



**Agenda  
Investment Advisory Council (IAC)**

**Monday, March 19, 2018, 1:00 P.M.\***

**Hermitage Room, First Floor  
1801 Hermitage Blvd., Tallahassee, FL 32308**

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| <b>1:00 – 1:05 P.M.</b> | <b>1. Welcome/Call to Order/Election of Officers/Approval of Minutes</b><br><i>(See Attachments 1A – 1B)</i><br><br><b><i>(Action Required)</i></b> | <i>Peter Collins, Chair</i>                           |
| <b>1:05 – 1:10 P.M.</b> | <b>2. Opening Remarks/Legislative Update/ Reports</b><br><i>(See Attachments 2A – 2F)</i>   | <i>Ash Williams<br/>Executive Director &amp; CIO</i>  |
| <b>1:10 – 2:10 P.M.</b> | <b>3. Asset Liability Review</b><br><i>(See Attachment 3)</i>   | <i>Aon Hewitt<br/>Phil Kivarkis<br/>Kristen Doyle</i> |
| <b>2:10 – 2:40 P.M.</b> | <b>4. FRS Pension Plan Benchmark Review</b><br><i>(See Attachments 4A – 4B)</i>   | <i>Aon Hewitt<br/>Kristen Doyle</i>                   |

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**2:40 – 3:40 P.M. 5. Real Estate Review**  
*(See Attachments 5A – 5B)*

*Steve Spook, SIO*  
*Lynne Gray, Senior*  
*Portfolio Manager*  
*Michael Fogliano, Senior*  
*Portfolio Manager*

*Townsend Group*  
*Dick Brown*  
*Jack Koch*  
*Seth Marcus*

**3:40 – 4:40 P.M. 6. Asset Class SIO Updates**  
**DC Programs Chief Update**  
**Investment Programs &**  
**Governance Officer Update**  
*(See Attachments 6A – 6F)*

*Alison Romano, SIO Global*  
*Equity*  
*Tim Taylor, SIO Global Equity*  
*Katy Wojciechowski, SIO*  
*Fixed Income*  
*John Bradley, SIO Strategic*  
*Investments & Private Equity*  
*Trent Webster, SIO Strategic*  
*Investments & Private Equity*  
*Joan Haseman, Chief*  
*Defined Contribution*  
*Programs*  
*Michael McCauley*  
*Senior Officer Investment*  
*Programs & Governance*

**4:40 – 4:55 P.M. 7. Major Mandate Performance Review**  
*(See Attachment 7)*

*Aon Hewitt*  
*Kristen Doyle*

**4:55 – 5:00 P.M. 8. Audience Comments/2018 Meeting**  
**Dates/Closing Remarks/Adjourn**  
*(See Attachment 8)*

*TBD, Chair*

**\*All agenda item times are subject to change.**

**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.



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Peter Collins, Chair



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Date

STATE BOARD OF ADMINISTRATION OF FLORIDA

INVESTMENT ADVISORY COUNCIL MEETING

MONDAY, DECEMBER 4, 2017  
1:00 P.M. - 3:30 P.M.

1801 HERMITAGE BOULEVARD  
HERMITAGE ROOM, FIRST FLOOR  
TALLAHASSEE, FLORIDA

REPORTED BY: JO LANGSTON  
Registered Professional Reporter

ACCURATE STENOGRAPHY REPORTERS, INC.  
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APPEARANCES

IAC MEMBERS:

PETER COLLINS  
GARY WENDT  
CHUCK COBB  
BOBBY JONES  
VINNY OLMSTEAD  
SEAN McGOULD  
LES DANIELS  
MICHAEL PRICE

SBA EMPLOYEES:

ASH WILLIAMS, EXECUTIVE DIRECTOR  
KENT PEREZ  
JOHN BENTON  
JOHN BRADLEY  
TRENT WEBSTER  
STEVE SPOOK  
KATY WOJCIECHOWSKI  
CHERIE JEFFRIES  
ALISON ROMANO  
TIM TAYLOR  
DANIEL BEARD

CONSULTANTS:

ANDRÉ MEHTA - (Cambridge Associates)  
TOD TRABOCCO - (Cambridge Associates)  
SAMIT CHHABRA - (Cambridge Associates)  
JIM MNOOKIN - (Cambridge Associates) (Telephonically)  
RICHARD BROWN - (The Townsend Group)  
SETH MARCUS - (The Townsend Group)  
STEVE CUMMINGS - (Aon Hewitt)  
KATIE COMSTOCK - (Aon Hewitt)

1                    INVESTMENT ADVISORY COUNCIL MEETING

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

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

7                    MR. COLLINS: Hey, Jim. Thank you for  
8 attending. Anyone else? So welcome, everybody.  
9 And we need to look at the minutes and approve the  
10 minutes from the last meeting.

11                   MR. PRICE: Move it.

12                   MR. COLLINS: Bobby?

13                   MR. JONES: Second.

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

19                   MR. WILLIAMS: Michael Price seemed to be of  
20 the general view that we -- no, it was Les  
21 Daniels -- that we might be up on the year.  
22 Fortunately we are. As of the close on December 1,  
23 the FRS Trust Fund is up 15.61 percent. These are  
24 initial numbers, of course, on the year. That's 42  
25 basis points ahead of target, \$16 billion net of

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1                    distributions that average 600 million-ish a month,  
2 on the calendar year, leaving us with a balance of  
3 160.4 billion, which is an all-time record high. So  
4 that's good.

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

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

21                    I think of equal strength is what's going on on  
22 the defined contribution side. We have been growing  
23 the DC side of the Florida Retirement System. The  
24 numbers are a little bit different there. We don't  
25 have real-time numbers on a daily basis there. So

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1 the numbers I'll share now are as of month-end  
2 October.

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

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

24 A couple of other things I wanted to touch on.  
25 We were very pleased to see the hurricane season

1 end. This year, like we did last year, we had close  
2 brushes with Mother Nature that fortunately did not  
3 do anywhere near the damage they could have done.  
4 And with Hurricane Irma, we've had an awful lot of  
5 questions about, gee, what are your losses from  
6 Irma.

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

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

22 That said, we've looked at the actuarial work  
23 on the storm and modeled it against our zip code  
24 base of exposures. And our thinking is, at the  
25 outside, this is probably a 5 billion kind of an

1 exposure for us. I think that's probably 2x  
2 reality, if not more.

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

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

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

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

25 MR. WILLIAMS: The only thing worse is football

1 coaches, but that's a different story. Don't get me  
2 started. So all good there.

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

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

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

18 MR. COLLINS: Probably good to skip this group.

19 MR. WILLIAMS: Yeah, I don't blame her. And  
20 the next hire we'll be making in the IT area is a  
21 head of cyber security. And we think that's worth a  
22 separate position. In the past week I met the  
23 deputy U.S. attorney general who handles all of the  
24 cyber crime prosecutions for the U.S. Department of  
25 Justice, had an extensive conversation with that

1 individual about what's going on in that space, also  
2 reacquainted myself with the person who was head of  
3 cyber security for the Homeland Security  
4 Administration.

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

16 I also met last week a woman who heads up one  
17 of the leading crisis management firms in the world.  
18 And we were talking about this whole idea of cyber  
19 security, and she made a very interesting point,  
20 that with social media the way it is, if you have  
21 any kind of a problem, whether it is of a cyber  
22 penetration origin or some other thing, it will  
23 literally go global in 17 seconds courtesy of social  
24 media. The average major corporation takes between  
25 18 and 36 hours to even recognize and define a

1 problem and come up with a statement.

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

8 All of which is why we are really, really  
9 tightening up on this cyber security business.  
10 Everything I hear about that is bad. The number of  
11 bad actors that are out there spending their waking  
12 hours doing those sorts of things is incredible.

13 At an event I was at last week in New York, one  
14 of the MFA events, we had a very senior person from  
15 the Treasury there who had recently left the  
16 Treasury and gone elsewhere. And he said, By the  
17 way, if any of you receive a letter on perfect -- a  
18 digital letter on perfect United States Treasury  
19 letterhead, with very credible language, saying your  
20 institution has an account or a hung instrument  
21 somewhere, blah, blah, blah, all you have to do to  
22 claim it is e-mail me at the below address, and it  
23 has my signature on it. He said, The only problem  
24 is it's not my signature. It's something that's a  
25 scam out of Eastern Europe or Africa or something

1 like that.

2 But he said it looks so good, he said, If I saw  
3 it and I didn't know my own signature, I would think  
4 it was real. So I think there are so many  
5 unexploded bombs buried out there for financial  
6 institutions in cyber world, we can't pay too much  
7 attention to it.

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

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

24 The last thing I want to share is, at the  
25 trustees meeting on November 7, they reaffirmed for

1 another year the executive director and CIO of the  
2 SBA. So thank you for your work on that. And they  
3 also accepted without change all of the IAC's  
4 recommendations with regard to my relationship with  
5 the Board. So thank you again for your leadership  
6 broadly and for your help on that specifically.  
7 With that, Mr. Chair, unless there are any  
8 questions, I'm done.

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

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

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

25 MR. COLLINS: I was going to say he stole your

1 thunder. I thought you were cornering the market on  
2 Bitcoin.

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

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

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

22 So as Ash had mentioned, we hired Mr. Shoaib  
23 Khan during this calendar year. We also have an  
24 opening for an analyst. So if anyone knows an eager  
25 beaver young professional who always dreamt of

1 working at the State Board, we have a position for  
2 him or her.

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

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

18 This next slide, I apologize for this  
19 eye-straining slide. One day I'll get around to  
20 improving this. But this shows the multiple steps  
21 in our fund selection process. And typically, when  
22 we're doing our due diligence, we spend a lot of  
23 time on a manager. Typically, during the due  
24 diligence process, we're spending between 20 and 40  
25 hours on an individual manager. And in fact it can

1 take significantly longer than that, because prior  
2 to entering our pipeline, we've often had multiple  
3 meetings already with the manager, often meeting  
4 them here or in the office or over the phone and  
5 reading up about them. And sometimes it can take us  
6 years to develop a relationship with a manager.

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

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

22 Ongoing manager monitoring is also part of our  
23 risk management process. And typically we're  
24 speaking to the managers at least quarterly,  
25 sometimes monthly. And oftentimes we will follow up

1 if there are any issues outstanding that we feel  
2 necessary.

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

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

13 MR. WEBSTER: 86.

14 MR. COLLINS: 86.

15 MR. WEBSTER: Sorry. 136 funds, but those  
16 include SMAs, those include LP structures, and those  
17 include hedge funds.

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

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

24 MR. COLLINS: Okay. So how many of those  
25 meetings do you go to?

1 MR. WEBSTER: How many meetings? We try to  
2 attend every annual meeting for our funds which put  
3 them on. Occasionally we may not because we may  
4 have a conflict. But we're generally covering  
5 99 percent of the meetings that our managers put on.

6 MR. COLLINS: Okay.

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

15 We create a target allocation for the next  
16 three to five years. And that is a guide. It is  
17 not a hard-set target, but rather acts as a roadmap  
18 for us to allocate capital, because we don't ever  
19 want to be in a situation where we wake up one day  
20 and, say, have half our portfolio in distressed or  
21 30 percent in insurance or some other overweight  
22 that is unintended.

23 Currently we're at 8.2 percent of the total  
24 fund. We have a policy target allocation of  
25 12 percent. We've been working really hard to get

1 there. But Tim and Alison have made it very  
2 difficult for us because they just sprint away like  
3 jackrabbits in global equities.

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

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

16 Our net asset value is 12.9 billion. If you  
17 include the unfunded commitments, our total exposure  
18 at the end of the third quarter was 17.7 billion.  
19 As of the third quarter, we had 86 relationships,  
20 managing 136 funds. And currently it's roughly  
21 split half and half between illiquid strategies and  
22 liquid strategies.

23 In the most recent quarter we had cash outflows  
24 of \$57 million for the calendar year. The first  
25 three quarters of the calendar year, we've had just

1 under \$100 million go out the door. We've had five  
2 new funds, totaling \$800 million, closed in the  
3 third quarter. And we actually now, in this quarter  
4 it's now up to three new funds at I think it's  
5 \$450 million. And for the calendar year we've  
6 closed 16 funds at \$2.3 billion.

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

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

20 We have actually -- I'll explain why we've  
21 lagged our real return target in a few minutes since  
22 inception. But in terms of the benchmarks, our  
23 benchmarks that we officially are measured against  
24 is the weighted sum of all the individual fund  
25 benchmarks rolled up to an aggregate. And those are

1 comprised of either market based, peer based or the  
2 real return benchmark for individual funds.

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

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

23 So I had mentioned earlier that we had  
24 underperformed the real return target since  
25 inception. The reason for that, it can be explained

1 in this graph. So this is our strategy allocations  
2 over time. And so we've gone -- this big red part  
3 is global equities. And we no longer have a global  
4 equities allocation.

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

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

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

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

1 So this is where I was going to make my  
2 cryptocurrency joke. But you can see here we've got  
3 19 different strategies, sub-strategies in  
4 strategic. We're hoping to have a small little  
5 purple slice in there called insurance within the  
6 next couple of quarters, if we can get one of the  
7 funds or two of the funds closed before year-end,  
8 but we'll see.

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

16 In the red part of the pie graph, that's  
17 \$4.5 billion invested in what we call illiquid  
18 markets-growth. And these are strategies where the  
19 returns are not dependent upon income in the  
20 illiquid markets.

21 On the right-hand side of the graph the yellow  
22 part, liquid markets-growth, we have \$3.5 billion.  
23 These are the more traditional hedge funds, as well  
24 as activists and a few other things. And then that  
25 purple part is the diversifying strategies, which

1 are mostly the diversifying strategies I mentioned  
2 earlier, and that's \$2.4 billion.

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

16 Twelve months ago we decided to start looking  
17 at what our exposures were at an asset class level.  
18 As of the end of the third quarter, we currently  
19 have a gross -- or had a gross exposure of just  
20 under 250 percent where we were long -- actually  
21 about 245 percent where we were long, about  
22 165 percent short, about 80, 81 percent, giving us a  
23 net exposure of 82 percent. And so currently we're  
24 generating returns with about an 80 percent exposure  
25 to assets.

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

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

7 MR. WEBSTER: Some do, yes.

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

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

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

15 MR. WEBSTER: That incorporates that, yeah.  
16 And these are our largest allocations by manager.  
17 So currently we have 86 different relationships.  
18 Ten of them account for just over a third of the  
19 book. And Blackrock is our largest allocation.  
20 Any questions before we move on?

21 MR. PRICE: So your returns are net of your  
22 fees, and your fees are less than 2 and 20 but  
23 approaching 2 and 20, versus your fees in global  
24 equities of 15, 20 basis points. So there's a large  
25 3 or 4 percent differential right there. Fair

1 enough? Is that fair?

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

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

7 MR. WEBSTER: Not yet.

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

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

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

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

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

1 debt and senior loans.

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

9 And what we have found is that in our private  
10 market structures, where we're -- we're generating  
11 300 to 400 basis points above what we're generating  
12 in the hedge funds. Part of that is the fee  
13 structure, because in a hedge fund we're paying  
14 carry on the first dollar of profits earned, whereas  
15 the private market structure, you're not paying any  
16 carry until you hit a hurdle of 8 percent. So we're  
17 finding that that accounts for about half of the  
18 underperformance, when you look at it apples to  
19 apples on similar strategies. The other half is  
20 what we think is in a liquidity premium.

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

25 MR. PRICE: Plus performance.

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

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

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

21 One of the anecdotes that we had heard was that  
22 one of the managers had forced upon its creditors to  
23 accept \$500 million in synergies that were not  
24 identified five years from now. And our manager is  
25 saying that's just crazy. So that's what you're

1 seeing. So we've become cautious on certain parts  
2 of the credit market.

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

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

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

24 MR. WEBSTER: Well, I think first of all, we  
25 haven't actually done anything new in credit hedge

1 funds for several years. So those funds were  
2 originally funds we had invested in several years  
3 ago.

4 MR. COLLINS: When was the last one made? How  
5 old is that portfolio?

6 MR. WEBSTER: On the hedge funds?

7 MR. COLLINS: Yeah.

8 MR. WEBSTER: I think that we hired Canyon, was  
9 it four years ago, five years ago?

10 MR. COLLINS: So you haven't done anything in  
11 the debt portfolio in four or five years?

12 MR. WEBSTER: In the hedge funds, in the  
13 opportunistic debt. Now, having said that, if we  
14 thought that the opportunistic debt portfolio was  
15 going to do better, we'd allocate more money there.  
16 But it hasn't been the case.

17 For equity, we have some equity investments.  
18 So typically we focus on strategies which are not in  
19 global equities or in private equity, but we have  
20 some private-equity-like stuff. But the bar is very  
21 high for us to put an equity investment in strategic  
22 investments simply because the FRS is composed of  
23 90 percent equity risk.

24 Now, we want to have some equity for two  
25 reasons. One because there are opportunities in the

1 equity markets that perhaps don't fit well in global  
2 equities or private equity. And part of it is we  
3 probably need some equity to generate our real  
4 return over time. And we do intend to get more  
5 aggressive allocating to global equity or to  
6 equities during the next bear market, which  
7 apparently will never ever happen again.

8 And you can see here, so you look here, so this  
9 is our activist equity, which is really a beta-plus  
10 strategy. The GP investments, which are investments  
11 in a couple of firms. And then long/short equity.  
12 So that's three year performance. But that  
13 long/short equity performance lagged its benchmark  
14 by about one and a third percent. So it's not like  
15 it lagged by five or six percent. You can just see  
16 the underperformance. But, again, if we ever have a  
17 bear market again, then we would get more aggressive  
18 in equity.

19 In real assets, we really like mining right  
20 now, especially on the lending side, because it's a  
21 classic -- a classic thing that we like is that it  
22 had a pretty brutal bear market. The commodities  
23 have gone sideways. A lot of capital had been  
24 destroyed. A lot of capital had left. And so we  
25 have been allocating to some mining funds. The

1 problem for us is it's hard to access. It's hard to  
2 find institutional quality managers where we can do  
3 that on a structured credit or equity side.

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

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

21 So this is an area where we've been spending a  
22 lot of time. This is the portfolio that we use to  
23 hedge the credit and equity portions in the private  
24 structure markets. We hope to put some money in the  
25 ground in insurance soon, but we'll just wait to see

1 how pricing is before we get really aggressive on  
2 that.

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

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

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

22 We don't have a three year track record yet for  
23 open mandate. But you can see event. Event,  
24 actually that was down 1 percent. It lagged its  
25 benchmark, but the benchmark was down 0.5 percent.

1 MR. COBB: Mr. Chairman, I have a question on  
2 Luxor Capital. I'm on another endowment fund that's  
3 had very poor experience with Luxor. What's your  
4 experience and are -- is that a hold or a warning?

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

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

18 And the special situations is the miscellaneous  
19 bucket of the portfolio. This is primarily  
20 comprised of transportation, private-equity-like  
21 strategies in the Florida Growth Fund. We're  
22 actually going to be restructuring the asset class a  
23 little bit. And most of this or all of it will be  
24 reallocated elsewhere, either to newer strategies or  
25 to new strategies, newly created strategies or

1 allocated within the asset class currently. But  
2 it's done fairly well over the last three years.

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

9 But if you look at -- I've blacked out the  
10 non-hedge fund strategies. And if you look at this  
11 allocation, there are currently 38 -- we have  
12 currently 38 percent of the asset class and  
13 3 percent of the total fund are currently in hedge  
14 funds. And it splits about 50-50 between the  
15 diversifying strategies and the more beta-oriented  
16 strategies in the portfolio.

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

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

22 MR. WEBSTER: Beta plus. They're long-only  
23 beta plus. And the one point that I would just make  
24 here is that we don't have a hedge fund program. We  
25 have a program that includes hedge funds. We think

1 that talking about a hedge fund program is a bit of  
2 a misnomer, in the same way that somebody would be  
3 talking about a liquid custodial fund program.

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

9 Within hedge funds we see them as a wide  
10 variety of different hedge funds and strategies.  
11 And so we think of them as such and allocate capital  
12 as such, as opposed to saying we want to have  
13 5 percent in hedge funds or whatever.

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

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

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

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

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

24 And so our first -- what we did is that we  
25 hired the good people at Cambridge, and then we told

1       them what we were looking for. They gave us ten  
2       names. And we did our very best, because we're  
3       curmudgeons, to shoot down all their ideas. And if  
4       we couldn't shoot them all down sufficiently enough,  
5       then we hired those managers. So hired five  
6       managers from that. And then we went and asked  
7       them, okay, send us some more. And I think they  
8       sent six, seven other managers. And from that we  
9       hired two or three.

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

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

22       So that was the original thinking. And that  
23       was in our first wave, was getting suggestions from  
24       Cambridge. Then we went back to Cambridge and we  
25       said, in our second wave we said, let's take a look

1       at all the comps of the firms that you've supplied  
2       to us. And they gave us about 80 or 100 names. And  
3       then from that, we went through every single one and  
4       culled it down to about 40. And then we went and  
5       met all of them and made a decision to hire  
6       something like five or six of them.

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

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

21       So what we currently do is we're currently  
22       looking for strategies which are not correlated to  
23       equities and less focused on credit but with a big  
24       caveat that we'll always find a place in the  
25       portfolio for a high quality manager no matter what

1 they do, if they're equity, credit or whomever. So  
2 we'll always look at those types of managers, so  
3 we'll always have, we would imagine, exposures to  
4 those strategies.

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

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

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

1 attractive risk-adjusted return.

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

8 One thing I forgot to mention on here on the  
9 performance is we don't include activists in it, but  
10 our activist book has been so strong because equity  
11 markets have been so strong and it's beaten the  
12 benchmark, that had we included activists, that  
13 return, hedge funds plus activists, would be  
14 8.8 percent since inception. So it just depends on  
15 what you're comparing.

