in the global search for yield.
Looking Forward:
Update on Recommendations from Mercer Structure Review

**Mercer’s Recommendations Support Fixed Income Structure and Workplan**

- Consider moving more assets in house
  - *Moved additional funds into Internal Active portfolio*
    - SBA already possesses the needed infrastructure and internal staff to manage assets internally; taking the opportunity to use current resources while driving down costs
- Consider increasing active allocation
  - *Moderately increased allocation to Internal Active portfolio*
  - *Increased allocation to Core Plus strategy – move from Passive*
  - *Enhancing some portfolio guidelines to allow for more risk to support increased risk allocation*
- Consider adding dedicated exposure to out of benchmark structured products in a dedicated strategy
  - *Coordinated research with current managers continues*
    - Consider opportunity to reduce risk to a rising rate environment within overall allocation
- Continue to take thoughtful, incremental approach to opportunistic investments
  - *Researching several new portfolio strategies*
Real Estate Update

Steve Spook
SIO Real Estate

Investment Advisory Council Meeting
June 11, 2018
Total Real Estate Portfolio Performance
Data Through December 31, 2017

Market Value $14,066 M

Source: The Townsend Group
Principal Investments Performance
Data Through December 31, 2017

Market Value $8,775 M

One Year Return: 6.5%, 6.7%, 7.2%
Three Year Return: 9.9%, 9.4%, 9.2%
Five Year Return: 11.4%, 10.5%, 10.3%

Source: The Townsend Group
Externally Managed Portfolio Performance
Data Through December 31, 2017

Market Value $5,291 M

One Year Return
- EMP Total Net Return: 11.4%
- External Custom Benchmark Net Return: 8.1%
- SBAF Primary Benchmark: 7.2%

Three Year Return
- EMP Total Net Return: 10.3%
- External Custom Benchmark Net Return: 8.7%
- SBAF Primary Benchmark: 9.2%

Five Year Return
- EMP Total Net Return: 11.9%
- External Custom Benchmark Net Return: 9.9%
- SBAF Primary Benchmark: 10.3%

Source: The Townsend Group
Real Estate Portfolio
Sector Allocation

Total RE Portfolio
- Private: 90%
- Public: 10%

Private Market
- Core: 80%
- Non-Core: 20%

Florida Retirement System Defined Benefit Fund
- Global Equities: 57.7%
- Fixed Income: 17.6%
- Real Estate: 8.6%
- Strategic Inv.: 8.2%
- Private Equity: 6.5%
- Cash: 1.4%

Source: IBP 12/31/17 Report
Private Market
Property Type Diversification

Target NFI-ODCE +/- 15%

![Bar Chart]

- **Apartment**: 20.2% SBA Exposure, 24.1% ODCE
- **Industrial**: 14.6% SBA Exposure, 16.2% ODCE
- **Retail**: 18.7% SBA Exposure, 19.8% ODCE
- **Office**: 31.6% SBA Exposure, 36.0% ODCE
- **Other ***: 14.9% SBA Exposure, 3.9% ODCE

* Other includes Agriculture, Student Housing, Senior Housing, Self-Storage, Hotel, Land
Private Market
Geographic Diversification

Target NFI-ODCE +/- 15%

<table>
<thead>
<tr>
<th>Region</th>
<th>SBA Exposure</th>
<th>ODCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>East</td>
<td>29.8%</td>
<td>31.1%</td>
</tr>
<tr>
<td>Midwest</td>
<td>5.8%</td>
<td>9.4%</td>
</tr>
<tr>
<td>South</td>
<td>18.8%</td>
<td>18.4%</td>
</tr>
<tr>
<td>West</td>
<td>41.2%</td>
<td>41.2%</td>
</tr>
<tr>
<td>Other *</td>
<td>4.4%</td>
<td>0%</td>
</tr>
</tbody>
</table>

* Other includes International Investments
Recent Activity
(Since Last IAC Report)

Direct Owned:

**Acquisitions (Price/Equity)**
- Mixed-Use Development $329 million/$134 million
- Medical Office Buildings (6) $92 million/$46 million
- Retail Redevelopment $79 million/$41 million
- Student Housing (6) $262 million/$123 million

**Commingled Funds (New Commitments):**
- Domestic Value Add Fund $100 million
- European Value Add Fund €75 million
Portfolio

STRATEGIC INVESTMENTS PORTFOLIO

- Distressed: 12%
- Evergreen Debt: 5%
- Loans: 7%
- Subordinated Capital: 5%
- Activist Equity: 7%
- GP Investments: 2%
- Long/Short Equity: 5%
- SI Private Equity: 7%
- SI Real Estate: 8%
- Infrastructure: 5%
- Commodities: 2%
- Transportation: 1%
- Global Macro: 6%
- Managed Futures: 7%
- Relative Value: 3%
- Multi-Strategy Event: 6%
- Open Mandate: 4%
- Royalties: 1%
Portfolio

STRATEGIC INVESTMENTS PORTFOLIO

- Liquid Markets - Growth: 31%
- Liquid Markets - Diversifying: 19%
- Illiquid Markets - Income: 24%
- Illiquid Markets - Total Return: 26%
Gross and Net Exposures

Strategic Investments Exposures

- Gross
- Net
Recent Activity

- Quarterly cash inflow was $625 million, fiscal year-to-date cash inflow has been $476 million
- One new fund totaling $50 million was closed in the most recent quarter
- One new fund totaling $150 million was closed this quarter
- Four funds totaling $500 million are in the pipeline
- Will formally separate from Private Equity on July 1, 2018
FLORIDA RETIREMENT SYSTEM
DEFINED BENEFIT PLAN INVESTMENT POLICY STATEMENT

I. DEFINITIONS

Absolute Real Target Rate of Return - The total rate of return by which the FRS Portfolio must grow, in excess of inflation as reported by the U.S. Department of Labor, Bureau of Labor Statistics (Consumer Price Index – All Urban Consumers), in order to achieve the long-run investment objective.

Asset Class - An asset class is an aggregation of one or more portfolios with the same principal asset type.¹ For example, all of the portfolios whose principal asset type was stocks would be aggregated together as the Global Equity asset class. As such, it would contain primarily—but not exclusively—the principal asset type.

Asset Type - An asset type is a category of investment instrument such as common stock or bond.

Portfolio - A portfolio is the basic organization unit of the FRS Fund. Funds are managed within portfolios. A portfolio will typically contain one principal asset type (common stocks, for example), but may contain other asset types as well. The discretion for this mix of asset types is set out in guidelines for each portfolio.

II. OVERVIEW OF THE FRS AND SBA

The State Board of Administration (Board) provides investment management of assets contributed and held on behalf of the Florida Retirement System (FRS). The investment of retirement assets is one aspect of the activity involved in the overall administration of the Florida Retirement System. The Division of Retirement (DOR), the administrative agency for the FRS, provides full accounting and administration of benefits and contributions, commissions actuarial studies, and proposes rules and regulations for the administration of the FRS. The State Legislature has the responsibility of setting contribution and benefit levels, and providing the statutory guidance for the administration of the FRS.

III. THE BOARD

The State Board of Administration has the authority and responsibility for the investment of FRS assets. The Board consists of the Governor, as Chairman, the Chief Financial Officer, and the Attorney General. The Board has statutory responsibility for the investment of FRS assets, subject to limitations on investments as outlined in Section 215.47, Florida Statutes.

The Board shall discharge its fiduciary duties in accordance with the Florida statutory fiduciary standards of care as contained in Sections 215.44(2)(a) and 215.47(10), Florida Statutes.

¹ The Strategic Investments asset class is an exception, purposefully established to contain a variety of portfolios which may represent asset types and strategies not suitable for inclusion in other asset classes.
The Board delegates to the Executive Director the administrative and investment authority, within the statutory limitations and rules, to manage the investment of FRS assets. An Investment Advisory Council (IAC) is appointed by the Board. The IAC meets quarterly, and is charged with the review and study of general portfolio objectives, policies and strategies, including a review of investment performance.

The mission of the State Board of Administration is to provide superior investment management and trust services by proactively and comprehensively managing risk and adhering to the highest ethical, fiduciary and professional standards.

IV. THE EXECUTIVE DIRECTOR

The Executive Director is charged with the responsibility for managing and directing administrative, personnel, budgeting, and investment functions, including the strategic and tactical allocation of investment assets.

The Executive Director is charged with developing specific individual investment portfolio objectives and policy guidelines, and providing the Board with monthly and quarterly reports of investment activities.

The Executive Director has investment responsibility for maintaining diversified portfolios, and maximizing returns with respect to the broad diversified market standards of individual asset classes, consistent with appropriate risk constraints. The Executive Director will develop policies and procedures to:

- Identify, monitor and control/mitigate key investment and operational risks.
- Maintain an appropriate and effective risk management and compliance program that identifies, evaluates and manages risks within business units and at the enterprise level.
- Maintain an appropriate and effective control environment for SBA investment and operational responsibilities.
- Approve risk allocations and limits, including total fund and asset class risk budgets.

The Executive Director will appoint a Chief Risk and Compliance Officer, whose selection, compensation and termination will be affirmed by the Board, to assist in the execution of the responsibilities enumerated in the preceding list. For day-to-day executive and administrative purposes, the Chief Risk and Compliance Officer will proactively work with the Executive Director and designees to ensure that issues are promptly and thoroughly addressed by management. On at least a quarterly basis, the Chief Risk and Compliance Officer will provide reports to the Investment Advisory Council, Audit Committee and Board and is authorized to directly access these bodies at
any time as appropriate to ensure the integrity and effectiveness of risk management and compliance functions.

Pursuant to written SBA policy, the Executive Director will organize an Investment Oversight Group(s) to regularly review, document and formally escalate guideline compliance exceptions and events that may have a material impact on the Trust Fund. The Executive Director is delegated the authority and responsibility to prudently address any such compliance exceptions, with input from the Investment Advisory Council and Audit Committee as necessary and appropriate, unless otherwise required in this Investment Policy Statement.

The Executive Director is responsible for evaluating the appropriateness of the goals and objectives in this Plan in light of actuarial studies and recommending changes to the Board when appropriate.

V. INVESTMENT OBJECTIVES

The investment objective of the Board is to provide investment returns sufficient for the plan to be maintained in a manner that ensures the timely payment of promised benefits to current and future participants and keeps the plan cost at a reasonable level. To achieve this, a long-term real return approximating 4.05% per annum (compounded and net of investment expenses) should be attained. As additional considerations, the Board seeks to avoid excessive risk in long-term cost trends. To manage these risks, the volatility of annual returns should be reasonably controlled.

The Board's principal means for achieving this goal is through investment directives to the Executive Director. The main object of these investment directives is the asset class. The Board directs the Executive Director to manage the asset classes in ways that, in the Board's opinion, will maximize the likelihood of achieving the Board's investment objective within an appropriate risk management framework. The Board establishes asset classes, sets target allocations and reasonable ranges around them for each and establishes performance benchmarks for them. In addition, it establishes a performance benchmark for the total portfolio.
VI. TARGET PORTFOLIO AND ASSET ALLOCATION RANGES

The Board's investment objective is an absolute one: achieve a specific rate of return, the absolute real target rate of return. In order to achieve it, the Board sets a relative objective for the Executive Director: achieve or exceed the return on a performance benchmark known as the Target Portfolio over time. The Target Portfolio is a portfolio composed of a specific mix of the authorized asset classes. The return on this portfolio is a weighted-average of the returns to passive benchmarks for each of the asset classes. The expectation is that this return will equal or exceed the absolute real target rate of return long-term and will thus assure achievement of the Board's investment objective.

This relative return objective is developed in a risk management framework. Risk from the perspective of the Board is any shortfall of actual investment returns relative to the absolute real target rate of return over long periods of time, and the asset mix is developed to manage this risk. In selecting the Target Portfolio, the Board considers information from actuarial valuation reviews and asset/liability studies of the FRS, as well as asset class risk and return characteristics. In addition, the timing of cash demands on the portfolio to honor benefit payments and other liabilities are an important consideration. Potential asset mixes are thus evaluated with respect to their expected return, volatility, liquidity, and other risk and return measures as appropriate.

The Target Portfolio defined in Table 2 has a long-term expected compound annual real return that approximates the absolute real target rate of return. To achieve the absolute real target rate of return or actuarial return, material market risk must be borne (i.e., year to year volatility of returns). For example, in 2008 the Trust Fund’s net managed real return was -26.81% compared to gains of 17.56% in 2009 and 21.48% in 2003. While downside risk is considerably greater over shorter horizons, the natural investment horizon for the Trust Fund is the long-term. Table 1 illustrates a modeled estimate of the Target Portfolio’s potential range of real returns that could result over longer-term investment horizons. Over a 15-year investment horizon there is an 80 percent probability that the Target Portfolio will experience a compound annual real return between 0.47% and 8.73% and a 90 percent probability that the Target Portfolio will experience a compound annual real return between -0.65% and 9.96%.

Table 1: Expected Risk in Target Portfolio’s Real Returns

<table>
<thead>
<tr>
<th>Time Horizon</th>
<th>5th Percentile Real Return</th>
<th>10th Percentile Real Return</th>
<th>90th Percentile Real Return</th>
<th>95th Percentile Real Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Years</td>
<td>-1.78%</td>
<td>-0.42%</td>
<td>9.71%</td>
<td>11.22%</td>
</tr>
<tr>
<td>15 Years</td>
<td>-0.65%</td>
<td>0.47%</td>
<td>8.73%</td>
<td>9.96%</td>
</tr>
<tr>
<td>20 Years</td>
<td>0.03%</td>
<td>1.00%</td>
<td>8.16%</td>
<td>9.22%</td>
</tr>
<tr>
<td>25 Years</td>
<td>0.49%</td>
<td>1.37%</td>
<td>7.77%</td>
<td>8.71%</td>
</tr>
<tr>
<td>30 Years</td>
<td>0.84%</td>
<td>1.64%</td>
<td>7.48%</td>
<td>8.34%</td>
</tr>
</tbody>
</table>

Although the Target Portfolio has an expected return and risk associated with it, it is important to note that this expected return is neither an explicit nor an implicit goal for the managers of the Florida Retirement System Trust Fund (FRSTF). These figures are used solely in developing directives for
fund management that will raise the probability of success in achieving the absolute real target rate of return. The Executive Director is held responsible not for specifically achieving the absolute real target rate of return in each period, but rather for doing at least as well as the market using the Target Portfolio's mix of assets.

In pursuit of incremental investment returns, the Executive Director may vary the asset mix from the target allocation based on market conditions and the investment environment for the individual asset classes. The Executive Director shall adopt an asset allocation policy guideline which specifies the process for making these tactical decisions. The guideline shall concentrate on the analysis of economic conditions, the absolute values of asset class investments and the relative values between asset classes. The Board establishes ranges for tactical allocations, as shown in Table 2.

### Table 2: Authorized Asset Classes, Target Allocations and Policy Ranges

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Target Allocation</th>
<th>Policy Range Low</th>
<th>Policy Range High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Equity</td>
<td>53%</td>
<td>45%</td>
<td>70%</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>18%</td>
<td>10%</td>
<td>26%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>10%</td>
<td>4%</td>
<td>16%</td>
</tr>
<tr>
<td>Private Equity</td>
<td>6%</td>
<td>2%</td>
<td>9%</td>
</tr>
<tr>
<td>Strategic Investments</td>
<td>12%</td>
<td>0%</td>
<td>16%</td>
</tr>
<tr>
<td>Cash Equivalents</td>
<td>1%</td>
<td>0.25%</td>
<td>5%</td>
</tr>
<tr>
<td>Total Fund</td>
<td>100%</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

For purposes of determining compliance with these policy ranges, an asset class is considered to be an aggregation of one or more portfolios with substantially the same principal asset type. An asset type is a category of investment instrument such as common stock or bond. For example, all of the portfolios whose principal asset type is bonds would be aggregated together as the Fixed Income asset class. As such, it would contain primarily—but not exclusively—the principal asset type. As a standard management practice, portfolio managers are expected to meet their goals for all assets allocated to their portfolio.

It is expected that the FRS Portfolio will be managed in such a way that the actual allocation mix will remain within these ranges. Investment strategies or market conditions which result in an allocation position for any asset class outside of the enumerated ranges for a period exceeding thirty

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2 The Strategic Investments asset class is an exception, purposefully established to potentially contain a variety of portfolios which may represent asset types and strategies not suitable for inclusion in other asset classes.
(30) consecutive business days shall be reported to the Board, together with a review of conditions causing the persistent deviation and a recommendation for subsequent investment action.

The asset allocation is established in concert with the investment objective, capital market expectations, projected actuarial liabilities, and resulting cash flows. Table 3 indicates estimated net cash flows (benefit payments less employer and employee contributions) and associated probabilities that are implicit in this policy statement, assuming the Legislature adheres to system funding provisions in current law. Additionally, the annualized income yield of the fund is projected to approximate 2% to 3%.

### Table 3: Estimated Net Cash Outflow ($ millions/ % Fund)

<table>
<thead>
<tr>
<th></th>
<th>In 5 Years</th>
<th></th>
<th>In 10 Years</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10th Percentile</td>
<td>$4,851</td>
<td>3.67%</td>
<td>$3,497</td>
<td>3.14%</td>
</tr>
<tr>
<td>25th Percentile</td>
<td>$6,776</td>
<td>4.15%</td>
<td>$6,329</td>
<td>4.03%</td>
</tr>
<tr>
<td>Median</td>
<td>$7,466</td>
<td>4.54%</td>
<td>$8,523</td>
<td>4.60%</td>
</tr>
<tr>
<td>75th Percentile</td>
<td>$8,079</td>
<td>5.04%</td>
<td>$11,561</td>
<td>5.22%</td>
</tr>
<tr>
<td>90th Percentile</td>
<td>$10,690</td>
<td>5.96%</td>
<td>$12,895</td>
<td>6.27%</td>
</tr>
</tbody>
</table>
VII. PERFORMANCE MEASUREMENT

Asset class performance is measured in accordance with a broad market index appropriate to the asset class. The indices identified in Table 4 are used as the primary benchmarks for the authorized asset classes.

<table>
<thead>
<tr>
<th>Table 4: Authorized Target Indices</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset Class</td>
<td>Index</td>
</tr>
<tr>
<td>Global Equity</td>
<td>A custom version of the MSCI All Country World Investable Market Index (ACWI IMI), in dollar terms, net of withholding taxes on non-resident institutional investors, adjusted to reflect the provisions of the Protecting Florida’s Investments Act</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>The Barclays Capital U.S. Intermediate Aggregate Index</td>
</tr>
<tr>
<td>Real Estate</td>
<td>The core portion of the asset class is benchmarked to an average of the National Council of Real Estate Investment Fiduciaries (NCREIF) Fund Index – Open-ended Diversified Core Equity, NET of fees, weighted at 76.5%, and the non-core portion of the asset class is benchmarked to an average of the National Council of Real Estate Investment Fiduciaries (NCREIF) Fund Index – Open-ended Diversified Core Equity, NET of fees, weighted at 13.5%, plus a fixed return premium of 150 basis points per annum, and the FTSE EPRA/NAREIT Developed Index, in dollar terms, net of withholding taxes on non-resident institutional investors, weighted at 10% (^3)</td>
</tr>
<tr>
<td>Private Equity</td>
<td>The MSCI All Country World Investable Market Index (ACWI IMI), in dollar terms, net of withholding taxes on non-resident institutional investors, adjusted to reflect the provisions of the Protecting Florida’s Investments Act, plus a fixed premium return of 300 basis points per annum</td>
</tr>
<tr>
<td>Strategic Investments</td>
<td>A weighted-average of individual portfolio level benchmark returns</td>
</tr>
<tr>
<td>Cash Equivalents</td>
<td>iMoneyNet First Tier Institutional Money Market Funds Net Index, Bank of America Merrill Lynch 3-Month US Treasury Index</td>
</tr>
</tbody>
</table>

\[^3\] Core RE  Non-Core RE  Public RE
\[ (76.5\% \times \text{NFI-ODCE}) + [13.5\% \times (\text{NFI-ODCE} + 150 \text{bps})] + (10\% \times \text{REIT Index}) \]
The return on the Target Portfolio shall be calculated as an average of the returns to the target indices indicated in Table 4 weighted by the target allocations indicated by Table 2, but adjusted for floating allocations. The policy allocations for the private market asset classes would all “float” against the public market asset classes (i.e., limited short-term liquidity available for rebalancing and benefit payments means that their policy allocations would equal their actual allocations) as identified in Table 5.

<table>
<thead>
<tr>
<th>Public Market Asset Classes</th>
<th>Float Allocation Limit</th>
<th>Private Market Asset Classes</th>
<th>Real Estate</th>
<th>Private Equity</th>
<th>Strategic Investments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Equity</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>50%</td>
<td>100%</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>50%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Measurement of asset allocation performance shall be made by comparing the actual asset allocation times the return for the appropriate indices to the target allocation times the index returns. For asset classes with floating allocations the basis of tactical measurement shall be the asset class’s actual share.

Performance measurement of the effectiveness of the implementation of the Private Equity asset class shall be based on an internal rate of return (IRR) methodology, applied over significant periods of time. Performance measurement of the effectiveness of the implementation of the Private Equity, Strategic Investments, and Cash Equivalents asset classes shall be assessed relative to both the applicable index in Table 4 and:

- For Private Equity, the joint Cambridge Associates Global Private Equity and Venture Capital Index pooled return at peer group weights.
- For Strategic Investments, the CPI, as reported by the U.S. Department of Labor, Bureau of Labor Statistics (Consumer Price Index – All Urban Consumers), plus 4.05%. Fundamentally, the Strategic Investments asset class is expected to improve the risk-adjusted return of the total fund over multiple market cycles.
- For Cash Equivalents, the iMoneyNet First Tier Institutional Money Market Funds Net Index

VIII. ASSET CLASS PORTFOLIO MANAGEMENT

General Asset Class and Portfolio Guidelines

The Executive Director is responsible for developing asset class and individual portfolio policies and guidelines which reflect the goals and objectives of this Investment Policy Statement. In doing so, he is authorized to use all investment authority spelled out in Section 215.47, Florida Statutes,
except as limited by this Plan or SBA Rules. The Executive Director shall develop guidelines for the selection and retention of portfolios, and shall manage all external contractual relationships in accordance with the fiduciary responsibilities of the Board.

All asset classes shall be invested to achieve or exceed the return on their respective benchmarks over a long period of time. To obtain appropriate compensation for associated performance risks:

- Public market asset classes shall be well diversified with respect to their benchmarks and have a reliance on low cost passive strategies scaled according to the degree of efficiency in underlying securities markets, capacity in effective active strategies, and ongoing total fund liquidity requirements.
- Private Equity, Real Estate and Strategic Investments asset classes shall utilize a prudent process to maximize long-term access to attractive risk-adjusted investment opportunities through use of business partners with appropriate:
  - Financial, operational and investment expertise and resources;
  - Alignment of interests;
  - Transparency and repeatability of investment process; and
  - Controls on leverage.

**Strategic Investments Guidelines**

The objective of the asset class is to proactively identify and utilize non-traditional and multi-asset class investments, on an opportunistic and strategic basis, in order to accomplish one or more of the following:

- Generate long-term incremental returns in excess of a 4.05% annualized real rate of return, commensurate with risk.
- **Diversify** Reduce the volatility of FRS Pension Plan assets and **improve** the FRS Pension Plan’s risk-adjusted return over multiple market cycles.
- Provide a potential hedge against inflation. **Outperform** the FRS Pension Plan during periods of significant market declines.
- Increase investment flexibility across market environments, in order to access evolving or opportunistic investments outside of traditional asset classes and effective risk-adjusted portfolio management strategies.

Strategic Investments may include, but not be limited to, direct investments authorized by s. 215.47, Florida Statutes or investments in capital commitment partnerships, hedge funds or other vehicles that make or involve non-traditional, opportunistic and/or long or short investments in marketable
and nonmarketable debt, equity, and/or real assets (e.g., real estate, infrastructure, or commodities). Leverage may be utilized subject to appropriate controls.

**Other Guidelines**

The Executive Director shall develop and implement policies as appropriate for the orderly and effective implementation of the provisions of Chapter 2007-88, Laws of Florida, the “Protecting Florida’s Investments Act.” Actions taken and determinations made pursuant to said policies are hereby incorporated by reference into this Investment Policy Statement, as required by subsection 215.473(6), Florida Statutes.

The Executive Director shall develop and implement policies as appropriate for the orderly and effective implementation of the provisions of Chapter 2016-36, Laws of Florida, an act relating to companies that boycott Israel. Actions taken and determinations made pursuant to said policies are hereby incorporated by reference into this Investment Policy Statement, as required by subsection 215.4725(5), Florida Statutes.

The Executive Director shall develop and implement policies as appropriate for the orderly and effective implementation of the provisions of Chapter 2018-125, Laws of Florida, an act relating to state investments in or with the government of Venezuela. Actions taken and determinations made pursuant to said policies are hereby incorporated by reference into this Investment Policy Statement, as required by subsection 215.475(3)(a), Florida Statutes.

Subsection 215.475(3)(a) Florida Statutes is consistent with the Resolution adopted by the Trustees of the Board on August 16, 2017. At that meeting, the Board also included in the Resolution the specific direction that the SBA include in this Investment Policy Statement upon review of the IAC in accordance with Section 215.475(2) Florida Statutes, the following: “The SBA will not vote in favor of any proxy resolution advocating the support of the Maduro Regime in Venezuela.”

On August 16, 2017, the Trustees of the Board adopted a Resolution directing the following (the “Venezuela Resolution”) be included in this Investment Policy Statement upon review of the IAC in accordance with Section 215.475(2), Florida Statutes:

1. **Prohibited Investments.** Until such as time as the SBA determines it is otherwise prudent to do so, the SBA is prohibited from investing in:
   (a) any financial institution or company domiciled in the United States, or foreign subsidiary of a company domiciled in the United States, which directly or through a United States or foreign subsidiary and in violation of federal law, makes any loan, extends credit of any kind or character, advances funds in any manner, or purchases or trades any goods or services in or with the government of Venezuela; and
   (b) any securities issued by the government of Venezuela or any company that is majority-owned by the government of Venezuela.

2. **Proxy Voting.** The SBA will not vote in favor of any proxy resolution advocating the support of the Maduro Regime in Venezuela.

The Executive Director shall develop and implement policies as appropriate for the orderly and effective implementing of the Venezuela Resolution. Actions taken and determinations made
pursuant to said policies are hereby incorporated by reference into this Investment Policy Statement.

IX. REPORTING

The Board directs the Executive Director to coordinate the preparation of quarterly reports of the investment performance of the FRS by the Board's independent performance evaluation consultant.

The following formal periodic reports to the Board shall be the responsibility of the Executive Director:

- An annual report on the SBA and its investment portfolios, including that of the FRS.
- A monthly report on performance and investment actions taken.
- Special investment reports pursuant to Section 215.44-215.53, Florida Statutes.

X. IMPLEMENTATION SCHEDULE

This policy statement shall be effective upon approval by the Board July 1, 2018.
FLORIDA RETIREMENT SYSTEM
DEFINED BENEFIT PLAN INVESTMENT POLICY STATEMENT

I. DEFINITIONS

Absolute Real Target Rate of Return - The total rate of return by which the FRS Portfolio must grow, in excess of inflation as reported by the U.S. Department of Labor, Bureau of Labor Statistics (Consumer Price Index – All Urban Consumers), in order to achieve the long-run investment objective.

Asset Class - An asset class is an aggregation of one or more portfolios with the same principal asset type.\(^1\) For example, all of the portfolios whose principal asset type was stocks would be aggregated together as the Global Equity asset class. As such, it would contain primarily—but not exclusively—the principal asset type.

Asset Type - An asset type is a category of investment instrument such as common stock or bond.

Portfolio - A portfolio is the basic organization unit of the FRS Fund. Funds are managed within portfolios. A portfolio will typically contain one principal asset type (common stocks, for example), but may contain other asset types as well. The discretion for this mix of asset types is set out in guidelines for each portfolio.

II. OVERVIEW OF THE FRS AND SBA

The State Board of Administration (Board) provides investment management of assets contributed and held on behalf of the Florida Retirement System (FRS). The investment of retirement assets is one aspect of the activity involved in the overall administration of the Florida Retirement System. The Division of Retirement (DOR), the administrative agency for the FRS, provides full accounting and administration of benefits and contributions, commissions actuarial studies, and proposes rules and regulations for the administration of the FRS. The State Legislature has the responsibility of setting contribution and benefit levels, and providing the statutory guidance for the administration of the FRS.

III. THE BOARD

The State Board of Administration has the authority and responsibility for the investment of FRS assets. The Board consists of the Governor, as Chairman, the Chief Financial Officer, and the Attorney General. The Board has statutory responsibility for the investment of FRS assets, subject to limitations on investments as outlined in Section 215.47, Florida Statutes.

The Board shall discharge its fiduciary duties in accordance with the Florida statutory fiduciary standards of care as contained in Sections 215.44(2)(a) and 215.47(10), Florida Statutes.

\(^1\) The Strategic Investments asset class is an exception, purposefully established to contain a variety of portfolios which may represent asset types and strategies not suitable for inclusion in other asset classes.
The Board delegates to the Executive Director the administrative and investment authority, within the statutory limitations and rules, to manage the investment of FRS assets. An Investment Advisory Council (IAC) is appointed by the Board. The IAC meets quarterly, and is charged with the review and study of general portfolio objectives, policies and strategies, including a review of investment performance.

The mission of the State Board of Administration is to provide superior investment management and trust services by proactively and comprehensively managing risk and adhering to the highest ethical, fiduciary and professional standards.

IV. THE EXECUTIVE DIRECTOR

The Executive Director is charged with the responsibility for managing and directing administrative, personnel, budgeting, and investment functions, including the strategic and tactical allocation of investment assets.

The Executive Director is charged with developing specific individual investment portfolio objectives and policy guidelines, and providing the Board with monthly and quarterly reports of investment activities.

The Executive Director has investment responsibility for maintaining diversified portfolios, and maximizing returns with respect to the broad diversified market standards of individual asset classes, consistent with appropriate risk constraints. The Executive Director will develop policies and procedures to:

- Identify, monitor and control/mitigate key investment and operational risks.
- Maintain an appropriate and effective risk management and compliance program that identifies, evaluates and manages risks within business units and at the enterprise level.
- Maintain an appropriate and effective control environment for SBA investment and operational responsibilities.
- Approve risk allocations and limits, including total fund and asset class risk budgets.

The Executive Director will appoint a Chief Risk and Compliance Officer, whose selection, compensation and termination will be affirmed by the Board, to assist in the execution of the responsibilities enumerated in the preceding list. For day-to-day executive and administrative purposes, the Chief Risk and Compliance Officer will proactively work with the Executive Director and designees to ensure that issues are promptly and thoroughly addressed by management. On at least a quarterly basis, the Chief Risk and Compliance Officer will provide reports to the Investment Advisory Council, Audit Committee and Board and is authorized to directly access these bodies at
any time as appropriate to ensure the integrity and effectiveness of risk management and compliance functions.

Pursuant to written SBA policy, the Executive Director will organize an Investment Oversight Group(s) to regularly review, document and formally escalate guideline compliance exceptions and events that may have a material impact on the Trust Fund. The Executive Director is delegated the authority and responsibility to prudently address any such compliance exceptions, with input from the Investment Advisory Council and Audit Committee as necessary and appropriate, unless otherwise required in this Investment Policy Statement.

The Executive Director is responsible for evaluating the appropriateness of the goals and objectives in this Plan in light of actuarial studies and recommending changes to the Board when appropriate.

V. INVESTMENT OBJECTIVES

The investment objective of the Board is to provide investment returns sufficient for the plan to be maintained in a manner that ensures the timely payment of promised benefits to current and future participants and keeps the plan cost at a reasonable level. To achieve this, a long-term real return approximating 4.0% per annum (compounded and net of investment expenses) should be attained. As additional considerations, the Board seeks to avoid excessive risk in long-term cost trends. To manage these risks, the volatility of annual returns should be reasonably controlled.

The Board's principal means for achieving this goal is through investment directives to the Executive Director. The main object of these investment directives is the asset class. The Board directs the Executive Director to manage the asset classes in ways that, in the Board's opinion, will maximize the likelihood of achieving the Board's investment objective within an appropriate risk management framework. The Board establishes asset classes, sets target allocations and reasonable ranges around them for each and establishes performance benchmarks for them. In addition, it establishes a performance benchmark for the total portfolio.
VI. TARGET PORTFOLIO AND ASSET ALLOCATION RANGES

The Board's investment objective is an absolute one: achieve a specific rate of return, the absolute real target rate of return. In order to achieve it, the Board sets a relative objective for the Executive Director: achieve or exceed the return on a performance benchmark known as the Target Portfolio over time. The Target Portfolio is a portfolio composed of a specific mix of the authorized asset classes. The return on this portfolio is a weighted-average of the returns to passive benchmarks for each of the asset classes. The expectation is that this return will equal or exceed the absolute real target rate of return long-term and will thus assure achievement of the Board's investment objective.

This relative return objective is developed in a risk management framework. Risk from the perspective of the Board is any shortfall of actual investment returns relative to the absolute real target rate of return over long periods of time, and the asset mix is developed to manage this risk. In selecting the Target Portfolio, the Board considers information from actuarial valuation reviews and asset/liability studies of the FRS, as well as asset class risk and return characteristics. In addition, the timing of cash demands on the portfolio to honor benefit payments and other liabilities are an important consideration. Potential asset mixes are thus evaluated with respect to their expected return, volatility, liquidity, and other risk and return measures as appropriate.

The Target Portfolio defined in Table 2 has a long-term expected compound annual real return that approximates the absolute real target rate of return. To achieve the absolute real target rate of return or actuarial return, material market risk must be borne (i.e., year to year volatility of returns). For example, in 2008 the Trust Fund’s net managed real return was -26.81% compared to gains of 17.56% in 2009 and 21.48% in 2003. While downside risk is considerably greater over shorter horizons, the natural investment horizon for the Trust Fund is the long-term. Table 1 illustrates a modeled estimate of the Target Portfolio’s potential range of real returns that could result over longer-term investment horizons. Over a 15-year investment horizon there is an 80 percent probability that the Target Portfolio will experience a compound annual real return between 0.47% and 8.73% and a 90 percent probability that the Target Portfolio will experience a compound annual real return between -0.65% and 9.96%.

<table>
<thead>
<tr>
<th>Time Horizon</th>
<th>5th Percentile Real Return</th>
<th>10th Percentile Real Return</th>
<th>90th Percentile Real Return</th>
<th>95th Percentile Real Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Years</td>
<td>-1.78%</td>
<td>-0.42%</td>
<td>9.71%</td>
<td>11.22%</td>
</tr>
<tr>
<td>15 Years</td>
<td>-0.65%</td>
<td>0.47%</td>
<td>8.73%</td>
<td>9.96%</td>
</tr>
<tr>
<td>20 Years</td>
<td>0.03%</td>
<td>1.00%</td>
<td>8.16%</td>
<td>9.22%</td>
</tr>
<tr>
<td>25 Years</td>
<td>0.49%</td>
<td>1.37%</td>
<td>7.77%</td>
<td>8.71%</td>
</tr>
<tr>
<td>30 Years</td>
<td>0.84%</td>
<td>1.64%</td>
<td>7.48%</td>
<td>8.34%</td>
</tr>
</tbody>
</table>

Although the Target Portfolio has an expected return and risk associated with it, it is important to note that this expected return is neither an explicit nor an implicit goal for the managers of the Florida Retirement System Trust Fund (FRSTF). These figures are used solely in developing directives for
fund management that will raise the probability of success in achieving the absolute real target rate of return. The Executive Director is held responsible not for specifically achieving the absolute real target rate of return in each period, but rather for doing at least as well as the market using the Target Portfolio's mix of assets.

In pursuit of incremental investment returns, the Executive Director may vary the asset mix from the target allocation based on market conditions and the investment environment for the individual asset classes. The Executive Director shall adopt an asset allocation policy guideline which specifies the process for making these tactical decisions. The guideline shall concentrate on the analysis of economic conditions, the absolute values of asset class investments and the relative values between asset classes. The Board establishes ranges for tactical allocations, as shown in Table 2.

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Target Allocation</th>
<th>Policy Range Low</th>
<th>Policy Range High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Equity</td>
<td>53%</td>
<td>45%</td>
<td>70%</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>18%</td>
<td>10%</td>
<td>26%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>10%</td>
<td>4%</td>
<td>16%</td>
</tr>
<tr>
<td>Private Equity</td>
<td>6%</td>
<td>2%</td>
<td>9%</td>
</tr>
<tr>
<td>Strategic Investments</td>
<td>12%</td>
<td>0%</td>
<td>16%</td>
</tr>
<tr>
<td>Cash Equivalents</td>
<td>1%</td>
<td>0.25%</td>
<td>5%</td>
</tr>
<tr>
<td>Total Fund</td>
<td>100%</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

For purposes of determining compliance with these policy ranges, an asset class is considered to be an aggregation of one or more portfolios with substantially the same principal asset type.² An asset type is a category of investment instrument such as common stock or bond. For example, all of the portfolios whose principal asset type is bonds would be aggregated together as the Fixed Income asset class. As such, it would contain primarily—but not exclusively—the principal asset type. As a standard management practice, portfolio managers are expected to meet their goals for all assets allocated to their portfolio.

It is expected that the FRS Portfolio will be managed in such a way that the actual allocation mix will remain within these ranges. Investment strategies or market conditions which result in an allocation position for any asset class outside of the enumerated ranges for a period exceeding thirty

² The Strategic Investments asset class is an exception, purposefully established to potentially contain a variety of portfolios which may represent asset types and strategies not suitable for inclusion in other asset classes.
(30) consecutive business days shall be reported to the Board, together with a review of conditions causing the persistent deviation and a recommendation for subsequent investment action.

The asset allocation is established in concert with the investment objective, capital market expectations, projected actuarial liabilities, and resulting cash flows. Table 3 indicates estimated net cash flows (benefit payments less employer and employee contributions) and associated probabilities that are implicit in this policy statement, assuming the Legislature adheres to system funding provisions in current law. Additionally, the annualized income yield of the fund is projected to approximate 2% to 3%.

**Table 3: Estimated Net Cash Outflow (\$ millions/ % Fund)**

<table>
<thead>
<tr>
<th>Level</th>
<th>In 5 Years</th>
<th>In 10 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 5 Years</td>
<td></td>
<td>In 10 Years</td>
</tr>
<tr>
<td>10&lt;sup&gt;th&lt;/sup&gt; Percentile</td>
<td>$4,851</td>
<td>$3,497</td>
</tr>
<tr>
<td>25&lt;sup&gt;th&lt;/sup&gt; Percentile</td>
<td>$6,776</td>
<td>$6,329</td>
</tr>
<tr>
<td>Median</td>
<td>$7,466</td>
<td>$8,523</td>
</tr>
<tr>
<td>75&lt;sup&gt;th&lt;/sup&gt; Percentile</td>
<td>$8,079</td>
<td>$11,561</td>
</tr>
<tr>
<td>90&lt;sup&gt;th&lt;/sup&gt; Percentile</td>
<td>$10,690</td>
<td>$12,895</td>
</tr>
<tr>
<td>In 10 Years</td>
<td>$3,497</td>
<td>$3,14%</td>
</tr>
<tr>
<td>In 10 Years</td>
<td>$6,329</td>
<td>$4.03%</td>
</tr>
<tr>
<td>In 10 Years</td>
<td>$8,523</td>
<td>$4.60%</td>
</tr>
<tr>
<td>In 10 Years</td>
<td>$11,561</td>
<td>$5.22%</td>
</tr>
<tr>
<td>In 10 Years</td>
<td>$12,895</td>
<td>$6.27%</td>
</tr>
</tbody>
</table>
VII. PERFORMANCE MEASUREMENT

Asset class performance is measured in accordance with a broad market index appropriate to the asset class. The indices identified in Table 4 are used as the primary benchmarks for the authorized asset classes.

Table 4: Authorized Target Indices

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Equity</td>
<td>A custom version of the MSCI All Country World Investable Market Index (ACWI IMI), in dollar terms, net of withholding taxes on non-resident institutional investors, adjusted to reflect the provisions of the Protecting Florida’s Investments Act</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>The Barclays Capital U.S. Intermediate Aggregate Index</td>
</tr>
<tr>
<td>Real Estate</td>
<td>The core portion of the asset class is benchmarked to an average of the National Council of Real Estate Investment Fiduciaries (NCREIF) Fund Index – Open-ended Diversified Core Equity, NET of fees, weighted at 76.5%, and the non-core portion of the asset class is benchmarked to an average of the National Council of Real Estate Investment Fiduciaries (NCREIF) Fund Index – Open-ended Diversified Core Equity, NET of fees, weighted at 13.5%, plus a fixed return premium of 150 basis points per annum, and the FTSE EPRA/NAREIT Developed Index, in dollar terms, net of withholding taxes on non-resident institutional investors, weighted at 10%&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Private Equity</td>
<td>The MSCI All Country World Investable Market Index (ACWI IMI), in dollar terms, net of withholding taxes on non-resident institutional investors, adjusted to reflect the provisions of the Protecting Florida’s Investments Act, plus a fixed premium return of 300 basis points per annum</td>
</tr>
<tr>
<td>Strategic Investments</td>
<td>A weighted-average of individual portfolio level benchmark returns</td>
</tr>
<tr>
<td>Cash Equivalents</td>
<td>Bank of America Merrill Lynch 3-Month US Treasury Index</td>
</tr>
</tbody>
</table>

The return on the Target Portfolio shall be calculated as an average of the returns to the target indices indicated in Table 4 weighted by the target allocations indicated by Table 2, but adjusted for floating allocations. The policy allocations for the private market asset classes would all “float” against the
public market asset classes (i.e., limited short-term liquidity available for rebalancing and benefit payments means that their policy allocations would equal their actual allocations) as identified in Table 5.

**Table 5: Allocations of Private Market (Real Estate, Private Equity and Strategic Investments) Under and Overweights to Public Market (Global Equity, Fixed Income and Cash) Table 2**

<table>
<thead>
<tr>
<th>Public Market Asset Classes</th>
<th>Float Allocation Limit</th>
<th>Private Market Asset Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Real Estate</td>
<td>Private Equity</td>
</tr>
<tr>
<td>Global Equity</td>
<td>N/A</td>
<td>50%</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>N/A</td>
<td>50%</td>
</tr>
</tbody>
</table>

Measurement of asset allocation performance shall be made by comparing the actual asset allocation times the return for the appropriate indices to the target allocation times the index returns. For asset classes with floating allocations the basis of tactical measurement shall be the asset class’s actual share.

Performance measurement of the effectiveness of the implementation of the Private Equity asset class shall be based on an internal rate of return (IRR) methodology, applied over significant periods of time. Performance measurement of the effectiveness of the implementation of the Private Equity, Strategic Investments, and Cash Equivalents asset classes shall be assessed relative to both the applicable index in Table 4 and:

- For Private Equity, the joint Cambridge Associates Global Private Equity and Venture Capital Index pooled return at peer group weights.
- For Strategic Investments, the CPI, as reported by the U.S. Department of Labor, Bureau of Labor Statistics (Consumer Price Index – All Urban Consumers), plus 4.0%.
- For Cash Equivalents, the iMoneyNet First Tier Institutional Money Market Funds Net Index

**VIII. ASSET CLASS PORTFOLIO MANAGEMENT**

**General Asset Class and Portfolio Guidelines**

The Executive Director is responsible for developing asset class and individual portfolio policies and guidelines which reflect the goals and objectives of this Investment Policy Statement. In doing so, he is authorized to use all investment authority spelled out in Section 215.47, Florida Statutes, except as limited by this Plan or SBA Rules. The Executive Director shall develop guidelines for the selection and retention of portfolios, and shall manage all external contractual relationships in accordance with the fiduciary responsibilities of the Board.
All asset classes shall be invested to achieve or exceed the return on their respective benchmarks over a long period of time. To obtain appropriate compensation for associated performance risks:

- Public market asset classes shall be well diversified with respect to their benchmarks and have a reliance on low cost passive strategies scaled according to the degree of efficiency in underlying securities markets, capacity in effective active strategies, and ongoing total fund liquidity requirements.
- Private Equity, Real Estate and Strategic Investments asset classes shall utilize a prudent process to maximize long-term access to attractive risk-adjusted investment opportunities through use of business partners with appropriate:
  - Financial, operational and investment expertise and resources;
  - Alignment of interests;
  - Transparency and repeatability of investment process; and
  - Controls on leverage.

**Strategic Investments Guidelines**

The objective of the asset class is to proactively identify and utilize non-traditional and multi-asset class investments, on an opportunistic and strategic basis, in order to accomplish one or more of the following:

- Generate long-term incremental returns in excess of a 4.0% annualized real rate of return, commensurate with risk.
- Reduce the volatility of FRS Pension Plan assets and improve the FRS Pension Plan’s risk-adjusted return over multiple market cycles.
- Outperform the FRS Pension Plan during periods of significant market declines.
- Increase investment flexibility across market environments in order to access evolving or opportunistic investments outside of traditional asset classes and effective risk-adjusted portfolio management strategies.

Strategic Investments may include, but not be limited to, direct investments authorized by s. 215.47, Florida Statutes or investments in capital commitment partnerships, hedge funds or other vehicles that make or involve non-traditional, opportunistic and/or long or short investments in marketable and nonmarketable debt, equity, and/or real assets (e.g., real estate, infrastructure, or commodities). Leverage may be utilized subject to appropriate controls.

**Other Guidelines**

The Executive Director shall develop and implement policies as appropriate for the orderly and effective implementation of the provisions of Chapter 2007-88, Laws of Florida, the “Protecting
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The following formal periodic reports to the Board shall be the responsibility of the Executive Director:

- An annual report on the SBA and its investment portfolios, including that of the FRS.
- A monthly report on performance and investment actions taken.
- Special investment reports pursuant to Section 215.44-215.53, Florida Statutes.

X. IMPLEMENTATION SCHEDULE

This policy statement shall be effective July 1, 2018.
Pension Asset-Liability Study: Initial Results
Florida State Board of Administration
February 2018

Investment advice and consulting services provided by Aon Hewitt Investment Consulting, Inc., an Aon Company.
Table of Contents

- Executive Summary
- Overview
  - Asset-Liability Management Background
  - Asset-Liability Profile
- Analysis
  - Investment Analysis
  - Asset-Liability Projection Analysis
  - Public Pension Peer Comparison
- Summary & Conclusions
- Appendix
Executive Summary
Scope of Project

- Annual Asset-Liability Management (ALM) review and update
  - 30 year asset-liability projection analysis
  - Review stochastic risk/reward results
  - Review multiple portfolio strategies
Executive Summary

- We believe the current portfolio is well-constructed with 81% return-seeking assets.
- The equity risk premium is 3.62% in this 2018 A-L study, compared to 3.72% from 2017.
- Asset returns (6.44%) are not expected to keep pace with the actuarial assumed rate of return (7.50%).
- Expected real return of 4.06% falls short of the investment policy target of 4.50%.
  - The funded ratio is expected to remain relatively flat over the course of the projection period.
  - Higher return-seeking strategies result in a higher trajectory of projected funded ratio, with greater risk than the current portfolio; lower return-seeking portfolios do the opposite.
  - Longer time horizons are expected to reward higher levels of risk.
  - Adverse market experience could significantly impact the funded status of the Plan over the projection period, albeit with low likelihood.
Overview

- Asset-Liability Management Background
Asset-Liability Management Background

What is an Asset-Liability Study?

- Provides fiduciaries with an understanding of the dynamic relationship between plan assets and liabilities over time.

- Illustrates the impact of various asset allocation targets on required contributions and funded status under a range of different macro-economic scenarios.

- Identifies future trends in the financial health of the plan based on economic uncertainties that may not be evident from an actuarial valuation, which provides only a snapshot at a point in time.

- Helps determine the level of risk that is appropriate in the context of the Plan’s liabilities.

An asset-liability study provides the tools to align a plan’s risk taking with its liabilities.
Asset-Liability Management Background
Balance of Liabilities and Assets

+ New Benefit Accrual
+ Liability Return

Liabilities
$
- Benefit Payments

PENSION PLAN

+ Cash Contributions
+ Asset Return

Assets
$
- Benefit Payments
Asset and liability modeling integrated in single platform
- Integrates impact of key economic variables

Flexibility in modeling parameters and output to client preferences

Stochastic and deterministic modeling performed
Asset-Liability Management Background
Long-Term Economic Cost of Plan

Long-Term Economic Cost =

- Present Value of Plan Contributions +
- Present Value of Terminal Funding, adjusted by a utility factor

<table>
<thead>
<tr>
<th>Terminal Funding</th>
<th>Surplus</th>
<th>Shortfall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility Rationale</td>
<td>Declining value, or utility, from very high funded ratios</td>
<td>Increasing &quot;pain&quot; as unfunded amounts grow to high levels</td>
</tr>
<tr>
<td>Threshold</td>
<td>PVB / AL</td>
<td>(5 Yrs. of Benefit Payments) / AL</td>
</tr>
<tr>
<td>Utility Factor above/below threshold</td>
<td>50%</td>
<td>200%</td>
</tr>
</tbody>
</table>

Utility Factor Applied to Terminal Funding

- Reflects the plan's funded status at the end of the forecast period
- Surplus assets are valuable as they lower future contributions
- Unfunded liabilities are costs that will be recognized in future years

Main component of long-term economic cost
Does not reflect the plan's funded status at the end of the forecast period

Present Value of Plan Contributions
Present Value of Terminal Funding
Asset-Liability Management Background
Risk and Return in an Asset-Liability Context

Traditional:
- Return = Investment performance
- Risk = Annual volatility of investment gains and losses (e.g. weak/negative capital market returns)

Asset-Liability:
- Return = Potential cost reduction or funded status improvement under average economic conditions
- Risk = During the worst economic conditions, contributions need to increase or funded status declines (e.g., stocks decline, inflation/deflation shocks and/or interest rates decline)
Asset-Liability Management Background
Key Factors Affecting the Risk/Reward Trade-off

The key take-away from the A/L study is the allocation between equity ("return-seeking") vs. fixed income ("risk-reducing")

Major factors affecting the ultimate mix are:

- Time horizon (or amortization period of unfunded liability) to fund the liability: a longer time horizon supports more risk taking
- Characteristics of plan participants: a growing population of active participants supports more risk taking; a mature population with significant retirees might need a more conservative policy
- Funded status: a less funded plan can utilize additional returns from equity investments
- Nature of plan benefits: a pension with sensitivity to wage inflation growth can benefit from equities in the long-term; an increased need in liquidity due to significant benefit payments in the near future can have a more conservative policy
Asset-Liability Management Background

Glossary of Terms

- **AVA** = Actuarial Value of Assets (i.e., incorporates smoothing of gains and losses)
- **Asset Growth Rate or “Hurdle Rate”** – The required rate of growth of the assets (through both contributions and investment returns) to keep pace with the growth of the liability
- **Current Frontier** – uses SBA’s mix of asset classes within the Return-Seeking allocation, then dials the Return-Seeking allocation up and down from 0% to 100% to illustrate forecasted returns at various Return-Seeking / Safety Asset mixes
- **Economic Cost** – Present Value of forecasted future contributions + Funding Shortfall / (Surplus)
- **Liability Growth Rate** – the projected growth of the liability over the coming year as measurement by the sum of the Normal Cost (new benefit accruals) and Interest Cost (one year of discounting)
- **MVA** = Market Value of Assets (i.e., un-smoothed / economic reality)
- **Return-Seeking Assets (“R-S”)** – All non “Safety” assets
- **Safety Assets** – Assets where the primary function is risk control / downside mitigation.
- **Target Mix** – the allocation of assets between Return-Seeking Assets and Safety Assets
Overview

- Asset-Liability Profile
**Florida Retirement System (FRS)**

**Historical Information**

Key Takeaways:

- **Blue line** represents the actuarial liabilities over time
  - Adding to the increase in liability has been the decrease in the assumed investment return (light gray bar)

- **Green line** represents the actuarial value of plan assets over time
  - Assets reflect smoothing parameters to the actual return on assets (dark gray bar)

Sources: Public Plans Data (publicplansdata.org) as of July 2017
### Asset-Liability Profile as of July 1, 2017

#### Asset-Liability Snapshot as of 7/1/2017

<table>
<thead>
<tr>
<th>Metric ($, Billions)</th>
<th>Value</th>
<th>Fund %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Value of Assets</td>
<td>$154.1</td>
<td>86.3%</td>
</tr>
<tr>
<td>Actuarial Value of Assets</td>
<td>$150.6</td>
<td>84.3%</td>
</tr>
</tbody>
</table>

#### Liability Metrics

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuarial Liability (AL) - Funding</td>
<td>$178.6</td>
</tr>
</tbody>
</table>

1 Based on plan’s valuation interest rate of 7.50% from the 2017 actuarial valuation report (Funding)

#### Asset-Liability Growth Metrics

<table>
<thead>
<tr>
<th>Metric ($, Billions)</th>
<th>Value</th>
<th>% Liability</th>
<th>% Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL Interest Cost</td>
<td>$13.4</td>
<td>7.5%</td>
<td>8.7%</td>
</tr>
<tr>
<td>AL Normal Cost</td>
<td>$1.9</td>
<td>1.1%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Total Liability Hurdle Rate</td>
<td>$15.3</td>
<td>8.6%</td>
<td>9.9%</td>
</tr>
<tr>
<td>Expected Return on Assets</td>
<td>$9.9</td>
<td>5.6%</td>
<td>6.4%</td>
</tr>
<tr>
<td>ER + EE Contributions</td>
<td>$3.7</td>
<td>2.1%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Total Exp. Asset Growth</td>
<td>$13.6</td>
<td>7.7%</td>
<td>8.8%</td>
</tr>
<tr>
<td>Hurdle Rate Shortfall</td>
<td>$1.7</td>
<td>0.9%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Est. Benefit Payments</td>
<td>$9.8</td>
<td>5.5%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

1 Based on plan’s valuation interest rate of 7.50% from the 2017 actuarial valuation report (Funding)

#### Target Asset Allocation as of 7/1/2017

<table>
<thead>
<tr>
<th>Return-Seeking</th>
<th>Metric ($, Billions)</th>
<th>Value</th>
<th>Alloc %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Equity</td>
<td>$81.6</td>
<td>53%</td>
<td></td>
</tr>
<tr>
<td>Private Equity</td>
<td>$9.2</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Strategic</td>
<td>$18.5</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>Real Estate</td>
<td>$15.4</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$124.8</td>
<td>81%</td>
<td></td>
</tr>
</tbody>
</table>

2 Based on aggregated capital market assumptions as shown in appendix

<table>
<thead>
<tr>
<th>Risk-Reducing</th>
<th>Metric ($, Billions)</th>
<th>Value</th>
<th>Alloc %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash &amp; Short Duration Fixed Income</td>
<td>$1.5</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Intermediate Duration Fixed Income</td>
<td>$27.7</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$29.3</td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$154.1</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>
Analysis

- Investment Analysis
**Investment Analysis**

**SBA Approach: Equity Risk Premium**

Starting in 2016, the SBA averages the Global equity risk premiums from four consulting firms and then uses that average risk premium to scale AHIC’s expected returns for the “Risk Assets”

**2018 Average Global Equity Risk Premium = Average (Global Equity Return – U.S. Bond Return) = 3.62%**

<table>
<thead>
<tr>
<th></th>
<th>AHIC</th>
<th>Mercer</th>
<th>Wilshire</th>
<th>Callan</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2018 Assumptions (15-year geometric average expected returns)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Global Equity</td>
<td>7.10%</td>
<td>6.63%</td>
<td>6.45%</td>
<td>6.93%</td>
<td>6.78%</td>
</tr>
<tr>
<td>- Core U.S. Bonds</td>
<td>3.00%</td>
<td>3.10%</td>
<td>3.55%</td>
<td>3.00%</td>
<td>3.16%</td>
</tr>
<tr>
<td>- Global Equity Risk Premium</td>
<td>4.10%</td>
<td>3.53%</td>
<td>2.90%</td>
<td>3.93%</td>
<td>3.62%</td>
</tr>
<tr>
<td><strong>2017 Global Equity Risk Premium</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.75%</td>
<td>4.13%</td>
<td>3.05%</td>
<td>3.93%</td>
<td>3.72%</td>
</tr>
<tr>
<td><strong>Change 2018 vs. 2017</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.35%</td>
<td>-0.60%</td>
<td>-0.15%</td>
<td>0.00%</td>
<td>-0.10%</td>
</tr>
<tr>
<td><strong>Prior Years:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 2016 (based on Global ERP)</td>
<td>3.70%</td>
<td>4.40%</td>
<td>3.20%</td>
<td>4.45%</td>
<td>3.94%</td>
</tr>
<tr>
<td>- 2015 (based on U.S. ERP)</td>
<td>3.62%</td>
<td>3.00%</td>
<td>2.90%</td>
<td>4.60%</td>
<td>3.53%</td>
</tr>
<tr>
<td>- 2013 (based on U.S. ERP)</td>
<td>5.10%</td>
<td>4.30%</td>
<td>4.50%</td>
<td>5.15%</td>
<td>4.76%</td>
</tr>
<tr>
<td>- 2012 (based on U.S. ERP)</td>
<td>4.50%</td>
<td>3.80%</td>
<td>4.65%</td>
<td>4.50%</td>
<td>4.36%</td>
</tr>
</tbody>
</table>

1 Equity Risk Premium is defined as the excess return earned over bonds that compensates investors for taking on higher risk.
Key Takeaways:
- The current portfolio is well-diversified
  - Return-seeking assets are broadly diversified
  - Safety asset allocation should withstand stressed markets

<table>
<thead>
<tr>
<th>Expected Nominal Return</th>
<th>Expected Nominal Volatility</th>
<th>Sharpe Ratio</th>
<th>Return-Seeking</th>
<th>Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6.44%</td>
<td>12.52%</td>
<td>0.323</td>
<td></td>
</tr>
<tr>
<td>Current Policy (81% R-S)</td>
<td></td>
<td></td>
<td>Global Equity</td>
<td>Cash &amp; Short Duration Bonds</td>
</tr>
<tr>
<td>0% Return-Seeking</td>
<td>3.06%</td>
<td>4.02%</td>
<td>0.165</td>
<td>1%</td>
</tr>
<tr>
<td>10% Return-Seeking</td>
<td>3.56%</td>
<td>3.98%</td>
<td>0.292</td>
<td>9%</td>
</tr>
<tr>
<td>20% Return-Seeking</td>
<td>4.04%</td>
<td>4.53%</td>
<td>0.362</td>
<td>0%</td>
</tr>
<tr>
<td>30% Return-Seeking</td>
<td>4.49%</td>
<td>5.49%</td>
<td>0.381</td>
<td>0%</td>
</tr>
<tr>
<td>40% Return-Seeking</td>
<td>4.92%</td>
<td>6.69%</td>
<td>0.377</td>
<td>0%</td>
</tr>
<tr>
<td>50% Return-Seeking</td>
<td>5.33%</td>
<td>8.02%</td>
<td>0.365</td>
<td>0%</td>
</tr>
<tr>
<td>60% Return-Seeking</td>
<td>5.71%</td>
<td>9.43%</td>
<td>0.351</td>
<td>0%</td>
</tr>
<tr>
<td>70% Return-Seeking</td>
<td>6.07%</td>
<td>10.89%</td>
<td>0.337</td>
<td>0%</td>
</tr>
<tr>
<td>80% Return-Seeking</td>
<td>6.42%</td>
<td>12.37%</td>
<td>0.325</td>
<td>0%</td>
</tr>
<tr>
<td>90% Return-Seeking</td>
<td>6.74%</td>
<td>13.88%</td>
<td>0.312</td>
<td>0%</td>
</tr>
<tr>
<td>100% Return-Seeking</td>
<td>7.04%</td>
<td>15.40%</td>
<td>0.301</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Real Estate</td>
<td>Interm. Duration Gov't Bonds</td>
</tr>
<tr>
<td></td>
<td>53%</td>
<td>10%</td>
<td>12%</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td>7%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>13%</td>
<td>2%</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>20%</td>
<td>4%</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>26%</td>
<td>5%</td>
<td>6%</td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td>33%</td>
<td>6%</td>
<td>7%</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td>39%</td>
<td>7%</td>
<td>9%</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td>46%</td>
<td>9%</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>52%</td>
<td>10%</td>
<td>12%</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td>59%</td>
<td>11%</td>
<td>13%</td>
<td>7%</td>
</tr>
<tr>
<td></td>
<td>65%</td>
<td>12%</td>
<td>15%</td>
<td>7%</td>
</tr>
</tbody>
</table>
**Investment Analysis**

**Range of Nominal Returns**

Note: Returns based on AHIC's 30 Year Capital Market Assumptions as of December 31, 2017

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5th</td>
<td>-2.30%</td>
<td>0.19%</td>
<td>1.31%</td>
<td>2.78%</td>
</tr>
<tr>
<td>25th</td>
<td>2.77%</td>
<td>3.83%</td>
<td>4.30%</td>
<td>4.93%</td>
</tr>
<tr>
<td>50th</td>
<td>6.44%</td>
<td>6.44%</td>
<td>6.44%</td>
<td>6.44%</td>
</tr>
<tr>
<td>75th</td>
<td>10.25%</td>
<td>9.12%</td>
<td>8.62%</td>
<td>7.98%</td>
</tr>
<tr>
<td>95th</td>
<td>15.96%</td>
<td>13.09%</td>
<td>11.84%</td>
<td>10.23%</td>
</tr>
</tbody>
</table>

*Actuarial assumed rate of return (7.50%)*

---

Investment advice and consulting services provided by Aon Hewitt Investment Consulting, Inc., an Aon Company.
Investment Analysis
Range of Real Returns

Note: Returns based on AHIC’s 30 Year Capital Market Assumptions as of December 31, 2017
Analysis

- Asset-Liability Projection Analysis
Asset-Liability Projection Analysis
Employer Contribution Rate (Defined Benefit Plan Only)

Key Takeaways:
- Employer contribution rate is expected to increase from 10% to 16% over the next two decades
- Higher return-seeking allocations will reduce the expected (50th percentile) outcome but with a wider range of outcomes
- 95th percentile results show potential contribution rates in excess of 30% over the next two decades, albeit with low likelihoods

<table>
<thead>
<tr>
<th>Strategy</th>
<th>70% Return-Seeking</th>
<th>Current Policy (81% R-S)</th>
<th>90% Return-Seeking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2026 2036 2046</td>
<td>2026 2036 2046</td>
<td>2026 2036 2046</td>
</tr>
<tr>
<td>5th Percentile</td>
<td>4% 2% 0%</td>
<td>4% 2% 0%</td>
<td>4% 2% 0%</td>
</tr>
<tr>
<td>25th Percentile</td>
<td>8% 5% 4%</td>
<td>6% 5% 4%</td>
<td>5% 5% 4%</td>
</tr>
<tr>
<td>50th Percentile</td>
<td>13% 18% 15%</td>
<td>12% 16% 13%</td>
<td>12% 15% 13%</td>
</tr>
<tr>
<td>75th Percentile</td>
<td>16% 26% 23%</td>
<td>18% 25% 23%</td>
<td>19% 25% 23%</td>
</tr>
<tr>
<td>95th Percentile</td>
<td>24% 33% 31%</td>
<td>26% 33% 31%</td>
<td>26% 34% 31%</td>
</tr>
<tr>
<td>Probability &gt; 10%</td>
<td>64% 66% 62%</td>
<td>59% 64% 58%</td>
<td>57% 62% 50%</td>
</tr>
</tbody>
</table>

* Projections assume constant 7.50% discount rate for pension liabilities for all investment policies studied
Asset-Liability Projection Analysis
Market Value of Assets / Actuarial Liability Funded Ratio

Key Takeaways:

- The funded ratio is expected to remain relatively flat over the course of the projection period under the current portfolio.
- Higher return-seeking allocations will increase the trajectory of funded ratio, albeit with greater downside risk.
- Downside risk (5th percentile outcomes) illustrates a small likelihood of significant funded ratio deterioration over the projection period.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>70% Return-Seeking</th>
<th>Current Policy (81% R-S)</th>
<th>90% Return-Seeking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>2027</td>
<td>2037</td>
<td>2047</td>
</tr>
<tr>
<td>5th Percentile</td>
<td>39%</td>
<td>30%</td>
<td>23%</td>
</tr>
<tr>
<td>25th Percentile</td>
<td>58%</td>
<td>48%</td>
<td>42%</td>
</tr>
<tr>
<td>50th Percentile</td>
<td>76%</td>
<td>71%</td>
<td>69%</td>
</tr>
<tr>
<td>75th Percentile</td>
<td>100%</td>
<td>111%</td>
<td>143%</td>
</tr>
<tr>
<td>95th Percentile</td>
<td>142%</td>
<td>256%</td>
<td>605%</td>
</tr>
<tr>
<td>Probability &gt; 100%</td>
<td>25%</td>
<td>32%</td>
<td>40%</td>
</tr>
</tbody>
</table>

* Projections assume constant 7.50% discount rate for pension liabilities for all investment policies studied.
Asset-Liability Projection Analysis

Net Outflow Analysis: (Benefit Payments less Contributions) / Market Value of Assets

Key Takeaways:

- Net outflows are expected to remain in the 4-6% range over the projection period.
- Net outflows of 10%+ can put stress on fund liquidity over time – this is a possible but unlikely event.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>70% Return-Seeking</th>
<th>Current Policy (81% R-S)</th>
<th>90% Return-Seeking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>2026</td>
<td>2036</td>
<td>2046</td>
</tr>
<tr>
<td>5th Percentile</td>
<td>3%</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>25th Percentile</td>
<td>4%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>50th Percentile</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>75th Percentile</td>
<td>5%</td>
<td>6%</td>
<td>7%</td>
</tr>
<tr>
<td>95th Percentile</td>
<td>6%</td>
<td>8%</td>
<td>10%</td>
</tr>
<tr>
<td>Probability &gt; 4%</td>
<td>81%</td>
<td>67%</td>
<td>67%</td>
</tr>
</tbody>
</table>

* Projections assume constant 7.50% discount rate for pension liabilities for all investment policies studied.
Asset-Liability Projection Analysis
Economic Cost Analysis over a 1, 5, 10, 15, and 30-Year Horizon

Key Takeaways:
- Short time horizons (1, 5 year) show largely horizontal economic cost curves – i.e., added risk does not result in a significant expected reward/economic cost reduction
- Longer time horizons (15, 30 year) show largely vertical economic cost curves – i.e., added risk does result in a significant expected reward/economic cost reduction

* Projections assume constant 7.50% discount rate for pension liabilities for all investment policies studied
Note: Excludes 50% of surplus in excess of 110% of Actuarial liability, and includes twice the shortfall below 40% of Actuarial liability, on a market value basis
Sensitivity to Equity Risk Premium Assumption

**Observation:**
- The dashed lines illustrate how the Economic Cost curve shifts under alternative equity risk premium assumptions over a 5 and 15-year time horizon.