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

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

25 MR. WEBSTER: That's a good question. We

1 typically go into any fund with the mind-set of  
2 three to five years. Now, if there's something  
3 that's going wrong fast, then we'll get out. And  
4 that has happened for us.

5 But ideally you'd like to give them a market  
6 cycle. But what's a market cycle these days? Ten,  
7 12 years is probably too long. So we typically  
8 think at about three to five years and then adjust  
9 accordingly. I think the average duration of our  
10 hedge funds are somewhere around three and a half,  
11 four years thus far.

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

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

24 The problem that we have with Asia is that we  
25 require full position level transparency from our

1 funds. And that's pretty difficult to get in Asia.  
2 So that's -- that stops us from doing business  
3 there. But ideally we'd like to put more money  
4 outside of the United States.

5 MR. COLLINS: Any questions?

6 MR. COBB: Yes, sir. I have a question.  
7 Trent, in your presentation particularly on hedge  
8 funds, you continue to emphasize risk -- minimizing  
9 risk. And clearly the hedge funds do that. On your  
10 very first slide -- and I commented on this I think  
11 twice during the last couple of years. No. Back to  
12 the very first slide of the whole presentation,  
13 where you talk about your objectives.

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

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

24 And so it seems to me one of your key policy  
25 objectives, and that's the main reason you're in the

1 hedge funds, is to minimize risk, which is  
2 completely different than diversification, by the  
3 way. So I know I brought this up before, but I  
4 think you disagreed with me then, and I'm still  
5 finding out whether you're still disagreeing with  
6 me.

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

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

21 MR. WEBSTER: Let me explain. So I'm going to  
22 tell you what we're going to change. What we're  
23 going to change is, because I don't actually want to  
24 put downside protection in there, but what we're  
25 going to change it to, I think the exact wording is

1 outperform during a significant market decline. So  
2 if you get a big decline, this portfolio should do  
3 better, significantly better by the way we're  
4 constructing it.

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

11 Part of our thing is that we actually -- if you  
12 have like a 40 percent decline, we don't expect to  
13 go up. We expect to go down. But we would go down  
14 10 percent, 15 percent, somewhere along those lines.  
15 But we will have strategies in there which will help  
16 mitigate it.

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

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

1 equity hedge fund in the last four years.

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

4 MR. COLLINS: Sure.

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

7 MR. WEBSTER: I'm windy.

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

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

13 MR. WEBSTER: That's coming.

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

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

22 So we're changing that actually, and the  
23 wording will be something along the lines of "dampen  
24 the volatility of the fund." We're actually going  
25 to strike that "provide a hedge against inflation"

1 because it's already implied in generating a real  
2 return. So you'll see a little bit of a change.

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

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

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

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

9 MR. COLLINS: Continue.

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

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

18 MR. MEHTA: Sure. So at Cambridge we serve a  
19 number of different roles, both on the strategics  
20 side and then we also work with John Bradley,  
21 another team, on the private side. I think, as  
22 Trent described it, that really is a fair  
23 assessment. So we work hand in hand as real  
24 partners here, with a lot of debate going back and  
25 forth, being almost like another part of their

1 investment office, having weekly calls where we  
2 discuss what interesting managers we've met with,  
3 talk about interesting things we've heard out there  
4 in the markets, talk about strategies, about how to  
5 access difficult-to-access managers, how to convince  
6 them that providing transparency is the right thing  
7 to do, and also importantly to negotiate fees down,  
8 because fees are certainly a big cost of this.

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

14 MR. COLLINS: Yes.

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

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

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

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

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

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

21 In terms of measuring, you brought up the  
22 question of have we protected in down markets. So  
23 let me just describe what this matrix is briefly.  
24 When we think about evaluating the performance of a  
25 portfolio of hedge funds, we're really thinking

1 about it from a return perspective, clearly, but  
2 also a risk perspective and a diversification  
3 perspective.

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

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

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

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

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

25 MR. CHHABRA: Please.

1 MR. COLLINS: So on the 60 and the 17, so I  
2 guess a couple of pages or the next page, actually,  
3 it says we captured 55.9 and 24 percent of the -- of  
4 the up and 24 percent of the down. If our goal is  
5 60 and I think you said 17, is that right?

6 MR. MEHTA: That is historical. The goal is  
7 somewhat qualitative. We like to ideally capture  
8 100 percent when markets are rising and zero percent  
9 or negative -- make money when markets are falling.

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

21 And so in the diversification, it seems to me  
22 that whenever somebody goes out to build a hedge  
23 fund portfolio or when they were starting to build  
24 hedge fund portfolios, oh, well, we need some of  
25 this and we need some of this and we need three or

1 four names here.

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

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

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

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

25 So parts of what we already -- what we have in

1 the portfolio is acting as it should. And then the  
2 other parts, which are more the growth engines and  
3 the growth drivers, they've done better than the  
4 market or, I'm sorry, better than the industry, but  
5 it lagged the market.

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

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

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

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

25 MR. COLLINS: Like I say --

1 MR. MEHTA: I agree.

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

3 MR. MEHTA: One more comment.

4 MR. COLLINS: Expensive sand.

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

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

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

1 it holistically from a portfolio standpoint.

2 MR. DANIELS: Mr. Chairman?

3 MR. COLLINS: Yes.

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

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

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

1 UNIDENTIFIED SPEAKER: (Inaudible).

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

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

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

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

24 MR. DANIELS: I'm not so concerned about -- the  
25 fees aren't a problem. What I'm getting at is you

1 are making a conscious decision that having that  
2 damper in down markets is worth paying a premium for  
3 over not having it.

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

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

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

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

23 MR. DANIELS: That's the question.

24 MR. WILLIAMS: I get it. That's the balance.  
25 And, again, I would come back to it and say I guess

1 on a relative basis, if you think about -- this  
2 seems to be a cost-benefit analysis. And if you  
3 look at the cost, it's a relatively small cost. I  
4 mean, all in, you're talking about, what did we say,  
5 175 basis points, 160 across the book, something  
6 like that?

7 MR. WEBSTER: Less than that.

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

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

24 MR. WEBSTER: Just as a point, when we did  
25 this, we've done analysis of whether we could have

1 managed futures in the portfolio, and I think we ran  
2 it through -- I think it was the FRS, or it was  
3 stocks. I can't remember. It did reduce the  
4 returns, but I think it reduced it by like 50 basis  
5 points, 100 basis points. It reduced the volatility  
6 by 40 percent. We look at that and that causes your  
7 Sharpe ratio to spike, you know.

8 And it's a balance, because you can go  
9 100 percent equity and make the same argument for  
10 this whole fund. Just give all the money to Alison  
11 and Tim and there you go. So it's a balance between  
12 what sort of risk-return trade-off do you want to  
13 have.

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

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

21 MR. COBB: Mr. Chairman, I have a question for  
22 Cambridge. And my question relates to the macro  
23 world of both hedge funds and private equity, with  
24 today, what, four, five trillion dollars, all  
25 looking for inefficiencies in the market, when ten

1 years ago there was 5 percent of that or 10 percent  
2 of that amount of money looking for the same  
3 inefficiencies in the market.

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

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

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

22 MR. COLLINS: Bobby.

23 MR. JONES: The only point I wanted to make was  
24 I think all of us have some questions about the fees  
25 associated with hedge funds, how expensive that

1 insurance is. And, again, we haven't seen a payoff  
2 in quite a long time. So I think it's something we  
3 ought to keep looking at.

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

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

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

24 MR. WILLIAMS: If we're buying beta in that  
25 format, and I think I would argue we're not.

1 MR. COLLINS: And I would tell you that I think  
2 in all the diversification, I don't think that we're  
3 getting as much hedge as we think we are. None of  
4 us disagree with the hedging. I think, as I said,  
5 asset allocation is our greatest hedge. But I think  
6 when you get that many funds and that many different  
7 strategies, you never really know until you look in  
8 the rearview mirror.

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

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

22 MR. COLLINS: I don't want to belabor it. So  
23 let's keep moving on, unless anybody else has any  
24 other questions.

25 MR. CHHABRA: Just one last point. I flipped

1 forward two pages. It's hard to see on the screen,  
2 two pages forward. But I think this is powerful to  
3 the point of morphing this part of the portfolio to  
4 be more focused on diversification.

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

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

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

23 MR. WILLIAMS: I think we have another  
24 component.

25 MR. COLLINS: Oh, sorry.

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

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

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

19 So we are headquartered in Cleveland, Ohio,  
20 offices in London, Hong Kong and also in San  
21 Francisco. Trent and his team have recently  
22 utilized our international offices on some due  
23 diligence trips to Europe. And another recent  
24 update of Townsend is, announced on September 1st of  
25 this year, Aon, who you know well, announced the

1 acquisition of Townsend later this year. So we feel  
2 this is a great fit for Townsend's clients,  
3 yourself, as well as Townsend employees.

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

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

24 MR. COLLINS: Anybody have any concerns there?  
25 I know that they're making him go through that slide

1 at every presentation.

2 MR. DANIELS: Have you thought about moving to  
3 Florida?

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

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

9 MR. CUMMINGS: Am I moving to Florida?

10 MR. DANIELS: Move the company to Florida.

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

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

19 This is a sub-allocation within the strategic  
20 investments of about 1.6 billion of market value  
21 today. It's 16 active positions. That's across --  
22 16 active positions in the debt side and two in the  
23 timber. And that's across ten different managers.  
24 There's been approximately 3 billion of capital  
25 commitments, with 1.7 billion returned to you-all,

1 with about 750 million of unfunded capital. Since  
2 the portfolio's inception, so the first investment  
3 was made in 2008, the portfolio has generated, as  
4 you'll see here, an 8.7 percent net IRR.

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

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

20 And this is, to another point that Trent  
21 mentioned earlier, capital is being returned quicker  
22 than it's being invested. That's the nature of the  
23 market we're in today, the market environment, but  
24 also the life cycle of these funds. So they're  
25 reaching sort of their full term.

1           The last slide I'll touch on and then pass it  
2 back to you-all is really on the timber performance.  
3 So here on this slide we show both the performance  
4 of the two timber separate accounts as well as their  
5 diversification. However, you'll notice some  
6 underperformance in your timber portfolio versus the  
7 industry indices, not necessarily the benchmark  
8 within the SBA but the industry indices of the  
9 NCREIF timber index and the separate account index.

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

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

22           MR. COLLINS: Ash, we weren't in timber before  
23 2012?

24           MR. WILLIAMS: No.

25           MR. COLLINS: Really? In any way?

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

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

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

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

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

19           MR. MARCUS: Thank you.

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

22           MS. WOJCIECHOWSKI: No.

23           MR. COLLINS: Okay.

24           MS. ROMANO: Good afternoon. It's been alluded  
25 to many times in this discussion and I know you-all

1 know the markets well. Equity markets are way up.  
2 But I want to provide a few data points to provide  
3 some context around what I know you do want to talk  
4 about, which is performance. So I'm going to give  
5 some updated statistics to even what's on this page.

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

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

18 MR. COLLINS: So what's the acronym for that?  
19 Like FANG, what's the acronym for that? Y'all  
20 haven't made one? Okay.

21 MS. ROMANO: So tech has had an incredible run,  
22 and particularly in emerging markets. And you can  
23 see in the bottom left graph there that it's not  
24 only been tech, but it's been a lot of the cyclical  
25 areas that have come back, materials, industrials,

1 financials. So if you want to call that a risk-on  
2 environment, we could.

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

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

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

22 But you'll see our performance on the next  
23 slide. We have outperformed. So 21 BPs  
24 outperformance in the third quarter, 98 BPs for the  
25 year and 79 BPs over the five years. We continue to

1 do this well within our risk budget, and actually  
2 well below the monitoring standard, to deliver  
3 ongoing strong risk-adjusted returns. And I'll turn  
4 it over to Tim to talk about the detail behind that  
5 performance.

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

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

25 The struggle of U.S. small cap, those managers,

1 continued in the quarter. Headwinds have included  
2 the outperformance of, quote, unquote, non-earners.  
3 This would include biotechnology stocks. We  
4 recently completed a manager search in this space,  
5 and we funded two new managers. I'll talk very  
6 briefly about that in just a moment.

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

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

22 And the last page we'll discuss with you today  
23 is an update on initiatives. We have been active  
24 with respect to structural enhancements. I  
25 mentioned the two new U.S. small cap managers. They

1 began their official performance on November 1st.  
2 We're also deep into the process for a search for a  
3 foreign developed value strategy to complement that  
4 successful aggregate.

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

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

19 MR. COLLINS: Where is Trent?

20 MR. TAYLOR: We recently established access to  
21 the Hong Kong Connect program with our global  
22 custodian BNY Mellon. This is really good. This is  
23 in advance of MSCI adding China A Share securities  
24 to our target, which will happen in only a few  
25 months. So we have access there in advance that we

1 can offer up to our managers. It wasn't  
2 particularly easy. There's still a lot of  
3 questions, but we do have access there.

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

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

17 Those were the last of our prepared comments.  
18 Mr. Chairman, I think you -- Ash had asked maybe to  
19 comment briefly on valuations perhaps in the asset  
20 class. I think there is an acknowledgment that  
21 valuations in equity across the board are very  
22 expensive. But I think it's in three tiers. It's  
23 the U.S., then the non-U.S., and in particularly  
24 emerging markets some would argue that there are  
25 values there.

1           There are discussions about are we in a bubble,  
2 particularly for U.S. equities. My personal belief,  
3 I don't think so. I don't think so. Valuations are  
4 rich. If you think of some of the companies that  
5 have really driven the performance, called the  
6 disrupters, if you think of Google, if you think of  
7 Facebook, these are tremendous businesses with  
8 tremendous growth potential still as we sit here  
9 today. So they are rich on some metrics, but they  
10 are real businesses. They are very well managed.  
11 So I think one of the risks that investment managers  
12 have is underestimating the power of these  
13 disrupters.

14           Also, with respect to equities, if you don't  
15 have your money in equities, where are you going to  
16 put your money? Relative to fixed income, fixed  
17 income is very expensive. Equities arguably are  
18 attractive. You don't want your money to be in  
19 cash. Where are you going to get your return? And  
20 then finally I'll mention that over the last few  
21 years, in many cases non-U.S. investors, we haven't  
22 seen flows from them into the U.S. market to  
23 purchase U.S. stocks. We're starting to see signs  
24 now that actually non-U.S. investors' money is  
25 flowing to U.S. equity markets, for whatever reasons

1 there. That's another positive as well.

2           So while valuations are very rich, there's  
3 still -- volatility levels remain very low and  
4 somewhat scary that they're so low. We don't think  
5 we're in a bubble, but we're particularly -- it's  
6 certainly not inexpensive to invest in equities  
7 right now. Thank you.

8           MR. PRICE: Mr. Chairman.

9           MR. COLLINS: Yes.

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

11          MR. TAYLOR: It's about 90 billion.

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

14          MR. TAYLOR: Roughly, yes, sir.

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

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

21          MR. PRICE: I'd just be curious whether it was  
22 5 billion or 10 billion or even more than  
23 10 billion.

24          MS. ROMANO: I don't know the exact weight. I  
25 will tell you, given on the U.S. side our large cap

1 managers are a little more value focused, we're most  
2 likely underweight some of the U.S. names.  
3 Externally, on the emerging market managers, they  
4 tend to be more quality and valuation sensitive.  
5 They're going to be underweight. Our developed  
6 market managers are growth focused, and they are the  
7 ones that are overweight. So when you bring it all  
8 together, they're not our top over or underweight.

9 MR. COLLINS: Could you do us a favor and get  
10 that number to Ash, that dollar number to Ash, and  
11 he can get it out to us?

12 MR. TAYLOR: Absolutely.

13 MR. COLLINS: How many names are you doing the  
14 search for on the international value right now, the  
15 new search?

16 MR. TAYLOR: How many names?

17 MR. COLLINS: Foreign, yeah, the foreign.

18 MR. TAYLOR: We did our interviews a few weeks  
19 ago.

20 MR. COLLINS: I mean, will you add one? Will  
21 you add two?

22 MR. TAYLOR: One certainly, two perhaps. It's  
23 being debated right now.

24 MR. COLLINS: And what do you think the total  
25 allocation to that will be?

1 MR. TAYLOR: It will be a significant mandate.  
2 The account values in that space that are going to  
3 be added are all very large, on the order of like  
4 1 to \$2 billion accounts. This account will  
5 probably be at least a billion dollars, perhaps up  
6 to 1.5. So these are big accounts in that space.

7 MR. COLLINS: And what do you think the fee  
8 would be on that, that you're going to pay?

9 MR. TAYLOR: Well, right now the proposals we  
10 have are in the, let's say, 25 to 30 basis point  
11 range. We will probably go back at them again if we  
12 get real serious about putting forth the -- when we  
13 get the recommendation together.

14 MR. COLLINS: Any other questions? Mr. Wendt?

15 MR. WENDT: Earlier today there was a comment  
16 made about the need for transparency, there must be  
17 absolute transparency. Now you're talking about  
18 China stocks. Do you have a concern there that you  
19 can't meet that test?

20 MS. ROMANO: I think part of the reason for  
21 hiring active managers is because they are highly  
22 focused on quality and transparency and corporate  
23 governance. There are a lot of companies that our  
24 managers won't invest in. There's state-owned  
25 entities a lot of them will avoid outright and will

1 not invest heavily.

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

7 MR. WENDT: Thank you.

8 MR. COLLINS: Any other questions? Great.  
9 Thanks. Now -- sorry. Did somebody have a  
10 question? Okay. Katy.

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

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

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

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

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

21 Rates, obviously on the short end we believe  
22 rates will continue to rise over the next 12 months,  
23 and possibly in the long run a little bit more. We  
24 saw it today a little bit with possible budget and  
25 tax reform. So we'll see.

1 Risk we continue to keep pretty low. We did  
2 over the last year -- I'm just going to flip to this  
3 because we did increase our allocation to core plus,  
4 not because we're trying to reach for yield or  
5 spreads or anything like that but because our core  
6 plus manager has a little bit more allocation to  
7 some different, like different arrows in their  
8 quiver. So it will give them opportunities, without  
9 taking more risk, to possibly get more  
10 non-correlated returns. And we'll continue to do  
11 that. We're looking at it seriously right now.

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

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

25 MS. JEFFRIES: Yes. So over the past year

1 there's been no changes to the program. The program  
2 is performing well. The lendable assets actually  
3 grew this year. Thank you, equity. Utilization is  
4 still maintaining around 11 percent. And the net  
5 earnings actually rose for calendar year 2016 to  
6 49 million.

7 MS. WOJCIECHOWSKI: I just want to stress, we  
8 are extremely risk controlled. There are other  
9 people throughout the globe who are less -- who  
10 invest more aggressively. We do not reinvest the  
11 proceeds aggressively. And I think that's it.

12 MR. COLLINS: Any questions for Katy? Okay.  
13 Thanks. Mr. Spook.

14 MR. SPOOK: Good afternoon. I'd like to start  
15 with some very good news. At least it's very good  
16 news for me. There are no hedge funds in my  
17 portfolio.

18 MR. COLLINS: Trent, you're going to make him  
19 pay for that later, aren't you?

20 MR. WEBSTER: Yes, I am.

21 MR. COLLINS: That he knows of anyway, Trent.

22 MR. COBB: And no Bitcoins either?

23 MR. SPOOK: No Bitcoins either. So real estate  
24 performance continues to be very strong. Over the  
25 one year period, 120 basis point outperformance.

1 Three year, 80 basis points. Five years, 190 basis  
2 points. And that outperformance is pretty evenly  
3 distributed across the portfolio.

4 Here you see the principal investments, which  
5 is our direct investment portfolio, with similar  
6 type of outperformance, 130 basis points one year,  
7 90 three year, 200 on the five year. And then  
8 outperformance in all periods for the externally  
9 managed portfolio as well, which is, as you know,  
10 our pooled funds and public REIT portfolios.

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

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

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

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

9 And recent activity, three acquisitions.  
10 They're all fairly small acquisitions, but they're  
11 all hold-ons to existing portfolios that we have.  
12 So you may recall last year we purchased a  
13 66-property self storage portfolio. Ourselves and  
14 our JV partner continue to look to add on to that  
15 portfolio and buy these one-offs from mom and pops.  
16 You can add serious efficiencies. And so we think  
17 these small acquisitions are very prudent.

18 Same with medical office. We have an existing  
19 portfolio in the medical office space. Building up  
20 a portfolio creates value through aggregation. The  
21 large medical office REITs, you know, such as a  
22 Ventas or HCP, don't really have the time go out and  
23 find a \$6.3 million building in Akron, but we -- we  
24 aggregate those and are creating value that way.  
25 And retail, I think I've talked about that program

1 before, too, where we're buying High Street retail  
2 and creating a portfolio.

3 Dispositions, sold one senior housing deal in  
4 Seattle. Industrial, that's a JV where we're  
5 developing leasing, stabilizing and selling with our  
6 JV partners, so that's creating value there.

7 Student housing, that was -- we've got a portfolio  
8 there. We keep adding to the portfolio. This was  
9 one particular property that was a value add  
10 opportunity as opposed to a core opportunity.

11 Business plan was accomplished and sold it and made  
12 money. And multifamily, we sold a fairly large  
13 multifamily deal in San Diego.

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

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

21 MR. SPOOK: It depends on the property type  
22 obviously. That multifamily deal is probably a 4.3,  
23 4.4 cap rate, conventional property type in a larger  
24 market. Senior housing, you're going to get a  
25 higher cap right there. It's a higher risk type of

1 asset.

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

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

16 Medical office buildings, again, you would  
17 expect to see some premium to conventional office.  
18 Same ways in student housing now. We think it will  
19 act different than regular office in down times. So  
20 medical office buildings, again, depends on the  
21 market because what we consider a primary market or  
22 conventional office like New York, Washington, San  
23 Francisco, medical office can be in Davenport, Iowa,  
24 as long as it's associated with a leading health  
25 care provider.

1 MR. COLLINS: Mr. Wendt?

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

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

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

19 MR. SPOOK: I'm sorry?

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

24 MR. SPOOK: So is everything else. So the  
25 spread between a cap rate you can buy a property at

1 and your alternatives such as corporate bonds or  
2 Treasuries, that spread is not out of line with  
3 historical averages. And so on that basis --

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

6 MR. SPOOK: It's expensive.

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

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

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

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

15 MR. BROWN: It was softly.

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

20 MR. SPOOK: I knew that was coming.

21 MR. COLLINS: -- interest rates and we've had  
22 another quarter of pretty low interest rates -- and  
23 I'm going to pick on Townsend here for a second.  
24 Dick wasn't here when I brought this up last time,  
25 in all fairness.

1 MR. SPOOK: I'm sure he heard about it.

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

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

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

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

5 MR. SPOOK: So with deals that we have in  
6 process, so adjusted, we're somewhere between 28 and  
7 28 and a half percent. We've also identified a  
8 number of assets that would be suitable for putting  
9 leverage on, so fairly low-risk assets. And we're  
10 currently talking to brokers right now about getting  
11 quotes in the range of about 400, \$450 million. So  
12 it will go up a little bit. But then we are going  
13 to be bumping up against the new 30 percent cap.  
14 But it has fairly --

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

17 MR. SPOOK: We were at about 21 percent.

18 MR. WILLIAMS: Mr. Chairman?

19 MR. COLLINS: Yes.

20 MR. WILLIAMS: I think another element of this  
21 is that as we've added the leverage in the real  
22 estate book, we've been pleasantly surprised at the  
23 structures and the cost of the leverage, which is to  
24 say both are better than we would have expected.  
25 The technique we used, as Steve just referred to, is

1 we use third parties to go out and canvass the  
2 market for us and get the best terms we can get.  
3 And then we get a fiduciary letter. We evaluate it.  
4 We pick whoever the winner is and move on.

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

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

18 MR. COLLINS: Right.

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

21 MR. PRICE: Mr. Chairman.

22 MR. COLLINS: Yes.

23 MR. PRICE: Do we have a place in our  
24 portfolio, either with Steve or anywhere else, where  
25 there's someone trading real estate investment

1 trusts at large discounts from net asset values  
2 versus cap rates he's willing to pay? For instance,  
3 you're out buying retail. I don't know. You said  
4 it was High Street, not malls. But, for instance,  
5 in the last couple of quarters, the mall stocks got  
6 destroyed. Taubman, Macerich and General Growth all  
7 came down 40 percent. Since then there have been  
8 two tender offers and one proxy fight. So is  
9 anybody taking advantage of that, with your real  
10 estate knowledge, in the public markets?

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

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

16 MR. SPOOK: Under real estate.

17 MR. PRICE: Under you.

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

20 MR. COLLINS: But you're long.

21 MR. SPOOK: Yes.

22 MR. WILLIAMS: I hear what you're saying.  
23 That's an interesting angle for I'm thinking maybe  
24 somebody in a PE format. But I don't know that  
25 we've really got anything that's hitting it.

1 MR. COLLINS: What you have is market knowledge  
2 every day. Right? You're the third largest public  
3 pension fund in the country. You're buying. You're  
4 selling. You know every player in the market. And  
5 you see these REITs out there and what they're  
6 trading at in terms of net asset value.

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

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

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

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

25 MR. COLLINS: Any other questions of Steve?

1 Vinny?

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

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

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

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

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

20 MR. COLLINS: Please.

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

1 follow my drift.

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

4 MR. COBB: Mr. Chairman.

5 MR. COLLINS: Yes.

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

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

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

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

1 that.

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

7 MR. SPOOK: Or keep it.

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

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

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

17 MR. WILLIAMS: I just wanted to make a  
18 clarifying point, following up on something Mr.  
19 Wendt said a moment ago that's very, very important.  
20 When I made the comment about information off line,  
21 I want to be very clear. What I meant was any  
22 member of the IAC who wants to contact me or any  
23 member of staff directly with any questions, fine.  
24 I did not mean any off line discussion among members  
25 of this body, which would be violative of Florida

1 law, to be very clear.

2 MR. COLLINS: Thank you for that, Ash. What is  
3 next? John Bradley.

4 MR. BRADLEY: Thank you and good afternoon.  
5 I'll start with a market update. U.S. buyout  
6 activity picked up in the third quarter at almost  
7 50 billion of activity, which was an increase from  
8 what we saw in quarter two, yet 2017 still trails  
9 2016. Not surprisingly, pricing continues to rise  
10 in aggregate. Pricing today is almost a full turn  
11 higher, at 10.6 times versus 9.7 times observed at  
12 the peak of the last cycle in 2007.

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

18 Asset sales and distributions remain strong  
19 across the entire industry. If this current pace  
20 continues, 2017 could set a new record for the PE  
21 industry in terms of distributions. And this will  
22 likely be the case within our portfolio. Our net  
23 cash flow through October stood at \$687 million.  
24 And there's a strong chance this will increase by  
25 the end of the year. And to put that 687 in

1 perspective, our past high for net cash flow was  
2 650 million in 2015.

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

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

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

19 Our sector exposure. Geographically we remain  
20 focused on building out our non-U.S. portfolio.  
21 That portfolio today sits at 25 percent, which is a  
22 slight increase in what we observed last year. We  
23 were at 22 percent, and the year before that at 18.  
24 So the growth internationally continues, albeit at a  
25 slow pace.

1 We move to performance of the asset class. We  
2 can see our one year performance trails the  
3 benchmark by around 350 basis points. As everyone  
4 has mentioned today, public markets have been a  
5 pretty tough bogey to keep pace with over the past  
6 year. But you will see all other time periods  
7 showing outperformance versus the benchmark, with  
8 our three year return being particularly strong.

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

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

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

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

24 What I would tell you, though, is we've been  
25 focused there for probably three or four years and

1 have moved extremely slowly and have had  
2 difficulties finding groups that we're comfortable  
3 with. But the quality of the GP, the performance,  
4 the ability to diligence, that is getting much, much  
5 better.

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

11 And then finally I'll end with our commitment  
12 activity. This is through the first nine months of  
13 the year. So as of September 30 we've committed  
14 1.6 billion to 16 funds, that's 1.1 billion to 11  
15 buyout funds. I'd note over half of that went to  
16 funds focused on the small end of the market. We've  
17 committed 150 million to three venture funds and  
18 300 million to two distressed or turnaround funds.

19 MR. OLMSTEAD: Any other thoughts on sort of  
20 construct? I go to a number of these conferences,  
21 and they're sort of saying underweight the venture  
22 capital. Any changes in thoughts on buyout versus  
23 venture versus some of the sub-strategy performance?  
24 Is that how you're looking at it?

25 MR. BRADLEY: I don't think so. I think we've

1 been if nothing but consistent with kind of our  
2 targets, our overall targets. So when you look at  
3 what we're doing in venture, we're committing what  
4 we think we should be to maintain a 10 percent  
5 allocation to venture.

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

10 MR. OLMSTEAD: As a venture capitalist, I like  
11 to hear that.

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

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

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

17 MR. BRADLEY: I think they are. I think they  
18 are historically. I think our GPs also think they  
19 have. Dry powder has been building in the industry.  
20 Our funds have been less active on the buy side. So  
21 I think their actions would also indicate that they  
22 think things are expensive today.

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

1 MR. BRADLEY: Maybe.

2 MR. COLLINS: Dan. Where's Joan?

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

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

7 MR. BEARD: Thank you. Good afternoon. Before  
8 I get into the slides, I want to do an update on a  
9 couple of legislative changes from this past session  
10 that impacted the FRS major. The first one was  
11 renewed membership was reopened. Effective July 1,  
12 2010, renewed membership was closed for any rehired  
13 retiree. They did open that back up effective  
14 July 1, 2017. But it was just for retirees from one  
15 of the optional plans, which the investment plan is.  
16 So effective July 1, 2017, it opened back up.

17 Since that point in time, we've had  
18 approximately 6,000 new members who have come back  
19 into the investment plan. They're mandatory in the  
20 investment plan. They don't have to make a choice.  
21 It's mandatory, as long as they retired from the  
22 investment plan. So that was one piece of the  
23 legislation.

24 The second piece is a change in the default.  
25 So the default is currently the pension plan. So

1 any member who, once they go through the choice  
2 period, if they don't make a choice, they default  
3 into the pension plan.

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

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

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

23 So assets, as of September 30th, we were at  
24 10.3 billion. As of November 30th, we're at  
25 10.5 billion. For our returns, through

1 November 30th, calendar year to date return, is  
2 actually 15.23, and then fiscal year to date 7.10.  
3 We have 183,000 members. Again, that includes the  
4 5,000 mandatory investment plan members who are  
5 rehired retirees.

6 Average account balance has increased about  
7 3.5 percent over the year, and then we saw a  
8 10 percent increase in the number of retirees. And,  
9 again, the retirees are members who actually take a  
10 benefit from the plan, whether it be a partial  
11 benefit or the full benefit.

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

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

22 Membership growth, this year 3.6 percent.  
23 Again, a lot of that is driven by that additional  
24 5,000 members who have come in due to the renewed  
25 membership. And then for the financial guidance

1 program, again, we do see a lot of hits to our  
2 website, as well as those members who are using  
3 chat, that continues to increase as we get a lot of  
4 people who want to communicate via chat.

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

7 MR. COLLINS: Any questions? Steve and Katie.

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

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

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

1 ranks.

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

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

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

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

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

24 So as usual, Katie will step through that. But  
25 before I hand it over to her, are there any other

1 questions as relates to -- I know Seth mentioned the  
2 pending acquisition of Townsend by Aon. We are  
3 waiting for regulatory approval, which we expect to  
4 come in the next few weeks, but you can't rush  
5 regulators. They have their own schedules.

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

11 MR. COLLINS: Does anybody have any questions?  
12 Okay.

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

20 So moving ahead, starting with the pension plan  
21 performance, Ash gave updated numbers. All of our  
22 numbers in this report will be through the third  
23 quarter of 2017, so ending September 30th. The  
24 pension plan ended the quarter with \$157.6 billion,  
25 growth over the quarter of about 4 billion. As Ash

1 mentioned, that has risen to over 160 billion  
2 through December 1st, I believe. So all-time highs.

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

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

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

21 The long-term target for real estate is  
22 10 percent, and strategic investments is 12 percent.  
23 And as you heard from your asset class heads, the  
24 challenges of growing that when you have an overall  
25 portfolio that continues to grow very quickly and

1 the asset classes continue to distribute capital,  
2 not a bad problem to have but will make reaching  
3 those longer-term targets a bit more challenging.

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

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

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

25 We compare to two benchmarks on this page. The

1 first being the performance benchmark represented in  
2 blue. On a relative basis, strong outperformance,  
3 ranging from 20 basis points outperformance for the  
4 quarter, all the way up to 100 basis points for the  
5 one year period.

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

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

22 The next few slides look at the FRS's  
23 performance relative to a peer group. This is the  
24 TUCS Top 10, so the top 10 largest pension plans in  
25 the United States. And we show here the asset

1 allocation of the FRS as of 9/30 relative to the  
2 median plan in this universe of other ten plans.  
3 And consistent with previous quarters, the greatest  
4 difference between these asset allocations and what  
5 drives the difference in returns that we'll look at  
6 on the next page is primarily the greater allocation  
7 FRS has to global equity.

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

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

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

25 Any questions on asset allocation? So I'm

1 looking at returns. This shows FRS returns over  
2 these same time periods. These are gross returns so  
3 we can have an apples to apples comparison with the  
4 TUCS universe, because they report on gross returns.  
5 But you can see, with the exception of the third  
6 quarter, the FRS has outperformed the median plan  
7 across all these time periods, and not only  
8 outperformed the median but has ranked in the top  
9 quartile.

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

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

25 So those are slides on the FRS performance.

1 Any questions? The next major mandate we cover is  
2 the investment plan. Any questions?

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

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

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

22 So strong outperformance across the board.  
23 And, again, this is coming from -- diversified  
24 across all the asset classes. I think each fund has  
25 outperformed its benchmark across all of these time

1 periods, with one exception, the real assets fund,  
2 which we've spoken about in previous quarters. Over  
3 I believe the three and five year, more  
4 benchmark-like performance, given an allocation to  
5 commodities. But that has come back over the one  
6 year period. So great relative performance across  
7 the board for the investment plan options.

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

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

23 MR. COLLINS: Hedge funds?

24 MS. COMSTOCK: Hedge funds absolutely are  
25 included in the alternatives. There are other

1 providers that will break out private equity and  
2 that will have then an "other" category, or some  
3 will do private equity and hedge funds. So we can  
4 provide some of that information. Unfortunately,  
5 this universe does not give us any detail on that.

6 MR. COLLINS: Okay.

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

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

24 So the difference there is that the peers had a  
25 greater allocation to equities than the investment

1 plan participants. And as equities have done well,  
2 when you aggregate overall performance, the  
3 performance is going to be better.

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

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

21 And when you look, break this number down and  
22 compare it to peers on those two components, the  
23 investment management -- the investment management  
24 offerings have a lower fee relative to peers, which  
25 is what the participants are paying.

1           When you look at the aggregated fee relative to  
2 the peer group, it looks -- the FRS is paying about  
3 seven basis points greater than the peer group. And  
4 that's all due to the investment advice program that  
5 the SBA offers the participants that -- it is  
6 unclear if other peers are offering that to their  
7 programs and what that entails. So it's a little  
8 bit of an apples to oranges comparison, but that's  
9 where the extra fee is coming from.

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

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

23           Lawton Chiles Endowment Fund is the next major  
24 mandate that we cover. Just a quick reminder that  
25 it's about 70 percent invested in global equities,

1           which will drive performance. That global equity  
2 allocation is managed by one active manager. That  
3 active manager has done very well for the fund  
4 across all these time periods and has driven the  
5 outperformance of the total endowment relative to  
6 the performance benchmark.

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

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

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

25           MR. COLLINS: Any questions? Great. Thanks,

1 Katie.

2 MS. COMSTOCK: Thank you.

3 MR. COLLINS: Appreciate it. Thanks, Steve.

4 Is that it, Ash?

5 MR. WILLIAMS: I think that's it.

6 MR. COLLINS: I think that's it. Yeah. So we  
7 need --

8 MR. WILLIAMS: Audience remarks.

9 MR. COLLINS: Audience remarks. Anybody on the  
10 phone or anybody in the audience have anything that  
11 they would like to discuss with the Board or take  
12 up? Okay. And then dates for next year, so at Tab  
13 6 in your book, the meeting dates are there, the  
14 four meeting dates, March, June, September and  
15 December. These are the proposed meeting dates,  
16 so --

17 MR. WILLIAMS: Be aware of those.

18 MR. COLLINS: Yeah, be aware of those. If  
19 nothing else, we'll be adjourned. Thanks.

20 (Whereupon, the meeting was concluded at 3:30  
21 p.m.)

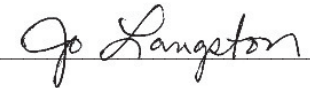
1  
2 CERTIFICATE OF REPORTER

3  
4 STATE OF FLORIDA )

5 COUNTY OF LEON )

6  
7 I, Jo Langston, Registered Professional  
8 Reporter, do hereby certify that the foregoing pages 3  
9 through 119, both inclusive, comprise a true and correct  
10 transcript of the proceeding; that said proceeding was  
11 taken by me stenographically and transcribed by me as it  
12 now appears; that I am not a relative or employee or  
13 attorney or counsel of the parties, or a relative or  
14 employee of such attorney or counsel, nor am I interested  
15 in this proceeding or its outcome.

16 IN WITNESS WHEREOF, I have hereunto set my hand  
17 this 2nd day of January 2018.

18  
19  
20  
21 

22 JO LANGSTON  
23 Registered Professional Reporter  
24  
25



STATE BOARD OF ADMINISTRATION  
OF FLORIDA

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GOVERNOR  
CHAIR

JIMMY PATRONIS  
CHIEF FINANCIAL OFFICER

PAM BONDI  
ATTORNEY GENERAL

ASH WILLIAMS  
EXECUTIVE DIRECTOR & CIO

## MEMORANDUM

**To:** Board of Trustees  
**From:** Gary Price, Chairman  
Participant Local Government Advisory Council (PLGAC)  
**Date:** March 2, 2018  
**Subject:** Quarterly Update – Florida PRIME™

---

The Participant Local Government Advisory Council (the "Council") last met on December 14, 2017 and will meet next on March 22, 2018. Over the prior quarter, the Council continued to oversee the operations and investment management of Florida PRIME™.

### CASH FLOWS / PERFORMANCE

- During the 4<sup>th</sup> quarter of 2017, Florida PRIME™ delivered an aggregate \$31.75 million in gross investment earnings and experienced participant deposits totaling \$10.23 billion and participant withdrawals totaling \$6.88 billion; providing a net increase in the fund's net asset value (NAV) of approximately \$3.39 billion.
- Performance of Florida PRIME™ has been consistently strong over short-term and long-term periods. For the period ending December 31, 2017, Florida PRIME™ generated *excess* returns (performance above the pool's benchmark) of approximately 33 basis points (0.33 percent) over the last 12 months, 25 basis points (0.25 percent) over the last three years, and 20 basis points (0.20 percent) over the last five years. Based on December 31, 2017 fund values, the last 12 month excess return equals earnings of approximately \$37.7 million.
- Florida PRIME™ has outperformed all other government investment pools statewide.
- Through the five-year period ending December 31, 2017, Florida PRIME™ ranked as the highest performing investment vehicle when compared to all registered money market funds within iMoneyNet's First Tier Institutional Fund Universe.

### POOL CHARACTERISTICS

- As of December 31, 2017, the total market value of Florida PRIME™ was approximately \$11.43 billion.
- As of December 31, 2017, the investment pool had a seven-day SEC Yield equal to 1.53 percent, a Weighted Average Maturity (WAM) equal to 44.9 days, and a Weighted Average Life (WAL or Spread WAM) equal to 76.7 days.



STATE BOARD OF ADMINISTRATION OF  
FLORIDA

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Subject: Quarterly  
Audit Committee  
Report

RICK SCOTT  
GOVERNOR  
CHAIR

JIMMY PATRONIS  
CHIEF FINANCIAL OFFICER

PAM BONDJ  
ATTORNEY GENERAL

ASH WILLIAMS  
EXECUTIVE DIRECTOR & CIO

Date: February 7, 2018

To: Board of Trustees

From: Mark Thompson, Audit Committee Chair *MT*

---

The State Board of Administration's Audit Committee met on January 29, 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.

In addition, in the appendix to OIA's report is the Governance, Risk and Compliance (GRC) Triennial Assessment Report – Executive Summary, as well the presentation Funston Advisory Services presented at the Audit Committee meeting. If you would like the full version of the GRC Triennial Assessment report, please contact the Chief Audit Executive, Kim Stirner, at 850-413-1244.

Thank you.

**STATE BOARD OF ADMINISTRATION**  
**Audit Committee Open Meeting**  
**Agenda**  
**January 29, 2018**  
**8:30 A.M. – Conclusion of Business**

1. Call to Order
2. Approve meeting minutes held on November 27, 2017:
  - a) November 27, 2017 - Closed Meeting
  - b) November 27, 2017 - Open Meeting
3. SBA Executive Director & CIO status report
  - SBA Update: investment performance, risks, opportunities and challenges
4. Presentation of the Funston Advisory Services' Triennial Governance, Risk and Compliance results
5. Presentation on the results of the SBA Local Government Surplus Funds Trust Fund (Florida PRIME)
6. Office of Internal Audit Quarterly Report
7. Approval of the Committee's annual independence statement
8. Election of the Committee's Chair and Vice Chair
9. Chief Risk & Compliance Officer Quarterly Report
10. Other items of interest
11. Closing remarks of the Audit Committee Chair and Members
12. Adjournment



# Office of Internal Audit (OIA) Quarterly Report to the Audit Committee

January 29, 2018



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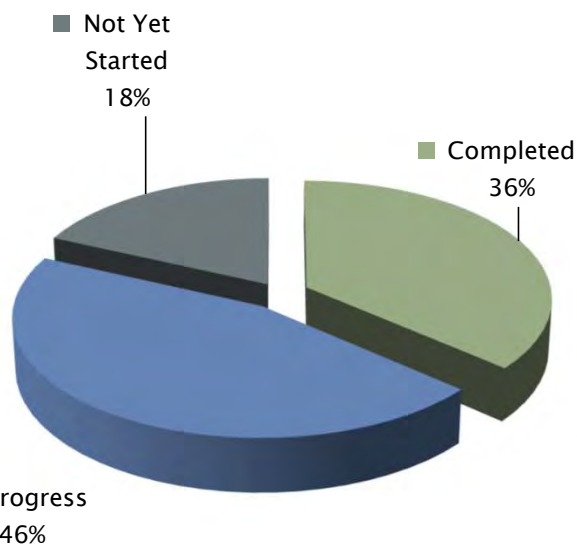
<b>Status of the FY 2017–18 Annual Audit Plan:</b>	
• Internal Audit and Advisory Engagements	4
• External Engagement Oversight	5
• Special Projects, Risk Assessment, and Other Activities	6
<b>Presentation of OIA Report Issued and Status of Management Action Plans/Recommendations:</b>	
• Real Estate Cash Transfers Advisory Project Summary	8
• Details of open items – Audit and Advisory Projects	9–10
<b>Other OIA Activities:</b>	
• Status of FY 2017–18 OIA Department Goals	12
• Other Items for Discussion	13
<b>Appendices:</b>	
Open Audit Recommendations and Action Plans at December 31, 2017	Appendix A
OPPAGA’s Florida Growth Fund Initiative Report	Appendix B

# Status of Annual Audit Plan >>



# Status of the FY 2017–18 Annual Audit Plan

## Internal Audit and Advisory Engagements



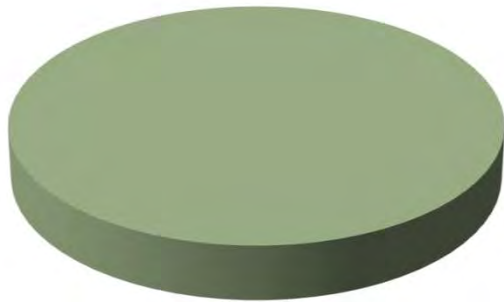
Highlighted: Completed since prior quarterly report.