* Projections assume constant 7.50% discount rate for pension liabilities for all investment policies studied.

Note: Excludes 50% of surplus in excess of 110% of Actuarial liability, and includes twice the shortfall below 40% of Actuarial liability, on a market value basis.
Short-Term Funded Ratio Shortfall Analysis
(Based on Market Value of Assets)

FRS’ funded ratio based on the current allocation projects to the following outcomes after 5 years:

- 29.6% probability of being below 70% funded
- 15.8% probability of being below 60% funded
- 6.0% probability of being below 50% funded

**70% Funded Status**
- Asset allocations with a return-seeking allocation of 70% or greater have a similar likelihood of falling below 70% funded

**50% Funded Status**
- Dialing up the risk to 90% return-seeking assets will increase this probability of falling below 50% funded to 7.3%
- Dialing down risk to 70% return-seeking assets will decrease the probability to 4.4%
Analysis

- Public Pension Peer Comparison
# Public Pension Peer Comparison
## FRS’ Asset Allocation versus Public Peers

<table>
<thead>
<tr>
<th>Asset Allocation</th>
<th>FRS</th>
<th>Large Public Pension Plans (&gt;$5B)*</th>
<th>Total Public Pension Universe*</th>
<th>Wilshire Report on State Retirement Systems **</th>
<th>AHIC Public Peer Average ***</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equity Exposure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global Equity</td>
<td>53.0%</td>
<td>8.2%</td>
<td>7.9%</td>
<td></td>
<td>45.5%</td>
</tr>
<tr>
<td>Total U.S. Equity</td>
<td>0.0%</td>
<td>21.7%</td>
<td>22.1%</td>
<td></td>
<td>27.3%</td>
</tr>
<tr>
<td>Total Int'l Equity</td>
<td>6.0%</td>
<td>16.1%</td>
<td>16.2%</td>
<td></td>
<td>20.1%</td>
</tr>
<tr>
<td>Private Markets</td>
<td>6.0%</td>
<td>9.4%</td>
<td>9.0%</td>
<td></td>
<td>10.0%</td>
</tr>
<tr>
<td><strong>Total Equity</strong></td>
<td>59.0%</td>
<td>55.4%</td>
<td>55.2%</td>
<td></td>
<td>57.4%</td>
</tr>
<tr>
<td><strong>Fixed Income Exposure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Fixed Income</td>
<td>18.0%</td>
<td>21.4%</td>
<td>21.4%</td>
<td></td>
<td>21.1%</td>
</tr>
<tr>
<td>High Yield Bonds / Bank Loans</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-US Developed Bonds</td>
<td>0.0%</td>
<td>3.5%</td>
<td>3.5%</td>
<td></td>
<td>2.3%</td>
</tr>
<tr>
<td>Emerging Market Debt</td>
<td>0.0%</td>
<td>1.3%</td>
<td>1.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation Protected</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Fixed Income</strong></td>
<td>18.0%</td>
<td>26.2%</td>
<td>26.1%</td>
<td></td>
<td>23.4%</td>
</tr>
<tr>
<td><strong>Real Asset Exposure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US Infrastructure (Public + Private)</td>
<td>0.0%</td>
<td>0.4%</td>
<td>0.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commodities / Gold</td>
<td>0.0%</td>
<td>0.9%</td>
<td>1.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Real Estate</td>
<td>10.0%</td>
<td>9.0%</td>
<td>9.0%</td>
<td></td>
<td>8.1%</td>
</tr>
<tr>
<td><strong>Total Real Assets</strong></td>
<td>10.0%</td>
<td>10.3%</td>
<td>10.4%</td>
<td></td>
<td>12.9%</td>
</tr>
<tr>
<td>Hedge Funds / Opportunistic</td>
<td>12.0%</td>
<td>4.1%</td>
<td>4.2%</td>
<td></td>
<td>5.8%</td>
</tr>
<tr>
<td>Multi-Asset / Risk Parity</td>
<td>0.0%</td>
<td>0.7%</td>
<td>1.0%</td>
<td></td>
<td>2.3%</td>
</tr>
<tr>
<td>Money Market / Cash</td>
<td>1.0%</td>
<td>1.1%</td>
<td>1.1%</td>
<td></td>
<td>0.4%</td>
</tr>
<tr>
<td>Leverage</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>0.0%</td>
<td>2.0%</td>
<td>2.1%</td>
<td></td>
<td>11.1%</td>
</tr>
<tr>
<td><strong>Net Other</strong></td>
<td>13.0%</td>
<td>7.9%</td>
<td>8.4%</td>
<td></td>
<td>11.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>


*** Source: AHIC Public Peer Average is based on a universe of AHIC's 11 largest public pension plans with total assets ranging from $14B-$142B
Florida Retirement System (FRS) Expected Return Assumption versus Peers

Key Takeaways:
- Median actuarial assumption for investment return has declined from 8.00% in 2001-2010 to 7.50% based on the latest survey data.
- FRS’ assumption for FYE 2016 (7.60%) lied above the median relative to its peers.
- If FRS fails to achieve the actuarial return assumption, higher funding will be needed in future years.

Distribution of U.S. Public Pension Investment Return Assumptions

Sources: Public Plans Data (publicplansdata.org) as of July 2017; Expected Returns are the assumptions made by the plans included in the data set.

1 Peers defined as public funds published within publicplansdata.org as of July 2017; Number of plans per year are shown in parentheses.
Florida Retirement System (FRS)
Demographic Data versus Peers

Key Takeaways:
- The median ratio of actives to beneficiaries has declined from 2.2 at FYE 2001 to 1.3 at FYE 2016.
- Over that same time frame, FRS’ active to beneficiary ratio has declined from 2.9 to 1.2

Sources: Public Plans Data (publicplansdata.org) as of July 2017;
1 Peers defined as public funds published within publicplansdata.org as of July 2017; Number of plans per year are shown in parentheses
Florida Retirement System (FRS)
Funded Ratio (Based on Actuarial Value of Assets) versus Peers

Key Takeaways:
- The median funded ratio as of FYE 2016 was 74% based on the latest survey data
- FRS' FYE 2016 funded ratio (85%) lied above the 75th percentile relative to its peers

Sources: Public Plans Data (publicplansdata.org) as of July 2017;
1 Peers defined as public funds published within publicplansdata.org as of July 2017; Number of plans per year are shown in parentheses
Florida Retirement System (FRS)
Percentage of Actuarial Contribution Made versus Peers

Key Takeaway:
- Median contributions of plans within the data, as a percentage of the actuarial amount, have been approximately 100% since FYE 2001

Sources: Public Plans Data (publicplansdata.org) as of July 2017
1 Peers defined as public funds published within publicplansdata.org as of July 2017; Number of plans per year are shown in parentheses
Summary & Conclusions
Summary of Results

Key Observations:

- The funded ratio is expected to remain relatively flat over the projection period via the current policy.
- Employer contribution rate is expected to grow over the near-term before eventually declining.
- Adjusting the return-seeking vs. risk-reducing allocation will exhibit standard risk/reward trade-off of expected costs and risks – longer time horizons will incent higher allocations to return-seeking assets.

<table>
<thead>
<tr>
<th>All Scenarios</th>
<th>30-year Present Value of Contributions (ER + EE)</th>
<th>30-year Ending Funded Ratio (MVA / AL)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Expected&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Downside&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Current Policy (81% RS)</td>
<td>$66.6</td>
<td>$115.9</td>
</tr>
<tr>
<td>0% Return-Seeking</td>
<td>$98.7</td>
<td>$106.6</td>
</tr>
<tr>
<td>10% Return-Seeking</td>
<td>$94.6</td>
<td>$104.7</td>
</tr>
<tr>
<td>20% Return-Seeking</td>
<td>$90.4</td>
<td>$104.6</td>
</tr>
<tr>
<td>30% Return-Seeking</td>
<td>$86.2</td>
<td>$105.8</td>
</tr>
<tr>
<td>40% Return-Seeking</td>
<td>$82.2</td>
<td>$107.4</td>
</tr>
<tr>
<td>50% Return-Seeking</td>
<td>$78.4</td>
<td>$109.4</td>
</tr>
<tr>
<td>60% Return-Seeking</td>
<td>$74.6</td>
<td>$111.4</td>
</tr>
<tr>
<td>70% Return-Seeking</td>
<td>$70.7</td>
<td>$113.5</td>
</tr>
<tr>
<td>80% Return-Seeking</td>
<td>$67.0</td>
<td>$115.6</td>
</tr>
<tr>
<td>90% Return-Seeking</td>
<td>$63.4</td>
<td>$117.9</td>
</tr>
<tr>
<td>100% Return-Seeking</td>
<td>$60.1</td>
<td>$120.6</td>
</tr>
</tbody>
</table>

1 Expected = 50<sup>th</sup> percentile outcome or central expectation across all 5,000 simulations
2 Downside = 95<sup>th</sup> percentile outcome across all 5,000 simulations
3 Downside = 5<sup>th</sup> percentile outcome across all 5,000 simulations

Investment advice and consulting services provided by Aon Hewitt Investment Consulting, Inc., an Aon Company.
Summary and Conclusions

Investment Analysis
- We believe the current portfolio is well-constructed with 81% return-seeking assets.
- The equity risk premium is 3.62% in this 2018 A-L study, compared to 3.72% from 2017.
- Asset returns (6.44%) are not expected to keep pace with the actuarial assumed rate of return (7.50%).
- Expected real return of 4.06% falls short of the investment policy target of 4.50%.

Asset-Liability Projection Analysis
- The funded ratio is expected to remain relatively flat over the course of the projection period.
- Higher return-seeking strategies result in a higher trajectory of projected funded ratio, with greater risk than the current portfolio; lower return-seeking portfolios do the opposite.
- Longer time horizons are expected to reward higher levels of risk.
- Adverse market experience could significantly impact the funded status of the Plan over the projection period, albeit with low likelihood.
Appendix

- Additional Detail
# Asset-Liability Management Background

## Key Risks for Public Pension Plans

<table>
<thead>
<tr>
<th>Types of Risk</th>
<th>Time Horizon</th>
<th>Risk Management Tools and Controls</th>
</tr>
</thead>
</table>
| Return Shortfall    | Long-Term (10+ years) | - Funding policy  
                      - Plan design  
                      - Investment policy  
                      - Assumptions & methods |
| Liquidity           | Short- to Medium-Term (<5 years) | - Funding policy  
                      - Benefit accruals  
                      - Use of illiquid investments  
                      - Scenario analysis  
                      - Monitoring |
| Investment          | Short-to Medium-Term (<5 years) | - Investment policy statement  
                      - Static/dynamic  
                      - Asset allocation  
                      - Rebalancing  
                      - Manager guidelines  
                      - Monitoring/roles & responsibilities  
                      - Risk budgeting  
                      - Monitoring / dashboards  
                      - Medium term views  
                      - Regression and scenario analysis |
Asset-Liability Management Background
Overview of the Asset-Liability Study Process

Planning Discussions
- Planning
  - Objectives of the Study
  - Modeling and Liability Assumptions
- Risk Tolerance
  - Risk Preference
  - Demographics
  - Funded Status
  - Business/Financial
  - Industry Practices

Asset-Liability Projections
- Asset Modeling
  - Capital Market Analysis
  - Efficient Frontier Analysis
  - Portfolios for Study
- Liability Analysis
  - Cost Projections
  - Funded Status
  - Sensitivity Analysis

Desired Outcomes:
- Understand the pension risk
- Identify optimal investment strategy

Implementation
Monitoring & Execution
Asset-Liability Management Background
Modeling Process

Goals of an asset-liability study:
- Understand the pension plan’s asset-liability risk, and
- Identify the optimal investment strategies

Stochastic, Monte Carlo simulation analysis used
- 5,000 independent economic trials
- Building block approach
  - Starts with inflation and interest rates
  - Using a multi-factor regression analysis, other asset classes are then modeled
- Assets and liabilities are modeled over the projection period
  - Projections include contribution requirements and funded ratios

Asset-liability studies are best-suited to determine the optimal mix of return-seeking (e.g., equity) and fixed income assets for the pension fund
- Asset mix is the single most important investment decision for the plan sponsor
  - Is it worthwhile to have a more aggressive allocation in order to reduce long term cost in exchange for risk of higher costs in a bad outcome?
  - Is it worthwhile to have a more conservative allocation in order to have a more predictable cost in exchange for potentially higher average costs?
Asset-Liability Management Background
Utility Factor For Terminal Funded Status

Modest deviations from 100% funding are normal, and no special adjustment is needed for these scenarios – the amount of surplus or unfunded liability can be reflected at its dollar value.

As surplus amounts grow to very high levels, there is a declining value, or utility, to the surplus:
- Contributions cannot go below zero
- Long contribution holidays may create a false sense of how much the plan really costs, and lead to confusion when cost levels revert to “normal”
- Large surplus amounts can become a potential target for non-pension applications

As unfunded amounts grow to very high levels, there is an increasing amount of “pain” as contributions rise to unacceptable levels:
- May be viewed as “breaking trust” with future taxpayers
- Freezing of the pension plan becomes a possibility
Florida Retirement System (FRS)
Magnitude of Expected Return on Assets Assumption Changes versus Peers

Key Takeaway:
- The median change in investment return assumption, for those plans that made a change, has consistently been a reduction in the 25bps range in recent years.
Appendix

- Assumptions & Methods
<table>
<thead>
<tr>
<th>Equity</th>
<th>Expected Real Return</th>
<th>Expected Nominal Return</th>
<th>Expected Nominal Volatility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Equity IMI</td>
<td>4.3%</td>
<td>6.7%</td>
<td>19.0%</td>
</tr>
<tr>
<td>Fixed Income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash (Gov't)</td>
<td>0.1%</td>
<td>2.4%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Intermediate Gov't Bonds (4-Year Duration)</td>
<td>0.3%</td>
<td>2.6%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Intermediate Corporate Bonds (4-Year Duration)</td>
<td>1.2%</td>
<td>3.5%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Alternatives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategic Allocation (Custom)¹</td>
<td>5.0%</td>
<td>7.4%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Real Estate (Custom)²</td>
<td>3.0%</td>
<td>5.4%</td>
<td>11.5%</td>
</tr>
<tr>
<td>Private Equity</td>
<td>5.6%</td>
<td>8.0%</td>
<td>24.5%</td>
</tr>
<tr>
<td>Inflation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation</td>
<td>0.0%</td>
<td>2.3%</td>
<td>1.5%</td>
</tr>
</tbody>
</table>

¹ Expected return assumptions are based upon the AHIC capital market assumptions adjusted for the delta in Global Equity Risk Premium (ERP) among four investment advisors: Mercer, Wilshire, Callan, and AHIC
² Strategic assumption breakdown is found on the next page
³ Real Estate assumption was modeled as follows:
   - 76.50% Core Real Estate
   - 13.50% Non-Core Real Estate
   - 10.00% REITS
The Strategic Investment allocation was modeled as follows:

<table>
<thead>
<tr>
<th>Capital Market Assumption</th>
<th>% of Total Asset Allocation</th>
<th>% of Strategic Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commodities</td>
<td>0.4%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Global Public Equities</td>
<td>0.8%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Hedge Funds - CTAs (Buy List)</td>
<td>1.1%</td>
<td>9.2%</td>
</tr>
<tr>
<td>Hedge Funds - Direct Buy List (Diversified Portfolio of Direct HF)</td>
<td>2.6%</td>
<td>21.7%</td>
</tr>
<tr>
<td>Hedge Funds - Distressed Debt (Buy List)</td>
<td>0.5%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Hedge Funds - Equity Long/Short (Buy List)</td>
<td>0.5%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Hedge Funds - Event Driven (Buy List)</td>
<td>0.4%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Hedge Funds - Global Macro (Buy List)</td>
<td>0.8%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>0.6%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Insurance-Linked Securities (Catastrophe Bonds)</td>
<td>0.2%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Non-Core Real Estate</td>
<td>0.5%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Private Debt - Commercial Mortgages</td>
<td>0.5%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Private Debt - Direct Lending</td>
<td>0.6%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Private Equity - Distressed Debt</td>
<td>1.4%</td>
<td>11.7%</td>
</tr>
<tr>
<td>Private Equity - Mezzanine</td>
<td>0.6%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Timberland</td>
<td>0.5%</td>
<td>4.2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12.0%</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>
## AHIC Capital Market Assumptions—Q1 2018

### Nominal Correlations

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Equity IMI</td>
<td>1.00</td>
<td>0.07</td>
<td>-0.06</td>
<td>0.07</td>
<td>0.82</td>
<td>0.45</td>
<td>0.67</td>
<td>0.07</td>
</tr>
<tr>
<td>Cash (Gov't)</td>
<td>0.07</td>
<td>1.00</td>
<td>0.61</td>
<td>0.48</td>
<td>0.12</td>
<td>0.16</td>
<td>0.09</td>
<td>0.55</td>
</tr>
<tr>
<td>Intermediate Gov't Bonds (4-Year Duration)</td>
<td>-0.06</td>
<td>0.61</td>
<td>1.00</td>
<td>0.78</td>
<td>-0.06</td>
<td>0.04</td>
<td>-0.04</td>
<td>0.27</td>
</tr>
<tr>
<td>Intermediate Corporate Bonds (4-Year Duration)</td>
<td>0.07</td>
<td>0.48</td>
<td>0.78</td>
<td>1.00</td>
<td>0.24</td>
<td>0.10</td>
<td>0.07</td>
<td>0.21</td>
</tr>
<tr>
<td>Strategic Allocation (Custom)</td>
<td>0.82</td>
<td>0.12</td>
<td>-0.06</td>
<td>0.24</td>
<td>1.00</td>
<td>0.44</td>
<td>0.56</td>
<td>0.14</td>
</tr>
<tr>
<td>Real Estate (Custom)</td>
<td>0.45</td>
<td>0.16</td>
<td>0.04</td>
<td>0.10</td>
<td>0.44</td>
<td>1.00</td>
<td>0.37</td>
<td>0.10</td>
</tr>
<tr>
<td>Private Equity</td>
<td>0.67</td>
<td>0.09</td>
<td>-0.04</td>
<td>0.07</td>
<td>0.56</td>
<td>0.37</td>
<td>1.00</td>
<td>0.06</td>
</tr>
<tr>
<td>Inflation</td>
<td>0.07</td>
<td>0.55</td>
<td>0.27</td>
<td>0.21</td>
<td>0.14</td>
<td>0.10</td>
<td>0.06</td>
<td>1.00</td>
</tr>
</tbody>
</table>
AHIC Capital Market Assumptions
Explanation of Capital Market Assumptions—Q1 2018 (30 Years)

The following capital market assumptions were developed by Aon's Global Asset Allocation Team and represent the long-term capital market outlook (i.e., 30 years) based on data at the end of the fourth quarter of 2017. The assumptions were developed using a building block approach, reflecting observable inflation and interest rate information available in the fixed income markets as well as Consensus Economics forecasts. Our long-term assumptions for other asset classes are based on historical results, current market characteristics, and our professional judgment.

Inflation – Expected Level (2.3%)
Based on Consensus Economics long-term estimates and our near-term economic outlook, we expect U.S. consumer price inflation to be approximately 2.3% during the next 30 years.

Real Returns for Asset Classes

Fixed Income
- Cash (0.1%) – Over the long run, we expect the real yield on cash and money market instruments to produce a real return of 0.1% in a moderate- to low-inflationary environment.
- TIPS (0.9%) – We expect intermediate duration Treasury Inflation-Protected Securities to produce a real return of about 0.9%.
- Core Fixed Income (i.e., Market Duration) (0.9%) – We expect intermediate duration Treasuries to produce a real return of about 0.3%. We estimate the fair value credit spread (credit risk premium - expected losses from defaults and downgrades) to be 0.6%, resulting in a long-term real return of 0.9%.
- Long Duration Bonds – Government and Credit (1.1%) – We expect Treasuries with a duration comparable to the Long Government Credit Index to produce a real return of 0.6%. We estimate the fair value credit spread (credit risk premium - expected losses from defaults and downgrades) to be 0.5%, resulting in an expected real return of 1.1%.
AHIC Capital Market Assumptions
Explanation of Capital Market Assumptions—Q1 2018 (30 Years)

- **Long Duration Bonds – Credit (1.5%)** – We expect Treasuries with a duration comparable to the Long Credit Index to produce a real return of 0.6%. We estimate the fair value credit spread (credit risk premium - expected losses from defaults and downgrades) to be 0.9%, resulting in an expected real return of 1.5%.

- **Long Duration Bonds – Government (0.6%)** – We expect Treasuries with a duration of ~12 years to produce a real return of 0.6% during the next 30 years.

- **High Yield Bonds (2.4%)** – We expect intermediate duration Treasuries to produce a real return of about 0.3%. We estimate the fair value credit spread (credit risk premium - expected losses from defaults and downgrades) to be 2.1%, resulting in an expected real return of 2.4%.

- **Bank Loans (3.2%)** – We expect LIBOR to produce a real return of about 0.5%. We estimate the fair value credit spread (credit risk premium - expected losses from defaults) to be 2.7%, resulting in an expected real return of 3.2%.

- **Non-US Developed Bonds: 50% Hedged (0.5%)** – We forecast real returns for non-US developed market bonds to be 0.5% over a 30-year period after adjusting for a 50% currency hedge. We assume a blend of one-third investment grade corporate bonds and two-thirds government bonds. We also produce assumptions for 0% hedged and 100% hedged non-US developed bonds.

- **Emerging Market Bonds (Sovereign; USD) (2.2%)** – We forecast real returns for emerging market sovereign bonds denominated in USD to be 2.2% over a 30-year period.

- **Emerging Market Bonds (Corporate; USD) (2.1%)** – We forecast real returns for emerging market corporate bonds denominated in USD to be 2.1% over a 30-year period.

- **Emerging Market Bonds (Sovereign; Local) (3.5%)** – We forecast real returns for emerging market sovereign bond denominated in local currency to be 3.5% over a 30-year period.
AHIC Capital Market Assumptions
Explanation of Capital Market Assumptions—Q1 2018 (30 Years)

- **Multi Asset Credit (MAC) (3.8%)** – We assume real returns from beta exposure to high yield, bank loans and emerging market debt to add 2.8% plus 1.0% from alpha (net of fees) over a 30-year period.

**Equities**

- **Large Cap U.S. Equity (3.9%)** – This assumption is based on our 30-year outlook for large cap U.S. company dividends and real earnings growth. Adjustments are made for valuations as needed.

- **Small Cap U.S. Equity (4.4%)** – Adding a 0.5% return premium for small cap U.S. equity over large cap U.S. equity results in an expected real return of 4.4%. This return premium is theoretically justified by the higher risk inherent in small cap U.S. equity versus large cap U.S. equity, and is also justified by historical data. In recent years, higher small cap valuations relative large cap equity has reduced the small cap premium.

- **Global Equity (Developed & Emerging Markets) (4.8%)** – We employ a building block process similar to the U.S. equity model using the developed and emerging markets that comprise the MSCI All-Country World Index. Our roll-up model produces an expected real return of 4.8% for global equity.

- **International (Non-U.S.) Equity, Developed Markets (4.7%)** – We employ a building block process similar to the U.S. equity model using the non-U.S. developed equity markets that comprise the MSCI EAFE Index.

- **Emerging Market Stocks (5.2%)** - We employ a building block process similar to the U.S. equity model using the non-U.S. emerging equity markets that comprise the MSCI Emerging Markets Index.

- **Equity Risk Insurance Premium Strategies- High Beta (3.7%)** – We expect nominal returns from insurance equity risk premium to average 4.1% plus 2.0% from cash & dividends over the next 30 years.
Alternative Asset Classes

- **Hedge Fund-of-Funds Universe (1.7%)** – The generic category “hedge funds” encompasses a wide range of strategies accessed through “fund-of-funds” vehicles. We also assume the **median** manager is selected and also allow for the additional costs associated with Fund-of-Funds management. A top-tier portfolio of funds (hedge fund-of-funds buy-list) could add an additional 1.1% in return at similar volatility based on alpha, lower fees and better risk management.

- **Hedge Fund-of-Funds Buy List (2.9%)** – The generic category of top-tier “hedge funds” encompasses a wide range of strategies accessed through “fund-of-funds” vehicles. We assume additional costs associated with Funds-of-Funds management. To use this category the funds must be buy rated or we advise on manager selection.

- **Broad Hedge Funds (3.1%)** – Represents a diversified portfolio of direct hedge fund investments. This investment will tend to be less diversified than a typical “fund-of-funds” strategy as there will be fewer underlying managers and will not include the extra layer of fees found in a Fund-of-Funds structure.

- **Broad Hedge Funds Buy List (4.4%)** – Represents a diversified portfolio of top-tier direct hedge fund investments. This investment will tend to be less diversified than a typical “fund-of-funds” strategy as there will be fewer underlying managers and will not include the extra layer of fees found in a Fund-of-Funds structure. To use this category the funds must be buy rated or we advise on manager selection.

- **Core Real Estate (3.1%)** – Our real return assumption for core real estate is based on a gross income of about 4.4%, management fees of roughly 1%, and future capital appreciation near the rate of inflation during the next 30 years. We assume a portfolio of equity real estate holdings that is diversified by property type and geographic region.

- **U.S. REITs (4.0%)** – Our real return assumption for U.S. REITs is based on income of 3.9% and future capital appreciation near the rate of inflation over the next 30 years. REITs are a sub-set of the U.S. small/mid cap equities.
AHIC Capital Market Assumptions
Explanation of Capital Market Assumptions—Q1 2018 (30 Years)

- **Commodities (2.8%)** – Our commodity assumption is for a diversified portfolio of commodity futures contracts. Commodity futures returns are composed of three parts: spot price appreciation, collateral return, and roll return (positive or negative change implied by the shape of the future curve). We believe that spot prices will converge with CPI over the long run (i.e., 2.3%). Collateral is assumed to be LIBOR cash 0.5%. Also, we believe the roll effect will be near zero, resulting in a real return of approximately 2.8% for commodities.

- **Private Equity (6.1%)** – Our private equity assumption reflects a diversified fund of funds with exposure to buyouts, venture capital, distressed debt, and mezzanine debt.

- **Infrastructure (4.0%)** – Our infrastructure assumption is formulated using a cash flow based approach that projects cash flows (on a diversified portfolio of assets) over a 30 year period. Income and capital growth as well as gearing levels, debt costs and terms, relevant tax and management expenses are all taken into consideration. Our approach produces an expected real return of 4.0% for infrastructure.

- **Equity Risk Insurance Premium Strategies- Low Beta (3.5%)** – We assume nominal returns from cash of 2.4% + 3.5% from alpha.