<u>Projects Status</u>	<u>Type</u>	<u>Planned Timing</u>
<b>Completed</b>		
Internal Controls over Financial Reporting - DC	OIA Advisory	Q1
Real Estate, commingled	OIA Operational Audit	Q1
Continuous Monitoring - GE (Cost by Dealer report only)	OIA Advisory	Q1
Internal Controls Assessment - RE Cash Transfers	OIA Advisory	Q2
<b>In Progress</b>		
Quarterly Follow-up Audits/Action Plan Monitoring	OIA Operational Audit/Project Management	Ongoing
Continuous Monitoring - Payroll	OIA Advisory	Q2
Compliance Advisory, automation, efficiencies and gaps	OIA Advisory	Q2/Q3
Incentive Compensation Audit	OIA Operational Audit	Q3/Q4
Externally Managed Derivatives Audit	OIA Operational Audit	Q3/Q4
<b>Not Started</b>		
Continuous Monitoring - Accounts Payable	OIA Advisory	Q3/Q4
Continuous Monitoring - Pcards	OIA Advisory	Q3/Q4



# Status of the FY 2017-18 Annual Audit Plan

## External Engagement Oversight



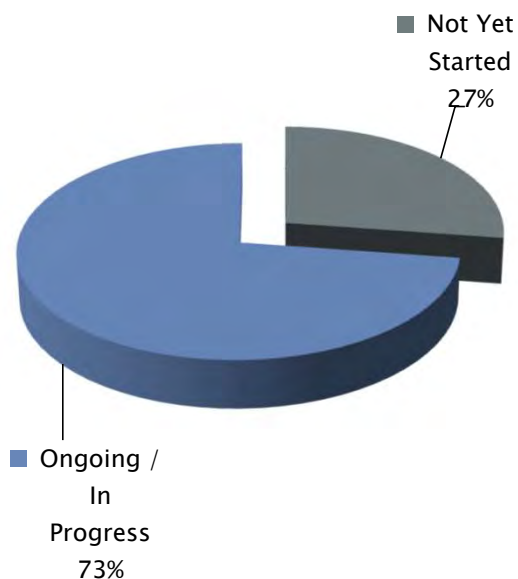
■ Completed  
100%

Highlighted: Completed since prior quarterly report.

<u>Project Status</u>	<u>Service Provider</u>	<u>Type</u>	<u>Planned Timing</u>
<b>Completed</b>			
Operational Audit (follow-up #2015-083)	Auditor General	External Operational Audit	Q1/Q2
Network Security, outsourced	BDO	External IT Audit	Q1/Q2
Florida Hurricane Catastrophe Fund	KPMG	External Financial Statement Audit	Q1/Q2
Florida Retirement System (FRS) Trust Fund	Crowe Horwath	External Financial Statement Audit	Q1/Q2
FRS Investment Plan Trust Fund	Crowe Horwath	External Financial Statement Audit	Q1/Q2
Florida PRIME	Auditor General	External Financial Statement Audit	Q1/Q2
Part of the Statewide CAFR	Auditor General	External Financial Statement Audit	Q2/Q3
Florida Growth Fund Initiative	OPPAGA	External Review	Q1/Q2
Triennial Governance, Risk & Compliance	Funston Advisory Services	External Advisory	Q1/Q2
<b>In Progress</b>			
None			
<b>Not Started</b>			
None			

# Status of the FY 2017–18 Annual Audit Plan

## Special Projects, Risk Assessments, and Other Activities



<u>Project Status</u>	<u>Type</u>	<u>Planned Timing</u>
<b>Completed</b>		
None		
<b>Ongoing/In Progress</b>		
Special requests from SBA management and/or Audit Committee	OIA Special Projects	Ongoing
WorkSmart Portal Enhancements	OIA Special Projects	Ongoing
Integrated Risk Management Solution Cost Benefit Analysis	OIA Special Projects	Q2/Q3
Data Analytics Tools Enhancements	OIA Special Projects	Ongoing
ISO 22301 Implementation Analysis (new request from management)	OIA Special Projects	Q2
OIA process improvement initiatives, including QAR identified initiatives	OIA Quality Assurance	Ongoing
Annual Risk Assessment	OIA Risk Assessment	Q1/Q2
Audit Committee Related Activities	OIA Audit Committee	Ongoing
<b>Not Yet Started</b>		
Risk Assessment Updates	OIA Risk Assessment	Q3/Q4
Annual Audit Plan	OIA Risk Assessment	Q3/Q4
Annual Quality Assessment Review	OIA Quality Assurance	Q3/Q4

# Presentation of OIA Reports Issued and Status of Management Action Plans / Recommendations >>



# Real Estate Cash Transfers Advisory Project Summary

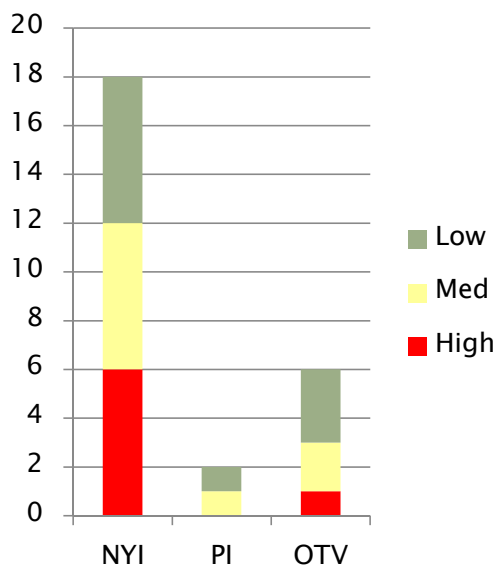
The Real Estate (RE) Cash Transfers Advisory engagement evaluated internal controls for outgoing wires to fund obligations, incoming wires for cash distributions, and invoice procedures for direct-owned and total portfolio expense payments. Our assessment documented potential risks to achieving RE cash transfers objectives, and the current state of the controls to mitigate those risks. The objectives and results of this engagement were as follows:

1. Determine if appropriate controls are in place for the following processes related to RE's cash transfers:
  - a. Cash transfers (outgoing wires) to fund outgoing obligations such as funding requests from Investment Advisor, operational needs, and manager fees
  - b. Cash transfers (incoming wires) for monthly cash distributions for direct-owned investments and other cash distributions
  - c. Invoice procedure for direct-owned investment and total portfolio expenses payment
    - I. Internal processing of invoices by SBA
    - II. External processing of invoices by Investment Advisors
2. Determine if appropriate controls are in place to reconcile movement of cash in and out of the RE cash account.

Legend for Control Assessment	# of Key Controls
In Place/Appropriately Designed	35
Opportunity for Improvement	1
Control Gap	0
<b>Total Key Controls</b>	<b>36</b>



# Status of Management Action Plans–Audits



For details, see [Appendix A](#).

Highlighted: New since prior quarterly report.

Report Title	Report Date
Travel Services Operational Audit (OIA)	02/13/2015
Accounts Payable Continuous Audit (OIA)	08/07/2015
Fixed Income Trading Activities Operational Audit (OIA)	01/29/2016
Trust Services Operational Audit (OIA)	07/25/2016
Global Equity Internal Trading Activities Operational Audit (OIA)	01/18/2017
Internally Managed Derivatives Operational Audit (OIA)	03/31/2017
Real Estate Externally Managed Portfolios Operational Audit (OIA)	09/29/2017
Auditor General Operational Audit 2017	11/13/2017
Fiscal Year 2016-17 FRS Audit (Crowe Horwath)	11/06/2017

Risk Rating				Status			
High	Med	Low	Total	NYI	PIRP	OTV	Total
		1	1	1			1
	2		2	2			2
	1	1	2		2		2
1			1			1	1
1	1	1	3	2		1	3
5	3	4	12	11		1	12
	1		1			1	1
	1	1	2	1		1	2
		2	2	1	1	1	2
7	9	10	26	18	2	6	26
27%	35%	38%		69%	8%	23%	

Legend:

- NYI - Not Yet Implemented
- PIRP - Partially Implemented and the Remainder is in Progress
- OTV - OIA to Verify

*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.*



# Status of Recommendations – Advisory Projects

Report Title	Report Date
Information Technology General Controls Advisory Engagement (OIA) <sup>1</sup>	01/20/2017
Internal Controls Over Financial Reporting Advisory – FRS Pension Plan (OIA) <sup>1</sup>	07/19/2017
Internal Controls Over Financial Reporting Advisory – FRS Investment Plan (OIA) <sup>1</sup>	09/28/2017
Network Security Assessment 2017 (BDO) <sup>2</sup>	11/02/2017

Status				
Pending	NYI	PI	IMP	Total
6		5		<b>11</b>
	4			<b>4</b>
	2		1	<b>3</b>
	9		14	<b>23</b>
<b>6</b>	<b>15</b>	<b>5</b>	<b>15</b>	<b>41</b>

**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

*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.*

<sup>1</sup>At 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 2016-2017.

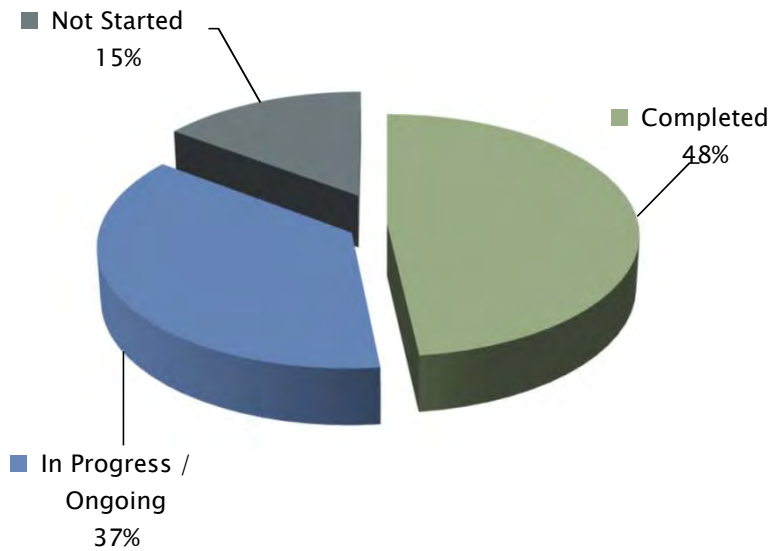
<sup>2</sup>Recommendations will be reviewed for remediation and closure by BDO as part of the 2018 Network Security Assessment.



Other OIA Activities >>



# Status of FY 2017-18 OIA Department Goals



	Completed	In Progress / Ongoing	Not Yet Started
<b>Annual Audit Plan</b> Successfully deliver the fiscal year 2016-17 Audit Plan and budget. Enhance communication of the COSO internal control framework.	3	2	1
<b>Internal Audit Process</b> 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.	3	3	2
<b>Use of Technology</b> Implement audit technology solutions to enhance department effectiveness and efficiency.	2	3	0
<b>People</b> Evaluate staffing and development needs.	5	2	1



# Other Items for Discussion

- ▶ Externally Managed Derivatives Audit Update
- ▶ Integrated Risk Management Solution Update
- ▶ Data Analytics Program Update
- ▶ Staffing
  - Promotion announcement
  - Intern recruitment
- ▶ Next Audit Committee Meeting Dates
  - Monday, April 30, 2018
  - Monday, ~~July 30, 2018~~ August 6, 2018
  - Monday, November 26, 2018

# Questions/Comments



# **Florida State Board of Administration**

## **Triennial Governance, Risk Management and Compliance Assessment**

FINAL REPORT  
Executive Summary  
January 15, 2018



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## Section 1. Executive Summary

### Background Information

The Florida State Board of Administration (SBA) was first established on June 21, 1928. The SBA provides a variety of investment, and trust services to various governmental entities. These investment services include managing the assets of the Florida Retirement System (FRS) Pension Plan, the FRS Investment Plan, the Lawton Chiles Endowment Fund (LCED), the Local Government Surplus Funds Trust Fund (aka Florida PRIME), the Florida Hurricane Catastrophe Fund (FHCF), and a variety of other mandates. The assets under SBA management have a market value of almost \$185 billion as of December 31, 2016. The SBA has the responsibility of administering the FRS Investment Plan established pursuant to Florida Statutes. The FRS Investment Plan was first offered to public sector employees in fiscal year 2003 and was modeled after private sector 401(k) plans.

### Governing Authority

The Governing Board of the SBA (herein referred to as the “Trustees”) is comprised of Florida’s Governor (as Chair), Chief Financial Officer, and Attorney General. All three are elected statewide to their respective positions as Governor, Chief Financial Officer, and Attorney General.

### Administrative Structure

The Trustees delegate authority to the Executive Director and Chief Investment Officer, who serves at the discretion of the Trustees, and is responsible for managing and directing all administrative, personnel, budgeting, investment policy, and investment functions. The Executive Director and Chief Investment Officer are the same person.

### Independent Advisory Councils and Oversight Committee

1. The Trustees appoint nine members to serve on the Investment Advisory Council (IAC). The IAC is charged with review and study of general portfolio objectives, policies and strategies, including a review of investment performance. The IAC meets on a quarterly basis.
2. The Trustees appoint six members to serve on the Participant Local Government Advisory Council (PLGAC). The PLGAC provides an additional measure to ensure that Florida PRIME is operated and managed in the best interest of investors. The PLGAC meets on a quarterly basis.
3. The Trustees appoint three members to serve on the SBA Audit Committee. The Audit Committee assists the Trustees in fulfilling their oversight responsibilities in the areas of financial reporting, internal controls and risks assessment, audit processes, and compliance. The Audit Committee meets at least on a quarterly basis.

### Mandates under SBA Management

The SBA manages the major mandates below, in addition to other smaller mandates.

- FRS Trust Fund (of the FRS Pension Plan, aka the defined benefit plan)
- FRS Investment Plan (the defined contribution plan)

- Florida PRIME (Local Government Investment Pool)
- Florida Hurricane Catastrophe Fund
- State Board of Administration Finance Corporation

## The SBA Audit Committee Charter

Part of the SBA Audit Committee charter includes the responsibility to “Commission a governance, risk management and compliance (GRC) program evaluation and performance improvement analysis (including the assessment of the utilization and effectiveness of both the internal and external audit functions) to be performed by an external provider no less frequently than every three years and incorporating input from SBA management.”

## Scope of Services

Funston Advisory Service LLC (FAS) was selected to conduct the 2017 GRC review. The scope of services included an assessment of SBA’s monitoring and oversight of its investment management activities, middle and back office operations, and certain other processes. The assessment was performed leveraging the Committee of Sponsoring Organizations (COSO) framework across the three lines of defense.<sup>1</sup> We also incorporated the latest guidance from COSO’s *2017 Enterprise Risk Management–Integrating with Strategy and Performance* and other sources of leading and prevailing practices. The assessment included the identification of any gaps as compared to leading practices.

The following areas were included in the scope of the assessment (see Appendix A for a detailed description of scope): Senior Management and Independent Advisory Councils and Oversight Committee; The First Line of Defense: Operational Management; The Second Line of Defense: Enterprise Risk Management (ERM); Public Market Compliance (PMC); External Investment Manager Oversight (EIMO); Performance & Risk Analytics and Inspector General; and, the Third Line of Defense: Office of Internal Audit (OIA).

The review also evaluated the level of collaboration between the three lines of defense, specifically the 2nd and 3rd lines regarding the risk assessment process. We assessed the independence of the GRC functions relative to ERM, PMC, EIMO, Performance & Risk Analytics, Inspector General, and OIA, and their interaction with the Audit Committee and the IAC.

Based on the evaluation of the above GRC components, we have provided findings, conclusions and recommendations for improvement. On the following pages, we describe our review approach and our summary of conclusions and recommendations.

The Scope of Services required us to look at SBA’s GRC program from a number of different perspectives. This has led to some inevitable redundancies in the various sections. While unavoidable, we have tried to keep these to a minimum.

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<sup>1</sup> The integrated COSO framework used for this review is described Appendix B

## GRC Review Process

### Leading vs. Best Practice

While public pension systems have much in common, they are also unique. Each is “one of a kind” depending on its particular circumstances including, for example, legislative frameworks, board composition and dynamics, funded status, and stakeholder relations. We are often asked to recommend “best” practice based on our knowledge and experience with a wide variety of public pension systems. We prefer instead to describe what we consider to be “leading” practice (which is a matter of opinion) and leave it to our clients to determine what is best for their specific circumstances.

Each section of the report begins with a description of what we would expect to find in terms of leading practices and the Standard of Comparison for an organization like SBA. We cite what we consider to be leading practices and Standard of Comparison using the Committee of Sponsoring Organizations of the Treadway Commission (COSO, Basel Committee on Banking Supervision, risk intelligence, industry benchmarks, various professional standards, academic and peer references, as well as our experience and knowledge gained in working with public pension funds.

Second, we described what we found (our findings) regarding SBA’s current state compared to what we would expect to find. Third, we described our conclusions based on what we found in each area (i.e., leading, prevailing or lagging). Fourth, we made recommendations where we saw opportunities for improvement.

NOTE: Not every conclusion has a recommendation, so their numbering is not matched one to one. To help the reader we have used the following numbering convention.

All conclusions begin with a C and all recommendations begin with an R. Next, we describe the Section, the sub-section and the number of the conclusion or recommendation. For example, in Section 2. Governance, the first conclusion would be shown as follows:

**C2.A.1 The legislative framework and structure can be considered leading practice in most areas, as the fiduciary authorities of the SBA Board of Trustees are consistent with its responsibilities.**

The first recommendation is shown as follows:

**R2.A.1 The legislature should consider eliminating statutory constraints on investments to reduce compliance burden and avoid potential sub-optimal investment decisions in the future when markets change.**

### Leading, Prevailing and Lagging Practice

We considered a practice to be “leading” if it helps increase beneficial impact on organizational performance compared to other practices and not in common use among peers. Also, although some elements of a practice could be considered leading, there may still be opportunities for improvement.

A “prevailing” practice is one which is common to peers but could potentially still be a candidate for improvement. There is not a “leading” practice in every area and “prevailing” may be the most effective practice currently and commonly in use.

A “lagging” practice is one which has not kept pace with what we would consider prevailing practice and can detract from performance capabilities. Again, these judgments are a matter of our opinion.

### Common Terms

Throughout the report, we frequently refer to Governance, Risk and Compliance so it might be helpful to describe just what we mean.

By governance, we mean direction setting and oversight: What are the key decisions? Who gets to make them? What are their responsibilities and authorities? What are their goals and values about what is important? Have they provided clear direction? Is there effective oversight? Are staff executing those directions? How are they performing?

By risk, we mean the potential for loss or harm or missed opportunity. How bad can it get? How fast can it get that bad? What is an unacceptable difference between actual and expected performance?

By vulnerability, we mean exposure to unacceptable risk. How prepared are you to deal with this risk? How fast can you respond? Where are you most vulnerable? Is vulnerability or exposure getting better or worse or staying about the same?

By risk management, we mean: What are you doing about the exposures within your control? Who is responsible? What are the priorities?

By compliance, we mean to act within the applicable laws, regulations, and investment and organizational policies, including third parties. Who is responsible for complying? How do you know if you are in compliance?

### Recommendations and Implementation Roadmap

Our conclusions and recommendations for improving SBA’s performance are summarized at a high level on the following pages. A complete list of conclusions and recommendations by section of the report is provided in Appendix C. We have also worked with SBA to develop an implementation roadmap for recommendations. The roadmap prioritizes our recommendations, provides a timetable and identifies responsibilities and resources required. Obviously, SBA may not choose to accept all of our recommendations.

### SBA Project Steering Committee and Review Approach

We worked with a Steering Committee comprised of:

- Kim Stirner, Chief Audit Executive (Chair)
- Lamar Taylor, Chief Operating/Financial Officer
- Karen Chandler, Chief Risk & Compliance Officer
- Belinda Dixon, Director of External Investment Manager Oversight
- Marcia Main, Director of Enterprise Risk Management

We met with the Steering Committee regularly throughout the project to keep them apprised of our progress and to coordinate requests for further information. As part of our review, we completed the following activities. Please see Appendices for more detailed lists of the following:

1. Document reviews
2. Conducted surveys of:
  - a. Audit Committee
  - b. Investment Advisory Council
  - c. Participating Local Government Advisory Council
  - d. Senior Management
  - e. First Line of Defense: Operating Management
  - f. Second Line of Defense: RMC and IG
  - g. Third Line of Defense: Internal Audit
3. Conducted numerous interviews and cross-functional workshops
4. Prepared Swim Lane Diagrams for six Mega-Processes
5. Conducted numerous follow-up interviews and requested further documentation and support for verification
6. Discussed several drafts of our report with SBA and reviewed and considered their comments and additional facts and statements

Without exception, all parties were very responsive to our requests, and we sincerely appreciate their understanding, cooperation and support for this review.

### Structure of the Report

Our report is organized into seven sections:

1. Executive Summary
2. Governance
3. Performance and Risk
4. Compliance
5. Process Evaluations and Maturity
6. Lines of Defense and Maturity
7. Appendices

### Summary of Conclusions and Recommendations

#### Overview

SBA is a high performing investment organization with relatively high returns and low costs compared to its peer benchmarks. It is well respected and has a strong brand in the investment community. SBA has to take calculated investment risks to grow value and it also has to protect value from unrewarded risks. It has to be risk intelligent.