**Volatility / Correlation Assumptions**
Assumed volatilities are formulated with reference to implied volatilities priced into option contracts of various terms, as well as with regard to historical volatility levels. For asset classes which are not marked to market (for example real estate), we “de-smooth” historical returns before calculating volatilities. Importantly, we consider expected volatility trends in the future – in recent years we assumed the re-emergence of an economic cycle and a loss of confidence in central bankers would lead to an increase in volatility. Correlation assumptions are generally similar to actual historical results; however, we do make adjustments to reflect our forward-looking views as well as current market fundamentals.
Appendix

- Horizon Survey of Capital Market Assumptions
2017 Horizon Survey Results
AHIC vs. Other Advisors

Since 2010, Horizon Actuarial Services, LLC has conducted a capital market assumption survey of investment firms to aid in determining reasonable assumptions for a pension plan’s expected return on assets

- While we do not seek to change our approach based on how we stack up to peers, it is a helpful double-check to make sure we are not too far off from others in the industry

Compared to 2016, the 2017 survey results under the 10-year forecast indicate a slight decrease in return assumptions for both risky assets (equity-like) and fixed income asset classes

- Equity return assumptions are lower by an average of 0.2%
- Fixed income return assumptions are lower by an average of 0.3%
- Alternative asset class return assumptions are lower by an average of 0.1%

2017 AHIC 10-year forecast assumptions tend to be lower than the survey average

- AHIC equity assumptions are driven by market valuations, earnings growth expectations and assumed payouts to investors. Recent experience suggests strong equity market performance has been driven more by increasing valuations than increasing profits. As markets have become more expensive, our equity return assumptions have consequently fallen
- AHIC fixed income assumptions reflect falling yields and flattening of yield curves during the first quarter of 2017
- AHIC alternative asset class assumptions are generally lower due to methodological and inflation forecast differences compared to survey participant forecasts

In conclusion, AHIC assumptions appear somewhat more conservative than peers included in the 2017 Horizon Survey of capital market assumptions
2017 Horizon Survey Results
Capital Market Assumptions from 35 Investment Advisors

Expected Geometric Returns by Asset Class
(10 Year Forecast)

Source: Horizon Actuarial survey of 2017 capital market assumptions from 35 independent investment advisors

Expected returns of the survey are annualized over 10-years (geometric).
AHIC expected returns are annualized over 10-years as of 2Q 2017

Investment advice and consulting services provided by Aon Hewitt Investment Consulting, Inc., an Aon Company.
## AHIC Versus Peers (2017 Horizon Survey)—10-Year Forecast

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Expected Return</th>
<th>Expected Risk</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Equity - Large Cap</td>
<td>6.5%</td>
<td>16.6%</td>
<td>0.0%</td>
</tr>
<tr>
<td>US Equity - Small/Mid Cap</td>
<td>6.9%</td>
<td>20.2%</td>
<td>-0.2%</td>
</tr>
<tr>
<td>Non-US Equity - Developed</td>
<td>7.0%</td>
<td>18.9%</td>
<td>-0.1%</td>
</tr>
<tr>
<td>Non-US Equity - Emerging</td>
<td>8.0%</td>
<td>25.4%</td>
<td>-0.5%</td>
</tr>
<tr>
<td>US Fixed Income - Core</td>
<td>3.2%</td>
<td>5.5%</td>
<td>-0.3%</td>
</tr>
<tr>
<td>US Fixed Income - Long Duration Corp</td>
<td>3.6%</td>
<td>10.4%</td>
<td>0.4%</td>
</tr>
<tr>
<td>US Fixed Income - High Yield</td>
<td>5.1%</td>
<td>10.6%</td>
<td>-1.2%</td>
</tr>
<tr>
<td>Non-US Fixed Income - Developed</td>
<td>2.2%</td>
<td>7.4%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Non-US Fixed Income - Emerging</td>
<td>5.3%</td>
<td>11.8%</td>
<td>-1.2%</td>
</tr>
<tr>
<td>Treasuries (Cash Equivalents)</td>
<td>2.3%</td>
<td>3.0%</td>
<td>-0.2%</td>
</tr>
<tr>
<td>TIPS (Inflation-Protected)</td>
<td>2.9%</td>
<td>6.3%</td>
<td>-0.1%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>6.2%</td>
<td>14.5%</td>
<td>-1.0%</td>
</tr>
<tr>
<td>Hedge Funds</td>
<td>4.9%</td>
<td>8.0%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Commodities</td>
<td>4.1%</td>
<td>17.9%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>6.7%</td>
<td>14.6%</td>
<td>-0.5%</td>
</tr>
<tr>
<td>Private Equity</td>
<td>9.0%</td>
<td>22.0%</td>
<td>-0.4%</td>
</tr>
<tr>
<td>Inflation</td>
<td>2.2%</td>
<td>1.7%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

### Notes (Horizon Survey):
- Source: Horizon Actuarial survey of 2017 capital market assumptions from 35 independent investment advisors
- Expected returns are annualized (geometric).

### Notes (AHIC Forecasts):
- AHIC Forecasts are for Q2 2017
- US Equity - Small/Mid Cap forecasts represents AHIC forecasts for US Small Cap
- US Fixed Income - Long Duration forecasts represents AHIC forecasts for Long Duration Credit
- Non-US Fixed Income - Developed forecasts represents AHIC forecasts for Non-US Fixed Income - Developed (50% Hedged)
- Non-US Fixed Income - Emerging forecasts represents AHIC forecasts for Non-US Fixed Income - Emerging Sovereign USD
- Real Estate forecasts represents AHIC forecasts for Core Private Real Estate
- Hedge Funds forecasts represents AHIC forecasts for Hedge Fund-of-Funds (Buy List)
Leading Methodologies & Reasons for Differences

Leading Methodologies

- Building Block
- Global Capital Asset Pricing Model (Global CAPM)
- Surveys
- Historical data (as a guide to future)
- Black-Litterman (combination of building block and CAPM)

Reasons for Differences

- Methodology
- Time Horizon
- Arithmetic vs. Geometric forecasts*
- Alpha (active management)*
- Inflation
- Investment Fees
- Asset class definition

* While some firms in Horizon survey responded with Arithmetic forecasts, the results have been converted to Geometric forecasts for comparison purposes. Additionally, the return expectations included in the Horizon survey are based on indexed returns (no “alpha”). However, AHIC return assumptions for certain asset classes include “alpha” or active management premium (e.g., Hedge Funds)
Appendix

- Investment Guidance for Public Employee Retirement System Trustees
Investment Guidance for Public Employee Retirement System Trustees

1. PERS trustees should look to the state for statutory direction on behalf of the taxpayers
   a) Prudent-person rule
   b) Peer analysis

2. PERS trustees should not be daunted by a liability value that exceeds the value of assets
   a) Do not feel obliged to incur greater risk in an effort to narrow the gap
   b) Funded status has less to do with investment performance than it does with public policy and politics

3. PERS trustees should not assume that an equity-oriented investment policy is suitable for their fund
   a) Discern the risk tolerance of taxpayers
   b) May conclude that a moderate level of risk is warranted

4. Trustees of individual PERSs should be cognizant of the existence and implications of the unitary state pension fund
   a) Unitary state pension fund is the only fund of economic consequence to the taxpayers
   b) Multiple actively managed funds may form, in total, a closet index fund

5. PERS investments should be exposed to rewarded risks, and insulated from unrewarded risks
   a) Market risk (equity exposure) is rewarded risk, on average
   b) Diversifiable risk is not

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Appendix

- About This Material
About This Material

This material includes a summary of calculations and consulting related to the finances of Florida State Board of Administration (SBA). The following variables have been addressed:

- Contributions, Economic Cost, Funded Ratio, Net Outflow

This analysis is intended to assist the Investment Committee with a review of the associated issues and options, and its use may not be appropriate for other purposes. This analysis has been prepared solely for the benefit of the Investment Committee. Any further dissemination of this report is not allowed without the written consent of Aon Hewitt Investment Consulting, Inc.

Our calculations were generally based on the methodologies identified in the actuary’s valuation report for SBA. We believe the methodology used in these calculations conforms to the applicable standards identified in the report.

Experience different than anticipated could have a material impact on the ultimate costs of the benefits. In addition, changes in plan provisions or applicable laws could have a significant impact on cost. Actual experience may differ from our modeling assumptions.

Our calculations were based on data provided by the plan actuary. The actuarial assumptions and methods and plan provisions reflected in these projections are the same as those used for the 2017 fiscal year actuarial valuation for SBA as noted in the actuarial report, except where noted in this report. Unless specifically noted, our calculations do not reflect any other changes or events after July 1, 2017.

In conducting these projections, we have relied on plan design, demographic and financial information provided by other parties, including the plan’s actuary and plan sponsor. While we cannot verify the accuracy of all of the information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy or completeness of the information and believe that it has produced appropriate results.

These projections have been conducted in accordance with generally accepted actuarial principles and practices, including applicable Actuarial Standards of Practice as issued by the Actuarial Standards Board. The undersigned actuary is familiar with the near-term and long-term aspects of pension valuations and meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. All sections of this report are considered an integral part of the actuarial opinions.

To our knowledge, no associate of Aon Hewitt Investment Consulting, Inc. providing services to SBA has any direct financial interest or indirect material interest in SBA. Thus, we believe there is no relationship existing that might affect our capacity to prepare and certify this report for SBA.

Aon Hewitt Investment Consulting, Inc.

Phil Kivarkis FSA, CFA
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Comprehensive Benchmarking Review
Florida State Board of Administration
February 2018
Executive Summary

- The objective of this comprehensive review of the SBA’s asset class and total fund benchmarks is to ensure the appropriateness of each benchmark given the asset classes’ composition, goals and objectives.
- Analysis includes input from AHIC’s specialist groups, the SBA’s Senior Investment Group, other SBA Consultants, as well as peer comparisons.

**Characteristics of a Good Benchmark**

1. Specified in advance: the benchmark is specified prior to the start of an evaluation period and known to all interested parties.
2. Appropriate: the benchmark is consistent with the manager’s investment style or area of expertise.
3. Measurable: the benchmark’s return is readily calculable on a reasonably frequent basis.
4. Unambiguous: the identities and weights of securities constituting the benchmark are clearly defined.
5. Reflective of current investment opinions: the manager has current knowledge of the securities or factor exposures within the benchmark.
6. Accountable: the manager is aware of and accepts accountability for the constituents and performance of the benchmark.
7. Investable: it is possible to forgo active management and simply hold the benchmark.

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1 As per CFA Institute’s SAMURAI characteristics. The criteria commonly referenced as industry standard is based on research conducted by Jeffrey Bailey and others. Mr. Bailey published an initial paper titled “Are Manager Universes Acceptable Performance Benchmarks?” in the May-June, 1992, edition of the *Financial Analysts Journal*.

2 The criteria listed above mostly apply to publicly traded asset classes. Existing benchmarks for private assets (private equity, private real estate, hedge funds, etc.) lack the attributes of good benchmarks due to the inherent nature of these assets.
## Benchmark Overview & Recommendations

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Benchmark</th>
<th>Recommendation</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global Equity</strong></td>
<td>MSCI ACWI IMI*</td>
<td>--</td>
<td>Broad coverage, investable</td>
</tr>
<tr>
<td><strong>Fixed Income</strong></td>
<td>Barclays U.S. Intermediate Aggregate Index</td>
<td>--</td>
<td>Broad coverage, investable</td>
</tr>
<tr>
<td><strong>Real Estate</strong></td>
<td>76.5% NFI-ODCE</td>
<td>--</td>
<td>Appropriately represents risk/return profile within the real estate portfolio and expected premium</td>
</tr>
<tr>
<td></td>
<td>13.5% NFI-ODCE +150 bps annum</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10% FTSE EPRA/NAREIT Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Private Equity</strong></td>
<td><strong>Primary</strong> MSCI ACWI IMI + 300 bps</td>
<td>--</td>
<td>Appropriately represents opportunity cost of capital and expected premium</td>
</tr>
<tr>
<td></td>
<td><strong>Secondary</strong> Peer Universe Benchmark</td>
<td>--</td>
<td>Customizable based on SBA invested private equity portfolio</td>
</tr>
<tr>
<td><strong>Strategic Investments</strong></td>
<td><strong>Primary</strong> An aggregation of individual portfolio level benchmark returns</td>
<td>--</td>
<td>Customizable, most appropriate short-term measure</td>
</tr>
<tr>
<td></td>
<td><strong>Secondary</strong> CPI + 4.5%</td>
<td>--</td>
<td>Total Fund objective / validates asset class</td>
</tr>
<tr>
<td><strong>Cash</strong></td>
<td><strong>Primary</strong> iMoneyNet First Tier Institutional Money Market Funds Net Index</td>
<td>BofA Merrill Lynch 3-Month US Treasury Bill</td>
<td>Investable, measurable, unambiguous Proxy for risk-free investment</td>
</tr>
<tr>
<td></td>
<td><strong>Secondary</strong> iMoneyNet First Tier Institutional Money Market Funds Net Index</td>
<td></td>
<td>Leading provider of peer cash benchmarks</td>
</tr>
<tr>
<td><strong>Total Fund</strong></td>
<td>Policy Portfolio</td>
<td>--</td>
<td>Industry standard</td>
</tr>
</tbody>
</table>

*Custom version net of withholding taxes on non-resident institutional investors and adjusted to reflect the provisions of the Protecting Florida’s Investments Act.*
Global Equity & Fixed Income Benchmark Review

We find that the following asset class benchmarks continue to be the most appropriate measures for the respective asset class and have no recommendations at this time.

**Global Equity Benchmark: MSCI ACW IMI***
- Captures the broadest scope of investable universe, covers roughly 99% of the opportunity set
- Consistent index construction
- Strong emphasis on liquidity, investability and replicability
- Most widely used among institutional investors

**Fixed Income Benchmark: Barclays U.S. Intermediate Aggregate Bond Index**
- Broadest coverage of U.S. fixed income market
- Sound construction methodology
- Most widely used and universally accepted among institutional investors

*Custom version net of withholding taxes on non-resident institutional investors and adjusted to reflect the provisions of the Protecting Florida's Investments Act.
Real Estate Benchmark Review

Real Estate Benchmark: 76.5% NFI-ODCE / 13.5% NFI-ODCE +150 bps annum/
10% FTSE EPRA/NAREIT Developed

- FTSE EPRA/NAREIT: broadest coverage of global REIT opportunity set
- NFI-ODCE: most appropriate core, open-end fund peer benchmark
- SBA’s Private Real Estate Policy Target: 85% Core and 15% Non-Core
- A premium better represents the higher expected return from non-core investments
- 150 bps derived considering the following factors:
  - Target premium of non-core investments, as stated in SBA’s Real Estate IPS
  - Use of leverage
  - Strong, above benchmark historical performance
  - Forward looking expected returns
Private Real Estate Benchmark: Peer Data

Table below lists the private real estate benchmark used by the largest 30 public funds in the U.S.

- No single most commonly used benchmark
- 18 plans use the NCREIF ODCE Index

<table>
<thead>
<tr>
<th>Fund</th>
<th>Private Real Estate Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>CalPERS</td>
<td>NFI-ODCE Index</td>
</tr>
<tr>
<td>CalSTERS</td>
<td>NFI-ODCE Index</td>
</tr>
<tr>
<td>New York Common</td>
<td>NCREIF</td>
</tr>
<tr>
<td>New York City Retirement</td>
<td>NFI-ODCE Index +100 bps</td>
</tr>
<tr>
<td>Texas Teachers</td>
<td>NFI-ODCE Index</td>
</tr>
<tr>
<td>New York State Retirement</td>
<td>Private Markets: NCREIF ODCE</td>
</tr>
<tr>
<td>Wisconsin Investment Board</td>
<td>NFI-ODCE Index</td>
</tr>
<tr>
<td>Ohio Public Employees</td>
<td>NFI-ODCE Index + 85bps</td>
</tr>
<tr>
<td>North Carolina</td>
<td>80% NFI-ODCE Index + 20% FTSA/EPRA/NAREIT Global Index</td>
</tr>
<tr>
<td>Washington State Board</td>
<td>NCREIF Property Index</td>
</tr>
<tr>
<td>New Jersey Division of Investment</td>
<td>Blend of NFI-ODCE Index and Barclays Corp CMBS 2.0 Baa + 100bps</td>
</tr>
<tr>
<td>Virginia Retirement</td>
<td>NFI-ODCE Index</td>
</tr>
<tr>
<td>Oregon Public Employees</td>
<td>NCREIF Property Index</td>
</tr>
<tr>
<td>Ohio State Teachers</td>
<td>85% NCREIF Property Index + 15% FTSE NAREIT Equity REITs Index</td>
</tr>
<tr>
<td>Massachusetts PRIM</td>
<td>NCREIF Property Index</td>
</tr>
<tr>
<td>Michigan Retirement</td>
<td>NCREIF Property Index -130bps</td>
</tr>
<tr>
<td>Minnesota State Board</td>
<td>CPI + 1000 bps</td>
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<tr>
<td>LA County ERS</td>
<td>NFI-ODCE Index +40bps</td>
</tr>
<tr>
<td>Pennsylvania Employees Retirement</td>
<td>Private Core: NFI-ODCE Index Private Non Core: Burgiss Benchmark</td>
</tr>
<tr>
<td>Maryland State Retirement</td>
<td>85% NFI-ODCE Index + 15% FTSE EPRA/NAREIT Developed (Net)</td>
</tr>
<tr>
<td>Teachers’ System of Illinois</td>
<td>NCREIF Property Index</td>
</tr>
<tr>
<td>Tennessee Retirement System</td>
<td>NCREIF Property Index</td>
</tr>
<tr>
<td>Colorado Public Employees</td>
<td>NFI-ODCE Index +50bps</td>
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<tr>
<td>Missouri Teachers</td>
<td>NFI-ODCE Index</td>
</tr>
<tr>
<td>Illinois Municipal Retirement Fund</td>
<td>NFI-ODCE Index</td>
</tr>
<tr>
<td>Nevada Public Employees</td>
<td>NCREIF Property Index -75bps</td>
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<tr>
<td>Arizona State Retirement System</td>
<td>NFI-ODCE Index</td>
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<tr>
<td>Retirement Systems of Alabama</td>
<td>NCREIF Property Index</td>
</tr>
<tr>
<td>Connecticut Retirement Plans</td>
<td>NCREIF Property Index</td>
</tr>
<tr>
<td>South Carolina Retirement Systems</td>
<td>NFI-ODCE Index +75bps</td>
</tr>
</tbody>
</table>
Private Equity Review

Private Equity Primary Benchmark – MSCI ACWI IMI Index plus 300 bps annually

- Benchmark intended to reflect the opportunity cost of capital
- Opportunity cost for the SBA is Global Equity

- We find the 300 bps premium to be an appropriate level
  - Private equity continues to demonstrate strong outperformance relative to public equities
  - Fee advantage relative to the median private equity fund
  - SBA’s actual, absolute private equity performance has been strong over long time periods as well as relative performance
  - Premium level is inline with peers
### Private Equity Benchmark: Peer Data

- Surveyed largest 20 public funds that invest in private equity
  - 11 of 20 utilize a public market index + premium
  - Average premium of below decreased to 277 bps, down from 285 bps in 2014

<table>
<thead>
<tr>
<th>Fund</th>
<th>Primary Benchmark</th>
<th>Premium (bps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CalPERS</td>
<td>67% FTSE U.S. TMI 33% FTSE AW ex-U.S. TMI</td>
<td>300</td>
</tr>
<tr>
<td>CalSTERS</td>
<td>Russell 3000 Index</td>
<td>300</td>
</tr>
<tr>
<td>New York Common</td>
<td>Cambridge U.S. Private Equity Index</td>
<td></td>
</tr>
<tr>
<td>New York City Retirement</td>
<td>Russell 3000 Index</td>
<td>300</td>
</tr>
<tr>
<td>Texas Teachers</td>
<td>State Street Private Equity Index</td>
<td></td>
</tr>
<tr>
<td>New York State Retirement</td>
<td>Cambridge U.S. Private Equity Index</td>
<td></td>
</tr>
<tr>
<td>Wisconsin Investment Board</td>
<td>Blended Benchmark of Burgiss Private Equity benchmarks, Credit Suisse Leveraged Loan Index +1%, and Bloomberg Barclays Duration-Adjusted Baa Corporate plus 20 bps</td>
<td></td>
</tr>
<tr>
<td>Ohio Public Employees</td>
<td>State Street Private Equity Index</td>
<td></td>
</tr>
<tr>
<td>North Carolina</td>
<td>Blended Benchmark of Burgiss Private Equity benchmarks</td>
<td></td>
</tr>
<tr>
<td>Washington State Board</td>
<td>MSCI ACWI IMI</td>
<td>300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fund</th>
<th>Primary Benchmark</th>
<th>Premium (bps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Jersey Division of Investments</td>
<td>Blended benchmark of Cambridge Associates Global Private Equity, Buyout and Growth Equity &amp; Barclays U.S. Corp High Yield Index + 300 bps</td>
<td></td>
</tr>
<tr>
<td>Virginia Retirement</td>
<td>MSCI ACWI IMI</td>
<td>250</td>
</tr>
<tr>
<td>Oregon Public Employees</td>
<td>Russell 3000 Index</td>
<td>300</td>
</tr>
<tr>
<td>Ohio State Teachers</td>
<td>Russell 3000 Index</td>
<td>100</td>
</tr>
<tr>
<td>Massachusetts PRIM</td>
<td>Russell 3000 Index</td>
<td>300</td>
</tr>
<tr>
<td>Michigan Retirement</td>
<td>S&amp;P 500 Index</td>
<td>300</td>
</tr>
<tr>
<td>Minnesota State Board</td>
<td>CPI</td>
<td>1000</td>
</tr>
<tr>
<td>LA County ERS</td>
<td>Russell 3000 Index</td>
<td>400</td>
</tr>
<tr>
<td>Pennsylvania Employees Retirement</td>
<td>Blended Burgiss Benchmarks</td>
<td></td>
</tr>
<tr>
<td>Maryland State Retirement</td>
<td>MSCI ACWI IMI</td>
<td>200</td>
</tr>
</tbody>
</table>
Private Equity Secondary Benchmark: Cambridge Associates

- The SBA utilizes the joint Cambridge Associates Global Private Equity and Venture Capital Index pooled return at peer group weights as a secondary benchmark.
- Best reflects a like-invested portfolio to compare performance on an apples-to-apples basis.
- Compares IRR and multiple on cost with private equity portfolios with similar composition of style and vintage years.
- We find Cambridge to be a capable and appropriate peer benchmark provider.
Strategic Investments Review

Strategic Investments

- **Primary Benchmark**: Aggregation of individual portfolio level benchmark returns
  - Houses multiple, distinct investment strategies
  - Impractical to measure with single benchmark
  - Aggregation of the individual strategy benchmark returns most sensible approach
  - Provides a short-term measurement

- **Secondary Benchmark**: CPI + 4.5%
  - Represents the Total Fund’s investment objective
  - Measures long-term success of the asset class as a whole
Cash Benchmark Recommendation

**Primary Benchmark:** BofA Merrill Lynch 3-Month US Treasury Index
- Maturity of 90 days or less is more in line with SBA’s portfolio
- Proxy for risk-free investment
- Investable
- Commonly used benchmark among cash investments

**Secondary Benchmark:** iMoneyNet First Tier Institutional Money Market Funds Net
- Leading provider of peer cash benchmarks
- Not investable
- Tends to have longer maturity and contain more ABS than SBA’s portfolio
- Fee waivers of recent years have increased net of fee returns making comparisons to prior years less consistent
Total Fund Benchmark

Total Fund Benchmark: Policy Portfolio

- Utilization of a blend of the individual asset class benchmarks conforms to standard practice among institutional investors
- Passive representation of a fund’s specific asset allocation strategy
  - An unbiased measure of portfolio success
- Best characterization of a fund’s requirements to meet its long term objectives – providing funding for future benefit payments
- The SBA uses a policy portfolio that floats the Real Estate, Private Equity, and Strategic Investments asset classes against Global Equity and Fixed Income
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Background and Recommendations
Aon Hewitt Investment Consulting (AHIC) conducted a comprehensive benchmark review of the Florida Retirement System Pension Plan’s (the Plan) Asset Class and Total Fund benchmarks. The goal of this review is to ensure the appropriateness of each benchmark given the asset classes’ composition, goals and objectives. Our analysis includes input from AHIC’s specialist groups, including the Private Equity, Real Estate and Liquid Alternatives teams, the Florida State Board of Administration’s (SBA’s) Senior Investment Group, as well as peer comparisons where appropriate.

Setting appropriate benchmarks assists the SBA in monitoring and reviewing the performance of the Total Fund and the achievement of the SBA’s investment objectives. Below we list each asset class, the current benchmarks and our recommendations for the SBA based on this review.

Global Equity: A custom version of the Morgan Stanley Capital International All Country World Investable Market Index (MSCI ACW IMI), in dollar terms, net of withholding taxes on non-resident institutional investors, adjusted to reflect the provisions of the Protecting Florida’s Investments Act

Fixed Income: The Barclays U.S. Intermediate Aggregate Bond Index

Real Estate: 76.5% the National Council of Real Estate Investment Fiduciaries (NCREIF) Fund Index – Open-Ended Diversified Core Equity (ODCE), net of fees, 13.5% NCREIF-ODCE, net of fees + 150 basis points, and 10% the FTSE EPRA/ NAREIT Developed Index

Private Equity: Primary Benchmark – MSCI ACW IMI plus a 300 basis point premium; Secondary Benchmark – Peer Universe Benchmark

Strategic Investments: Primary Benchmark – An aggregation of individual portfolio level benchmark returns; Secondary Benchmark – CPI + 4.5%

Cash: iMoneyNet First Tier Institutional Money Market Funds Net Index

Recommendation: Use BofA Merrill Lynch 3-Month US Treasury Bill Index as the primary benchmark and iMoneyNet First Tier Institutional Money Market Funds Net Index as the secondary benchmark

Total Fund: A Policy Portfolio – a passive representation of the FRS policy asset allocation strategy, including floating weights for Real Estate, Private Equity, and Strategic Investments against Global Equity and Fixed Income

In the following sections, we review the current benchmarks and provide support for the recommendation made above.
Characteristics of a Good Benchmark
AHIC’s philosophy on benchmarks is built on the research conducted by Jeffery Bailey and others, as per CFA Institute’s SAMURAI characteristics which are commonly referenced as industry standard. As a result, we believe the benchmark for any asset class should include all, or substantially all, the investment opportunities in that particular market and be constructed without bias. In identifying appropriate benchmarks, AHIC’s recommendations revolve around the following characteristics:

1. Specified in advance: The benchmark is specified prior to the start of an evaluation period and known by all interested parties
2. Appropriate: The benchmark is consistent with the portfolio’s investment style or area of expertise
3. Measurable: The benchmark’s return is readily calculable on a reasonably frequent basis
4. Unambiguous: The identities and weights of securities constituting the benchmark are clearly defined
5. Reflective of current investment opinions: The manager has current knowledge of the securities or factor exposures within the benchmark
6. Accountable: The manager is aware of and accepts accountability for the constituents and performance of the benchmark
7. Investable: It is possible to forgo active management and simply hold the benchmark

It is important to note that there are certain markets, mainly the private markets, where broad published benchmarks either do not exist or are of limited value. In these markets, appropriate benchmarks would represent the opportunity cost of the allocation or mode of implementation.

Global Equity
Benchmark: Morgan Stanley Capital International All Country World Investable Market Index (MSCI ACW IMI), adjusted to exclude companies divested under the provisions of the Protecting Florida's Investments Act (PFIA)
Conclusion: We believe the MSCI ACW IMI Index is the most appropriate benchmark for the SBA’s global equity portfolio and do not recommend any changes.

Consistent with our benchmarking philosophy, we believe the global equity target should capture the broadest opportunity set of investable securities, attempting to maximize country coverage and market capitalization. The MSCI ACW Investable Markets Index (IMI) covers approximately 99% of the global equity market which captures large, mid and small cap companies across 47 countries and includes 8,638 constituents.
AHIC considers FTSE and S&P, two other major global equity index providers, as potential alternatives to MSCI. Each provider has a slightly different construction methodology, though all offer global indices that are market-cap weighted, adjusted for free float and have long-track records. While recent historical performance has shown that there is little difference with respect to returns and correlations, we continue to find the MSCI ACW IMI to be the most appropriate for the following reasons:

- Implements consistent index construction across size, region and style, providing meaningful aggregation to the broad index along with broad exposure
- Represents 99% of global market capitalization and includes small cap securities
- Exhibits low turnover and has a strong emphasis on liquidity, investability and replicability
- Represents the most widely used global benchmark provider for institutional investors

Other factors that lead us to continue to recommend the MSCI ACW IMI are SBA’s significant passive exposure to the benchmark (47% - 57%), low tracking error (<1%), limited out-of-benchmark exposure (<1%) and regional exposures that are generally in-line with the index.

**Fixed Income**

**Benchmark:** The Bloomberg Barclays U.S. Intermediate Aggregate Bond Index

**Conclusion:** We continue to believe the Bloomberg Barclays U.S. Intermediate Aggregate Bond Index is the most appropriate index for the fixed income asset class and do not recommend any changes.

The Barclays suite of indices is the most widely-followed and universally accepted performance benchmark among institutional investors. Barclays employs a sound construction methodology and covers a significant portion of the U.S. fixed income market. The Barclays U.S. Intermediate Aggregate Bond Index is designed to track the performance of bonds issued in the U.S. investment-grade bond market. The index includes investment grade issues with a maturity between one and ten years that are dollar denominated and non-convertible. The index includes Treasuries, Agencies, residential and commercial mortgage-backed securities, asset-backed securities, and corporate debt, and is reconstituted on a monthly basis.

JP Morgan and Citigroup also provide suites of fixed income benchmarks and have sound construction methodologies. While we find them to be of institutional quality and believe they have leading indices in certain sector specific bond markets, Bloomberg Barclays continues to be the industry leading index provider and we continue to view them favorably given the following:

- Market share leader with over $10 trillion benchmarked to Barclays indexes
- Deep coverage (70,000 index eligible securities world-wide and more than $50 trillion in assets)
- Rules based methodology
- Monthly rebalancing
- Market value weighted
- Emphasis on liquidity
The SBA is considering adding exposure to sectors outside of the benchmark through “core plus” mandates. We do not see any issues with this since the SBA has considerable room to move higher within their active risk budget. The SBA fixed income portfolio has significant passive exposure to the Bloomberg Barclays Intermediate Aggregate which will act as an anchor limiting excessive tracking error. The SBA is also considering moving to a more barbell strategy, but the overall duration will still be targeted near the current benchmark. Provided that the role of the SBA’s fixed income asset class is primarily to provide downside protection against weak equity markets, dampen volatility, provide stable returns and act as a key source of liquidity, we believe the Barclays U.S. Intermediate Aggregate Bond Index is the most appropriate benchmark. Additionally, SBA’s desire to maintain a moderate duration level with significant passive exposure to the index and plans to stay within current active risk budget affirm the use of the Barclays U.S. Intermediate Aggregate Bond Index as the most appropriate benchmark for the SBA fixed income asset class.

Real Estate
Primary Benchmark: Blend of 76.5% NFI-ODCE Index, net of fees, 13.5% NFI-ODCE, net of fees, + 150 bps, and 10% FTSE EPRA/NAREIT Developed Index. This represents 76.5% Private Core Real Estate, 13.5% Private Non-Core Real Estate, and 10% to Public Market Real Estate investments.

Conclusion: We continue to believe the real estate target noted above is an appropriate benchmark given the SBA’s goals and objectives for the asset class.

The Real Estate asset class benchmark continues to be appropriate considering the SBA’s current Real Estate Allocation Policy and macro policy execution. The benchmark split between the core private real estate, non-core private real estate and public market real estate is in line with the SBA’s Real Estate Allocation Policy which states:

- Public / Private mix: 90% to private real estate investments and 10% to publicly traded real estate investments (REITs)
- Private Markets Core / Non-Core mix: 85% core and 15% non-core, which translates to 76.5% and 13.5%, respectively, of the total real estate benchmark.

The public market benchmark of the FTSE EPRA/NAREIT Developed Index captures the broad global REIT opportunity set which we believe is the most appropriate index for the public real estate allocation given its objective of investing in a globally diversified public real estate portfolio.

The private market benchmark of the NCREIF Fund Index Open-end Diversified Core Equity (NFI-ODCE) Index is a peer benchmark that currently includes investment returns of 24 open-end commingled funds pursuing a core investment strategy. The underlying funds must market themselves as diversified core investment strategies, primarily investing in private equity real estate with at least 80% of net assets invested in office, industrial, apartment, or retail properties. The funds are leveraged, with a max allowable level of 40%. The index offers both gross and net returns. The NFI-ODCE has been widely
accepted in the industry as representing the core private real estate market. We continue to find it as the most appropriate benchmark for a core private real estate allocation.

The last variable of the real estate benchmark is the 150 basis point premium added to the non-core real estate portion of the benchmark. We continue to believe 150 basis points is an appropriate premium for the non-core real estate allocation considering the SBA’s investment policy, forward looking expected returns and peer practices. This premium is included to better represent the expected return of the non-core real estate allocation above that of a core real estate allocation. The NFI-ODCE Index, reflecting the industry beta, or a core real estate profile, does not capture the greater expected return of the non-core portion of the policy. The SBA’s non-core allocation is expected to be the main source of excess returns for the portfolio and is comprised of both value-add and opportunistic real estate investments.

Based on AHIC’s 1Q 2018 capital market assumptions, we expect a 90 basis point premium for a median diversified non-core portfolio (comprised of 50/50 value-add/opportunistic private real estate) over a diversified core portfolio over a 10 year period. Importantly, these expectations are for a median portfolio and do not account for the use of leverage. We would expect the SBA portfolio to achieve a premium greater than this due to both 1) the size and skill of the SBA real estate program and 2) the use of leverage. The SBA Real Estate Policy allows for a 40% maximum level of leverage on the total portfolio, and recently increased the maximum allowed leverage on the Principal Investments from 25% to 30%. Historically, the real estate portfolio has been managed with relatively low levels of leverage, averaging approximately 20% over the past 10 years. Recently, the leverage amount has modestly increased and as of September 2018, the Total Real Estate portfolio’s leverage was approximately 28%.

As shown below, the SBA’s Real Estate portfolio, including the Principal Investments, has historically performed very favorably relative to the respective benchmarks.

<table>
<thead>
<tr>
<th>As of 12/31/17</th>
<th>Trailing 3-Year</th>
<th>Trailing 5-Year</th>
<th>Trailing 10-Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Real Estate</td>
<td>10.1%</td>
<td>12.2%</td>
<td>6.4%</td>
</tr>
<tr>
<td>Real Estate Target</td>
<td>9.6%</td>
<td>10.3%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Total Principal Investments</td>
<td>10.2%</td>
<td>12.3%</td>
<td>7.8%</td>
</tr>
<tr>
<td>NCREIF NPI Index</td>
<td>9.7%</td>
<td>10.3%</td>
<td>4.2%</td>
</tr>
</tbody>
</table>

Lastly, we gathered information on the largest 30 public funds in the U.S., and where applicable, we list the benchmark used to assess their private real estate allocation in the table on the following page. The information reveals that there is not a single most commonly used private real estate benchmark among industry participants. Of the 30 plans listed below, 18 use the NFI-ODCE Index as the primary private real estate benchmark. Given that we do not have transparency to the core/non-core mix of each plans’ real estate portfolio, nor the detail on the leverage utilized, it is difficult to apply the premium information to opine on the SBA’s premium, other than concluding that it is within the range of premiums observed among peer plans.
<table>
<thead>
<tr>
<th>Fund</th>
<th>Private Real Estate Benchmark</th>
<th>Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>CalPERS</td>
<td>NFI-ODCE Index</td>
<td></td>
</tr>
<tr>
<td>CalSTERS</td>
<td>NFI-ODCE Index</td>
<td></td>
</tr>
<tr>
<td>New York Common</td>
<td>NCREIF</td>
<td></td>
</tr>
<tr>
<td>New York City Retirement</td>
<td>NFI-ODCE Index</td>
<td>100</td>
</tr>
<tr>
<td>Texas Teachers</td>
<td>NFI-ODCE Index</td>
<td></td>
</tr>
<tr>
<td>New York State Retirement</td>
<td>Private Markets: NFI-ODCE Index</td>
<td></td>
</tr>
<tr>
<td>Wisconsin Investment Board</td>
<td>NFI-ODCE Index</td>
<td></td>
</tr>
<tr>
<td>Ohio Public Employees</td>
<td>NFI-ODCE Index</td>
<td>85</td>
</tr>
<tr>
<td>North Carolina</td>
<td>80% NFI-ODCE Index</td>
<td></td>
</tr>
<tr>
<td>Washington State Board</td>
<td>Blend of NFI-ODCE Index and Barclays Corp CMBS 2.0 Baa + 100</td>
<td></td>
</tr>
<tr>
<td>New Jersey Division of Investment</td>
<td>NFI-ODCE Index</td>
<td></td>
</tr>
<tr>
<td>Virginia Retirement</td>
<td>NFI-ODCE Index</td>
<td></td>
</tr>
<tr>
<td>Oregon Public Employees</td>
<td>NCREIF Property Index</td>
<td></td>
</tr>
<tr>
<td>Ohio State Teachers</td>
<td>NCREIF Property Index</td>
<td></td>
</tr>
<tr>
<td>Massachusetts PRIM</td>
<td>NCREIF Property Index</td>
<td></td>
</tr>
<tr>
<td>Michigan Retirement</td>
<td>NCREIF Property Index</td>
<td>-130</td>
</tr>
<tr>
<td>Minnesota State Board</td>
<td>CPI + 1000 bps</td>
<td></td>
</tr>
<tr>
<td>LA County ERS</td>
<td>NFI-ODCE Index</td>
<td>40</td>
</tr>
<tr>
<td>Pennsylvania Employees Retirement</td>
<td>Private Core: NFI-ODCE Index</td>
<td></td>
</tr>
<tr>
<td>Maryland State Retirement</td>
<td>NFI-ODCE Index</td>
<td></td>
</tr>
<tr>
<td>Teachers’ System of Illinois</td>
<td>NCREIF Property Index</td>
<td></td>
</tr>
<tr>
<td>Tennessee Retirement System</td>
<td>NCREIF Property Index</td>
<td></td>
</tr>
<tr>
<td>Colorado Public Employees</td>
<td>NFI-ODCE Index</td>
<td>50</td>
</tr>
<tr>
<td>Missouri Teachers</td>
<td>NFI-ODCE Index</td>
<td></td>
</tr>
<tr>
<td>Illinois Municipal Retirement Fund</td>
<td>NFI-ODCE Index</td>
<td></td>
</tr>
<tr>
<td>Nevada Public Employees</td>
<td>NCREIF Property Index</td>
<td></td>
</tr>
<tr>
<td>Arizona State Retirement System</td>
<td>NFI-ODCE Index</td>
<td>-75</td>
</tr>
<tr>
<td>Retirement Systems of Alabama</td>
<td>NCREIF Property Index</td>
<td></td>
</tr>
<tr>
<td>Connecticut Retirement Plans</td>
<td>NCREIF Property Index</td>
<td></td>
</tr>
<tr>
<td>South Carolina Retirement Systems</td>
<td>NFI-ODCE Index</td>
<td>75</td>
</tr>
</tbody>
</table>

We continue to believe 150 basis points is an appropriate premium for the non-core real estate allocation considering the SBA’s investment policy, forward looking expected returns and peer practices. Provided
that the SBA has a long term policy allocation to non-core investments that is expected to be the source of excess returns, we continue to believe that the addition of a premium for that portion of the benchmark is appropriate and will better reflect the targeted risk/return profile of the allocation.

**Private Equity**

**Primary Benchmark:** MSCI ACWI IMI Index + 3% annually

**Secondary Benchmark:** Cambridge Associates Private Equity Index

**Conclusion:** The SBA currently uses a public markets index (MSCI ACWI IMI) plus 300 bps for its Private Equity asset class policy benchmark. AHIC is comfortable with the choice of the public market index and views the 300bps premium as being in line with peers and suitable given the expected outperformance of the private equity asset class over public equities.

Unlike traditional market security asset classes, there are no perfect or universally accepted benchmarks for private equity investments given the illiquid and unique characteristics of the asset class. However, the two approaches used by the SBA are the two most common benchmarks we see used by institutional investors. We provide a brief explanation of each below.

Public market index plus a premium: This method measures the opportunity cost of the decision to invest in private equity. Under this approach, institutional investors seek a premium over the return that they would expect to earn from public equities. A premium is added because private equity investments are expected to be more risky than public equity investments, on account of the illiquid nature and early stage of many private equity portfolio companies. Investors expect to earn a higher rate of return to be compensated for the higher risk. It should be noted that an index with a return premium is not investable, violating one of our key benchmarking tenants. Further, public equity markets are priced on a continuous basis and fluctuate more rapidly than illiquid private equity investments. For this reason, there can be significant tracking error and short-term performance comparisons are less meaningful.

Peer Benchmark: Peer benchmarks are the second most commonly used benchmark typically seen for institutional private equity portfolios. Entities such as Cambridge Associates and Burgiss have provided peer benchmarks by collecting cash flow data from institutional private equity investors. Returns are net of fees and carried interest for individual investment funds. These institutions have the ability to compile the returns into different vintage year and geographical benchmarks to provide performance comparisons for like-invested funds. This is important because performance of private equity funds with different vintage years or geographical representation can vary significantly. Private equity returns tend to be cyclical in nature, primarily as a result of the operational costs of a private equity fund which tends to be higher during the earlier years of a fund’s life compared to the payback period (also known as the J-curve effect). In addition to vintage year and geographical groups, peer benchmarks can also be compiled by strategy, such as buyout, venture capital, and distressed debt, as well as by size or sub-category (e.g. early stage, growth stage, large, mega).

For evaluating the performance of an entire portfolio of private equity investments, peer benchmarks can provide returns of composite portfolios that mirror the investor’s own portfolio as well as possible. The composite portfolios are comprised of funds formed in a number of years rather than in one vintage year and the holding period composite returns are pooled rates of return for each investment horizon. One of the downfalls of using peer benchmarks is that the data is only available on a 4-5 month lagged basis.
We continue to find the SBA’s current approach of using a public market index plus a premium as the primary benchmark and a peer benchmark as the secondary benchmark to be an appropriate and effective means to benchmarking the private equity portfolio. We next evaluated the implementation of these two approaches.

Primary Benchmark: MSCI ACWI IMI Index + 3% annually

The public market index utilized under this method should reflect the opportunity cost of the decision to invest in private equity. The MSCI ACWI IMI is consistent with the SBA’s opportunity cost of capital based on its current Investment Policy. The composition of the MSCI ACWI IMI Index is also broadly aligned with the geographic weightings of the private markets around the world.

The second component of the primary benchmark is the annual premium that is added to the public equity index to compensate for the added risk of investing in private equity. The premium is largely a function of the historical premium that private equity markets have yielded over their public equity counterparts. In addition, we also take into account the expected private equity returns based on our most recent capital market assumptions, as well as identifying industry standards. Historically, we have seen premiums within the range of 200-400 basis points among institutional investors. The SBA’s premium of 300 basis points falls in the middle of this range.

In recent years we have seen the expected premium trending modestly downward. Based on our most recent Capital Market Assumptions (forward looking return expectations for the major asset classes available for investment), we expect private equity to earn a premium over public equities of 150 basis points.

The table below illustrates our latest private equity return expectations:

<table>
<thead>
<tr>
<th>Based on 1Q 2018 CMAs</th>
<th>Model Portfolio Weights</th>
<th>Expected Return</th>
<th>Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venture Capital</td>
<td>24%</td>
<td>10.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Buyouts (LBOs)</td>
<td>54%</td>
<td>7.7%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Distressed Debt</td>
<td>16%</td>
<td>8.6%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Mezzanine</td>
<td>6%</td>
<td>7.9%</td>
<td>0.9%</td>
</tr>
<tr>
<td><strong>Model Private Equity Portfolio</strong></td>
<td><strong>100%</strong></td>
<td><strong>8.5%</strong></td>
<td><strong>1.5%</strong></td>
</tr>
</tbody>
</table>

*Premium reflects the expected return over global equity’s expected return of 7.0%
Furthermore, below we illustrate the SBA’s historical private equity return over public global equity (MSCI ACWI IMI) on a rolling 5-year basis. As seen below, the private equity portfolio has outperformed the global equity asset class on average by 230 basis points from 1993 through 2017.

SBA's Rolling 5-Year Private Equity Performance Over Global Equity:

Additionally, the following chart illustrates the Burgiss Private Equity universe return over public global equity (MSCI ACWI IMI) on a rolling 5-year basis. As seen below, the Burgiss Private Equity universe has outperformed public global equity (MSCI ACWI IMI) on average by 520 basis points from 2003 through 2017.
Lastly, we surveyed 20 of the largest public funds that invest in private equity and list the primary benchmarks they use below. The survey reveals that 11 utilize a public market index plus a premium and that a number of different public market indices are used as benchmarks. Since the last survey, conducted in 2014, we have not seen much change in the premium level. Before 2014 there had been a reduction in premiums, mostly premiums of 500 bps came down to 300 bps. Further, the average premium is currently 277 bps, similar to the average premium in 2014 of 285 bps.

<table>
<thead>
<tr>
<th>Fund</th>
<th>Private Equity Benchmark</th>
<th>Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>CalPERS</td>
<td>67% FTSE U.S. TMI 33% FTSE AW ex U.S. TMI</td>
<td>300</td>
</tr>
<tr>
<td>CalSTERS</td>
<td>Russell 3000</td>
<td>300</td>
</tr>
<tr>
<td>New York Common</td>
<td>Cambridge U.S. Private Equity Index</td>
<td></td>
</tr>
<tr>
<td>New York City Retirement</td>
<td>Russell 3000</td>
<td>300</td>
</tr>
<tr>
<td>Texas Teachers</td>
<td>State Street Private Equity Index</td>
<td></td>
</tr>
<tr>
<td>New York State Retirement</td>
<td>Cambridge U.S. Private Equity Index</td>
<td></td>
</tr>
<tr>
<td>Wisconsin Investment Board</td>
<td>Blended Benchmark of Burgiss Private Equity benchmarks, Credit Suisse Leveraged Loan Index +1%, and Bloomberg Barclays Capital Duration-Adjusted Baa Corporate plus 20 basis points</td>
<td></td>
</tr>
<tr>
<td>Ohio Public Employees</td>
<td>State Street Private Equity Index</td>
<td></td>
</tr>
<tr>
<td>North Carolina</td>
<td>Burgiss Group Private iQ indices: 50% Buyout 20% VC 30% Special Situation and Distressed</td>
<td></td>
</tr>
<tr>
<td>Washington State Board</td>
<td>MSCI ACWI IMI</td>
<td>300</td>
</tr>
<tr>
<td>New Jersey Division of Investment</td>
<td>Blend of Cambridge Associates Global Private Equity, Buyout and Growth Equity, and Barclays U.S. Corp High Yield Index + 300 bps</td>
<td></td>
</tr>
<tr>
<td>Virginia Retirement</td>
<td>MSCI ACWI IMI</td>
<td>250</td>
</tr>
<tr>
<td>Oregon Public Employees</td>
<td>Russell 3000</td>
<td>300</td>
</tr>
<tr>
<td>Ohio State Teachers</td>
<td>Russell 3000</td>
<td>100</td>
</tr>
<tr>
<td>Massachusetts PRIM</td>
<td>Russell 3000</td>
<td>300</td>
</tr>
<tr>
<td>Michigan Retirement</td>
<td>S&amp;P 500</td>
<td>300</td>
</tr>
<tr>
<td>Minnesota State Board</td>
<td>CPI</td>
<td>1000</td>
</tr>
<tr>
<td>LA County ERS</td>
<td>Russell 3000</td>
<td>400</td>
</tr>
<tr>
<td>Pennsylvania Employees Retirement</td>
<td>Blended Burgiss Benchmark</td>
<td></td>
</tr>
<tr>
<td>Maryland State Retirement</td>
<td>MSCI ACWI</td>
<td>200</td>
</tr>
</tbody>
</table>
Although the expected premium of private equity over public equity has come down based on our capital market assumptions, we continue to support the addition of a 300 bps premium. Broadly, private equity continues to demonstrate strong outperformance relative to public equities (as reflected in the above rolling performance chart for the Burgiss Private Equity universe) and though that premium has come down over the past several years, we believe 300 basis points is still a realistic objective going forward. The SBA’s access to top quartile managers and strategies given the program’s size, experience and established private equity program supports a meaningful premium over public equities. Along these lines, the SBA also benefits from a fee advantage relative to the median private equity fund. The SBA’s actual, absolute private equity performance has been strong over long time periods, as well as relative performance during the most recent public equity bull market.

**Secondary Benchmark (Peer Benchmark): Cambridge Associates**

The SBA utilizes the joint Cambridge Associates Global Private Equity and Venture Capital Index pooled return at peer group weights as a secondary benchmark to best reflect a like-invested peer private equity composite portfolio. This benchmark compares IRR and multiples on cost of the entire component with those of composite portfolios compiled by Cambridge Associates with similar composition of style and vintage years. Cambridge also compares SBA’s time weighted returns (TWR) with the holding-period TWR of the composite portfolios. While AHIC utilizes a different benchmark provider (Burgiss), we find Cambridge to be of institutional quality and appropriate provider of peer private equity benchmarks and will serve the purpose of comparing the SBA’s private equity portfolio on an apples-to-apples basis. We therefore recommend no change to the secondary benchmark.

**Strategic Investments**

*Primary Benchmark:* Aggregation of individual portfolio level benchmark returns  
*Secondary Benchmark: CPI + 4.5%

**Conclusion:** We continue to find the benchmarks used to be appropriate means to measuring the short- and long-term success of the Strategic Investments asset class.

As defined in the Investment Policy Statement, the objective of the Strategic Investments allocation is to “proactively identify and utilize non-traditional and multi-asset class investments, on an opportunistic and strategic basis, in order to accomplish one or more of the following:

1) Generate long-term incremental returns in excess of a 4.5% annualized real rate of return, commensurate with risk.
2) Diversify the FRS Pension Plan assets
3) Provide potential hedge against inflation
4) Increase investment flexibility, across market environments, in order to access: a) Evolving or opportunistic investments outside of traditional asset class; and b) Effective risk-adjusted portfolio management strategies”
For portfolios that are more opportunistic, that tend to have more short/intermediate term holding periods in which to take advantage of market dislocations, we believe a good benchmark alternative would be to identify the opportunity cost of allocating to these assets. The opportunity cost may consist of the total plan benchmark or the asset class from where the opportunistic investment was funded. However, in the case of the Strategic Investments allocation, the mandate is much broader with potentially longer holding periods. Therefore, we believe using an aggregation of the individual strategy benchmark returns is the most sensible approach to benchmarking the asset class over the short-term. Since there are no individual strategy allocation targets within the Strategic Investments, the weights should be allowed to float.

Over the long-term, it important to be able to measure the portfolio’s stated goals in the IPS which is to provide real returns in excess of 4.5%. As a result, we continue to view CPI + 4.5% as a reasonable approach for a secondary benchmark for Strategic Investments. We support the reduction of the real return target from 5.0% to 4.5%, as reflected in the previous asset liability study and based on lower capital market assumptions.

Cash

**Benchmark:** iMoneyNet First Tier Institutional Money Market Funds Net Index

**Recommendation:** We recommend changing to the iMoneyNet First Tier Institutional Money Market Funds Net Index to the BofA Merrill Lynch 3-Month US Treasury Bill Index. We believe the iMoneyNet First Tier Institutional Money Market Funds Net Index would be a good secondary benchmark.

iMoneyNet continues to be a leading provider of peer cash benchmarks, providing the broadest peer index of money market funds available and is widely used in the industry. However, there are certain characteristics of the iMoneyNet benchmark that make it a less desirable index for the SBA’s cash portfolio. iMoneyNet is not investable and is net of fees. Fee waivers have made comparisons more problematic, having altered the return over the past few years. Had money market managers not waived fees, portfolios would have had a yield below zero. Managers chose to artificially manage the portfolio by varying the fee so that the net monthly return was 0 or 1 bps. Additionally, relative to the SBA cash portfolio, the iMoneyNet tends to have a longer maturity and contains exposure to additional sectors that SBA does not tend to invest in (e.g. asset backed securities). That said we believe there is still value in comparisons to peer groups and believe the iMoneyNet will serve as a useful secondary benchmark.

There is no perfect benchmark for cash as it would not be feasible to create a custom benchmark from all underlying non-prime money market securities. Since cash has a very low risk profile and its primary purpose is capital preservation, we view risk-free Treasuries of similar maturity as an appropriate passive alternative and recommend the SBA use the BofA Merrill Lynch 3-Month U.S. Treasury Bill index as the primary benchmark. To the extent that the portfolio takes on credit risk or extends maturity, we should view this as active risk. Although the SBA’s investment guidelines allow for maturities greater than 90 days, the BofA Merrill Lynch 3-Month US Treasury Bill’s maturity characteristics tends to be more aligned
with the SBA cash portfolio than iMoneyNet and is one of the most widely used benchmarks for cash investments.

We examined a few other alternatives such as the Bloomberg Barclays 1-3 Month Govt/Corp Index as it offers credit exposure, however corporate bonds would not be an adequate proxy for a commercial paper heavy portfolio. This benchmark is also not commonly used among peers.

**Total Fund**

Benchmark: Policy Portfolio; A blend of asset class benchmarks at Policy weights

Conclusion: The total fund benchmark, as a blend of the individual asset class benchmarks, conforms to standard practice among institutional investors.

Most investors use a Policy Portfolio to assess the success of their investment programs. A policy portfolio is an unbiased measure of portfolio success. The policy portfolio’s return is the best characterization of a fund’s requirements to meet its long term objectives.

Using floating weights, is common practice for plans with allocations to private assets that are in the process of funding or winding down. These weights are often reviewed on an annual basis.
State Board of Administration of Florida

Major Mandate Review
First Quarter 2018

Table of Contents

1. Executive Summary
2. Pension Plan Review
3. Investment Plan Review
4. CAT Fund Review
5. Lawton Chiles Endowment Fund Review
6. Florida PRIME Review
7. Appendix
Executive Summary

- The major mandates each produced generally strong returns relative to their respective benchmarks over both short- and long-term time periods ending March 31, 2018.
- The Pension Plan outperformed its Performance Benchmark during the quarter and over the trailing one-, three-, five-, ten-, and fifteen-year periods.
  - Over the long-term, Global Equity is the leading source of value added, followed by Strategic Investments, Real Estate and Fixed Income.
  - Over the trailing one-, three-, five-, and ten-year periods, the Pension Plan’s return ranked in the top quartile of the TUCS Top Ten Defined Benefit Plan universe.
- The FRS Investment Plan has outperformed the Total Plan Aggregate Benchmark during the quarter and over the trailing one-, three-, five-, and ten-year periods.
- The Lawton Chiles Endowment Fund outperformed its benchmark during the quarter and over the trailing one-, three-, five-, and ten-year periods.
- The CAT Funds’ performance is strong over both short-term and long-term periods, outperforming the benchmark over the trailing one-, three-, five-, and ten-year periods.
- Florida PRIME has continued to outperform its benchmark over both short- and long-term time periods.
Pension Plan: Executive Summary

- The Pension Plan assets totaled $160.5 billion as of March 31, 2018 which represents a $1.6 billion decrease since last quarter.
- The Pension Plan, when measured against the Performance Benchmark, outperformed over the quarter and the trailing one-, three-, five-, ten-, and fifteen-year periods.
- Relative to the Absolute Nominal Target Rate of Return, the Pension Plan underperformed over the trailing twenty-year period, and outperformed over the trailing one-, three-, five-, ten-, fifteen-, twenty-five-, and thirty-year time periods.
- The Pension Plan is well-diversified across six broad asset classes, and each asset class is also well-diversified.
  - Public market asset class investments do not significantly deviate from their broad market-based benchmarks, e.g., sectors, market capitalizations, global regions, credit quality, duration, and security types.
  - Private market asset classes are well-diversified by vintage year, geography, property type, sectors, investment vehicle/asset type, and investment strategy.
  - Asset allocation is monitored on a daily basis to ensure that the actual asset allocation of the Pension Plan remains close to the long-term policy targets set forth in the Investment Policy Statement.
- Aon Hewitt Investment Consulting and SBA staff revisit the plan design annually through informal and formal asset allocation and asset liability reviews.
- Adequate liquidity exists within the asset allocation to pay the monthly obligations of the Pension Plan consistently and on a timely basis.

FRS Pension Plan Change in Market Value
Periods Ending 3/31/2018

<table>
<thead>
<tr>
<th>Summary of Cash Flows</th>
<th>First Quarter</th>
<th>Fiscal YTD*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning Market Value</td>
<td>$162,090,223,288</td>
<td>$153,573,300,933</td>
</tr>
<tr>
<td>+/- Net Contributions/(Withdrawals)</td>
<td>$(1,665,052,159)</td>
<td>$(5,125,907,869)</td>
</tr>
<tr>
<td>Investment Earnings</td>
<td>$105,773,973</td>
<td>$12,083,552,038</td>
</tr>
<tr>
<td>= Ending Market Value</td>
<td>$160,530,945,101</td>
<td>$160,530,945,101</td>
</tr>
<tr>
<td>Net Change</td>
<td>$(1,559,278,187)</td>
<td>$6,957,644,169</td>
</tr>
</tbody>
</table>

*Period July 2017 – March 2018
### Asset Allocation as of 3/31/2018
Total Fund Assets = $160.5 Billion

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Market Value ($B)</th>
<th>Current Allocation (%)</th>
<th>Target Allocation (%)</th>
<th>Maximum Allocation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fund</td>
<td>160.500,945,101</td>
<td>100.0</td>
<td>100.0</td>
<td>45.0</td>
</tr>
<tr>
<td>Global Equity*</td>
<td>96,763,505,970</td>
<td>56.6</td>
<td>56.6</td>
<td>70.0</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>36,044,757,813</td>
<td>15.7</td>
<td>15.7</td>
<td>26.0</td>
</tr>
<tr>
<td>Private Equity</td>
<td>10,566,155,950</td>
<td>6.8</td>
<td>6.6</td>
<td>9.0</td>
</tr>
<tr>
<td>Real Estate</td>
<td>14,102,204,743</td>
<td>6.8</td>
<td>6.7</td>
<td>16.0</td>
</tr>
<tr>
<td>Strategic Investments</td>
<td>12,067,121,918</td>
<td>8.0</td>
<td>7.9</td>
<td>16.0</td>
</tr>
<tr>
<td>Cash</td>
<td>1,666,905,769</td>
<td>1.1</td>
<td>1.0</td>
<td>5.0</td>
</tr>
</tbody>
</table>

* Global Equity became an asset class in July 2010. The historical return series prior to July 2010 was derived from the underlying Domestic Equities, Foreign Equities, and Global Equities components.

### FRS Pension Plan Investment Results
Periods Ending 3/31/2018

<table>
<thead>
<tr>
<th>Quarter</th>
<th>1-Year</th>
<th>3-Year</th>
<th>5-Year</th>
<th>10-Year</th>
<th>15-Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>2.3</td>
<td>7.1</td>
<td>6.7</td>
<td>6.8</td>
<td>6.4</td>
</tr>
<tr>
<td>10.6</td>
<td>11.9</td>
<td>7.6</td>
<td>8.5</td>
<td>6.7</td>
<td>6.6</td>
</tr>
<tr>
<td>-5.0</td>
<td>8.6</td>
<td>8.0</td>
<td>8.6</td>
<td>6.8</td>
<td>6.8</td>
</tr>
</tbody>
</table>
FRS Pension Plan Investment Results
Periods Ending 3/31/2018

Long-Term FRS Pension Plan Performance Results
vs. SBA's Long-Term Investment Objective

<table>
<thead>
<tr>
<th>Period</th>
<th>Total FRS Pension Plan</th>
<th>Absolute Nominal Target Rate of Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last 20 Years</td>
<td>6.4</td>
<td>6.7</td>
</tr>
<tr>
<td>Last 25 Years</td>
<td>8.2</td>
<td>6.9</td>
</tr>
<tr>
<td>Last 30 Years</td>
<td>9.0</td>
<td>7.2</td>
</tr>
</tbody>
</table>

Comparison of Asset Allocation (TUCS Top Ten)
As of 3/31/2018

FRS Pension Plan vs. Top Ten Defined Benefit Plans

*Global Equity Allocation: 25.6% Domestic Equities; 24.5% Foreign Equities; 5.5% Global Equities; 0.9% Global Equity Liquidity Account. Percentages are of the Total FRS Fund.

**Global Equity Allocation: 28.3% Domestic Equities; 18.4% Foreign Equities.

Note: The TUCS Top Ten Universe includes $1.516.8 billion in total assets. The median fund size was $151.4 billion and the average fund size was $151.7 billion.

Note: Due to rounding, percentage totals displayed may not sum perfectly.
FRS Results Relative to TUCS Top Ten Defined Benefit Plans
Periods Ending 3/31/2018

Note: The TUCS Top Ten Universe includes $1,516.8 billion in total assets. The median fund size was $151.4 billion and the average fund size was $151.7 billion.

Top Ten Defined Benefit Plans FRS Universe Comparison (TUCS)
Periods Ending 3/31/2018

Note: The TUCS Top Ten Universe includes $1,516.8 billion in total assets. The median fund size was $151.4 billion and the average fund size was $151.7 billion.
Investment Plan: Executive Summary

- The FRS Investment Plan outperformed the Total Plan Aggregate Benchmark over the trailing one-, three-, five-, and ten-year periods. This suggests strong relative performance of the underlying fund options in which participants are investing.

- The FRS Investment Plan’s total expense ratio is slightly higher, on average, when compared to a defined contribution peer group and is lower than the average corporate and public defined benefit plan, based on year-end 2016 data. The total FRS Investment Plan expense ratio includes investment management fees, as well as administration, communication and education costs. Communication and education costs are not charged to FRS Investment Plan members; however, these and similar costs may be charged to members of plans within the peer group.

- Management fees are lower than the median as represented by Morningstar’s mutual fund universe for every investment category.

- The FRS Investment Plan offers an appropriate number of fund options that span the risk and return spectrum.

- The Investment Policy Statement is revisited periodically to ensure that the structure and guidelines of the FRS Investment Plan are appropriate, taking into consideration the FRS Investment Plan’s goals and objectives.

Total Investment Plan Returns & Cost

<table>
<thead>
<tr>
<th>Periods Ending 3/31/2018*</th>
<th>One-Year</th>
<th>Three-Year</th>
<th>Five-Year</th>
<th>Ten-Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRS Investment Plan</td>
<td>11.1%</td>
<td>6.6%</td>
<td>7.5%</td>
<td>5.9%</td>
</tr>
<tr>
<td>Total Plan Aggregate Benchmark**</td>
<td>10.0%</td>
<td>6.3%</td>
<td>7.1%</td>
<td>5.4%</td>
</tr>
<tr>
<td>FRS Investment Plan vs. Total Plan Aggregate Benchmark</td>
<td>1.1</td>
<td>0.3</td>
<td>0.4</td>
<td>0.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Periods Ending 12/31/2016***</th>
<th>Five-Year Average Return****</th>
<th>Five-Year Net Value Added</th>
<th>Expense Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRS Investment Plan</td>
<td>7.2%</td>
<td>0.1%</td>
<td>0.33%****</td>
</tr>
<tr>
<td>Peer Group</td>
<td>8.2</td>
<td>0.2</td>
<td>0.26</td>
</tr>
<tr>
<td>FRS Investment Plan vs. Peer Group</td>
<td>-1.0</td>
<td>-0.1</td>
<td>0.07</td>
</tr>
</tbody>
</table>

*Returns shown are net of fees. **Aggregate benchmark returns are an average of the individual portfolio benchmark returns at their actual weights. ***Source: 2016 CEM Benchmarking Report. Peer group for the Five-Year Average Return and Value Added represents the U.S. Median plan return based on the CEM 2016 Survey that included 145 U.S. defined contribution plans with assets ranging from $72 million to $49.6 billion. Peer group for the Expense Ratio represents a custom peer group for FSBA of 17 DC plans including corporate and public plans with assets between $2.3 - $15.6 billion. ****Returns shown are gross of fees. *****The total FRS Investment Plan expense ratio includes investment management fees, as well as administration, communication and education costs. These latter costs are not charged to FRS Investment Plan members; however, these and similar costs may be charged to members of plans within the peer group utilized above.
CAT Fund: Executive Summary

- Returns on an absolute basis continue to be modest given the current low interest rate environment.
- Over long-term periods, the relative performance of the CAT Funds has been favorable as they have outperformed the Performance Benchmark over the trialing one-, three-, five-, and ten-year time periods. During the quarter, the CAT Funds either matched or modestly trailed the Performance Benchmark.
- The CAT Funds are adequately diversified across issuers within the short-term bond market.
- The Investment Portfolio Guidelines appropriately constrain the CAT Funds to invest in short-term and high quality bonds to minimize both interest rate and credit risk.
- Adequate liquidity exists to address the cash flow obligations of the CAT Funds.
- The Investment Portfolio Guidelines are revisited periodically to ensure that the structure and guidelines of the CAT Funds are appropriate, taking into consideration the CAT Funds’ goals and objectives.