SBA is comprised of two main functions: Investment Management and Investment Operations. Investment Management is comprised of the asset investment staff who report to the Senior Investment Officers and then to the Executive Director and Chief Investment Officer (ED&CIO).

Investment Operations is comprised of Human Resources, Information Technology, Financial Operations, Accounting & Administrative Services, and Project Management, who report to the Chief Operating and Financial Officer, plus Risk Management and Compliance who reports to the Chief Risk and Compliance

Officer (CRCO), the Florida Hurricane Catastrophe Fund, Defined Contribution (DC) Program, the General Counsel, the Deputy Executive Director, the Inspector General, and the Director of External Affairs, who also report to the ED&CIO. The Chief Audit Executive reports functionally to the Audit Committee and administratively to the ED&CIO. The relationship between Investment Management and Investment Operations is symbiotic and mutually-dependent.

SBA's current GRC model was developed in response to the financial crisis of 2008-09 and demonstrated a strong commitment to ensure there was a comprehensive response to risk and compliance. Almost ten years later, it is appropriate to review SBA's progress and its GRC policies, processes and structures to determine whether they have kept pace with changes in the environment.

As good as they are, SBA believes they can be better. SBA commissioned this second triennial review to help identify opportunities to improve its GRC program. Throughout this report, we have made recommendations that reinforce SBA's commitment to continuously improving its performance, its risk intelligence, and its culture.

This report has focused on SBA's defensive capabilities. We make recommendations to improve alignment and support for Operating Management by the Risk Management and Compliance Unit (RMC) and OIA. SBA also needs support for its offensive capabilities to grow the portfolio. Effective oversight needs assurance and independent reassurance that the organization is performing within its approved policy directions and in compliance with applicable laws and regulations. SBA is already a performance-based culture. Improving its risk intelligence capabilities will help sharpen its focus.

Compared to prevailing guidance (the conventional GRC model) SBA demonstrates many leading GRC behaviors and practices. Because risk and compliance are embedded in everything SBA does, the scope of the review required us to analyze a wide range of activities in a very granular way. A high-level summary of our report follows.

## Governance

SBA's governance structure can be considered leading practice in most areas and it appears to be working well. The roles of the Board of Trustees (Trustees) and its committees and councils are well defined, and the Trustees receive timely information to exercise fiduciary oversight responsibilities. The Trustees, the Audit Committee, and the IAC are kept up to date on risk and compliance matters by the ED&CIO and the CRCO.

The Trustees have prudently delegated authority to the ED&CIO. We consider this a leading practice. There is an effective "tone at the top" and the ED&CIO is very accessible and informed. SBA has a strong commitment to ethical behavior and appears to have an effective culture. The recently-implemented incentive compensation program should reinforce performance and accountability and also help to continue to recruit and retain highly-capable investment staff. SBA has just begun to implement a formal succession planning program which should improve organizational and staff development.

Investment policy statements are developed and maintained for each fund, consistent with Florida statutes. However, SBA currently updates its asset allocations annually, which is a lagging practice for pension funds and may result in reacting to short-term market trends; three- to five-year updates are prevailing practice.

Although we did not conduct a detailed review of Investment Management Operations, SBA's due diligence practices appear to be adequate. However, lack of a due diligence policy which identifies minimum requirements and responsibilities is a lagging practice. SBA's approach to the compliance function is integrated with risk management, and has shared responsibilities with Investment Management for operational due diligence. This is unusual for a public pension fund, but we consider it to be an emerging leading practice. A formal due diligence policy, and additional operational due diligence resources, could improve the consistency of operational due diligence and manager monitoring.

Under the current organizational structure, lack of a Deputy CIO position increases succession risk, results in a large span of control for the ED&CIO, and may reduce oversight at the total fund level. There may also be an opportunity to improve cross-asset-class communication and staff development. SBA should conduct an independent investment management operations review to assess its investment decision-making processes, due diligence policies, and other key aspects of investment management and operations.

The SBA strategic planning process, which is led by the ERM function, is very comprehensive and includes an explicit consideration of risk. However, the planning process is not long term (i.e., three to five years), which results in short-term bias, and thus a lack of focus on the strategic capabilities needed to meet long-term goals. SBA should consider transferring responsibility for strategic planning to the Chief Operating/Financial Officer (COO/CFO). The new process should be conducted every three-to-five years, start with a focus on long-term goals and objectives, identify strategic capabilities required to meet those goals and be directly connected to its business model. A business model is how an organization creates, delivers, captures and preserves value. SBA should more clearly articulate its business model overall and for each of its business units.

An overall strategy should be developed and for each of its businesses and its chosen business model(s). A longer term, more strategic focus requires SBA to ask itself: What are the challenges and opportunities of the future? What capabilities (offensive and defensive) will we require to meet them? What will it take to keep SBA a high performing organization in all of its businesses (current and future)?

There are several key ways for SBA to move forward with Governance:

1. The Legislature should remove statutory restrictions on investments wherever possible and instead establish the prudent investor standard and eliminate its requirements for the annual reaffirmation of the appointment of the ED&CIO by the Trustees.
2. Strengthen and reinforce the focus of the Audit Committee on risk management in the Audit Committee charter and, potentially, by renaming the committee to be the Audit and Risk Committee.
3. Improve time management by conducting a "sunset review" of all current management oversight groups and meetings to determine which ones are critical (e.g., problem solving, decision making, or information only) and find more efficient ways to communicate information.
4. Consider adoption of an internal investment committee to potentially improve investment decision processes and staff development.
5. Consider expanding the incentive compensation plan to include investment operations staff.
6. Review the strategic asset allocation review and updating process and implement a policy of less frequent revisions, e.g., every three to five years.

7. Develop external manager due diligence and monitoring policy and related procedures, which ensure consistency and completeness of due diligence and monitoring activities.
8. Create the position of Deputy CIO to: reduce the ED&CIO's span of control; expedite investment policy approval and decision-making; and, improve succession planning.
9. Transfer responsibility for developing the strategic plan from the Chief Risk & Compliance Officer (CRCO) to the COO/CFO and implement a new three-to-five-year planning process, which starts with long-term goals and objectives.
10. Transfer policy development from the CRCO to the Deputy Executive Director (DED).
11. Conduct an independent review of investment management and investment operations.

## Performance and Risk Management

Risk management is embedded in everything SBA does. SBA has moved from managing risk and compliance in silos to enterprise-wide and enterprise-deep. SBA is very risk aware and takes risk very seriously. Significant management time and attention is devoted to ensuring there is effective risk management. The Board, the Audit Committee, the Investment Advisory Council and the PLGAC all address risk as do almost all management oversight groups.

The Audit Committee states it finds risk reports and the linkage of risks to the strategic plan very helpful. The Trustees, the Audit Committee and Advisory Councils also receive regular independent reassurance from the CRCO, the Chief Audit Executive (CAE) and the Inspector General (IG). The CRCO, CAE and IG can also independently escalate risks or issues as needed.

The CRCO leads the RMC Unit. This is a leading practice. The ERM program is the most developed and comprehensive we have seen in a U.S. public pension fund. There is clear linkage of risks to the strategic plan. Control activities appear to be robust. ERM and OIA verify controls for high inherent/low residual risks, which is a leading practice because of the criticality of those controls and the dependence placed on them. PRA also provides an investment performance measurement calculation portion while the bank provides a single one month and one-year number. Additionally, RMC plans to have this reporting infrastructure (with the database, on-demand reports, etc.) be the basis for the "next generation" ERM report.

Although communications are never "fixed", there are generally good communications. The IG provides an additional and independent perspective on Ethics and Compliance. The IG investigates potential ethical violations, of which there have been few and there were none under investigation at the time of this report. The IG reports that most hotline calls are typically external parties looking for complaint resolution rather than reporting allegations of misdeeds.

The three lines of defense: 1) operating management; 2) the Risk and Compliance functions; and 3) the OIA, work well together. There has been a significant improvement in collaboration between RMC, the OIA and business units over the past several years.

Compared to other large public pension funds, the RMC is leading practice. We are not aware of any other large public pension fund that has developed its capabilities as well as SBA. Having the CRCO report to the ED&CIO and independently to the Trustees is leading practice and more typical of large private sector financial institutions.

Currently, SBA has a risk framework that includes thirteen categories of risk and sub-risks (e.g., investment risk, operational risk, reputation risk, etc.). However, the risk framework is not directly connected to SBA's business model and is aggregated at the enterprise level but not disaggregated at the business unit level. This tends to reduce the relevance and utility of risk assessments for business risk owners.

As the first line of defense, business owners are accountable for performance and risk: Investment Management and Investment Operations. Currently, Investment Management tends to see operational risk as the job of SBA's Investment Operations (e.g., HR, IT and non-investment compliance) and this is appropriate to a certain extent. Tying risk directly to SBA's business model could help establish and reaffirm the connection to operations and reinforce the entire 1<sup>st</sup> line of defense's ownership of performance and risk.

A major component of GRC at SBA is its ERM process. As mentioned earlier, the ERM program is the most developed and comprehensive we have seen in a U.S. public pension fund. The majority of their practices are consistent with the latest guidance from the COSO Enterprise Risk Management 2017. We support much of the framework and have referenced it where we agree with its guidance.

However, the conventional COSO ERM model (including 2017) has several limitations (e.g., tendency to become overly bureaucratic, complex, not linked directly to performance and the business model, higher potential for misestimation of severity and preparedness based on likelihood, a focus on activities rather than performance and outcomes, and data without insight). Given its currently capability maturity, SBA has (in certain respects) reached the limits of conventional guidance about ERM. A paradigm shift will likely be required to take SBA's GRC performance to the next level of risk intelligent performance.

There are several key ways for SBA to move forward in Performance and Risk Management:

1. Sharpen the focus on performance and risk outcomes by directly matching to SBA's business model (overall and for each of its business units).
  - To accomplish this, SBA's business model (i.e., how the organization creates, delivers, captures and preserves value overall and in each of its businesses), needs to be clearly defined for both Investment Management and Investment Operations.
2. Operating management (with the concurrence of the CRCO) should define / refine acceptable and unacceptable differences between expected and actual performance for both SBA and its third-party providers and related metrics;
  - Increasing focus on business performance and risk will improve alignment with SBA's goals across its three lines of defense;
3. SBA should focus reporting on exceptional performance.
  - Increase the use of key quantitative performance and risk indicators.
  - Exceptions to expected performance should be escalated as required for recognition and accountability.
  - Expected performance should be reasonably assured by operating management and independently reassured by the 2<sup>nd</sup> and 3<sup>rd</sup> lines of defense.
4. RMC can help by using more quantitative data and metrics to focus on timely, value-added analytics and insights.
  - RMC should consider that part of its mission includes producing actionable intelligence for improved risk and reward judgments.

- RMC should increase its analytical capabilities and tools to focus on the early identification, management and reporting of exceptions to acceptable and unacceptable performance.
- Compliance should focus on SBA's highest non-compliance risks.
- RMC should reduce its reliance on qualitative assessments and the use of the term likelihood and thus reduce potential bias.
- RMC should change its risk assessment terminology to make it more intuitive (e.g. threat including velocity (how bad can it get and how fast can it get that bad?) and vulnerability (how exposed are we?).

The next generation of risk intelligence at SBA should be characterized by an increased focus on outcomes and the risks and rewards directly related to SBA's long and short performance for both value creation and protection.

## Compliance

The primary SBA compliance monitoring functions, referred to generally throughout this report as "Compliance" and the SBA Compliance Program, were moved out of the asset classes in 2008 and the role of the CRCO was established in 2009. The ED&CIO has established an overarching policy that created the RMC unit. The SBA Compliance program is primarily accomplished through two units in RMC, the Public Market Compliance Group (PMC) and the External Investment Manager Oversight Group (EIMO) and through implementation of SBA policies that address compliance. Responsibility was delegated to the CRCO to develop procedures to implement a compliance monitoring function. As noted earlier, closely linking enterprise risk management and compliance is a leading practice among public funds.

The SBA Compliance program is clearly focused on monitoring compliance while the responsibility for complying rests clearly with the operating management of the business units. The goals of the SBA compliance function "are to prevent compliance violations from occurring, to identify any violations that may have occurred, and to escalate violations to management for review and resolution. The SBA compliance team achieves these goals within a framework of routine compliance testing and reporting." Based on our review, SBA generally has prevailing policies and processes with respect to monitoring compliance with laws, policies and internal guidelines, but there is room for improvement.

In addition to the controls employed by operating management, Compliance is part of the second line of defense which ensures that the SBA complies with applicable laws, policies, guidelines, and contractual agreements and non-compliance is escalated until it is resolved.

Functions and individuals reporting to the ED&CIO are responsible for monitoring compliance with legislated mandates having to do with social and geo-political issues. These include divestment from issuers of securities doing business in/with terrorist sponsoring states as required by Florida statutes. This is prevailing practice for large public funds.

With respect to compliance by third parties supporting SBA (primarily external investment managers) SBA Compliance is working diligently to meet its responsibilities. However, it is hampered by a lack of resources and unclear priorities and responsibilities.

Priorities need to be set to focus on unacceptable non-compliance, accountability and better, more timely analytics. The focus should begin with the greatest risks of non-compliance. The Compliance program may not have sufficient personnel resources or adequate systems to perform some of its functions. RMC needs to evaluate whether it should continue to perform certain functions such as Investment Guideline monitoring (see below). An evaluation should be conducted to determine whether and to what extent certain compliance monitoring should continue prior to these priorities being set. Based on the evaluation a business case should be made by RMC if resource modifications are required. Where feasible, greater reliance on SBA's custodial bank, e.g., for the acquisition of investment guideline compliance information, should be a priority.

Concerns were raised by the asset classes about the relevance and effectiveness of current monitoring activities relating to manager compliance with contractual guidelines. SBA investment contracts in Global Equity and Real Estate often include terms such as "typically," "primarily," "generally," "normally," and "reasonable". Such terms make it very difficult to determine whether an investment manager is complying with the terms of the agreement and at what point SBA should be concerned. To improve relevance, upper and lower thresholds should be established by operating management for key investment, statutory and policy compliance requirements. Parameters should be established for when "general", "reasonable" or "typical" behavior becomes exceptional, unreasonable, or atypical, and thus non-compliant.

This requires a fundamental rethinking of how Compliance is currently managed, monitored and overseen to better prevent, identify and escalate non-compliance. Developing more specific thresholds and parameters for compliance will allow the SBA Compliance program to incorporate a higher level of analysis to provide additional timely, value-added analytics, insights and intelligence about compliance and exceptions. They should provide business risk owners with better risk intelligence and insights about compliance and exceptions. Without established risk tolerances, compliance will be difficult to measure, manage and reassure.

Compliance personnel are doing their best with the tools and resources they currently have but resources are stretched very thin. Staffing levels and experience requirements in the SBA Compliance program should be reviewed after the evaluation mentioned above is performed and as needs are determined positions should be filled with a view toward a higher-value added analytical role described above.

There are several key ways for SBA to move forward with Compliance:

1. Clearly establish what is important and mandatory compliance. Priorities need to be set. Resources should be focused / redeployed to essential, high-risk priorities.
2. Where current IPG or contract language is vague or non-descript, tolerance / threshold limits should be established by operating management with the concurrence of the CRCO.
  - This is the responsibility of the asset class / business risk owners and cannot be performed by the Compliance function alone. The business risk owner should determine the action required to resolve any non-compliance exceptions which are beyond the thresholds of "general" and "typical". The CRCO should concur with the risk assessment and thresholds defined by the business risk owners.

- Investment management contract language should be reviewed, and thresholds defined for what is undesirable vs. unacceptable variation between actual and expected performance by investment mandate.
  - To the extent practical, monitoring of these contractual terms should be automated. In Real Estate, for example much of this information already resides with the Custodian and the SIO Real Estate, as the first line of defense, should be interested in making use of its value for monitoring compliance. The CRCO is in discussions with the Custodian to determine how their information can be customized to SBA's requirements and at what additional cost. Using automated reports, the Asset class owners and the CRCO should be notified when a non-compliance threshold is exceeded.
3. Non-compliance (i.e., thresholds exceeded) should be escalated by Compliance and the CRCO until resolved.
    - This will require clear direction and support from senior management and, as noted above, potentially additional compliance resources.
  4. The IOGs in their current form should be eliminated
    - Operating management should present their response to exceptions directly to the RCC.
  5. Compliance also needs to become more efficient through re-engineering its processes, automating and/or outsourcing.
  6. Compliance should focus on providing value-added intelligence to the business risk owners.
    - The current OIA Advisory project on PMC should be leveraged. The cost/benefit analyses should be utilized to determine whether it is better to “build or buy” needed analytical services and tools.
  7. From a new employee perspective, SBA can lay a stronger foundation for ethics and compliance by implementing a more systematic process to get key policies to candidates prior to employment (e.g., personal trading, ethics commission filings, fingerprinting).
  8. SBA can also systematize its communication of changes in the law and policy that might affect stakeholders (Board, Councils, employees, managers, and other third parties, etc.)

## Lines of Defense

The term “Lines of Defense” (LOD) is well understood by the RMC (2<sup>nd</sup> LOD) and the OIA (3<sup>rd</sup> LOD) as a term of art but it is not well understood by some operating management (1<sup>st</sup> LOD). Their responsibilities for investment risk management are clear and appear to be well understood, however, the ownership of their role in operational risks (HR, IT, Compliance) could be improved.

To reinforce the importance of operational risk and compliance, we recommend the following:

- Include attention and commitment to operational risk and compliance as part of the annual staff performance evaluation and compensation process.
- Require explicit assertions from the business risk owners about the vulnerabilities (residual risk exposure) within their area of responsibility.
- Require business risk owners to define acceptable / unacceptable performance especially for compliance/non-compliance.
- Require business risk owners to present their risk assessment and any exceptions (including remediation plans) at the Risk and Compliance Committee (RCC).

## The Office of Internal Audit (OIA)

The OIA is one of several sources available to Trustees for independent reassurance regarding the reliability of operating management's assurances about performance, risk management and internal controls. By all accounts, the new CAE has brought positive changes in the past couple of years in the way the OIA interacts with the organization and the results it has achieved.

SBA management is pleased with the OIA's more collaborative attitude to partnering with SBA staff while maintaining its objectivity in performing its work and its independence from management decisions. In addition, OIA has adopted the Institute of Internal Auditors, Inc. (IIA) *International Standards for the Professional Practice of Internal Auditing (Standards)* and *Code of Ethics*.

The OIA demonstrates leading practices regarding following up on management action plans for audit projects, the quality of reporting to the Audit Committee on a quarterly basis and performing annual quality assessment review. OIA monitors and validates management action plans monthly and reports the status to the Audit Committee, ERM, and Senior Management as agreed upon by these stakeholders.

OIA reports to the Audit Committee on a quarterly basis regarding the activities of internal audit, its independent view of risks, the status of recommendations and proposed changes to the internal audit plan. OIA conducts a comprehensive annual self-assessment that assesses compliance with the IIA's Code of Ethics and Standards and includes all internal audit activities such as risk-based planning, internal audit management, internal audit projects and ongoing monitoring of performance.

OIA's independent risk assessment linked to SBA's strategic plan is important for allocating internal audit resources to areas that create and protect the value of investment trusts under SBA management. Among public fund peers, SBA and OIA demonstrate leading practices in this area because SBA's culture and control environment enable OIA to be ethical, independent and objective when conducting a risk assessment.

OIA independently assesses risks by mapping the risks identified by management to processes and further evaluates the process with seven additional factors. OIA links the internal audit plan to SBA's strategy. One opportunity for improvement is to enhance the efficiency of OIA's risk assessment through greater collaboration with ERM to collect risk data by business model and processes identified by OIA.

The *Standards* require an internal audit department to have an external quality assessment conducted every five years. OIA (under leadership of the prior CAE) accomplished an external assessment through a self-assessment with independent external validation in 2014; however, the process for selecting and contracting the external assessor could be enhanced to align with SBA's procurement and contracting policies currently in place. In addition, the scope of the external quality assessment should include interviewing at least one Audit Committee member. The next assessment will be in fiscal year 2018-19.

## Process Evaluation

FAS grouped SBA's major GRC activities into the following six "Mega Processes":

1. Strategy and Oversight
2. Assess Risk
3. Change Control
4. Compliance
5. Policies and Performance
6. Internal Audit

We worked with the process owners to develop and discuss "Swim Lane Diagrams" (SLD) that describe the roles of each of the three Lines of Defense relative to each major step in each Mega Process. The SLD's are now the responsibility of the SBA process owners. The process owners are responsible for the continuous updating of the SLD's as activities and responsibilities change. Our evaluation of the Mega Processes is embedded throughout the executive summary and the main body of the report.

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## A. Acronyms

AC – Audit Committee	IPMP – Independent Performance Measurement Provider
APPFA – Association of Public Pension Fund Auditors	MIA – Manager of Internal Audit
BU – Business Units	OIA – Office of Internal Audit
CAE – Chief Audit Executive	PE – Private Equity
CFA – Chartered Financial Analyst	PMC – Public Market Compliance
CFO – Chief Financial Officer	PRA – Performance and Risk Analytics
COI – Conflict of Interest	QA – Quality Assessment
COO – Chief Operating Officer	QAIP – Quality Assurance and Improvement Program
COSO – Committee of Sponsoring Organizations of the Treadway Commission	QI – Quality Initiative
CRCO – Chief Risk and Compliance Officer	RCC – Risk and Compliance Committee
DED – Deputy Executive Director	RE – Real Estate
Dept. – Department	RMC – Risk Management and Compliance Unit
EIMO – External Investment Manager Oversight	ROR – Rate of return
ERM – Enterprise Risk Management	SAIV – Self-Assessment with Independent External Validation
EQA – External Quality Assessment	SIO – Senior Investment Officer
FI – Fixed Income	SIPO – Senior Investment Policy Officer
FMEA – Failure Modes and Effects Analysis	SOO-AAS – Senior Operating Officer – Accounting and Administrative Services
FRM – Financial Risk Manager	Sr. Mgmt. – Senior management
GE – Global Equity	<i>Standards</i> – The IIA’s International Standards for the Professional Practice of Internal Auditing
IAC – Investment Advisory Council	
IIA – The Institute of Internal Auditors	
IP&AA – Investment Policy & Asset Allocation	

## B. List of Interviewees

Summary of participation

Group	Participated
Senior Management	5
First Lines of Defense	12
Second Lines of Defense	9
Third Lines of Defense	3
Independent Advisory Councils	2
Audit Committee	3
External Financial Auditors	2
<b>Total</b>	<b>34</b>

The following people participated in interviews or workshops.

### Oversight/Audit Committee

Mark Thompson

Judy Goodman

Kimberly Ferrell

### Advisory Councils

#### Investment Advisory Council

Peter Collins, Chair

#### Participant Local Government Advisory Council

Gary Price, Chair

### Senior Management

Executive Director/ CIO - Ash Williams

Deputy Executive Director - Kent Perez

Chief Operating/Chief Financial Officer - Lamar Taylor

Chief of Defined Contribution Programs - Joan Haseman

Chief Operating Officer of Florida Hurricane Catastrophe Fund - Anne Bert

### First Line of Defense

#### Strategic Investments & Private Equity

Trent Webster

John Bradley

#### Fixed Income

Kathryn Wojciechowski

#### Global Equity

Tim Taylor

Alison Romano

#### Real Estate

Stephen Spook

#### IT Operations

Cheryl Garnett

William (Chuck) Pollock

### Investment Programs & Governance

Michael McCauley

### Financial Operations

Lori Guido

### Accounting and Administrative Services

Robert Copeland

### Human Resources

Randy Harrison

### Hurricane Catastrophe Fund

Gina Wilson

### Second Line of Defense

Chief Risk and Compliance Officer - Karen

Matthews Chandler

### Enterprise Risk Management and Compliance

Marcia Main

Belinda Dixon

Kelly Marsey

Sheilah Smith

Jennifer Barrett

### Inspector General - Kenneth Chambers

### Investment Policy

John Benton

### General Counsel

Maureen Hazen

### Third Line of Defense

Kimberly Stirner

Loveleen Verma

Elizabeth Scott

### External Financial Auditor

#### Crowe Horwath

Dan O'Malley

Kevin Smith

## C. List of Survey Participants

### Summary of Participation

Survey Group	Invited	Responded	% Response
Senior Management	5	4	80
First Lines of Defense	54	49	91
Second Lines of Defense	22	24	109
Third Lines of Defense	3	3	100
Independent Advisory Councils	11	10	91
Audit Committee	3	4	133
<b>Total</b>	<b>98</b>	<b>94</b>	<b>95%</b>

The following people were invited to participate in the survey.

#### Oversight/Audit Committee

Mark Thompson

Judy Goodman

Kimberly Ferrell

#### Advisory Councils

##### *Investment Advisory Council*

Peter Collins, Chair

Gary Wendt, Vice Chair

Chuck Cobb

Les Daniels

Bobby Jones

Sean McGould

Vinny Olmstead

Michael Price

##### *Participant Local Government Advisory Council*

Gary Price, Chair

Daniel Wolfson

Mark Peterson

#### Senior Management

*Executive Director/ CIO* - Ash Williams

*Deputy Executive Director* - Kent Perez

*Chief Operating/Chief Financial Officer* - Lamar Taylor

*Chief of Defined Contribution Programs* - Joan Haseman

*Chief Operating Officer of Florida Hurricane Catastrophe Fund* - Anne Bert

#### First Line of Defense

*Strategic Investments & Private Equity*

Trent Webster/John Bradley

Shoaib Khan

John Mogg

Luanne Good

Wesley Bradle

Subhasis Das

#### *Fixed Income*

Kathryn Wojciechowski

Cherie Jeffries

Brian Geller

Kevin Moose

Kevin Ceurvorst

Richard Smith

#### *Global Equity*

Tim Taylor

Raymond D. Sherlock, III

Jennifer Myers

Joseph Wnuk

Dustin Heintz

#### *Real Estate*

Stephen Spook

Lynne Gray

Michael Fogliano

#### *IT Operations*

Cheryl Garnett

Chuck Bunker

Eddie McEwen

William (Chuck) Pollock

*Project Manager* - Robert Vos

*Investment Programs & Governance*

Michael McCauley

Jacob Williams  
*Financial Operations*

Lori Guido  
Cameron Huff  
Jane Zody  
Kelly Skelton  
Nina Willis

*Accounting*

Sarah Clemmons  
Mandi Dyal  
Donna Senn  
Ben Alonzo  
Gwendolyn McGilvray

*Accounting and Administrative Services*

Robert Copeland  
Janie Knight  
Jennifer Williams  
James Thomas Wellman

*Human Resources*

Randy Harrison  
Dorothy Melton  
Gregory Ortego

*Hurricane Catastrophe Fund*

Donna Simmons  
Gina Wilson  
Leonard Schulte  
Katherina Adkins  
Steve Szypula

*Defined Contribution Program*

Daniel Beard  
Stephen Tabb  
Walter Kelleher  
Mini Watson

*Director of External Affairs* - John Kuczwanski  
*Second Line of Defense*

*Chief Risk and Compliance Officer* - Karen  
Matthews Chandler

*Enterprise Risk Management and Compliance*

Marcia Main  
Belinda Dixon  
Kelly Marsey  
Sheilah Smith  
Bridget Dervish  
Deanna Wasson  
Carolina Ramirez  
Carolyn McGriff  
Mykel Kenton  
Lisa Collins

*Inspector General* – Kenneth Chambers

*Investment Policy & Asset Allocation*

John Benton  
Janice Yecco  
Angela Millard

*General Counsel*

Maureen Hazen  
Ruth Smith  
Craig Meyer  
Paul Groom  
John Brenneis  
Sooni Raymaker  
Crystalyn Voehl

*Third Line of Defense*

Kimberly Stirner  
Loveleen Verma  
Elizabeth Scott

# SBA Governance Risk and Compliance Review

Closing Presentation

January 29, 2018



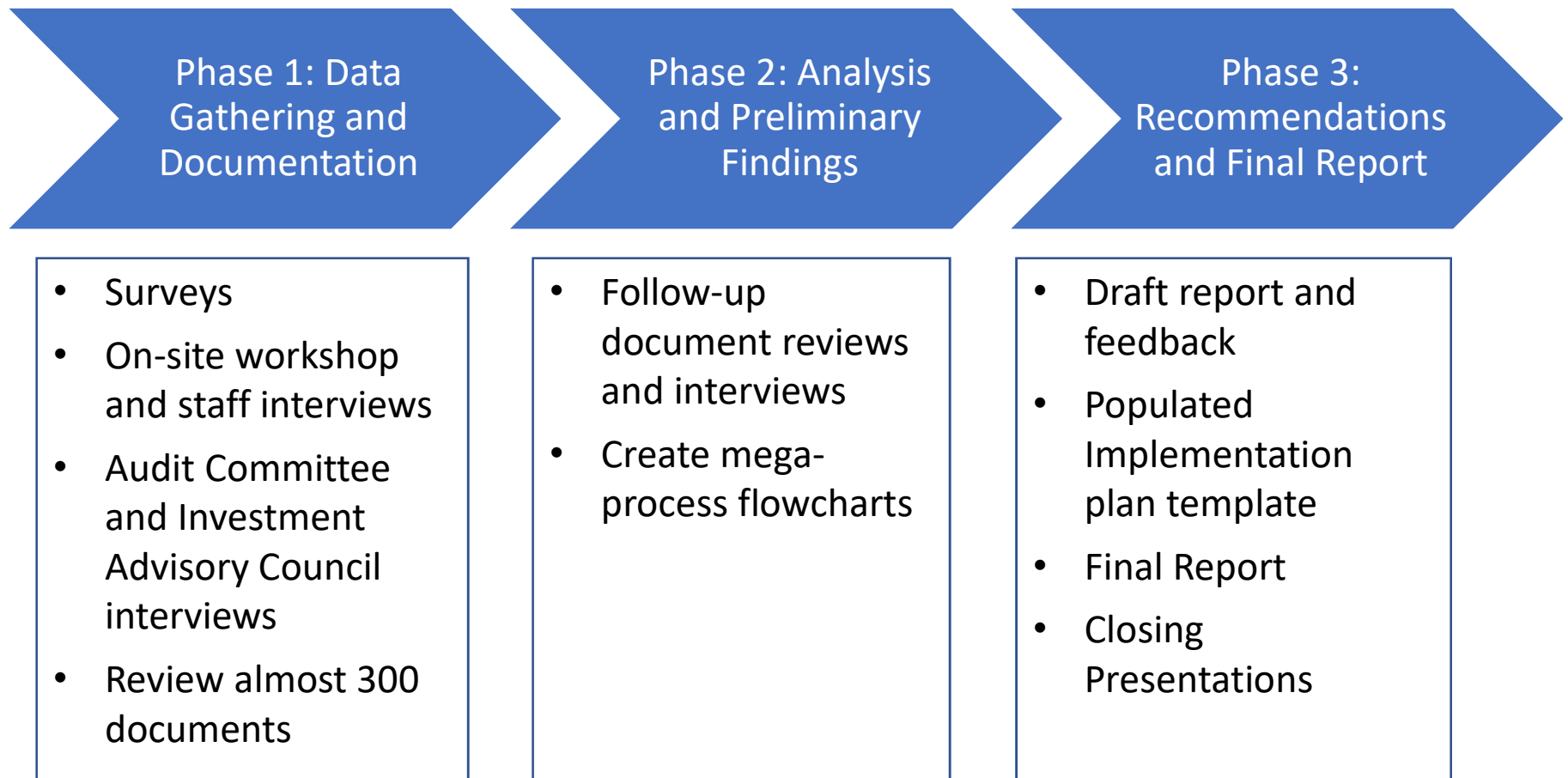
# GRC Overview

- Context and Scope
- Process
- Leading, Prevailing and Lagging Practice
- Governance
- Performance and Risk Management
- Compliance
- Lines of Defense
- Implementation Roadmap

# Context and Scope

- Many SBA GRC processes instituted following 2008
- Timely to review 10 years later
- SBA demonstrates many leading practices
- Strong culture and brand – widely respected in industry
- May have reached limits of conventional GRC model
- A new paradigm may be required to further improve performance

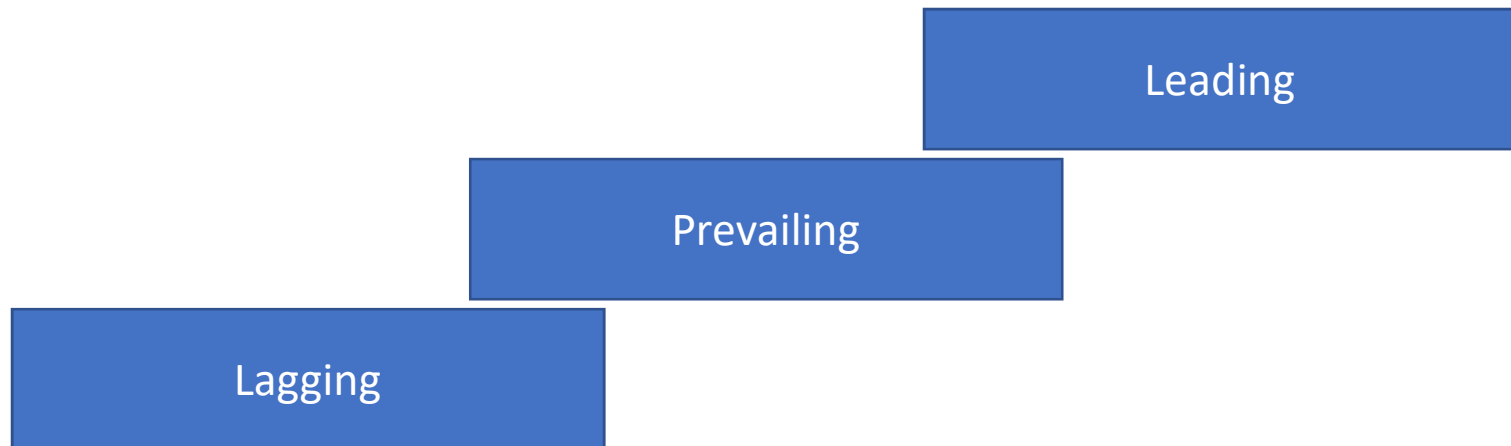
# Review Process



# Leading: A Matter of Opinion

Leading	Beneficial impact, not yet widely used
Prevailing	Widely used
Lagging	Widely disused

# Overlaps



# Governance

## Working Well

- Overall governance and oversight structure and practices
  - Board of Trustees
  - Audit Committee
  - Advisory Councils (IAC, FHC FAC)
- Board delegations to staff
- Overall SBA culture
- Investment staff incentive compensation plan
- Overall SBA policy framework
- Linkage of risk to strategic plan
- Transparency of meetings and reporting
- Overall independent reassurance, including selection process for external auditors and benchmarking

## Can be Improved

- Add a Deputy CIO position and internal investment committee for added fund-level oversight
- Less frequent (3-5 years) updates to the strategic asset allocation
- Eliminate legal list investment restrictions
- Extend incentive compensation to operations staff
- Implement a formal due diligence policy (including operational due diligence)
- Longer-term, less-frequent strategic planning process tied to the business model
- Eliminate unnecessary, information-only meetings

# Performance and Risk Management

## Working Well

- SBA is high performing organization
- Risk owners are accountable
- High level of commitment to risk, compliance and ethics
- Independent CRCO with ERM, PRA and Compliance
- Comprehensive risk framework
- Fully deployed ERM process – best we have seen – COSO ERM 2017
- PRA key to improving risk intelligence
- Leading practice
  - RCC
  - Velocity
  - Incident Management

## Can be Improved

- Reached limits of conventional model
- Align risks with SBA's business model and performance
- Reassign RMC's Strategic Planning and Policy responsibilities to increase focus on Risk and Compliance
- Focus on outcomes / exceptions
- Use KPIs and KRIs – more quantitative / less qualitative
- Revamp/eliminate IOGs
- Use Executive Summaries
- Use tools such as FMEA / RCA / SIPOC
- Revise risk assessment criteria and use threat and vulnerability
- Use likelihood to assign resources to vulnerabilities
- Focus on actionable risk intelligence

# Compliance

## Working Well

- Compliance is:
  - An integral part of SBA's risk management and governance processes, and
  - Integrated across multiple functions within SBA
- Prevention is paramount and monitoring is routine and part of SBA's culture and tone at the top
- Operating managers are responsible for compliance and specific compliance owners are clearly identified
- There is a thorough pre-trade personal securities trading policy

## Can be Improved

- Vague terminology in investment contracts
- Need to establish priorities and thresholds for non-compliance
- Monitoring of compliance with contractual terms should be automated and potentially outsourced / streamlined
- If SBA hires a Deputy CIO (DCIO), the DCIO should have oversight of investment compliance at the source of trading (both internally and externally)
- Each report should be reviewed for relevance / actionable intelligence and revised or eliminated accordingly
- SBA should adequately staff the PMC and EIMO functions and ensure proper analytical tools and optimal use of outsourcing

# Lines of Defense

## Working Well

## Can be Improved

<p>1<sup>st</sup> Op Mgmt</p>	<ul style="list-style-type: none"> <li>• Senior management and the Audit Committee provide effective leadership</li> <li>• Operating management has primary responsibility for performance and risk</li> </ul>	<ul style="list-style-type: none"> <li>• Improve awareness of LOD model</li> <li>• Increase emphasis on quantifiable key performance metrics linked to key risk indicators</li> </ul>
<p>2<sup>nd</sup> RMC</p>	<ul style="list-style-type: none"> <li>• Capable and adequate resources</li> <li>• Demonstrates many leading practices</li> </ul>	<ul style="list-style-type: none"> <li>• Discussed in Performance and Risk</li> </ul>
<p>3<sup>rd</sup> OIA</p>	<ul style="list-style-type: none"> <li>• Links internal audit plan to strategy</li> <li>• Uses process model for risk assessment</li> <li>• Provides valuable consultation</li> <li>• Assesses management follow-up actions</li> <li>• Provides independent reassurance to AC, Senior Management, and CRCO team</li> <li>• Self and external assessments conform with The IIA <i>Standards</i> and <i>Code of Ethics</i></li> </ul>	<ul style="list-style-type: none"> <li>• For external QA, follow SBA contracting policies</li> <li>• External QA should include interview of at least one AC member</li> </ul>

# Lines of Defense: Collaboration and Independence

## Working Well

- Excellent collaboration across all three lines
- RMC provides reassurance and consultation but does not manage risk
- RMC and OIA have established effective communication and collaboration among their teams
- CRCO and RMC is independent source of reassurance to ED&CIO and IAC
- CRCO has direct access to Board and AC as needed

## Can be Improved

- Clarify RMC's role is to support risk management but not to manage risk
- Alignment with SBA business model will improve collaboration with 1LOD
- Improve relevance and value of risk and compliance activities with a focus on:
  - Outcomes,
  - Actionable intelligence, and
  - Independent reassurance of reliability of 1LOD assertions about exposures

# Implementation Roadmap

For each recommendation:

- Criticality
- Difficulty
- Resources required

Management has already begun to implement a number of recommendations

# Questions and Closing Remarks



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ATTORNEY GENERAL**

**ASH WILLIAMS  
EXECUTIVE DIRECTOR & CIO**

## MEMORANDUM

**To:** Ash Williams  
**From:** Michael McCauley  
**Date:** March 2, 2018  
**Subject:** Quarterly Standing Report - 4Q 2017 / Investment Programs & Governance

### GLOBAL EQUITY PROXY VOTING & OPERATIONS

During calendar year 2017, SBA staff cast votes at over 10,500 companies worldwide, involving over 102,000 distinct voting items—voting 79.1 percent “For”, 19 percent “Against”, and 1.9 percent as “Abstained.” Of all votes cast, 19.3 percent were “Against” the management-recommended-vote. SBA proxy voting was conducted across 81 countries, with the top five countries comprised of the United States (2,799 votes), Japan (1,310), India (512), Canada (489), and the United Kingdom (423). During the 4<sup>th</sup> quarter of 2017, the SBA cast votes at 1,149 public companies, voting on ballot items including director elections, audit firm ratification, executive compensation plans, merger & acquisitions, and a variety of other management and shareowner proposals. The table below provides major statistics on the SBA’s proxy voting activities during the most recent quarter ending on December 31, 2017:

<b>Votes in Favor 79.5%</b>	<b>Votes aligned to Management’s Recommendation 80.2%</b>
<b>Most Voted Market (# of Votes) United States (219)</b>	<b>Total Voting Items (All Markets) 7,452</b>

### CORPORATE GOVERNANCE & PROXY VOTING OVERSIGHT GROUP

The most recent meeting of the Corporate Governance & Proxy Voting Oversight Group (Proxy Committee) occurred on December 12, 2017, and the Committee will meet next on March 27, 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 Northern Ireland, including a trustee resolution concerning companies with ties to the government of 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 December 2017, SBA staff participated in the International Corporate Governance Network’s (ICGN) Mid-Year conference, focusing on integrated reporting and corporate governance practices in France and continental Europe.

- In February 2018, SBA staff participated in the ICGN's spring conference, focusing on corporate governance practices in Japan and other Asian markets.

#### **ACTIVE OWNERSHIP & CORPORATE ENGAGEMENT**

From early December 2017 through late February 2018, SBA staff conducted engagement meetings with Amgen and Broadcom, owned within Florida Retirement System (FRS) portfolios.

#### **NOTABLE RESEARCH & GOVERNANCE TRENDS**

##### **Netflix is First U.S. Company to Revamp Compensation under New Tax Reform Rules**

In response to recent U.S. tax reforms, Netflix significantly changed its approach on executive pay. The firm shifted away from performance-based pay in favor of flat salaries. Recent tax reforms included sweeping changes to IRC Section 162(m), increasing tax burdens on incentive-based compensation. Formerly, the 162(m) requirement limited the company's tax deductibility of fixed executive pay to \$1 million, but allowed "performance-based" pay to be tax deductible (typically any amount above \$1 million was structured as performance-based by companies). This tax element led almost all U.S. companies to implement generous short and long-term incentive plans using cash, stock options and other equity-based incentive mechanisms and seemingly contributed to the decades-long acceleration in executive compensation levels. Netflix's filing states, "all cash compensation for 2018 will be paid as salary." Other companies are expected to make similar changes as a result of the tax code changes.

##### **SBA "Time is Money" Study**

In late January 2018, SBA staff published a corporate governance study analyzing the number of directorships at U.S. companies and its correlation with company stock performance. The investment study reviews "over-boarded" directors at U.S. companies within the Russell 3000 stock index, finding a strong inverse relationship between the level of directorships and total shareholder return (TSR) across the 1, 3, and 5 year time periods ending October 2017. Key insights of the *Time is Money* brief study: 1) Corporate boards with above average levels of directorships exhibited lower average 5-year stock performance of approximately 140 basis points (1.4%); 2) For those companies where the deviation was the most extreme—the top 50 companies by level of multiple directorship—firms underperformed by 102 basis points (1.02%) when compared to the full stock universe; 3) At those companies with the highest sum of directorships among all board members, the level of full board directorships was 76% higher than the average firm, and their 1, 3, and 5-year stock performance was lower than other companies with lower average board directorships; and 4) Applying SBA proxy voting guidelines to U.S. firms results in voting against 5.6% of all directors at American companies due to the risks presented by over-boarded directors.

Many critics of busy directors allege that such individuals don't have the time and resources to adequately monitor all the firms for which they serve. And as a result, they achieve poor levels of strategic management and oversight—that is, the effectiveness of corporate governance at those firms is less than what it would be if they were not over-boarded. Because of this alleged deficiency, many investors oppose busy directors, either through direct engagement with the company or through proxy votes cast at owned companies.