CAT Funds Investment Results
Periods Ending 3/31/2018

*CAT Operating Fund: Beginning March 2008, the returns for the CAT Fund reflect marked-to-market returns. Prior to that time, cost-based returns are used.

**Performance Benchmark: The CAT Fund was benchmarked to the IBC First Tier through February 2008. From March 2008 to December 2009, it was the Merrill Lynch 1-Month LIBOR. From January 2010 to June 2010, it was a blend of the average of the 3-Month Treasury Bill rate and the iMoneyNet First Tier Institutional Money Market Funds Gross Index. From July 2010 to September 2014, it was a blend of the average of the 3-Month Treasury Bill rate and the MoneyNet First Tier Institutional Money Market Funds Net Index. Effective October 2014, it is a blend of the average of the Merrill Lynch 1-Yr US Treasury Bill Index and the iMoneyNet First Tier Institutional Money Market Funds Net Index. Beginning February 2018, the CAT Fund was split into two different funds, the CAT Fund Operating Liquidity Fund and the CAT Fund Operating Claims Paying Fund. Beginning February 2018, the CAT Fund Operating Liquidity Fund was benchmarked to the B of A Merrill Lynch 3-6 Month US Treasury Bill Index, and the CAT Fund Operating Claims Paying Fund was benchmarked to itself. Beginning February 2018, the CAT 2013 A and 2016 A Operating Funds were benchmarked to themselves.
Lawton Chiles Endowment Fund: Executive Summary

- Established in July 1999, the Lawton Chiles Endowment Fund (LCEF) was created to provide a source of funding for child health and welfare programs, elder programs and research related to tobacco use.
  - The investment objective is to preserve the real value of the net contributed principal and provide annual cash flows for appropriation.
  - The Endowment’s investments are diversified across various asset classes including global equity, fixed income, inflation-indexed bonds (TIPS) and cash.
- The Endowment assets totaled $762.7 million as of March 31, 2018.
- The Endowment’s return outperformed its Target over the quarter and the trailing one-, three-, five-, and ten-year time periods.

Asset Allocation as of 3/31/2018
Total LCEF Assets = $762.7 Million

<table>
<thead>
<tr>
<th>Asset</th>
<th>Market Value ($)</th>
<th>Current Allocation (%)</th>
<th>Target Allocation (%)</th>
<th>Minimum Allocation (%)</th>
<th>Maximum Allocation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCEF Total Fund</td>
<td>762,600,420</td>
<td>100.0</td>
<td>100.0</td>
<td>61.0</td>
<td>81.0</td>
</tr>
<tr>
<td>Global Equity</td>
<td>552,711,332</td>
<td>72.5</td>
<td>71.0</td>
<td>61.0</td>
<td>81.0</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>118,428,666</td>
<td>15.5</td>
<td>17.0</td>
<td>12.0</td>
<td>22.0</td>
</tr>
<tr>
<td>TIPS</td>
<td>79,609,688</td>
<td>10.1</td>
<td>11.0</td>
<td>6.0</td>
<td>16.0</td>
</tr>
<tr>
<td>Cash Equivalents</td>
<td>14,713,772</td>
<td>1.9</td>
<td>1.0</td>
<td>0.0</td>
<td>10.0</td>
</tr>
</tbody>
</table>
LCEF Investment Results
Periods Ending 3/31/2018

<table>
<thead>
<tr>
<th>Quarter</th>
<th>1-Year</th>
<th>3-Year</th>
<th>5-Year</th>
<th>10-Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annualized Return (%)</td>
<td>12.8</td>
<td>11.1</td>
<td>7.4</td>
<td>8.2</td>
</tr>
<tr>
<td>Total LCEF</td>
<td>Performance Benchmark</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Florida Hurricane Catastrophe Fund Background

- The purpose of the Florida Hurricane Catastrophe Fund (FHCF) is to provide a stable, ongoing and timely source of reimbursement to insurers for a portion of their hurricane losses.

- The CAT Fund (Operating Funds), along with CAT 2016 A Fund and CAT 2013 A Fund are internally managed portfolios.

- As of March 31, 2018, the total value of:
  - The CAT Fund (Operating Funds) was $14.8 billion
  - The CAT 2016 A Fund was $1.2 billion
  - The CAT 2013 A Fund was $1.0 billion

Florida PRIME: Executive Summary

- The purpose of Florida PRIME is safety, liquidity, and competitive returns with minimal risk for participants.

- The Investment Policy Statement appropriately constrains Florida PRIME to invest in short-term and high quality bonds to minimize both interest rate and credit risk.

- Florida PRIME is adequately diversified across issuers within the short-term bond market, and adequate liquidity exists to address the cash flow obligations of Florida PRIME.

- Performance of Florida PRIME has been strong over short- and long-term time periods, outperforming its performance benchmark during the quarter and over the trailing one-, three-, five-, and ten-year time periods.

- As of March 31, 2018, the total market value of Florida PRIME was $11.6 billion.

- Aon Hewitt Investment Consulting, in conjunction with SBA staff, compiles an annual best practices report that includes a full review of the Investment Policy Statement, operational items, and investment structure for Florida PRIME.
Florida PRIME Investment Results
Periods Ending 3/31/2018

<table>
<thead>
<tr>
<th>Period</th>
<th>FL PRIME Yield 30-Day Average</th>
<th>S&amp;P AAA &amp; AA GIP All 30-Day Net Yield Index**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Quarter*</td>
<td>0.42</td>
<td>0.34</td>
</tr>
<tr>
<td>1-Year</td>
<td>1.40</td>
<td>0.57</td>
</tr>
<tr>
<td>3-Years</td>
<td>1.09</td>
<td>0.57</td>
</tr>
<tr>
<td>5-Years</td>
<td>0.84</td>
<td>0.36</td>
</tr>
<tr>
<td>10-Years</td>
<td>0.57</td>
<td>0.43</td>
</tr>
<tr>
<td>Since Jan. 1996</td>
<td>2.59</td>
<td>2.38</td>
</tr>
</tbody>
</table>

*Returns less than one year are not annualized.
**S&P AAA & AA GIP All 30-Day Net Yield Index for all time periods shown.

Florida PRIME Risk vs. Return
5 Years Ending 3/31/2018
Return Distribution
Periods Ending 3/31/2018

Standard Deviation Distribution
Periods Ending 3/31/2018
FRS Investment Plan Costs

<table>
<thead>
<tr>
<th>Investment Category</th>
<th>Investment Plan Fee*</th>
<th>Average Mutual Fund Fee**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Cap Equity</td>
<td>0.15%</td>
<td>0.81%</td>
</tr>
<tr>
<td>Small-Mid Cap Equity</td>
<td>0.59%</td>
<td>0.95%</td>
</tr>
<tr>
<td>International Equity</td>
<td>0.30%</td>
<td>0.97%</td>
</tr>
<tr>
<td>Diversified Bonds</td>
<td>0.15%</td>
<td>0.52%</td>
</tr>
<tr>
<td>Target Date</td>
<td>0.15%</td>
<td>0.56%</td>
</tr>
<tr>
<td>Money Market</td>
<td>0.06%</td>
<td>0.31%</td>
</tr>
</tbody>
</table>

*Average fee of multiple products in category as of 3/31/2018.
**Source: AHIC’s annual mutual fund expense analysis as of 12/31/2017.

Investment Plan Fiscal Year End Assets Under Management

<table>
<thead>
<tr>
<th>By Fiscal Year ($ millions)</th>
<th>FY 02-03</th>
<th>FY 03-04</th>
<th>FY 04-05</th>
<th>FY 05-06</th>
<th>FY 06-07</th>
<th>FY 07-08</th>
<th>FY 08-09</th>
<th>FY 09-10</th>
<th>FY 10-11</th>
<th>FY 11-12</th>
<th>FY 12-13</th>
<th>FY 13-14</th>
<th>FY 14-15</th>
<th>FY 15-16</th>
<th>FY 16-17</th>
<th>FY 17-18*</th>
</tr>
</thead>
<tbody>
<tr>
<td>$333</td>
<td>$706</td>
<td>$1,426</td>
<td>$2,306</td>
<td>$3,688</td>
<td>$4,365</td>
<td>$4,075</td>
<td>$5,048</td>
<td>$6,733</td>
<td>$7,136</td>
<td>$7,879</td>
<td>$9,035</td>
<td>$9,129</td>
<td>$8,918</td>
<td>$9,967</td>
<td>$10,653</td>
<td></td>
</tr>
</tbody>
</table>

*Period Ending 3/31/2018

Source: Investment Plan Administrator
Florida Hurricane Catastrophe Fund Background

- The purpose of the Florida Hurricane Catastrophe Fund (FHCF) is to provide a stable, ongoing and timely source of reimbursement to insurers for a portion of their hurricane losses.
- Both the CAT Fund (Operating Fund) and the CAT 2013 A Fund are internally managed portfolios benchmarked to a blend of the average of the Merrill Lynch 1-Yr US Treasury Bill Index and the iMoneyNet First Tier Institutional Money Market Funds Net Index.
- As of March 31, 2018, the total value of all FHCF accounts was $7.5 billion.
### CAT Operating Fund Characteristics
\[\text{Period Ending 3/31/2018}\]

<table>
<thead>
<tr>
<th>Maturity Analysis</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 30 Days</td>
<td>21.31%</td>
</tr>
<tr>
<td>31 to 60 Days</td>
<td>9.69</td>
</tr>
<tr>
<td>61 to 90 Days</td>
<td>5.15</td>
</tr>
<tr>
<td>91 to 120 Days</td>
<td>4.87</td>
</tr>
<tr>
<td>121 to 150 Days</td>
<td>6.70</td>
</tr>
<tr>
<td>151 to 180 Days</td>
<td>11.66</td>
</tr>
<tr>
<td>181 to 270 Days</td>
<td>10.13</td>
</tr>
<tr>
<td>271 to 365 Days</td>
<td>13.82</td>
</tr>
<tr>
<td>366 to 455 Days</td>
<td>1.54</td>
</tr>
<tr>
<td>&gt;= 456 Days</td>
<td>15.13</td>
</tr>
<tr>
<td><strong>Total % of Portfolio:</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bond Rating Analysis</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA</td>
<td>57.27%</td>
</tr>
<tr>
<td>AA</td>
<td>8.43</td>
</tr>
<tr>
<td>A</td>
<td>34.30</td>
</tr>
<tr>
<td>Baa</td>
<td>0.00</td>
</tr>
<tr>
<td>Other</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total % of Portfolio</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>

### CAT 2013 A Fund Characteristics
\[\text{Period Ending 3/31/2018}\]

<table>
<thead>
<tr>
<th>Maturity Analysis</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 30 Days</td>
<td>7.86%</td>
</tr>
<tr>
<td>31 to 60 Days</td>
<td>1.55</td>
</tr>
<tr>
<td>61 to 90 Days</td>
<td>2.59</td>
</tr>
<tr>
<td>91 to 120 Days</td>
<td>4.75</td>
</tr>
<tr>
<td>121 to 150 Days</td>
<td>5.68</td>
</tr>
<tr>
<td>151 to 180 Days</td>
<td>2.57</td>
</tr>
<tr>
<td>181 to 270 Days</td>
<td>9.53</td>
</tr>
<tr>
<td>271 to 365 Days</td>
<td>6.25</td>
</tr>
<tr>
<td>366 to 455 Days</td>
<td>10.81</td>
</tr>
<tr>
<td>&gt;= 456 Days</td>
<td>48.41</td>
</tr>
<tr>
<td><strong>Total % of Portfolio:</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bond Rating Analysis</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA</td>
<td>80.08%</td>
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<tr>
<td>AA</td>
<td>11.69</td>
</tr>
<tr>
<td>A</td>
<td>8.23</td>
</tr>
<tr>
<td>Baa</td>
<td>0.00</td>
</tr>
<tr>
<td>Other</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total % of Portfolio</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>
### CAT 2016 A Fund Characteristics
**Period Ending 3/31/2018**

<table>
<thead>
<tr>
<th>Maturity Analysis</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 30 Days</td>
<td>8.97%</td>
</tr>
<tr>
<td>31 to 60 Days</td>
<td>0.41</td>
</tr>
<tr>
<td>61 to 90 Days</td>
<td>5.47</td>
</tr>
<tr>
<td>91 to 120 Days</td>
<td>2.39</td>
</tr>
<tr>
<td>121 to 150 Days</td>
<td>4.24</td>
</tr>
<tr>
<td>151 to 180 Days</td>
<td>7.70</td>
</tr>
<tr>
<td>181 to 270 Days</td>
<td>7.95</td>
</tr>
<tr>
<td>271 to 365 Days</td>
<td>6.78</td>
</tr>
<tr>
<td>366 to 455 Days</td>
<td>7.53</td>
</tr>
<tr>
<td>&gt;= 456 Days</td>
<td>48.56</td>
</tr>
<tr>
<td><strong>Total % of Portfolio:</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bond Rating Analysis</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA</td>
<td>71.47%</td>
</tr>
<tr>
<td>AA</td>
<td>15.68</td>
</tr>
<tr>
<td>A</td>
<td>12.85</td>
</tr>
<tr>
<td>Baa</td>
<td>0.00</td>
</tr>
<tr>
<td>Other</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total % of Portfolio</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>

### Florida PRIME Characteristics
**Quarter Ending 3/31/2018**

**Cash Flows as of 3/31/2018**

<table>
<thead>
<tr>
<th></th>
<th>First Quarter</th>
<th>Fiscal YTD*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening Balance</td>
<td>$11,428,954,534</td>
<td>$9,329,349,587</td>
</tr>
<tr>
<td>Participant Deposits</td>
<td>$4,862,785,763</td>
<td>$18,036,255,287</td>
</tr>
<tr>
<td>Gross Earnings</td>
<td>$51,350,083</td>
<td>$113,250,674</td>
</tr>
<tr>
<td>Participant Withdrawals</td>
<td>($4,756,284,139)</td>
<td>($15,890,581,594)</td>
</tr>
<tr>
<td>Fees</td>
<td>($983,520)</td>
<td>($2,451,234)</td>
</tr>
<tr>
<td>Closing Balance (3/31/2018)</td>
<td>$11,585,822,722</td>
<td>$11,585,822,722</td>
</tr>
<tr>
<td><strong>Change</strong></td>
<td><strong>$156,868,188</strong></td>
<td><strong>$2,256,473,135</strong></td>
</tr>
</tbody>
</table>

*Period July 2017 – March 2018*
Florida PRIME Characteristics
Quarter Ending 3/31/2018

Portfolio Composition

- Bank Instrument-Fixed
- Repurchase Agreements
- Corporate Commercial Paper-Fixed
- Bank Instrument-Floating
- Mutual Funds-Money Market
- Asset Backed Commercial Paper-Fixed
- Corporate Notes-Floating
- Corporate CP-Floating
- Asset Backed Commercial Paper-Floating
- Government

Florida PRIME Characteristics
Period Ending 3/31/2018

<table>
<thead>
<tr>
<th>Effective Maturity Schedule</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1-7 Days</td>
<td>33.7%</td>
</tr>
<tr>
<td>8 - 30 Days</td>
<td>25.4%</td>
</tr>
<tr>
<td>31 - 90 Days</td>
<td>27.1%</td>
</tr>
<tr>
<td>91 - 180 Days</td>
<td>13.0%</td>
</tr>
<tr>
<td>181+ Days</td>
<td>0.8%</td>
</tr>
<tr>
<td><strong>Total % of Portfolio:</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S &amp; P Credit Quality Composition</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1+</td>
<td>56.8%</td>
</tr>
<tr>
<td>A-1</td>
<td>43.2%</td>
</tr>
<tr>
<td><strong>Total % of Portfolio:</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>
Quarterly Investment Review

Visit the Aon Retirement and Investment Blog (http://retirementandinvestmentblog.aon.com); sharing our best thinking.
# Table of Contents

1. Market Environment .................................................. 1  
2. Total Fund ........................................................................ 15  
3. Global Equity .................................................................... 25  
4. Domestic Equities .......................................................... 27  
5. Foreign Equities ............................................................ 31  
6. Global Equities ............................................................. 35  
7. Fixed Income ..................................................................... 37  
8. Private Equity ............................................................... 41  
9. Real Estate ........................................................................ 45  
10. Strategic Investments ...................................................... 49  
11. Cash ................................................................................. 51  
12. Appendix .......................................................................... 53

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Market Environment

Following a positive initial start to 2018, bouts of volatility later in the quarter saw global equities slip from their heady heights and even move into “correction” territory. Expectations of a pick up in inflation and later extended by growing fears over a possible trade war between the U.S. and China were key drivers of underperformance last quarter. These events led global equities lower over the quarter with a return of -0.9% in Q1 2018 in U.S. dollar terms. The weakening of the U.S. dollar (1.3% in trade-weighted terms) dragged down the returns further to -1.7% in local currency terms.

With the exception of Emerging Markets and Japan, all regions shown above generated negative returns over the quarter. Emerging Markets was the strongest performer, returning 1.3% in the first quarter of 2018. A very strong start to the year (6.8% over January in local currency terms) provided a sufficient enough cushion to offset later market falls. Canadian equities were one of the worst performers over the quarter, returning -7.5% as economic momentum waned while an unscheduled shutdown in oilsands production detracted from energy sector performance.
The two exhibits on this slide illustrate the percentage that each country/region represents of the global and international equity markets as measured by the MSCI All Country World IMI Index and the MSCI All Country World ex-U.S. IMI Index, respectively.

The Russell 3000 Index returned -0.6% during the first quarter and 13.8% over the one-year period.

All sectors generated negative returns over the quarter with the exception of Technology (3.6%) and Consumer Discretionary (1.7%) sectors; the former was supported by a strong earnings season. Focusing on the sectors that detracted from returns, Consumer Staples and Energy were the weakest performers with returns of -7.4% and -6.0%, respectively, in Q1 2018.

In general, smaller cap and growth-oriented U.S. equities outperformed over the quarter. With the majority of their revenue generated domestically, small cap stocks were less affected by fears of rising protectionism while U.S. tax reform provided additional impetus. Over the last twelve months, value stocks continue to lag their growth stock equivalents significantly (double-digit underperformance across the market capitalization spectrum).
### U.S. Fixed Income Markets

**The Bloomberg Barclays U.S. Aggregate Bond Index returned -1.5% in the first quarter.** The turbulence in equity markets seeped into credit markets with credit spreads widening over the quarter. Investment grade corporate bonds fell the most over the quarter, returning -2.3%. ABS performed relatively well, returning -0.4%.

- Performance was negative across all credit qualities with A-rated bonds falling the most at -2.5%. Despite the increase in volatility, high-yield bonds fared relatively well. The -0.9% return outperformed all investment grade qualities.
- Long-maturity bonds underperformed intermediate- and short-maturity bonds through the quarter due to their greater interest rate sensitivity.

**The Treasury yield curve shifted upwards over the quarter with yields rising across maturities, but to a greater extent at shorter maturities.**

**The 10-year U.S. Treasury yield ended the quarter at 2.74%, 34bps higher than at the start of the quarter as expectations of robust growth and an acceleration in inflation drove yields higher.** The U.S. Federal Reserve increased its federal rate target to 1.50%-1.75% in Jerome Powell’s first meeting as the new Chairman of the U.S. Federal Reserve, taking a more hawkish stance while also noting an improvement in the economic outlook.

**Unlike previous quarters where the upward move in nominal yields was driven by higher inflation expectations, higher real yields were responsible for much of the quarterly change.** The 10-year TIPS yield rose by 25bps over the quarter and ended the period at 0.69%.
In the eurozone, bond spreads over 10-year German bunds were mixed across the region. Spanish government bond yields fell by 38bps to 1.16% over the quarter which saw Fitch (a ratings agency) upgrade Spain’s sovereign credit rating, citing broad-based economic recovery and limited economic impact caused by Catalonia’s declaration of independence.

Italian bond yields fell by 20bps to 1.79%, despite the greater uncertainty surrounding Italian politics following March’s general election. Portuguese government bond yields fell by 32bps to 1.59%.

Greek government bond yields rose by 22bps to 4.29%, despite a credit rating upgrade by S&P, Fitch, and Moody’s. Nonetheless, Greece’s credit rating remains several notches below investment grade quality. The spread between Greek bonds and German bunds moved 15bps higher in the first three months of 2018.

During the fourth quarter, spreads over U.S. Treasuries increased across all the areas of the bond market except for long-maturity U.S. government bonds, which fell by 1bp.

The increase in spreads was particularly felt within the U.S. investment grade corporate bond market where spreads widened by 16bps. Global Emerging Market and ABS credit spreads were not too far behind, by 15bps and 12bps, respectively.
The downward trend in the U.S. dollar that began early last year continued into 2018 with the U.S. dollar weakening by a further 1.3% on a trade-weighted basis over the quarter. Although the U.S. Federal Reserve hiked the Federal Funds rate in March, widening interest rate differentials were not enough to arrest the downward trend in the U.S. dollar. Instead, expectations of greater U.S. borrowing in order to finance the proposed fiscal stimulus has likely put pressure on the “greenback”.

The U.S. dollar depreciated against all the major currencies. Both the Bank of England (BoE) and the European Central Bank (ECB) left their respective policy rates unchanged at 0.5% and 0.0%. The former looks set to increase their base rate by 25bps in the second quarter of 2018 while a rate hike may be further away for the ECB. Tapering of the ECB’s sizable quantitative easing program, however, appears to be firmly on their agenda for later this year.

Commodities

Commodities had a mixed quarter that saw the Bloomberg Commodity Index return -0.4%, dragged down primarily by the Industrial Metals’ poor performance. Higher energy prices on the back of prospects of OPEC maintaining oil production cuts throughout 2018 were not enough to mitigate the 6.2% fall for the Industrial Metals sector.

The imposition of trade tariffs on steel and aluminum, as well as concerns that there could be further escalation in trade tensions which could stifle demand, was attributable to the negative returns for Industrial Metals. In particular, the price of copper fell by 8.3% over the quarter.

Over the quarter, the best-performing segment was Agriculture with a return of 3.1%, followed by Energy (1.8%). Within the Agriculture sector, Grains was the best performer with a solid return of 7.1%, which offset the sharp fall in the Softs segment.
### Hedge Fund Markets Overview

**HEDGE FUND PERFORMANCE AS OF 03/31/2018**

- Fixed Income/Convertible Arb.: 1.0%
- Global Macro: 1.0%
- Equity Hedge: 1.1%
- Emerging Markets: 1.2%
- Event-Driven: 1.4%
- Distressed/Restructuring: 1.8%
- Relative Value: 3.2%
- Fund-Weighted Composite Index: 4.8%
- Fund of Funds Composite Index: 5.9%

**First Quarter 2018**
- 10.6x EBITDA
- 9.8x
- 10.0x
- 12.0x

**One-Year**
- 9.6x
- 11.6x
- 6.0x
- 4.0x
- 2.0x
- 0.0x

Note: Latest five months of HFR data are estimated by HFR and may change in the future.
Source: HFR

- Against a backdrop of higher equity market volatility, hedge fund performance was generally positive over the first quarter, except for Global Macro strategies. The latter ended the first quarter down 1.0%.

- In the first three months to March 2018, the HFRI Fund-Weighted Composite Index and the HFRI Fund of Funds Composite Index produced returns of 0.3% and 0.9%, respectively.

- Emerging Market hedge funds continued to be the best performer, particularly over the last year, with a return of 13.3%. The level of outperformance relative to other strategies was less marked over the three-month horizon; a return of 1.1% was marginally ahead of the 1.0% recorded by Fixed Income/Convertible Arbitrage strategies.

---

### Private Equity Market Overview—Fourth Quarter 2017

- **Fundraising:** In 2017, $303.6 billion was raised by 3,394 funds, which despite being down 20.9% on a deal basis, was up 35% on a capital basis year-over-year. Dry powder stood at nearly $1.4 trillion at the end of the year, an increase of 7.6% and 34.9% compared to 2016 and the five-year average, respectively.5

- **Buyout:** Global private equity-backed buyout deals totaled $364.7 billion in 2017, which was an increase of 7.6% and 5.4% from 2016 and the five-year average, respectively.6 At the end of 2017, the average purchase price multiple for all U.S. LBOs was 10.6x EBITDA, up from both 2016 (10.0x) and the five-year average (9.5x).7 Middle-market purchase price multiples stood at 11.6x, up compared to 10.2x in 2016. The weighted average purchase price multiple across all European transaction sizes averaged 10.7x EBITDA on a full-year 2017 basis, up from 9.3x in 2016. Purchase prices for transactions of €1.0 billion or more increased slightly from 11.4x to 11.6x year-over-year. Transactions between €200.0 million and €500.0 million were up 0.5x from 2016, and stood at 9.7x.8 Globally, exit value totaled $294.7 billion on 1,796 deals in 2017 compared to $361.5 billion on 1,290 deals in the prior year.4

- **Venture:** During the year, 5,268 venture-backed transactions totaling $74.2 billion were completed, which was an increase on a capital basis over the prior year’s total of $61.7 billion across 5,343 deals. This was 39.0% higher than the five-year average of $53.5 billion.9 Total U.S. venture-backed exit activity totaled approximately $51.0 billion across 769 completed transactions in 2017, down from $52.9 billion across 857 exits in 2016.8

- **Mezzanine:** 35 funds closed on $11.6 billion during the year. This was a decrease from the prior year’s total of $31.5 billion raised by 46 funds and represented a decline of 60.3% from the five-year average of $19.4 billion. Dry powder was $50.5 billion at the end of 2017, which was down 4.7% from year-end 2016.1

- **Distressed Debt:** The LTM U.S. high-yield default rate was 1.8% as of year-end 2017, which was up from September 2017’s LTM rate of 1.6%.1 Distressed debt and bankruptcy restructuring activity totaled $282.2 billion during 2017, representing a decline of 18.0% from 2016. U.S. activity accounted for $114.4 billion in 2017 and was down 38.0% from 2016.6

- **Secondaries:** 42 funds raised $42.4 billion during the year, up from $29.3 billion by 39 funds in 2016.7 The average discount rate for all private equity sectors finished the year at 7.9%, down from 8.5% at the end of 2016.7

- **Infrastructure:** $67.4 billion of capital was raised by 79 funds in 2017 compared to $65.8 billion of capital raised by 81 partnerships in 2016. At the end of the year, dry powder stood at $158.0 billion, up from the third quarter’s record total of $154.0 billion. Infrastructure managers completed 2,378 deals with an estimated aggregate deal value of $916.0 billion in 2017 compared to 2,299 deals totaling $809.7 billion in 2016.8

- **Natural Resources:** During 2017, 31 funds closed on $19.4 billion compared to 52 funds totaling $24.9 billion in 2016. Energy and utilities industry managers completed approximately 130 deals totaling $36.9 billion in 2017, compared to $22.0 billion across 215 deals in 2016.8

**Sources:** 1 Preqin 2 Standard & Poor’s 3 PWC/CS Insights MoneyTree Report 4 PitchBook/NVCA Venture Monitor 5 Fitch Ratings 6 Thomson Reuters 7 UBS

Notes: FY: Fiscal year ended 12/31; YTD: Year to date; LTM: Last twelve months (aka trailing twelve months); PPM: Purchase Price Multiples; Total Purchase Price = EBITDA.

Investment advice and consulting services provided by Aon Hewitt Investment Consulting, Inc., an Aon Company.
Core real estate returns generated 2.19%* in the first quarter, which is 12bps higher than Q4 2017 and a decrease of 29bps year-over-year (YOY). Asset appreciation accelerated during the quarter at a fairly robust 1.15%, surprising and outpacing the income return (1.04%). Investment returns are expected to continue to moderate over the medium term.

Global property stocks (FTSE EPRA/NAREIT Developed Index) fell 4.3% during the first quarter, posting losses in each of the major regions in conjunction with rising bond yields and weakness in broader equity markets, with the most significant weakness in the U.S. The U.S. REIT market (FTSE NAREIT Equity REITs Index) declined 7.8% in Q1 after gaining 3.9% in the full year 2017. The sector experienced significant weakness through mid-February leading to share price declines in excess of 10% followed by a modest recovery in March. Share price weakness appeared to be largely related to concerns with regard to the impact on REIT share prices in a higher interest rate environment. With asset values for high-quality assets, on average, approximately 15%-20% above 2007 valuations, the sector ended the quarter trading at a 6% discount to NAVs.

U.S. transaction volume continued to demonstrate a declining trend in early Q1, with February data marking a 10% drop in transaction volume YOY. Property sales remain subdued due to fewer entity and portfolio deals over the past year, as well as concern over a rising interest rate environment and a widening gap between buyers’ and sellers’ future return expectations.

Despite the declining trend in sales, pricing is holding fairly firm or still growing, up 8% nationally YOY in February, with Apartment and Industrial leading these results. Cap rates have remained low and sticky, sitting today at similar levels to Q1 2017.

Dry powder for non core real estate investments currently stands at another all-time peak for all regions. While this should help support current sector pricing for a bit longer, moderating trends in underlying fundamentals (e.g., rent growth, supply-demand balance), interest rates, and economic tailwinds raise investment risk levels at this mature point in the cycle. To-date, the U.S. continues to benefit as a global safe haven.

The U.S. real estate cycle is mature and thus more susceptible to bumps along the road. While still solid income returns are forecast to continue to support attractive relative returns versus many other asset classes, portfolio construction consideration is critical. At this point in the cycle, appropriate risk mitigation measures should be a staple in all investment portfolios as new investments will likely be required to ride out a cyclical downturn–though none is clearly on the horizon yet.

Sources: NCREIF, RCA, CBRE-EA, Aon Hewitt. *Indicates preliminary NFI-ODCE data (gross of fees)
Executive Summary
- Performance of the Pension Plan, when measured against the Performance Benchmark, has been strong over short- and long-term time periods.
- Performance relative to peers is also competitive over short- and long-term time periods.
- The Pension Plan is well-diversified across six broad asset classes, and each asset class is also well-diversified.
- Public market asset class investments do not significantly deviate from their broad market based benchmarks, e.g., sectors, market capitalizations, global regions, credit quality, duration, and security types.
- Private market asset classes are well-diversified by vintage year, geography, property type, sectors, investment vehicle/asset type, or investment strategy.
- Asset allocation is monitored on a daily basis to ensure the actual asset allocation of the plan remains close to the long-term policy targets set forth in the Investment Policy Statement.
- Aon Hewitt Investment Consulting and SBA staff revisit the plan design annually through informal and formal asset allocation and asset liability reviews.
- Adequate liquidity exists within the asset allocation to pay the monthly obligations of the Pension Plan consistently and on a timely basis.

Performance Highlights
- During the quarter, the Total Fund outperformed the Performance Benchmark. The Total Fund outperformed the Performance Benchmark during the trailing one-, three-, five-, and ten-year periods.