For the last two decades, the SBA has advocated limiting the number of simultaneous directorships held by U.S. board members. The SBA's governance principles espouse non-CEO directors who are also employed full time to hold fewer than four simultaneous directorships. In line with this policy, SBA staff have routinely cast commensurate proxy votes based on this numerical threshold and applied the policy on a global basis, regardless of any home country bias or local market norms. During calendar year 2017, the SBA cast votes against directors in foreign equity markets at rates of 14.5%, 10.9%, and 5.6% for India, China (including Taiwan & Hong Kong), and the United Kingdom. The U.S. is the single largest market for SBA director voting, comprising approximately 42% of annual individual director votes. Numerous academic and industry studies point to the likelihood of both higher costs and lower performance when directors are "over-boarded." As part of the review of individual director service, SBA staff often qualitatively examine other types of board membership including nonpublic entities (e.g., private companies), boards of trustees (e.g. for mutual funds), philanthropies, and foundations. As of October 2017, the average sum of all public-company directorships held by all board members at constituent companies in the Russell 3000 stock index equaled 14.9, with the average individual director serving on 1.65 boards.



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ATTORNEY GENERAL

ASH WILLIAMS  
EXECUTIVE DIRECTOR & CIO

## MEMORANDUM

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**To:** Ashbel C. Williams, Executive Director & CIO  
**From:** Maureen M. Hazen, General Counsel *Maureen M. Hazen*  
**Date:** March 2, 2018  
**Subject:** Office of General Counsel: Standing Report  
For Period November 9, 2017 – February 28, 2018

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### SBA Agreements.

During the period covered by this report, the General Counsel's Office drafted, reviewed and negotiated: (i) 35 new agreements – including 5 Private Equity investments, 7 Strategic Investments, 2 Real Estate investments, 2 new Investment Management Agreement for the Global Equity asset class; 1 new Master Forward Agreements for Fixed Income (i.e. for TBA and other forward trading as will be required under the FINRA), and 1 new Investment Consulting Agreement for the FRS Investment Plan; (ii) 187 contract amendments, addenda or renewals; and (iii) seven (7) contract terminations.

### SBA Litigation.

(a) Passive. As of February 28, 2018, the SBA was monitoring (as an actual or putative passive member of the class) 596 securities class actions. During the period from November 9, 2017 – February 28, 2018, the SBA collected recoveries in the amount of \$1,339,303.07 as a passive member in 45 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 seven (7) Final Orders, received notice of filing of seven (7) new cases, and continued to litigate eight (8) cases (including one appellate case) 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 29 new public records requests and provided responses to 23 requests. As of the date of this report, the General Counsel's Office continues to work on 7 open requests.

(b) SBA Rule Activities.

(i) The following amendments have been drafted, received approval from OFARR to proceed with rulemaking and have been set forth in Notices of Development of Rulemaking that were published in *Florida Administrative Register* on August 30, 2017 (with no hearing requested). On October 17, 2017, the Trustees approved the filing of the rule amendments for notice and further to file for adoption if no member of the public requests a timely hearing. A Notice of Proposed Rule covering the amendments was published in the October 27, 2017 edition of *Florida Administrative Register*. At the same time, the SBA submitted the amendments to the Joint Administrative Procedures Committee ("JAPC") for review and comment. A rule hearing was offered to the public for November 20, 2017, but no rule hearing was requested. The SBA filed the amendments for adoption, and they became effective on February 12, 2018.

A. Rule Chapter 19-7: Rule 19-7.002, F.A.C.:

Rule 19-7.002, F.A.C., (Investment Policy Statements) has been amended to adopt the most recent revised Investment Policy Statement approved and made effective by the Trustees on June 14, 2017 for the Local Government Surplus Funds Trust Fund (Non-Qualified).

B. Rule Chapter 19-9: Rule 19-9.001, F.A.C.:

Rule 19-9.001, F.A.C., (Investment Policy Statement) was amended to adopt the most recent revised Investment Policy Statement approved and made effective by the Trustees on June 14, 2017 for the Florida Retirement System Investment Plan.

C. Rule Chapter 19-11: Revisions were made to the following rules:

19-11.001	Definitions
19-11.002	Beneficiary Designations and Distributions for FRS Investment Plan
19-11.003	Distributions from FRS Investment Plan Accounts
19-11.004	Excessive Trading in the FRS Investment Plan
19-11.006	Enrollment Procedures for New Hires
19-11.007	Second Election Enrollment Procedures for the FRS Retirement Programs
19-11.008	Forfeitures
19-11.009	Reemployment with an FRS-covered Employer after Retirement
19-11.012	Rollovers or Plan to Plan Transfers to or from the FRS Investment Plan
19-11.013	FRS Investment Plan Self-Directed Brokerage Account
19-11.014	Benefits Payable for Investment Plan Disability and In-Line-Of-Duty Death

Benefits.

- Certain changes to Rules 19-11.001 and 19-11.009 were necessitated by Chapter 2017-88, Laws of Florida, which amended Section 121.122, Florida Statutes to provide that a retiree of the Investment Plan, Senior Management Service Optional Annuity Program (SMSOAP), State University System Optional Retirement Program (SUSORP) or State Community College System Optional Retirement Program (SCCSORP) who is reemployed with a FRS-participating employer in a covered position on or after July 1, 2017 will be a mandatory renewed member of the Investment Plan, unless employed in a position eligible for participation in the SUSORP or SCCSORP. Such renewed member will be enrolled in the Regular Class, unless the position meets the requirements to enroll in the Special Risk Class, Elected Officers' Class or Senior Management Service Class.

- New forms were adopted by amendments to Rules 19-11.002, 19-11.003, 19-11.004, 19-11.006, 19-11.007, and 19-11.012, F.A.C.

- Rules 19-11.002 and 19-11.014, F.A.C. were amended to indicate that, as provided by Chapter 2017-88, Laws of Florida, survivorship benefits paid to the surviving spouse and children of an

Investment Plan member killed in the line-of-duty shall be paid as provided in Section 121.091(7)(d) and (i), Florida Statutes.

D. Rule Chapter 19-13: Rules 19-13.001 and 19-13.002, F.A.C. :

The rule amendments to Rule 19-13.001 serve to indicate that there no longer are just ten (10) target date funds that are available investment options to investment plan members. The total number of funds may continue to vary over time. Rule 19-13.002 was amended to recognize that Chapter 2017-88, Laws of Florida, amended Section 121.591(4), Florida Statutes, to provide for special in line-of-duty death benefits for the spouse and child(ren) of any investment plan member, and not just special risk class members. Thus, the Division of Retirement will now administer in-line-of-duty death benefits for all members.

For all of the above changes, there were no significant policy issues or controversial issues connected to the rule amendments. The amendments simply serve as an informational update. The proposed rule amendments did not impose any burdens on businesses; they did not restrict entry into a profession; they had no impact on the availability of services to the public; they had no impact on job retention; they did not impose any restrictions on employment seekers; and they did not impose any costs. No legislative ratification was required.



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ASH WILLIAMS  
EXECUTIVE DIRECTOR & CIO

**MEMORANDUM**

DATE: February 28, 2018  
TO: Board of Trustees  
FROM: Ken Chambers, Inspector General  
SUBJECT: Quarterly Report on SBA Inspector General Activities

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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 November 14, 2017 to February 28, 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.

Consultant Independence and Disclosure Certifications for 2017 were submitted to all applicable SBA consultants in January. The certifications have been received from all consultants, indicating full compliance with the principles. The IPP certifications for the equity, fixed income and real estate investment managers were disseminated in February. Some of the certifications have been completed and returned, and the compliance results for all of the investment managers 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.

### Investment Advisory Council Disclosures

As per Chapter 215.444, Florida Statutes, all current IAC members are required to complete an annual Conflict Disclosure Statement. The disclosure statements were recently disseminated to the current council members, and all have been completed and returned.

### Training

In November 2017, the Inspector General attended the Association of Inspectors General annual training conference. The conference provides continuing professional education credits, which are required for the Certified Inspector General designation.

cc: Ash Williams



**STATE BOARD OF ADMINISTRATION  
OF FLORIDA**

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TALLAHASSEE, FLORIDA 32308  
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AS CHAIR

JIMMY PATRONIS  
CHIEF FINANCIAL OFFICER

PAM BONDI  
ATTORNEY GENERAL

ASH WILLIAMS  
EXECUTIVE DIRECTOR & CIO

DATE: March 2, 2018  
TO: Ash Williams, Executive Director & CIO  
FROM: Karen Chandler, Chief Risk & Compliance Officer  
SUBJECT: Trustee Update – March 2018

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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 November 14, 2017 to March 2, 2018.

**Compliance Exceptions**

A compliance exception related to prohibited securities was reported. Two securities were purchased by an external transition manager in preparation for the funding of new external Global Equity managers. The violation was immediately identified and addressed, and the securities were sold.

**Leverage Policy and Monitoring**

RMC collaborated with management to revise the leverage policy and develop leverage calculations. The new policy contains definitions, philosophy, standards, and monitoring requirements. Reports were developed and implemented for review against monitoring and escalation standards.

**Derivatives Monitoring**

RMC worked with the custodian bank to develop additional reporting on derivatives. The new report provides for ease in viewing internal and external derivative usage as well as the overall derivative categories (e.g., futures, options, etc.) and instrument types (e.g., interest rate futures).

**Risk Assessments and Management Plans**

The Risk and Compliance Committee (RCC) held a special meeting on November 16, 2017 to discuss the draft annual risk assessment results. There were no changes in the residual risk levels of the 13 top level risks in the Enterprise Risk Management Framework. The RCC held their quarterly meeting on January 11, 2018. Members finalized and approved the annual risk assessment ratings. Management continues to implement internal controls and monitor risk levels.

### **Charles River - Trading and Compliance System**

The project to upgrade the Charles River Investment Management Solution and move to the new Software as a Service (SAAS) operating model is currently in the testing phase. The trading and compliance modules have been enhanced, and the SBA is in the process of testing workflows to ensure their effectiveness prior to implementation. The upgraded environment is expected to be fully functional in April 2018. Going forward, the SAAS model will provide an annual upgrade service to capture the latest technology offered by Charles River.

### **Triennial GRC Assessment**

The Triennial external assessment of the SBA's Governance, Risk, and Compliance Program was completed. RMC is pleased with the results, including the consultant's remarks that the SBA Enterprise Risk Management process is "impressive and leading practice in almost all elements" and "the ERM program is the most developed and comprehensive we have seen in a U.S. public pension fund".

### **Counterparty Renewal and Monitoring**

RMC continues to enhance and streamline counterparty evaluation and monitoring processes. An interactive dashboard was developed and implemented to integrate available financial, trading, and market data on a real-time basis. The new interactive dashboard was presented to the Trading Oversight Group and is available to all staff.

### **Performance and Risk Analytics Dashboard**

RMC recently launched an interactive performance, risk and attribution dashboard as a complement to the on-demand reports. The dashboard allows the user to customize the time-periods of the returns, the benchmarks used as comparisons and groups of accounts to view. Dashboard enhancements will continue as feedback from users is received.

### **Annual Self-Assessment**

The Annual Self-Assessment was issued, outlining the role, accomplishments, strengths, challenges, and priorities for RMC. RMC achieved its fiscal year goals and objectives, and continued to add value to the operations of the State Board of Administration (SBA). This was accomplished through enhancements in the identification and management of risk, process streamlining, technology development, and strengthening expertise in key focus areas. The team has achieved a number of successes in the past fiscal year including implementation of the Charles River compliance system, automation of additional compliance rules, automation of risk reporting to provide enhanced risk insights, and the introduction of "On-Demand" investment performance reporting, which allows all SBA staff to have the latest performance information at their fingertips. Further, policies have been restructured to ensure clarity, relevance and effectiveness.

The RMC unit is effectively functioning as the "second line of defense," serving as a trusted advisor to the "first line" business units with primary responsibility for managing risk. RMC team members are uniquely skilled and positioned to provide insight and guidance as the team identifies or is informed of emerging risks across the organization. As a result, RMC team members have been asked to serve on, and/or lead oversight groups and ad-hoc working groups, and frequently assist business units implementing change. RMC unit responsibilities have increased, and new cross-functional processes and programs have been created to help efficiently and effectively manage risk.



# Pension Asset-Liability Study: Initial Results

Florida State Board of Administration  
February 2018

# Table of Contents

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- 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

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- 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

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## Investment Analysis



## Asset-Liability Projection 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%
  - 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?

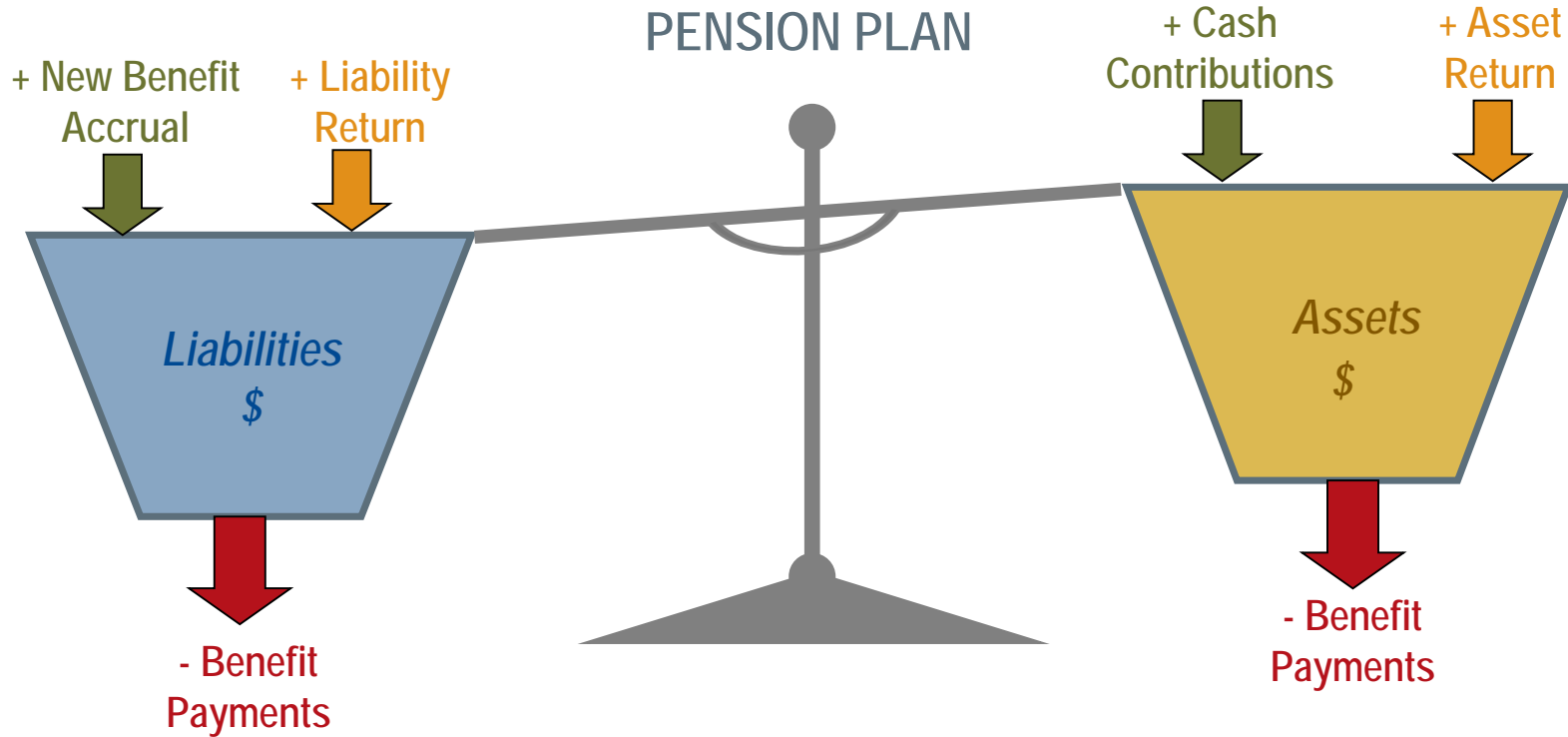
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- Provides fiduciaries with an understanding of the dynamic relationship between plan assets and liabilities over time
- Illustrates the impact of various asset allocation targets on required contributions and funded status under a range of different 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

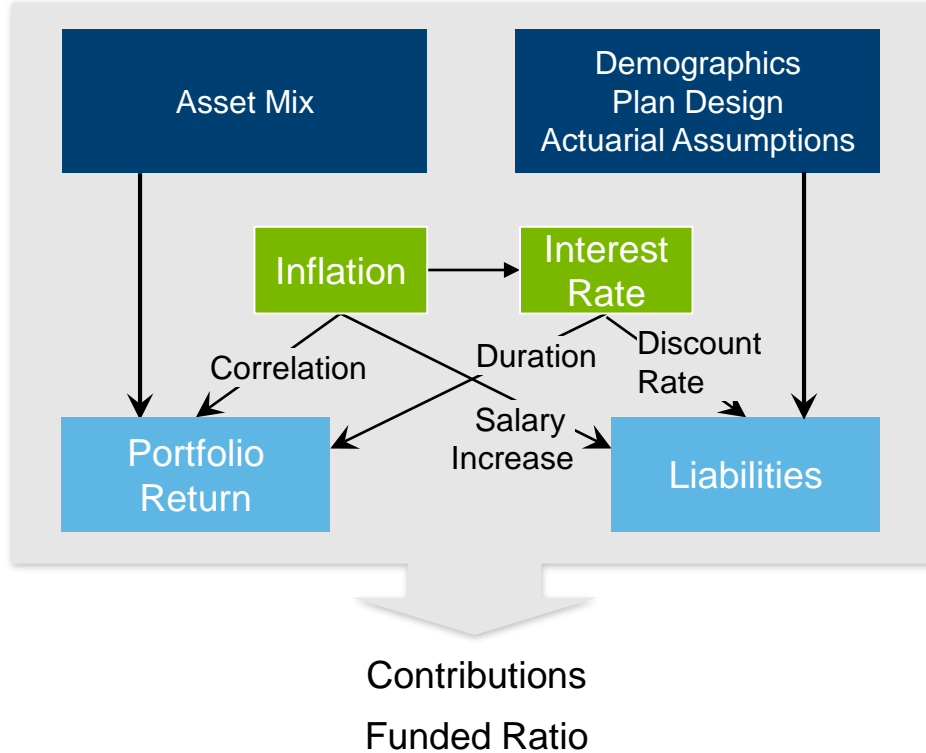
# Asset-Liability Management Background

## Balance of Liabilities and Assets



# Asset-Liability Management Background

## Mechanics of Asset-Liability Modeling Process



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

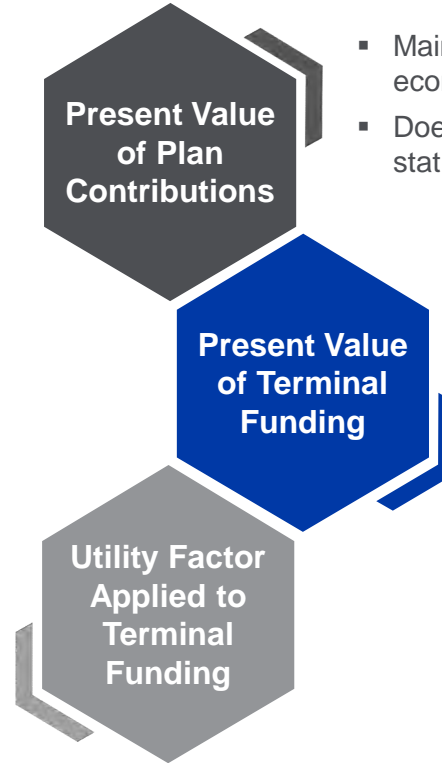
# Asset-Liability Management Background

## 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**

Terminal Funding	Surplus	Shortfall
Utility Rationale	Declining value, or utility, from very high funded ratios	Increasing "pain" as unfunded amounts grow to high levels
Threshold	PVB / AL	(5 Yrs. of Benefit Payments) / AL
Utility Factor above/below threshold	50%	200%



- Main component of long-term economic cost
- Does not reflect the plan's funded status at the end of the forecast period
- 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

# Asset-Liability Management Background

## Risk and Return in an Asset-Liability Context

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### **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

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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