Asset Allocation
- The Fund assets total $160.5 billion as of March 31, 2018, which represents a $1.6 billion decrease since last quarter.
- Actual allocations for all asset classes were within their respective policy ranges at quarter-end.
- The Fund was modestly overweight to global equity, with a corresponding underweight to fixed income.
Change in Market Value
From January 1, 2018 to March 31, 2018

Summary of Cash Flow

<table>
<thead>
<tr>
<th></th>
<th>1 Quarter</th>
<th>Fiscal* YTD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Fund</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beginning Market Value</td>
<td>162,090,223,288</td>
<td>153,573,300,932</td>
</tr>
<tr>
<td>+ Additions / Withdrawals</td>
<td>-1,665,052,159</td>
<td>-6,125,867,869</td>
</tr>
<tr>
<td>+ Investment Earnings</td>
<td>105,773,973</td>
<td>12,083,552,039</td>
</tr>
<tr>
<td>= Ending Market Value</td>
<td>160,530,945,101</td>
<td>160,530,945,101</td>
</tr>
</tbody>
</table>

*Period July 2017 - December 2017

Total Fund
As of March 31, 2018

Total Plan Asset Summary

Total Plan Performance Summary

Return Summary
### Asset Allocation & Performance

#### All Public Plans > $1B - Total Fund

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Market Value ($)</th>
<th>% Allocation</th>
<th>Policy (%)</th>
<th>1 Quarter</th>
<th>Fiscal YTD</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global Equities</strong></td>
<td>90,783,585,070</td>
<td>56.6%</td>
<td>56.2%</td>
<td>-0.7%</td>
<td>10.8%</td>
<td>15.0%</td>
<td>6.3%</td>
<td>7.6%</td>
<td>8.5%</td>
</tr>
<tr>
<td><strong>Domestic Equities</strong></td>
<td>41,150,566,477</td>
<td>25.6%</td>
<td>-0.6%</td>
<td>-0.9%</td>
<td>10.3%</td>
<td>13.0%</td>
<td>7.3%</td>
<td>9.0%</td>
<td>7.0%</td>
</tr>
<tr>
<td><strong>Foreign Equities</strong></td>
<td>39,389,789,846</td>
<td>24.5%</td>
<td>-0.4%</td>
<td>-1.1%</td>
<td>10.6%</td>
<td>13.4%</td>
<td>6.3%</td>
<td>8.0%</td>
<td>6.0%</td>
</tr>
<tr>
<td><strong>Fixed Income</strong></td>
<td>30,044,787,813</td>
<td>18.7%</td>
<td>19.7%</td>
<td>-0.9%</td>
<td>12.4%</td>
<td>13.4%</td>
<td>6.3%</td>
<td>8.0%</td>
<td>6.0%</td>
</tr>
<tr>
<td><strong>Private Equity</strong></td>
<td>10,996,155,059</td>
<td>6.8%</td>
<td>6.6%</td>
<td>4.3%</td>
<td>14.2%</td>
<td>14.5%</td>
<td>7.2%</td>
<td>9.2%</td>
<td>9.2%</td>
</tr>
<tr>
<td><strong>Real Estate</strong></td>
<td>14,103,204,743</td>
<td>8.8%</td>
<td>8.7%</td>
<td>1.7%</td>
<td>12.4%</td>
<td>17.6%</td>
<td>6.3%</td>
<td>8.0%</td>
<td>6.0%</td>
</tr>
<tr>
<td><strong>Strategic Investments</strong></td>
<td>12,907,121,618</td>
<td>8.0%</td>
<td>7.9%</td>
<td>1.5%</td>
<td>12.4%</td>
<td>17.6%</td>
<td>6.3%</td>
<td>8.0%</td>
<td>6.0%</td>
</tr>
<tr>
<td><strong>Cash</strong></td>
<td>1,696,090,798</td>
<td>1.1%</td>
<td>1.0%</td>
<td>0.4%</td>
<td>1.0%</td>
<td>1.2%</td>
<td>0.7%</td>
<td>0.5%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

**Total Fund**

<table>
<thead>
<tr>
<th>% Allocation</th>
<th>Policy (%)</th>
<th>1 Quarter</th>
<th>Fiscal YTD</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>100</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Performance Benchmark**

<table>
<thead>
<tr>
<th>% Allocation</th>
<th>Policy (%)</th>
<th>1 Quarter</th>
<th>Fiscal YTD</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1%</td>
<td>-36%</td>
<td>7.9%</td>
<td>11.9%</td>
<td>7.6%</td>
<td>8.5%</td>
<td>6.7%</td>
<td>7.1%</td>
</tr>
</tbody>
</table>

2017: 7.1% (61) 2016: 1.4% (10) 2015: 0.3% (35)

### Plan Sponsor Peer Group Analysis

#### All Public Plans > $1B - Total Fund

<table>
<thead>
<tr>
<th>1 Quarter</th>
<th>Fiscal YTD</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
<th>2017</th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1% (36)</td>
<td>7.9% (32)</td>
<td>11.9% (15)</td>
<td>7.6% (9)</td>
<td>8.5% (18)</td>
<td>6.7% (17)</td>
<td>17.2% (13)</td>
<td>7.1% (61)</td>
<td>1.4% (10)</td>
</tr>
</tbody>
</table>

**Total Fund**

<table>
<thead>
<tr>
<th>1 Quarter</th>
<th>Fiscal YTD</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
<th>2017</th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.5% (76)</td>
<td>7.3% (49)</td>
<td>10.6% (45)</td>
<td>6.7% (42)</td>
<td>7.6% (45)</td>
<td>6.4% (83)</td>
<td>6.6% (19)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5th Percentile: 0.7% 1st Quartile: 0.3% Median: -0.1% 3rd Quartile: -0.5% 95th Percentile: -1.2%

Population: 100 100 99 93 90 82 103 110 97

Parentheses contain percentile rankings.

---

Benchmark and universe descriptions can be found in the Appendix.

* Global Equity became an asset class in July 2010. The historical return series prior to July 2010 was derived from the underlying Domestic Equities, Foreign Equities, and Global Equities components.
Global Equity 50.7%
Fixed Income 24.7%
Real Estate 6.1%
Alternatives 16.9%
Cash 1.6%

*Global Equity Allocation: 25.6% Domestic Equities; 24.5% Foreign Equities; 5.5% Global Equities; 0.9% Global Equity Liquidity Account. Percentages are of the Total FRS Fund.

**Global Equity Allocation: 29.8% Domestic Equities; 20.9% Foreign Equities.

Basis Points
1-Year Ending 3/31/2018
-50 0 50 100 150
Total Fund
-3 Cash AA*
4 TAA
6 Strategic Investments
16 Real Estate
10 Private Equity
57 Global Equity
24 Total Fund

5-Year Ending 3/31/2018
-50 0 50 100 150
Total Fund
-3 Cash AA*
4 TAA
16 Strategic Investments
9 Real Estate
10 Private Equity
42 Global Equity
10 Total Fund


**Other includes legacy accounts and unexplained differences due to methodology.
### Asset Allocation Compliance

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Market Value ($)</th>
<th>Current Allocation (%)</th>
<th>Target Allocation (%)</th>
<th>Minimum Allocation (%)</th>
<th>Maximum Allocation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fund</td>
<td>160,530,945,101</td>
<td>100.0</td>
<td>100.0</td>
<td>45.0</td>
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<td>90,783,585,070</td>
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<td>4.0</td>
<td>16.0</td>
</tr>
<tr>
<td>Strategic Investments</td>
<td>12,907,121,618</td>
<td>8.0</td>
<td>7.9</td>
<td>0.0</td>
<td>16.0</td>
</tr>
<tr>
<td>Cash</td>
<td>1,696,090,798</td>
<td>1.1</td>
<td>1.0</td>
<td>0.3</td>
<td>5.0</td>
</tr>
</tbody>
</table>

* Global Equity became an asset class in July 2010. The historical return series prior to July 2010 was derived from the underlying Domestic Equities, Foreign Equities, and Global Equities components.
Global Equity

As of March 31, 2018

Global Equity* Portfolio Overview

Current Allocation
March 31, 2018: $90,784M

Return Summary

* Global Equity became an asset class in July 2010. The historical return series prior to July 2010 was derived from the underlying Domestic Equities, Foreign Equities, and Global Equities components.
Domestic Equities

As of March 31, 2018

Domestic Equities Portfolio Overview

Current Allocation
March 31, 2018: $41,151M

- External Active 15.7%
- Internal Active 0.4%
- Internal Passive 83.9%

Return Summary

- Domestic Equities
- Asset Class Target

- Quarter: 0.8, 0.6
- Fiscal YTD: 10.8, 10.5
- 1 Year: 14.1, 13.8
- 3 Years: 10.8, 10.2
- 5 Years: 13.9, 13.0
- 10 Years: 9.8, 9.8
As of March 31, 2018
Plan Sponsor Peer Group Analysis

All Public Plans > $1B-US Equity Segment

<table>
<thead>
<tr>
<th></th>
<th>1 Quarter</th>
<th>Fiscal YTD</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
<th>2017</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Equities</td>
<td>-0.6 (57)</td>
<td>10.8 (34)</td>
<td>14.1 (37)</td>
<td>10.0 (31)</td>
<td>13.0 (17)</td>
<td>9.8 (27)</td>
<td>-0.6 (57)</td>
<td>21.2 (25)</td>
<td>11.9 (64)</td>
</tr>
<tr>
<td>Asset Class Target</td>
<td>-0.6 (58)</td>
<td>10.5 (45)</td>
<td>13.8 (46)</td>
<td>10.2 (19)</td>
<td>13.0 (17)</td>
<td>9.6 (30)</td>
<td>-0.6 (58)</td>
<td>21.1 (29)</td>
<td>12.7 (47)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Percentile</th>
<th>5th</th>
<th>1st Quartile</th>
<th>Median</th>
<th>3rd Quartile</th>
<th>95th Percentile</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Equities</td>
<td>0.9</td>
<td>13.0</td>
<td>17.1</td>
<td>10.9</td>
<td>13.4</td>
<td>10.1</td>
</tr>
<tr>
<td>Asset Class Target</td>
<td>0.0</td>
<td>11.0</td>
<td>14.6</td>
<td>10.1</td>
<td>12.9</td>
<td>9.8</td>
</tr>
<tr>
<td>Population</td>
<td>68</td>
<td>67</td>
<td>67</td>
<td>64</td>
<td>64</td>
<td>54</td>
</tr>
</tbody>
</table>

Parentheses contain percentile rankings.
Foreign Equities

Current Allocation
March 31, 2018: $39,390M

Return Summary

-10.0 0.0 10.0 20.0 30.0

1 Quarter 1 Year 3 Years 5 Years 10 Years

-0.4 -1.5 11.5 10.6 19.0 17.1 6.0 6.8 7.3 6.3 4.4 3.1

Foreign Equities Asset Class Target
### Plan Sponsor Peer Group Analysis

**All Public Plans > $1B-Intl. Equity Segment**

As of March 31, 2018

<table>
<thead>
<tr>
<th></th>
<th>1 Quarter</th>
<th>Fiscal YTD</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
<th>Year To Date</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Foreign Equities</strong></td>
<td>-0.4 (44)</td>
<td>11.5 (32)</td>
<td>19.0 (28)</td>
<td>8.0 (23)</td>
<td>7.3 (36)</td>
<td>4.4 (14)</td>
<td>-0.4 (44)</td>
<td>30.2 (19)</td>
<td>4.1 (37)</td>
</tr>
<tr>
<td><strong>Asset Class Target</strong></td>
<td>-1.1 (73)</td>
<td>10.6 (59)</td>
<td>17.1 (68)</td>
<td>6.8 (59)</td>
<td>6.3 (74)</td>
<td>3.1 (70)</td>
<td>-1.1 (73)</td>
<td>27.9 (58)</td>
<td>4.3 (33)</td>
</tr>
</tbody>
</table>

5th Percentile: 0.8  13.6  21.5  9.1  8.5  5.7  0.8  32.8  7.9
1st Quartile: 0.0  11.9  19.1  7.9  7.6  3.9  0.0  29.8  4.7
Median: -0.6  10.8  18.1  7.1  6.8  3.4  -0.6  28.5  3.4
3rd Quartile: -1.2  9.5  16.6  6.3  6.2  2.9  -1.2  26.8  2.3
95th Percentile: -1.8  6.4  11.2  5.2  5.5  1.9  -1.8  20.3  -0.9

Population: 70  70  69  65  53  33  70  65  64

Parentheses contain percentile rankings.
Global Equities Performance Summary
As of March 31, 2018

Return Summary

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Fiscal YTD</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-1.2</td>
<td>9.0</td>
<td>14.0</td>
<td>9.0</td>
<td>9.8</td>
<td>5.7</td>
</tr>
<tr>
<td>-1.2</td>
<td>9.4</td>
<td>9.4</td>
<td>9.5</td>
<td>5.7</td>
<td>6.0</td>
</tr>
</tbody>
</table>
Fixed Income

As of March 31, 2018

Fixed Income Portfolio Overview

Current Allocation
March 31, 2018: $30,045M

- Fixed Income Liquidity 4.2%
- Passive Internal 41.8%
- Active Internal 20.7%
- Active External 33.3%
- Other 0.0%

Return Summary

- 1 Quarter: -0.9, -0.3, -0.4
- 1 Fiscal YTD: -0.3, -0.4
- 1 Year: 0.5, 1.2, 1.0
- 3 Years: 1.5, 1.3
- 5 Years: 4.0, 3.4
- 10 Years: 4.0, 3.4

Fixed Income
Asset Class Target
Plan Sponsor Peer Group Analysis

As of March 31, 2018

All Public Plans > $1B-US Fixed Income Segment

<table>
<thead>
<tr>
<th>Return</th>
<th>1 Quarter</th>
<th>Fiscal YTD</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
<th>Year To Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Income</td>
<td>-0.9 (42)</td>
<td>-0.3 (92)</td>
<td>0.7 (95)</td>
<td>1.2 (82)</td>
<td>1.5 (85)</td>
<td>4.0 (60)</td>
<td>-0.9 (42)</td>
</tr>
<tr>
<td>Asset Class Target</td>
<td>-1.1 (52)</td>
<td>-0.4 (94)</td>
<td>0.5 (97)</td>
<td>1.0 (90)</td>
<td>1.3 (89)</td>
<td>3.4 (80)</td>
<td>-1.1 (52)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Return</th>
<th>5th Percentile</th>
<th>1st Quartile</th>
<th>Median</th>
<th>3rd Quartile</th>
<th>95th Percentile</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Income</td>
<td>-0.1</td>
<td>2.6</td>
<td>4.3</td>
<td>4.1</td>
<td>4.5</td>
<td>6.6</td>
</tr>
<tr>
<td>Asset Class Target</td>
<td>-1.0</td>
<td>0.6</td>
<td>1.9</td>
<td>2.0</td>
<td>2.1</td>
<td>4.2</td>
</tr>
</tbody>
</table>

Population: 70

Parentheses contain percentile rankings.

(This page is left blank intentionally)
As of March 31, 2018

Overview

Private Equity

FRS Private Equity by Market Value*

- LBO: 70.4%
- Venture Capital: 19.4%
- Other: 10.2%

Preqin Private Equity Strategies by Market Value**

- LBO: 46.8%
- Venture Capital: 15.5%
- Other****: 37.7%

*Allocation data is as of March 31, 2018.
**Allocation data is as of June 30, 2015, from the Preqin database.
****Other for the FRS Private Equity consists of Growth Capital, Secondary, PE Cash, and PE Transition.
*****Other for the Preqin data consists of Distressed PE, Growth, Mezzanine, and other Private Equity/Special Situations.

Preqin universe is comprised of 10,000 private equity funds representing $3.8 trillion.
As of December 31, 2017

Since Inception

Rate of Return (%)

Private Equity Legacy Portfolio* Post-AC Portfolio**

Rate of Return (%)

Since Inception

Rate of Return (%)

As of March 31, 2018

Private Equity Legacy Return Summary as of March 31, 2018

Private Equity Post Asset Class Return Summary as of March 31, 2018

Private Equity Return Summary as of March 31, 2018

Time-Weighted Investment Results

Dollar-Weighted Investment Results

*The Inception Date for the Legacy Portfolio is January 1989.
**The Inception Date for the Post-AC Portfolio is September 2000.
***The Secondary Target is a blend of the Cambridge Associates Private Equity Index and the Cambridge Associates Venture Capital Index based on actual ABAL weights. Secondary Target data is on a quarterly lag.
Real Estate

As of December 31, 2017

Overview

*Property Allocation data is as of December 31, 2017. The FRS chart includes only the FRS private real estate assets. Property type information for the REIT portfolios is not included.

**Other for the FRS consists of Hotel, Land, Preferred Equity, Agriculture, Self-Storage and Senior Housing.

***Other for the NFI-ODCE Index consists of Hotel, Senior Living, Health Care, Mixed Use, Single Family Residential, Parking, Timber/Agriculture, Land and Infrastructure.
Real Estate Portfolio Overview

Current Allocation
March 31, 2018: $14,103M

- Externally Managed Joint Ventures 0.0%
- REITs 9.9%
- Cash 1.0%
- Pooled Funds 27.5%
- Principal Investments 61.6%

Return Summary

1. Real Estate Portfolio Overview
2. Principal Investments Return Summary as of March 31, 2018
3. Pooled Funds Return Summary as of March 31, 2018
4. REITs Return Summary as of March 31, 2018

Real Estate

Principal Investments Return Summary as of March 31, 2018

- 1 Year: 7.6%
- 3 Years: 10.3%
- 5 Years: 11.4%
- 10 Years: 7.3%

- NCREIF NPI Index
- Asset Class Target

Pooled Funds Return Summary as of March 31, 2018

- 1 Year: 11.3%
- 3 Years: 10.9%
- 5 Years: 13.3%
- 10 Years: 3.2%

- NFI-ODCE Index Net of Fees
- Asset Class Target

REITs Return Summary as of March 31, 2018

- 1 Year: 5.9%
- 3 Years: 2.9%
- 5 Years: 5.4%
- 10 Years: 5.4%

- FTSE EPRA/NAREIT Developed Index
Strategic Investments

As of March 31, 2018

Strategic Investments Portfolio Overview

Current Allocation
March 31, 2018: $12,907M

- SI Cash AA 0.6%
- SI Equity 20.3%
- SI Real Assets 19.2%
- SI Diversifying Strategies 18.6%
- SI Flexible Mandates 13.4%
- SI Debt 27.9%

Return Summary

- 1 Quarter
- Fiscal YTD
- 1 Year
- 3 Years
- 5 Years
- 10 Years

Strategic Investments
Short-Term Target
Cash Performance Summary

As of March 31, 2018

Return Summary

- Cash
- MoneyNet First Tier Institutional Money Market Funds Net Index
Appendix

As of March 31, 2018

Appendix

Total FRS Assets

Performance Benchmark: A combination of the Global Equity Target, the Barclays Capital U.S. Intermediate Aggregate Index, the Private Equity Target Index, the Real Estate Investments Target Index, the Strategic Investments Target Benchmark, and the iMoneyNet First Tier Institutional Money Market Funds Net Index. The short-term target policy allocations to the Strategic Investments, Real Estate and Private Equity asset classes are floating and based on the actual average monthly balance of the Global Equity asset class. Please refer to section VII, Performance Measurement in the FRS Defined Benefit Plan Investment Policy Statement for more details on the calculation of the Performance Benchmark. Prior to October 1, 2013, the Performance benchmark was a combination of the Global Equity Target, the Barclays Aggregate Bond Index, the Private Equity Target Index, the Real Estate Investments Target Index, the Strategic Investments Target Benchmark, and the iMoneyNet First Tier Institutional Money Market Funds Net Index. The short-term target policy allocations to the Strategic Investments, Real Estate and Private Equity asset classes are floating and based on the actual average monthly balance of the Global Equity asset class. Prior to July 2010, the Performance Benchmark was a combination of the Russell 3000 Index, the Foreign Equity Target Index, the Strategic Investments Target Benchmark, the Barclays Aggregate Bond Index, the Real Estate Investments Target Index, the Private Equity Target Index, the Barclays U.S. High Yield Ba/B 2% Issuer Capped Index, and the iMoneyNet First Tier Institutional Money Market Funds Gross Index. During this time, the short-term target policy allocations to Strategic Investments, Real Estate and Private Equity asset classes were floating and based on the actual average monthly balance of the Strategic Investments, Real Estate and Private Equity asset classes. The target weights shown for Real Estate and Private Equity were the allocations that the asset classes were centered around. The actual target weight floated around this target month to month based on changes in asset values.

Total Global Equity

Performance Benchmark: A custom version of the MSCI All Country World Investable Market Index, adjusted to exclude companies divested under the provisions of the Protecting Florida’s Investments Act (PFIA). Prior to July 2010, the asset class benchmark is a weighted average of the underlying Domestic Equities, Foreign Equities and Global Equities historical benchmarks.

Total Domestic Equities

Performance Benchmark: The Russell 3000 Index. Prior to July 1, 2002, the benchmark was the Wilshire 2500 Stock Index. Prior to January 1, 2001, the benchmark was the Wilshire 2500 Stock Index ex-Tobacco. Prior to May 1, 1997, the benchmark was the Wilshire 2500 Stock Index. Prior to September 1, 1994, the benchmark was the S&P 500 Stock Index.

Total Foreign Equities

Performance Benchmark: A custom version of the MSCI ACWI ex-U.S. Investable Market Index adjusted to exclude companies divested under the PFIA. Prior to April 1, 2008, it was the MSCI All Country World Index ex-U.S. Investable Market Index. Prior to September 24, 2007, the target was the MSCI All Country World ex-U.S. Free Index. Prior to November 1, 1999, the benchmark was 85% MSCI Europe, Australasia and Far East (EAFE) Foreign Stock Index and 15% IFCI Emerging Markets Index with a half weight in Malaysia. Prior to March 31, 1995, the benchmark was the EAFE Index.

Total Global Equities

Performance Benchmark: Aggregated based on each underlying manager's individual benchmark. The calculation accounts for the actual weight and the benchmark return. The benchmarks used for the underlying managers include both the MSCI FSB All Country World ex-Sudan ex-Iran Net Index and MSCI FSB All Country World ex-Sudan ex-Iran Net Investable Market Index (IMI).
Appendix

As of March 31, 2018

Performance Benchmark: The Barclays Capital U.S. Intermediate Aggregate Bond Index. Prior to October 1, 2013, it was the Barclays U.S. Aggregate Bond Index. Prior to June 1, 2007, it was the Fixed Income Management Aggregate (FIMA). Prior to July 1, 1999, the benchmark was the Florida High Yield Extended Duration Index. Prior to July 31, 1997, the benchmark was the Florida Extended Duration Index. Prior to July 1, 1989, the Salomon Brothers Broad Investment-Grade Bond Index was the benchmark. For calendar year 1985, the performance benchmark was 70% Shearson Lehman Extended Duration and 30% Salomon Brothers Mortgage Index.

Performance Benchmark: The MSCI All Country World Investable Market Index (ACWI IMI), adjusted to reflect the provisions of the Protecting Florida's Investments Act, plus a fixed premium return of 300 basis points per annum. Prior to July 1, 2014, the benchmark was the domestic equities target index return (Russell 3000 Index) plus a fixed premium return of 450 basis points per annum. Prior to July 1, 2010, it was the domestic equities target index return plus a fixed premium return of 450 basis points per annum. Prior to November 1, 1999, Private Equities was part of the Domestic Equities asset class and its benchmark was the domestic equities target index return plus 750 basis points.

Performance Benchmark: The core portion of the asset class is benchmarked to an average of the National Council of Real Estate Investment Fiduciaries (NCREIF) Fund Index-Open-ended Diversified Core Equity, net of fees, weighted at 76.5%, and the non-core portion of the asset class is benchmarked to an average of the National Council of Real Estate Investment Fiduciaries (NCREIF) Fund Index-Open-ended Diversified Core Equity, net of fees, weighted at 13.5%, plus a fixed return premium of 150 basis points per annum, and the FTSE EPRA/NAREIT Developed Index, in dollar terms, net of withholding taxes on non-resident institutional investors, weighted at 10%. Prior to July 1, 2014, the benchmark was a combination of 90% NCREIF ODCE Index, net of fees, and 10% FTSE EPRA/NAREIT Developed Index, net of fees. Prior to July 1, 2010, it was a combination of 90% NCREIF ODCE Index, gross of fees, and 10% Dow Jones U.S. Select RESI. Prior to June 1, 2007, it was the Consumer Price Index plus 450 basis points annually. Prior to July 1, 2003, the benchmark was the Dow Jones U.S. Select Real Estate Securities Index Un-Levered. Prior to November 1, 1999, the benchmark was the Russell-NCREIF Property Index.

Performance Benchmark: The iMoneyNet First Tier Institutional Money Market Funds Net Index. Prior to July 1, 2010, it was the iMoneyNet First Tier Institutional Money Market Funds Gross Index. Prior to June 1, 2007, it was the return of the Merrill Lynch 90-Day (Auction Average) Treasury Bill Yield Index.

Description of Benchmarks

Barclays Capital U.S. Intermediate Aggregate Bond Index - A market value-weighted index consisting of U.S. Treasury securities, corporate bonds and mortgage-related and asset-backed securities with one to ten years to maturity and an outstanding par value of $250 million or greater.

Consumer Price Index (CPI) - The CPI, an index consisting of a fixed basket of goods bought by the typical consumer and used to measure consumer inflation.

FTSE EPRA/NAREIT Developed Index - An index designed to represent general trends in eligible real estate equities worldwide. Relevant real estate activities are defined as the ownership, disposal and development of income-producing real estate. This index covers the four primary core asset classes (Industrial, Retail, Office, and Apartment).

iMoneyNet First Tier Institutional Money Market Funds Net Index - An average of non-governmental institutional funds that do not hold any second tier securities. It includes money market mutual funds, net of fees, that invest in commercial paper, bank obligations and short-term investments in the highest ratings category and is open to corporations and fiduciaries only.

MSCI All Country World Investable Market Index - A free float-adjusted market capitalization-weighted index that is designed to measure the equity market performance of developed and emerging markets. This investable market index contains constituents from the large, mid, and small cap size segments and targets a coverage range around 99% of free-float adjusted market capitalization.

NCREIF ODCE Property Index - The NCREIF ODCE is a capitalization-weighted, gross of fee, time-weighted return index. The index is a summation of open-end funds, which NCREIF defines as multiple investors who have the ability to enter or exit the fund on a periodic basis, subject to contribution and/or redemption requests.

Russell 3000 Index - A capitalization-weighted stock index consisting of the 3,000 largest publicly traded U.S. stocks by capitalization. This represents most publicly traded, liquid U.S. stocks.
Description of Universes

Total Fund - A universe comprised of 86 total fund portfolio returns, net of fees, of public defined benefit plans calculated and provided by BNY Mellon Performance & Risk Analytics and Investment Metrics. Aggregate assets in the universe comprised $1.4 trillion as of quarter-end and the average market value was $14.7 billion.

Domestic Equity - A universe comprised of 86 total domestic equity portfolio returns, net of fees, of public defined benefit plans calculated and provided by BNY Mellon Performance & Risk Analytics. Aggregate assets in the universe comprised $323.1 billion as of quarter-end and the average market value was $3.5 billion.

Foreign Equity - A universe comprised of 88 total international equity portfolio returns, net of fees, of public defined benefit plans calculated and provided by BNY Mellon Performance & Risk Analytics. Aggregate assets in the universe comprised $288.3 billion as of quarter-end and the average market value was $3.1 billion.

Fixed Income - A universe comprised of 89 total fixed income portfolio returns, net of fees, of public defined benefit plans calculated and provided by BNY Mellon Performance & Risk Analytics. Aggregate assets in the universe comprised $355.6 billion as of quarter-end and the average market value was $3.8 billion.

Real Estate - A universe comprised of 64 total real estate portfolio returns, net of fees, of public defined benefit plans calculated and provided by BNY Mellon Performance & Risk Analytics. Aggregate assets in the universe comprised $82.6 billion as of quarter-end and the average market value was $0.9 billion.

Private Equity - An appropriate universe for private equity is unavailable.

Strategic Investments - An appropriate universe for strategic investments is unavailable.

Appendix
As of March 31, 2018

Explanation of Exhibits
Quarterly and Cumulative Excess Performance - The vertical axis, excess return, is a measure of fund performance less the return of the primary benchmark. The horizontal axis represents the time series. The quarterly bars represent the underlying funds’ relative performance for the quarter.

Ratio of Cumulative Wealth Graph - An illustration of a portfolio’s cumulative, un-annualized performance relative to that of its benchmark. An upward-sloping line indicates superior fund performance versus its benchmark. Conversely, a downward-sloping line indicates underperformance by the fund. A flat line is indicative of benchmark-like performance.

Performance Comparison - Plan Sponsor Peer Group Analysis - An illustration of the distribution of returns for a particular asset class. The component’s return is indicated by the circle and its performance benchmark by the triangle. The top and bottom borders represent the 5th and 95th percentiles, respectively. The solid line indicates the median while the dotted lines represent the 25th and 75th percentiles.
The rates of return contained in this report are shown on an after-fees basis unless otherwise noted. They are geometric and time-weighted. Returns for periods longer than one year are annualized.

Universe percentiles are based upon an ordering system in which 1 is the best ranking and 100 is the worst ranking.

Due to rounding throughout the report, percentage totals displayed may not sum to 100%. Additionally, individual fund totals in dollar terms may not sum to the plan total.
Quarterly Investment Review

Visit the Aon Retirement and Investment Blog (http://retirementandinvestmentblog.aon.com); sharing our best thinking.
## FRS Investment Plan

**As of March 31, 2018**

<table>
<thead>
<tr>
<th>Asset Allocation &amp; Performance</th>
<th>Allocation</th>
<th>Performance(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Market Value ($)</td>
<td>%</td>
</tr>
<tr>
<td>FRS Investment Plan</td>
<td>10,653,242,093</td>
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<td>Total Plan Aggregate Benchmark</td>
<td>4,725,830,818</td>
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<td>FRS Retirement Fund</td>
<td>385,061,486</td>
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<td>FRS 2015 Retirement Date Fund</td>
<td>330,530,665</td>
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<td>FRS 2020 Retirement Date Fund</td>
<td>614,518,085</td>
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<td>FRS 2025 Retirement Date Fund</td>
<td>699,298,033</td>
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<td>FRS 2030 Retirement Date Fund</td>
<td>643,516,004</td>
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<td>FRS 2035 Retirement Date Fund</td>
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<td>523,086,378</td>
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<td>FRS 2045 Retirement Date Fund</td>
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<td>FRS 2050 Retirement Date Fund</td>
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<td>124,807,459</td>
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<td>FRS 2060 Retirement Date Fund</td>
<td>7,725,357</td>
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<td>FRS Retirement Custom Index</td>
<td>-0.8 (80%)</td>
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<tr>
<td>FRS 2015 Retirement Custom Index</td>
<td>-1.1 (97%)</td>
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<td>FRS 2020 Retirement Custom Index</td>
<td>-1.0 (81%)</td>
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<td>FRS 2025 Retirement Custom Index</td>
<td>-0.9 (75%)</td>
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<td>FRS 2030 Retirement Custom Index</td>
<td>-0.9 (75%)</td>
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<td>FRS 2035 Retirement Custom Index</td>
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<td>FRS 2040 Retirement Custom Index</td>
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<td>FRS 2055 Retirement Custom Index</td>
<td>-0.8 (80%)</td>
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<tr>
<td>FRS 2060 Retirement Custom Index</td>
<td>-0.8 (80%)</td>
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- Benchmark
- Median
As of March 31, 2018

### Asset Allocation & Performance

#### Allocation

<table>
<thead>
<tr>
<th>Market Value ($)</th>
<th>%</th>
<th>1 Quarter</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
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<tbody>
<tr>
<td>Cash</td>
<td>863,410,828</td>
<td>8.1</td>
<td>0.4 (1)</td>
<td>1.4 (1)</td>
<td>0.8 (1)</td>
<td>0.6 (1)</td>
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<td>FRS Money Market Fund</td>
<td>863,410,828</td>
<td>8.1</td>
<td>0.4 (1)</td>
<td>1.4 (1)</td>
<td>0.8 (1)</td>
<td>0.6 (1)</td>
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<tr>
<td>iMoneyNet 1st Tier Institutional Net Index</td>
<td>0.3 (25)</td>
<td>1.0 (17)</td>
<td>0.5 (18)</td>
<td>0.3 (18)</td>
<td>0.5 (13)</td>
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<td>Real Assets</td>
<td>91,625,046</td>
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<td>-1.0</td>
<td>4.1</td>
<td>1.0</td>
<td>-0.5</td>
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<tr>
<td>FRS Inflation Adjusted Multi-Assets Fund</td>
<td>91,625,046</td>
<td>0.9</td>
<td>-1.8</td>
<td>4.0</td>
<td>2.1</td>
<td>-0.1</td>
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<td>Fixed Income</td>
<td>635,596,395</td>
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<td>-1.3 (100)</td>
<td>1.8 (11)</td>
<td>2.1 (6)</td>
<td>2.2 (4)</td>
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<td>Total Bond Index</td>
<td>-1.3 (100)</td>
<td>1.5 (15)</td>
<td>1.7 (13)</td>
<td>2.1 (7)</td>
<td>3.8 (17)</td>
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<tr>
<td>FRS U.S. Bond Enhanced Index Fund</td>
<td>242,141,323</td>
<td>2.3</td>
<td>-1.5 (66)</td>
<td>1.3 (27)</td>
<td>1.3 (1)</td>
<td>1.9 (23)</td>
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<tr>
<td>FRS Intermediate Bond Fund</td>
<td>97,534,594</td>
<td>0.9</td>
<td>-1.0 (93)</td>
<td>0.4 (71)</td>
<td>1.3 (42)</td>
<td>1.6 (34)</td>
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<td>FRS Core Plus Bond Fund</td>
<td>295,920,478</td>
<td>2.8</td>
<td>-1.3 (52)</td>
<td>2.4 (25)</td>
<td>2.5 (20)</td>
<td>2.8 (20)</td>
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<tr>
<td>FRS Custom Core-Plus Fixed Income Index</td>
<td>-1.4 (64)</td>
<td>1.7 (70)</td>
<td>1.9 (54)</td>
<td>2.6 (36)</td>
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<td>Domestic Equity</td>
<td>2,893,655,380</td>
<td>27.2</td>
<td>0.0 (41)</td>
<td>14.6 (41)</td>
<td>10.4 (21)</td>
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<td>Total U.S. Equities Index</td>
<td>-0.7 (55)</td>
<td>13.1 (52)</td>
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<td>FRS U.S. Stock Market Index Fund</td>
<td>997,369,508</td>
<td>9.4</td>
<td>-0.6 (50)</td>
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<td>FRS U.S. Large Cap Stock Fund</td>
<td>1,011,052,345</td>
<td>9.5</td>
<td>0.6 (29)</td>
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<td>FRS U.S. Small/Mid Cap Stock Fund</td>
<td>885,233,527</td>
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<td>1.0 (30)</td>
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<td>FRS Custom Small/Mid Cap Index</td>
<td>-0.2 (46)</td>
<td>12.3 (44)</td>
<td>8.6 (38)</td>
<td>9.9 (74)</td>
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#### Performance (%)

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<th>Allocation</th>
<th>Performance (%)</th>
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<tbody>
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<td>Market Value ($)</td>
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<td>Total Foreign and Global Equities Index</td>
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<td>FRS Foreign Stock Index Fund</td>
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<td>MSCI All Country World ex-U.S. IMI Index</td>
<td>-1.1 (71)</td>
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<td>FRS Global Stock Fund</td>
<td>296,645,773</td>
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<td>MSCI All Country World Index Net</td>
<td>-1.0 (48)</td>
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<td>FRS Foreign Stock Fund</td>
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<td>MSCI All Country World ex-U.S. Index</td>
<td>-1.2 (84)</td>
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The returns for the Retirement Date Funds, Inflation Adjusted Multi-Assets Fund, Core Plus Bond Fund, U.S. Large Cap Stock Fund, and U.S. Small/Mid Cap Stock Fund use prehire data for all months prior to 7/1/2014, actual live data is used thereafter.

Note: The SDBA opened for members on 1/2/14. No performance calculations will be made for the SDBA.
### Asset Allocation & Performance

#### As of March 31, 2018

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<tr>
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<td><strong>FRS Investment Plan</strong></td>
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<td>Cash</td>
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<td>Fixed Income</td>
<td>4.4</td>
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<td>3.2</td>
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<td><strong>Total Plan Aggregate Benchmark</strong></td>
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<td>-1.3</td>
<td>4.9</td>
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<td>9.7</td>
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<td>FRS Retirement Fund</td>
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<td>FRS 2020 Retirement Date Fund</td>
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#### As of March 31, 2018

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<td><strong>FRS U.S. Stock Market Index Fund</strong></td>
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<td><strong>FRS U.S. Large Cap Stock Index Fund</strong></td>
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<td><strong>FRS U.S. Small/Mid Cap Index Fund</strong></td>
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## Asset Allocation & Performance

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<td>International/Global Equity</td>
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<td>4.5 (42)</td>
<td>-2.6 (47)</td>
<td>-3.2 (42)</td>
<td>21.6 (33)</td>
<td>18.6 (53)</td>
<td>-11.3 (23)</td>
<td>10.1 (73)</td>
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<td>Total Foreign and Global Equities Index</td>
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<td>4.9 (39)</td>
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<td>16.6 (72)</td>
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<td>5.3 (37)</td>
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<td>8.9 (78)</td>
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<td>FRS Global Stock Fund</td>
<td>29.3 (17)</td>
<td>2.2 (80)</td>
<td>5.6 (13)</td>
<td>3.7 (43)</td>
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<td>-7.4 (46)</td>
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<td>MSCI All Country World Index Net</td>
<td>24.0 (39)</td>
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<td>FRS Foreign Stock Fund</td>
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<td>20.6 (57)</td>
<td>19.6 (41)</td>
<td>-13.3 (60)</td>
<td>9.8 (24)</td>
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<tr>
<td>MSCI All Country World ex-U.S. Index</td>
<td>27.2 (20)</td>
<td>5.0 (8)</td>
<td>-5.3 (60)</td>
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<td>15.8 (79)</td>
<td>17.4 (72)</td>
<td>-13.3 (61)</td>
<td>11.8 (13)</td>
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### FRS Self-Dir Brokerage Acct

The returns for the Retirement Date Funds, Inflation-Adjusted Multi-Assets Fund, Core Plus Bond Fund, U.S. Large Cap Stock Fund, and U.S. Small/Mid Cap Stock Fund use prehire data for all months prior to 7/1/2014, actual live data is used thereafter.

Note: The SDBA opened for members on 1/2/14. No performance calculations will be made for the SDBA.

### FRS Investment Plan

#### Asset Allocation

<table>
<thead>
<tr>
<th>U.S. Equity</th>
<th>Non-U.S. Equity</th>
<th>U.S. Fixed Income</th>
<th>Real Assets</th>
<th>Cash</th>
<th>Brokerage</th>
<th>Total</th>
<th>% of Total</th>
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<tbody>
<tr>
<td>FRS Retirement Fund</td>
<td>60,494,853</td>
<td>30,620,910</td>
<td>106,360,208</td>
<td>320,360,659</td>
<td>295,081,486</td>
<td>289,365,380</td>
<td>27.2%</td>
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<tr>
<td>FRS 2015 Retirement Date Fund</td>
<td>57,842,865</td>
<td>53,215,437</td>
<td>114,363,610</td>
<td>325,938,752</td>
<td>330,530,685</td>
<td>241,975,085</td>
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<tr>
<td>FRS 2020 Retirement Date Fund</td>
<td>140,110,123</td>
<td>129,692,136</td>
<td>202,332,866</td>
<td>441,113,193</td>
<td>614,518,085</td>
<td>589,905,502</td>
<td>5.8%</td>
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<td>FRS 2025 Retirement Date Fund</td>
<td>302,081,331</td>
<td>289,712,375</td>
<td>204,062,218</td>
<td>429,460,109</td>
<td>659,298,033</td>
<td>643,993,404</td>
<td>6.6%</td>
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<tr>
<td>FRS 2030 Retirement Date Fund</td>
<td>216,151,605</td>
<td>201,493,509</td>
<td>186,027,027</td>
<td>57,919,440</td>
<td>683,939,588</td>
<td>745,062,428</td>
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<td>FRS 2035 Retirement Date Fund</td>
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<td>211,810,096</td>
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<td>227,772,442</td>
<td>210,858,218</td>
<td>62,445,616</td>
<td>11,772,534</td>
<td>511,949,311</td>
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<td>117,303,279</td>
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<td>285,409,439</td>
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The returns for the Retirement Date Funds, Inflation-Adjusted Multi-Assets Fund, Core Plus Bond Fund, U.S. Large Cap Stock Fund, and U.S. Small/Mid Cap Stock Fund use prehire data for all months prior to 7/1/2014, actual live data is used thereafter.

Note: The SDBA opened for members on 1/2/14. No performance calculations will be made for the SDBA.
### Multi Timeperiod Statistics

**As of March 31, 2018**

#### 3 Years Return Statistics

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<th>Fund Type</th>
<th>3 Years Return</th>
<th>3 Years Standard Deviation</th>
<th>3 Years Sharpe Ratio</th>
<th>3 Years Tracking Error</th>
<th>3 Years Information Ratio</th>
<th>3 Years Up Market Capture</th>
<th>3 Years Down Market Capture</th>
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<td>7.08%</td>
<td>0.87%</td>
<td>0.50%</td>
<td>0.70%</td>
<td>102.57%</td>
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<td>FRS Retirement Fund</td>
<td>3.72%</td>
<td>4.76%</td>
<td>0.68%</td>
<td>0.45%</td>
<td>-0.30%</td>
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<td>FRS 2015 Retirement Date Fund</td>
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<td>0.47%</td>
<td>0.10%</td>
<td>101.48%</td>
<td>101.83%</td>
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<td>0.44%</td>
<td>0.32%</td>
<td>101.95%</td>
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<td>6.83%</td>
<td>0.84%</td>
<td>0.48%</td>
<td>0.61%</td>
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<td>7.62%</td>
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<td>0.50%</td>
<td>0.76%</td>
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<td>0.85%</td>
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<td>0.58%</td>
<td>0.71%</td>
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<td>FRS 2045 Retirement Date Fund</td>
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<td>96.56%</td>
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<td>FRS 2055 Retirement Date Fund</td>
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*The returns for the Retirement Date Funds, Inflation Adjusted Multi-Assets Fund, Core Plus Bond Fund, U.S. Large Cap Stock Fund, and U.S. Small/Mid Cap Stock Fund use prehire data for all months prior to 7/1/2014, actual live data is used thereafter.*

#### 5 Years Return Statistics

<table>
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<tr>
<th>Fund Type</th>
<th>5 Years Return</th>
<th>5 Years Standard Deviation</th>
<th>5 Years Sharpe Ratio</th>
<th>5 Years Tracking Error</th>
<th>5 Years Information Ratio</th>
<th>5 Years Up Market Capture</th>
<th>5 Years Down Market Capture</th>
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<tr>
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<td>1.07%</td>
<td>0.45%</td>
<td>0.91%</td>
<td>102.14%</td>
<td>97.85%</td>
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<td>FRS Retirement Fund</td>
<td>3.70%</td>
<td>4.92%</td>
<td>0.70%</td>
<td>1.24%</td>
<td>0.03%</td>
<td>105.93%</td>
<td>109.86%</td>
</tr>
<tr>
<td>FRS 2015 Retirement Date Fund</td>
<td>4.34%</td>
<td>5.23%</td>
<td>0.78%</td>
<td>1.06%</td>
<td>0.11%</td>
<td>105.08%</td>
<td>107.18%</td>
</tr>
<tr>
<td>FRS 2020 Retirement Date Fund</td>
<td>5.58%</td>
<td>5.52%</td>
<td>0.89%</td>
<td>0.79%</td>
<td>0.24%</td>
<td>104.36%</td>
<td>105.28%</td>
</tr>
<tr>
<td>FRS 2025 Retirement Date Fund</td>
<td>6.82%</td>
<td>6.62%</td>
<td>0.98%</td>
<td>0.57%</td>
<td>0.46%</td>
<td>102.31%</td>
<td>100.51%</td>
</tr>
<tr>
<td>FRS 2030 Retirement Date Fund</td>
<td>7.94%</td>
<td>7.39%</td>
<td>1.03%</td>
<td>0.44%</td>
<td>0.68%</td>
<td>101.76%</td>
<td>99.26%</td>
</tr>
<tr>
<td>FRS 2035 Retirement Date Fund</td>
<td>8.89%</td>
<td>8.29%</td>
<td>1.03%</td>
<td>0.49%</td>
<td>0.90%</td>
<td>102.35%</td>
<td>99.11%</td>
</tr>
<tr>
<td>FRS 2040 Retirement Date Fund</td>
<td>9.14%</td>
<td>8.63%</td>
<td>1.02%</td>
<td>0.50%</td>
<td>0.67%</td>
<td>101.31%</td>
<td>98.52%</td>
</tr>
<tr>
<td>FRS 2045 Retirement Date Fund</td>
<td>9.30%</td>
<td>8.75%</td>
<td>1.03%</td>
<td>0.57%</td>
<td>0.49%</td>
<td>100.49%</td>
<td>97.63%</td>
</tr>
<tr>
<td>FRS 2050 Retirement Date Fund</td>
<td>9.33%</td>
<td>8.79%</td>
<td>1.02%</td>
<td>0.56%</td>
<td>0.53%</td>
<td>100.68%</td>
<td>97.77%</td>
</tr>
<tr>
<td>FRS 2055 Retirement Date Fund</td>
<td>9.31%</td>
<td>8.78%</td>
<td>1.02%</td>
<td>0.56%</td>
<td>0.50%</td>
<td>100.54%</td>
<td>97.69%</td>
</tr>
<tr>
<td>FRS 2060 Retirement Date Fund</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FRS Money Market Fund</td>
<td>0.56%</td>
<td>0.14%</td>
<td>5.02%</td>
<td>0.03%</td>
<td>7.37%</td>
<td>176.32%</td>
<td>N/A</td>
</tr>
<tr>
<td>FRS Inflation Adjusted Multi-Assets Fund</td>
<td>-0.45%</td>
<td>6.29%</td>
<td>-0.09%</td>
<td>1.73%</td>
<td>-0.18%</td>
<td>110.76%</td>
<td>115.00%</td>
</tr>
<tr>
<td>FRS U.S. Bond Enhanced Index Fund</td>
<td>1.92%</td>
<td>2.95%</td>
<td>0.54%</td>
<td>0.09%</td>
<td>1.00%</td>
<td>101.91%</td>
<td>100.01%</td>
</tr>
<tr>
<td>FRS Intermediate Bond Fund</td>
<td>1.56%</td>
<td>2.26%</td>
<td>0.55%</td>
<td>0.55%</td>
<td>0.20%</td>
<td>105.98%</td>
<td>104.90%</td>
</tr>
<tr>
<td>FRS Core Plus Bond Fund</td>
<td>2.77%</td>
<td>3.29%</td>
<td>0.75%</td>
<td>0.73%</td>
<td>0.27%</td>
<td>112.31%</td>
<td>116.47%</td>
</tr>
<tr>
<td>FRS U.S. Stock Market Index Fund</td>
<td>13.12%</td>
<td>10.00%</td>
<td>1.25%</td>
<td>0.05%</td>
<td>1.78%</td>
<td>100.29%</td>
<td>99.74%</td>
</tr>
<tr>
<td>FRS U.S. Large Cap Stock Fund</td>
<td>14.66%</td>
<td>10.98%</td>
<td>1.28%</td>
<td>2.60%</td>
<td>0.55%</td>
<td>108.55%</td>
<td>104.45%</td>
</tr>
<tr>
<td>FRS U.S. Small/Mid Cap Stock Fund</td>
<td>12.83%</td>
<td>11.81%</td>
<td>1.06%</td>
<td>2.30%</td>
<td>1.16%</td>
<td>106.39%</td>
<td>93.91%</td>
</tr>
<tr>
<td>FRS Foreign Stock Index Fund</td>
<td>7.27%</td>
<td>11.70%</td>
<td>0.63%</td>
<td>1.34%</td>
<td>0.26%</td>
<td>99.15%</td>
<td>95.97%</td>
</tr>
<tr>
<td>FRS Global Stock Fund</td>
<td>12.05%</td>
<td>10.55%</td>
<td>1.10%</td>
<td>3.11%</td>
<td>0.84%</td>
<td>105.56%</td>
<td>84.50%</td>
</tr>
<tr>
<td>FRS Foreign Stock Fund</td>
<td>8.81%</td>
<td>10.92%</td>
<td>0.80%</td>
<td>3.69%</td>
<td>0.62%</td>
<td>96.77%</td>
<td>77.84%</td>
</tr>
</tbody>
</table>

*The returns for the Retirement Date Funds, Inflation Adjusted Multi-Assets Fund, Core Plus Bond Fund, U.S. Large Cap Stock Fund, and U.S. Small/Mid Cap Stock Fund use prehire data for all months prior to 7/1/2014, actual live data is used thereafter.*
Appendix

As of March 31, 2018

Benchmark Descriptions

Retirement Date Benchmarks - A weighted average composite of the underlying components’ benchmarks for each fund.

iMoneyNet 1st Tier Institutional Net Index - An index made up of the entire universe of money market mutual funds. The index currently represents over 1,300 funds, or approximately 99 percent of all money fund assets.

FRS Custom Real Assets Index - A monthly weighted composite of underlying indices for each TIPS and Real Assets fund. These indices include Barclays U.S. TIPS Index, MSCI AC World Index and the Bloomberg Commodity Total Return Index, NAREIT Developed Index, S&P Global Infrastructure Index, S&P Global Natural Resources Index.

Total Bond Index - A weighted average composite of the underlying benchmarks for each bond fund.

Barclays Aggregate Bond Index - A market value-weighted index consisting of government bonds, SEC-registered corporate bonds and mortgage-related and asset-backed securities with at least one year to maturity and an outstanding par value of $250 million or greater. This index is a broad measure of the performance of the investment grade U.S. fixed income market.

Barclays Intermediate Aggregate Bond Index - A market value-weighted index consisting of U.S. Treasury securities, corporate bonds and mortgage-related and asset-backed securities with one to ten years to maturity and an outstanding par value of $250 million or greater.

FRS Custom Core-Plus Fixed Income Index - A monthly rebalanced blend of 80% Barclays U.S. Aggregate Bond Index and 20% Barclays U.S. High Yield Ba/B 1% Issuer Constrained Index.

Total U.S. Equities Index - A weighted average composite of the underlying benchmarks for each domestic equity fund.

Russell 3000 Index - A capitalization-weighted index consisting of the 3,000 largest publicly traded U.S. stocks by capitalization. This index is a broad measure of the performance of the aggregate domestic equity market.

Russell 1000 Index - An index that measures the performance of the largest 1,000 stocks contained in the Russell 3000 Index.

FRS Custom Small/Mid Cap Index - A monthly rebalanced blend of 25% S&P 400 Index, 30% Russell 2000 Index, 25% Russell 2000 Value Index, and 20% Russell Mid Cap Growth Index.

Total Foreign and Global Equities Index - A weighted average composite of the underlying benchmarks for each foreign and global equity fund.

MSCI All Country World ex-U.S. IMI Index - A capitalization-weighted index of stocks representing 22 developed country stock markets and 23 emerging countries, excluding the U.S. market.

MSCI All Country World Index - A capitalization-weighted index of stocks representing approximately 46 developed and emerging countries, including the U.S. and Canadian markets.

MSCI All Country World ex-U.S. Index - A capitalization-weighted index consisting of 23 developed and 21 emerging countries, but excluding the U.S.
As of March 31, 2018

Descriptions of Universes

Retirement Date Funds - Target date universes calculated and provided by Lipper.
FRS Money Market Fund - A money market universe calculated and provided by Lipper.
FRS U.S. Bond Enhanced Index Fund - A long-term bond fixed income universe calculated and provided by Lipper.
FRS Intermediate Bond Fund - A broad intermediate-term fixed income universe calculated and provided by Lipper.
FRS Core Plus Bond Fund - A core plus bond fixed income universe calculated and provided by Lipper.
FRS U.S. Stock Market Index Fund - A large cap blend universe calculated and provided by Lipper.
FRS U.S. Large Cap Stock Fund - A large cap universe calculated and provided by Lipper.
FRS U.S. Small/Mid Cap Stock Fund - A small/mid cap universe calculated and provided by Lipper.
FRS Foreign Stock Index Fund - A foreign blend universe calculated and provided by Lipper.
FRS Global Stock Fund - A global stock universe calculated and provided by Lipper.
FRS Foreign Stock Fund - A foreign large blend universe calculated and provided by Lipper.

Notes

- The rates of return contained in this report are shown on an after-fees basis unless otherwise noted. They are geometric and time-weighted. Returns for periods longer than one year are annualized.
- Universe percentiles are based upon an ordering system in which 1 is the best ranking and 100 is the worst ranking.
- Due to rounding throughout the report, percentage totals displayed may not sum to 100%. Additionally, individual fund totals in dollar terms may not sum to the plan total.
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Aon Hewitt Investment Consulting, Inc.
200 East Randolph Street
Suite 1500
Chicago, IL 60601
ATTN: AHIC Compliance Officer
Table of Contents

1  LCEF Total Fund  
2  Appendix  

1  9
LCEF Total Fund
Change in Market Value
From January 1, 2018 to March 31, 2018

Summary of Cash Flow

<table>
<thead>
<tr>
<th></th>
<th>1 Quarter</th>
<th>Fiscal YTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCEF Total Fund</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beginning Market Value</td>
<td>765,375,543</td>
<td>699,743,916</td>
</tr>
<tr>
<td>+ Additions / Withdrawals</td>
<td>-2,711,914</td>
<td>62,919,713</td>
</tr>
<tr>
<td>+ Investment Earnings</td>
<td>62,919,713</td>
<td></td>
</tr>
<tr>
<td>= Ending Market Value</td>
<td>762,663,629</td>
<td>762,663,629</td>
</tr>
</tbody>
</table>

*Period July 2017 - December 2017

Return Summary

<table>
<thead>
<tr>
<th>Quarter</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
<th>Inception 7/1/99</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCEF Total Fund</td>
<td>4.8</td>
<td>13.8</td>
<td>8.3</td>
<td>6.3</td>
<td>5.6</td>
</tr>
<tr>
<td>Total Endowment Target</td>
<td>4.8</td>
<td>11.1</td>
<td>7.4</td>
<td>5.3</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Quarterly Excess Performance

Ratio of Cumulative Wealth - 10 Years

*Empower Results*
### Asset Allocation & Performance

**As of March 31, 2018**

<table>
<thead>
<tr>
<th>Allocation</th>
<th>Performance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Value ($)</td>
<td>1 Quarter Fiscal YTD</td>
</tr>
<tr>
<td>LCEF Total Fund</td>
<td>762,883,629</td>
</tr>
<tr>
<td>Total Endowment Target</td>
<td>-0.8 (79)</td>
</tr>
<tr>
<td>Global Equity*</td>
<td>552,711,332</td>
</tr>
<tr>
<td>Global Equity Target</td>
<td>-0.8</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>118,428,668</td>
</tr>
<tr>
<td>Bmmbg. Barc. U.S. Aggregate</td>
<td>-1.5 (87)</td>
</tr>
<tr>
<td>TIPS</td>
<td>76,809,558</td>
</tr>
<tr>
<td>Barclays U.S. TIPS</td>
<td>-0.8</td>
</tr>
<tr>
<td>Cash Equivalents</td>
<td>14,713,772</td>
</tr>
<tr>
<td>S&amp;P US AAA &amp; AA Rated GIP 30D Net Yield Index</td>
<td>0.3</td>
</tr>
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</table>

Benchmark and universe descriptions are provided in the Appendix.

*Global Equity became an asset class in September 2012 by merging the Domestic Equities and Foreign Equities asset classes. The return series prior to September 2012 is a weighted average of Domestic Equities' and Foreign Equities' historical performance.

### Calendar Year Performance

**As of March 31, 2018**

<table>
<thead>
<tr>
<th>Performance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCEF Total Fund</td>
</tr>
<tr>
<td>Total Endowment Target</td>
</tr>
<tr>
<td>Global Equity*</td>
</tr>
<tr>
<td>Global Equity Target</td>
</tr>
<tr>
<td>Fixed Income</td>
</tr>
<tr>
<td>Bmmbg. Barc. U.S. Aggregate</td>
</tr>
<tr>
<td>TIPS</td>
</tr>
<tr>
<td>Barclays U.S. TIPS</td>
</tr>
<tr>
<td>Cash Equivalents</td>
</tr>
<tr>
<td>S&amp;P US AAA &amp; AA Rated GIP 30D Net Yield Index</td>
</tr>
</tbody>
</table>

*Global Equity became an asset class in September 2012 by merging the Domestic Equities and Foreign Equities asset classes. The return series prior to September 2012 is a weighted average of Domestic Equities’ and Foreign Equities’ historical performance.
Plan Sponsor Peer Group Analysis

As of March 31, 2018

All Endowments-Total Fund

Return

<table>
<thead>
<tr>
<th>Period</th>
<th>LCEF Total Fund</th>
<th>Total Endowment Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Quarter</td>
<td>-0.4 (49)</td>
<td>-0.8 (79)</td>
</tr>
<tr>
<td>Fiscal YTD</td>
<td>9.0 (7)</td>
<td>7.7 (21)</td>
</tr>
<tr>
<td>1 Year</td>
<td>12.8 (5)</td>
<td>11.1 (19)</td>
</tr>
<tr>
<td>3 Years</td>
<td>7.4 (4)</td>
<td>6.3 (22)</td>
</tr>
<tr>
<td>5 Years</td>
<td>8.2 (10)</td>
<td>7.1 (36)</td>
</tr>
<tr>
<td>10 Years</td>
<td>6.3 (13)</td>
<td>5.3 (49)</td>
</tr>
<tr>
<td>2017</td>
<td>18.5 (5)</td>
<td>17.7 (10)</td>
</tr>
<tr>
<td>2016</td>
<td>9.2 (4)</td>
<td>7.0 (26)</td>
</tr>
<tr>
<td>2015</td>
<td>-1.4 (47)</td>
<td>-1.6 (50)</td>
</tr>
</tbody>
</table>

5th Percentile: 1.7
1st Quartile: 0.1
Median: -0.4
3rd Quartile: -0.7
95th Percentile: -1.3

Population: 351

Parentheses contain percentile rankings.

As of March 31, 2018

Universe Asset Allocation Comparison

LCEF Total Fund

- TIPS: 10.1%
- Cash: 1.9%
- Fixed Income: 15.5%

BNY Mellon Endowment Universe

- Cash: 1.7%
- Real Estate: 3.9%
- Alternative Investments: 23.1%
- Global Equity: 54.4%
- Fixed Income: 16.8%
- Global Equity: 72.5%
- TIPS: 10.1%
- Fixed Income: 15.5%
LCEF Total Fund
As of March 31, 2018

Attribution

Global Equity

<table>
<thead>
<tr>
<th>Basis Points</th>
<th>5-Year Ending 3/31/2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Equity</td>
<td>105</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>1</td>
</tr>
<tr>
<td>TIPS</td>
<td>2</td>
</tr>
<tr>
<td>Cash</td>
<td>1</td>
</tr>
<tr>
<td>TAA</td>
<td>7</td>
</tr>
<tr>
<td>Other*</td>
<td>-2</td>
</tr>
<tr>
<td>Total Fund</td>
<td>114</td>
</tr>
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</table>

Global Equity

<table>
<thead>
<tr>
<th>Basis Points</th>
<th>1-Year Ending 3/31/2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Equity</td>
<td>129</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>1</td>
</tr>
<tr>
<td>TIPS</td>
<td>2</td>
</tr>
<tr>
<td>Cash</td>
<td>1</td>
</tr>
<tr>
<td>TAA</td>
<td>34</td>
</tr>
<tr>
<td>Other*</td>
<td>-3</td>
</tr>
<tr>
<td>Total Fund</td>
<td>164</td>
</tr>
</tbody>
</table>

*Other includes differences between official performance value added due to methodology and extraordinary payouts.

Appendix
As of March 31, 2018

Benchmark Descriptions

LCEF Total Fund - A weighted blend of the individual asset class target benchmarks.

Total Global Equity
MSCI ACWI IMI ex-Tobacco - From 7/1/2014 forward, a custom version of the MSCI ACWI IMI excluding tobacco-related companies. From 10/1/2013 to 6/30/2014, a custom version of the MSCI ACWI IMI adjusted to reflect a 55% fixed weight in the MSCI USA IMI and a 45% fixed weight in the MSCI ACWI ex-USA IMI, and excluding certain equities of tobacco-related companies. From 9/1/2012 to 9/30/2013, a custom version of the MSCI ACWI IMI excluding tobacco-related companies. Prior to 9/1/2012, the benchmark is a weighted average of both the Domestic Equities and Foreign Equities historical benchmarks.

Total Domestic Equities
Russell 3000 Index ex-Tobacco - Prior to 9/1/2012, an index that measures the performance of the 3,000 stocks that make up the Russell 1000 and Russell 2000 Indices, while excluding tobacco companies.

Total Foreign Equities
MSCI ACWI ex-US IMI ex-Tobacco - Prior to 9/1/2012, a capitalization-weighted index representing 44 countries, but excluding the United States. The index includes 23 developed and 21 emerging market countries, and excludes tobacco companies.

Total Fixed Income
Barclays Aggregate Bond Index - A market value-weighted index consisting of the Barclays Credit, Government, and Mortgage-Backed Securities Indices. The index also includes credit card, auto, and home equity loan-backed securities. This index is the broadest available measure of the aggregate investment grade U.S. fixed income market.

Total TIPS
Barclays U.S. TIPS - A market value-weighted index consisting of U.S. Treasury Inflation-Protected Securities with one or more years remaining until maturity with total outstanding issue size of $500 million or more.

Total Cash Equivalents
S&P U.S. AAA & AA Rated GIP 30-Day Net Yield Index - An unmanaged, net-of-fees, market index representative of the Local Government Investment Pool. On 10/1/2011, the S&P U.S. AAA & AA Rated GIP 30-Day Net Yield Index replaced the S&P U.S. AAA & AA Rated GIP 30-Day Gross Yield Index, which was previously used from 4/30/08 - 9/30/11. Prior to 4/30/08, it was the average 3-month T-bill rate.

As of March 31, 2018

Universe Descriptions

LCEF Total Fund
A universe comprised of 357 total endowment portfolio returns, net of fees, calculated and provided by BNY Mellon Performance & Risk Analytics and Investment Metrics. Aggregate assets in the universe comprised $360.6 billion as of quarter-end and the average market value was $1.0 billion.

Total Fixed Income
A universe comprised of 313 total fixed income portfolio returns, net of fees, of endowment plans calculated and provided by BNY Mellon Performance & Risk Analytics and Investment Metrics. Aggregate assets in the universe comprised $34.4 billion as of quarter-end and the average market value was $98.5 million.
Quarterly and Cumulative Excess Performance - The vertical axis, excess return, is a measure of fund performance less the return of the primary benchmark. The horizontal axis represents the time series. The quarterly bars represent the underlying funds' relative performance for the quarter.

Ratio of Cumulative Wealth Graph - An illustration of a portfolio's cumulative, un-annualized performance relative to that of its benchmark. An upward-sloping line indicates superior fund performance versus its benchmark. Conversely, a downward-sloping line indicates underperformance by the fund. A flat line is indicative of benchmark-like performance.

Performance Comparison - Plan Sponsor Peer Group Analysis - An illustration of the distribution of returns for a particular asset class. The component's return is indicated by the circle and its performance benchmark by the triangle. The top and bottom borders represent the 5th and 95th percentiles, respectively. The solid line indicates the median while the dotted lines represent the 25th and 75th percentiles.

Explanation of Exhibits

As of March 31, 2018

The rates of return contained in this report are shown on an after-fees basis unless otherwise noted. They are geometric and time-weighted. Returns for periods longer than one year are annualized.

Universe percentiles are based upon an ordering system in which 1 is the best ranking and 100 is the worst ranking.

Due to rounding throughout the report, percentage totals displayed may not sum to 100%. Additionally, individual fund totals in dollar terms may not sum to the plan total.

Notes

- The rates of return contained in this report are shown on an after-fees basis unless otherwise noted. They are geometric and time-weighted. Returns for periods longer than one year are annualized.

- Universe percentiles are based upon an ordering system in which 1 is the best ranking and 100 is the worst ranking.

- Due to rounding throughout the report, percentage totals displayed may not sum to 100%. Additionally, individual fund totals in dollar terms may not sum to the plan total.
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