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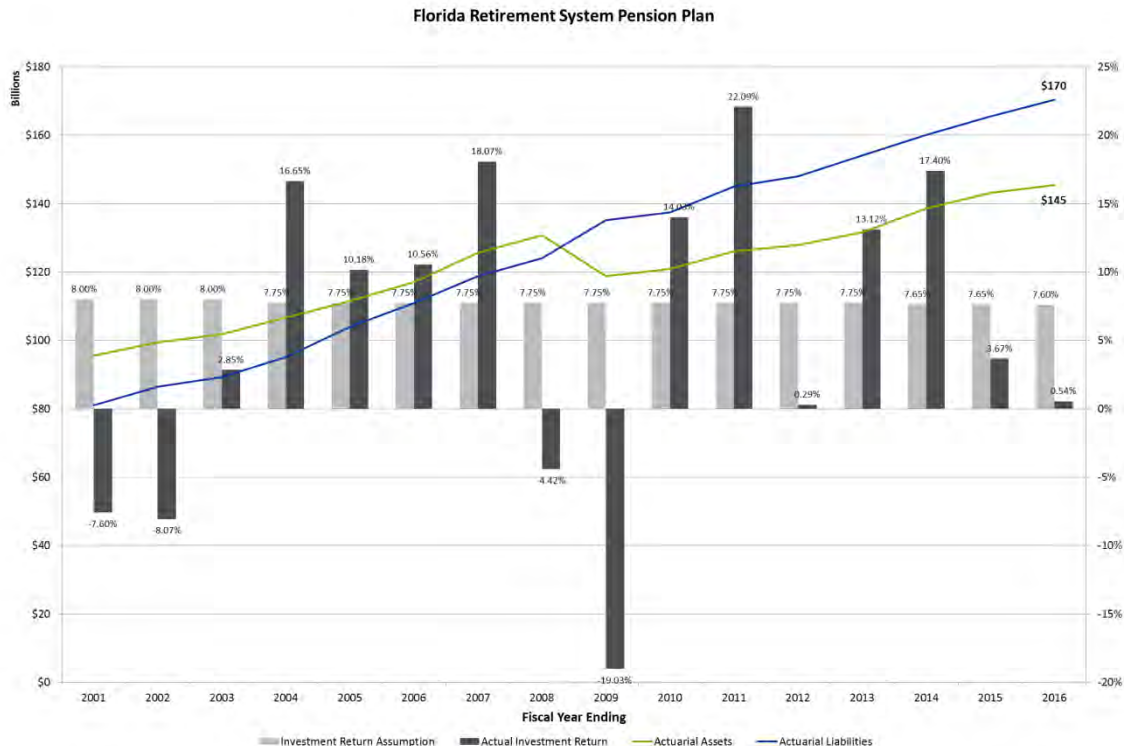
- **AVA** = Actuarial Value of Assets (i.e., incorporates smoothing of gains and losses)
- **Asset Growth Rate or “Hurdle Rate”** – The required rate of growth of the assets (through both contributions and investment returns) to keep pace with the growth of the liability
- **Current Frontier** – uses 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



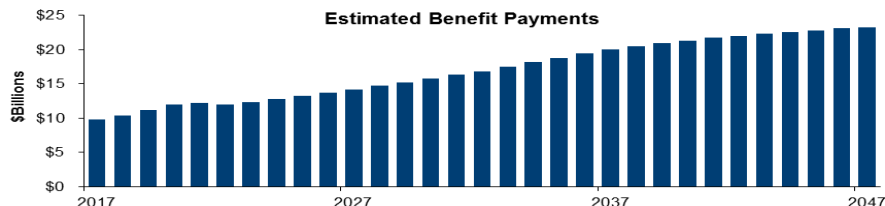
Sources: Public Plans Data ([publicplansdata.org](http://publicplansdata.org)) as of July 2017

## 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**)

# Asset-Liability Profile as of July 1, 2017

Asset-Liability Snapshot as of 7/1/2017		
Metric (\$, Billions)	Value	Fund %
Market Value of Assets	\$154.1	86.3%
Actuarial Value of Assets	\$150.6	84.3%
<b>Liability Metrics</b>		
Actuarial Liability (AL) - Funding	\$178.6 <sup>1</sup>	



Asset-Liability Growth Metrics			
Metric (\$, Billions)	Value	% Liability	% Assets
AL Interest Cost	\$13.4	7.5%	8.7%
AL Normal Cost	\$1.9	1.1%	1.2%
<b>Total Liability Hurdle Rate</b>	<b>\$15.3</b>	<b>8.6%</b>	<b>9.9%</b>
Expected Return on Assets <sup>2</sup>	\$9.9	5.6%	6.4%
ER + EE Contributions	\$3.7	2.1%	2.4%
<b>Total Exp. Asset Growth</b>	<b>\$13.6</b>	<b>7.7%</b>	<b>8.8%</b>
<b>Hurdle Rate Shortfall</b>	<b>\$1.7</b>	<b>0.9%</b>	<b>1.1%</b>
Est. Benefit Payments	\$9.8	5.5%	6.3%

Target Asset Allocation as of 7/1/2017		
Metric (\$, Billions)	Value	Alloc %
<b>Return-Seeking</b>		
- Global Equity	\$81.6	53%
- Private Equity	\$9.2	6%
- Strategic	\$18.5	12%
- Real Estate	\$15.4	10%
- Total	\$124.8	81%
<b>Risk-Reducing</b>		
- Cash & Short Duration Fixed Income	\$1.5	1%
- Intermediate Duration Fixed Income	\$27.7	18%
- Total	\$29.3	19%
<b>Total</b>	<b>\$154.1</b>	<b>100%</b>

<sup>1</sup> Based on plan's valuation interest rate of 7.50% from the 2017 actuarial valuation report (Funding)

<sup>2</sup> Based on aggregated capital market assumptions as shown in appendix



# Analysis

- Investment Analysis

# Investment Analysis

## SBA Approach: Equity Risk Premium<sup>1</sup>

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"

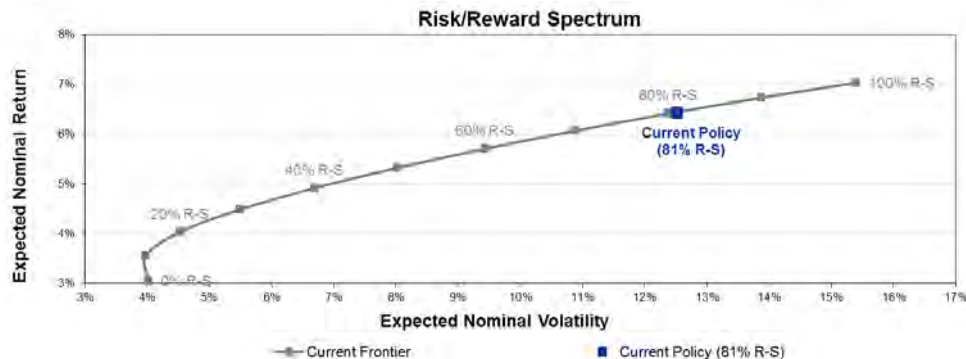
**2018 Average Global Equity Risk Premium = Average (Global Equity Return – U.S. Bond Return) = 3.62%**

	AHIC	Mercer	Wilshire	Callan	Average
2018 Assumptions (15-year geometric average expected returns)					
- Global Equity	7.10%	6.63%	6.45%	6.93%	6.78%
- Core U.S. Bonds	3.00%	3.10%	3.55%	3.00%	3.16%
- Global Equity Risk Premium	4.10%	3.53%	2.90%	3.93%	3.62%
2017 Global Equity Risk Premium	3.75%	4.13%	3.05%	3.93%	3.72%
Change 2018 vs. 2017	0.35%	-0.60%	-0.15%	0.00%	-0.10%
Prior Years:					
- 2016 (based on Global ERP)	3.70%	4.40%	3.20%	4.45%	3.94%
- 2015 (based on U.S. ERP)	3.62%	3.00%	2.90%	4.60%	3.53%
- 2013 (based on U.S. ERP)	5.10%	4.30%	4.50%	5.15%	4.76%
- 2012 (based on U.S. ERP)	4.50%	3.80%	4.65%	4.50%	4.36%

<sup>1</sup> Equity Risk Premium is defined as the excess return earned over bonds that compensates investors for taking on higher risk.

# Investment Analysis

## Current Frontier



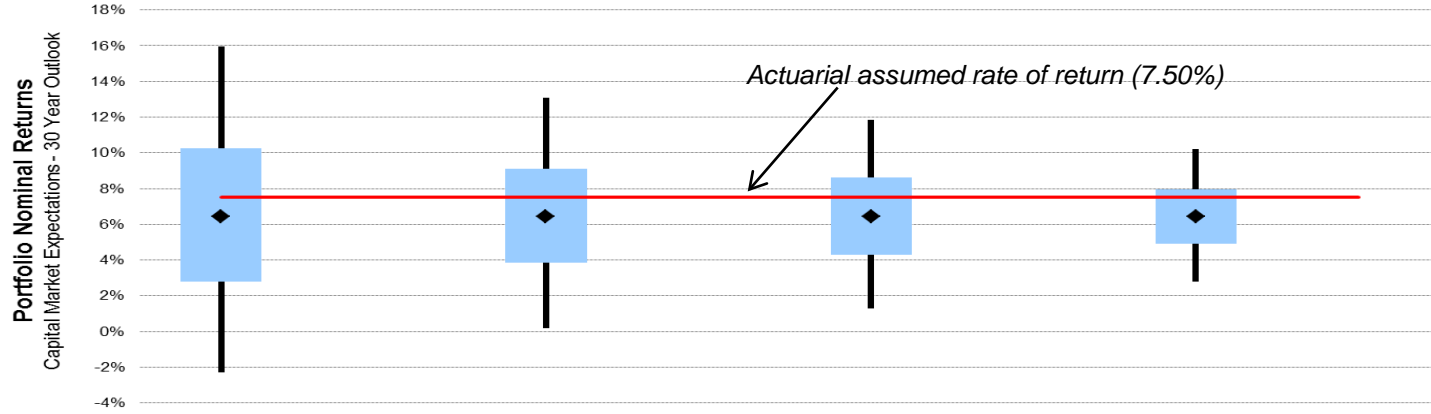
### Key Takeaways:

- The current portfolio is well-diversified
  - Return-seeking assets are broadly diversified
  - Safety asset allocation should withstand stressed markets

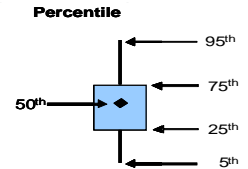
	Expected Nominal Return	Expected Nominal Volatility	Sharpe Ratio	Return-Seeking				Safety		
				Global Equity	Real Estate	Strategic	Private Equity	Cash & Short Duration Bonds	Interm. Duration Gov't Bonds	Interm. Duration Credit
Current Policy (81% R-S)	6.44%	12.52%	0.323	53%	10%	12%	6%	1%	9%	9%
<b>Current Frontier</b>										
0% Return-Seeking	3.06%	4.02%	0.165	0%	0%	0%	0%	0%	50%	50%
10% Return-Seeking	3.56%	3.98%	0.292	7%	1%	1%	1%	0%	45%	45%
20% Return-Seeking	4.04%	4.53%	0.362	13%	2%	3%	1%	0%	40%	40%
30% Return-Seeking	4.49%	5.49%	0.381	20%	4%	4%	2%	0%	35%	35%
40% Return-Seeking	4.92%	6.69%	0.377	26%	5%	6%	3%	0%	30%	30%
50% Return-Seeking	5.33%	8.02%	0.365	33%	6%	7%	4%	0%	25%	25%
60% Return-Seeking	5.71%	9.43%	0.351	39%	7%	9%	4%	0%	20%	20%
70% Return-Seeking	6.07%	10.89%	0.337	46%	9%	10%	5%	0%	15%	15%
80% Return-Seeking	6.42%	12.37%	0.325	52%	10%	12%	6%	0%	10%	10%
90% Return-Seeking	6.74%	13.88%	0.312	59%	11%	13%	7%	0%	5%	5%
100% Return-Seeking	7.04%	15.40%	0.301	65%	12%	15%	7%	0%	0%	0%

# Investment Analysis

## Range of Nominal Returns



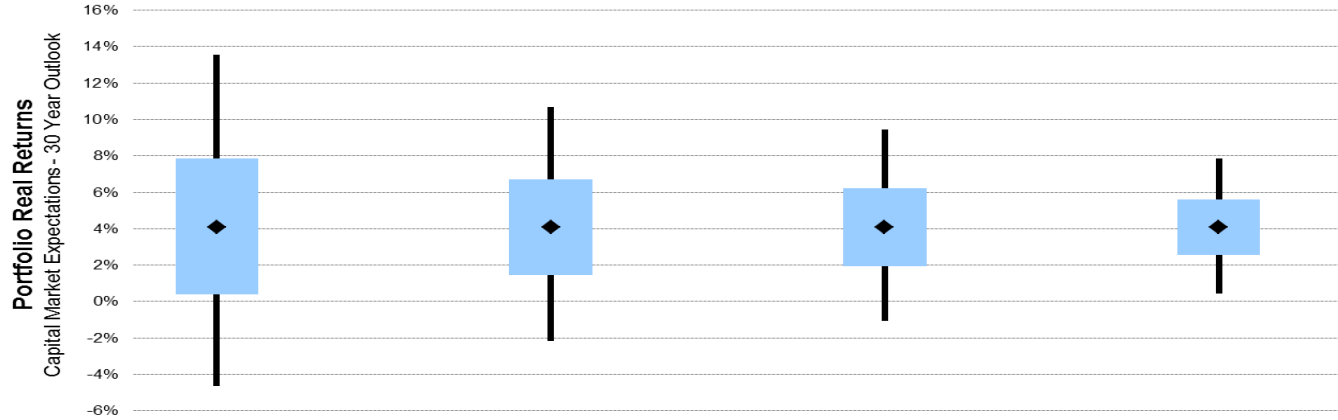
Percentile	Current Policy – 5 Year	Current Policy – 10 Year	Current Policy – 15 Year	Current Policy – 30 Year
5 <sup>th</sup>	-2.30%	0.19%	1.31%	2.78%
25 <sup>th</sup>	2.77%	3.83%	4.30%	4.93%
50 <sup>th</sup>	6.44%	6.44%	6.44%	6.44%
75 <sup>th</sup>	10.25%	9.12%	8.62%	7.98%
95 <sup>th</sup>	15.96%	13.09%	11.84%	10.23%



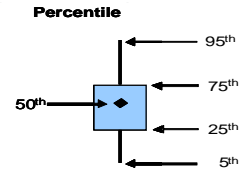
Note: Returns based on AHIC's 30 Year Capital Market Assumptions as of December 31, 2017

# Investment Analysis

## Range of Real Returns



Percentile	Current Policy – 5 Year	Current Policy – 10 Year	Current Policy – 15 Year	Current Policy – 30 Year
5 <sup>th</sup>	-4.63%	-2.16%	-1.05%	0.42%
25 <sup>th</sup>	0.41%	1.47%	1.94%	2.56%
50 <sup>th</sup>	4.06%	4.06%	4.06%	4.06%
75 <sup>th</sup>	7.85%	6.73%	6.23%	5.59%
95 <sup>th</sup>	13.55%	10.68%	9.44%	7.84%



Note: Returns based on AHIC's 30 Year Capital Market Assumptions as of December 31, 2017

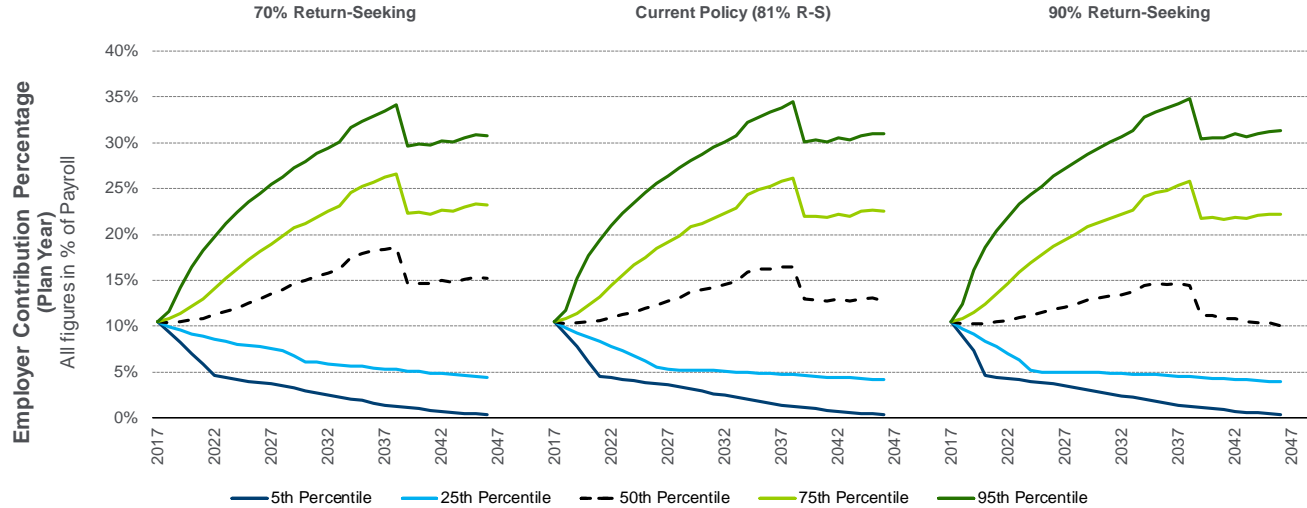


# Analysis

- Asset-Liability Projection Analysis

# Asset-Liability Projection Analysis

## Employer Contribution Rate (Defined Benefit Plan Only)



### Key Takeaways:

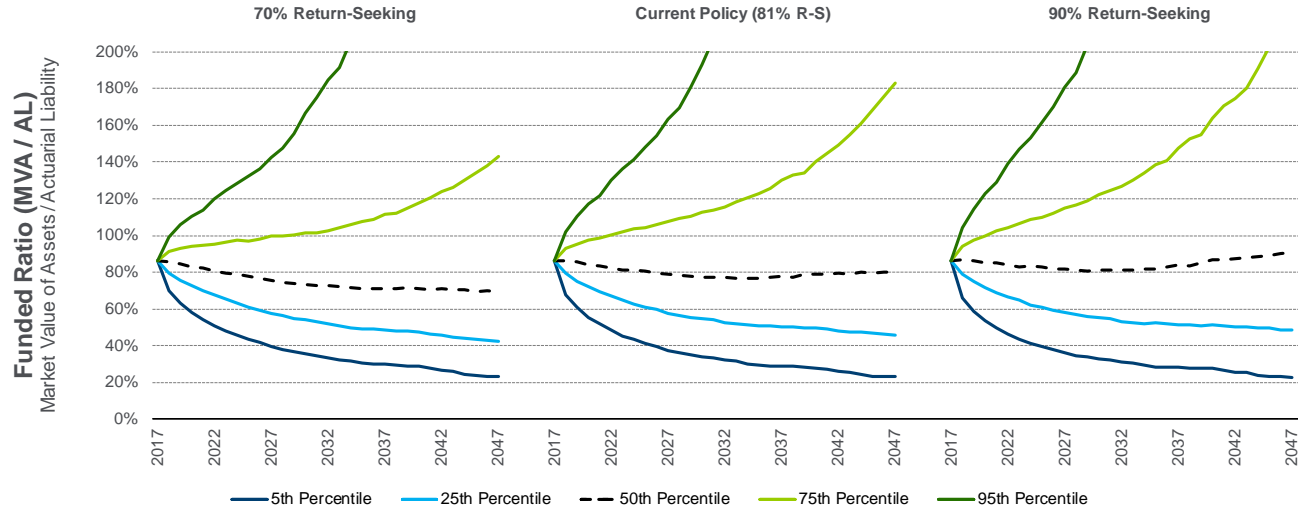
- Employer contribution rate is expected to increase from 10% to 16% over the next two decades
- Higher return-seeking allocations will reduce the expected (50<sup>th</sup> percentile) outcome but with a wider range of outcomes
- 95<sup>th</sup> percentile results show potential contribution rates in excess of 30% over the next two decades, albeit with low likelihoods

Strategy	70% Return-Seeking			Current Policy (81% R-S)			90% Return-Seeking		
Year	2026	2036	2046	2026	2036	2046	2026	2036	2046
5th Percentile	4%	2%	0%	4%	2%	0%	4%	2%	0%
25th Percentile	8%	5%	4%	6%	5%	4%	5%	5%	4%
50th Percentile	13%	18%	15%	12%	16%	13%	12%	15%	10%
75th Percentile	18%	26%	23%	18%	25%	23%	19%	25%	22%
95th Percentile	24%	33%	31%	26%	33%	31%	26%	34%	31%
Probability > 10%	64%	66%	62%	59%	64%	58%	57%	62%	50%

\* 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:

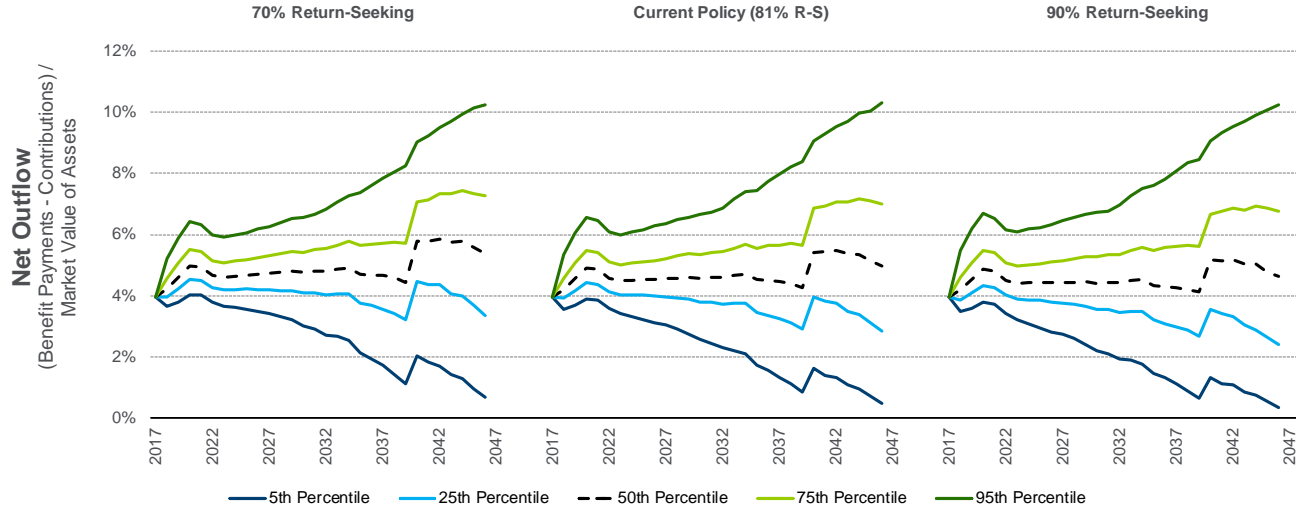
- The funded ratio is expected to remain relatively flat over the course of the projection period under the current portfolio
- Higher return-seeking allocations will increase the trajectory of funded ratio, albeit with greater downside risk
- Downside risk (5<sup>th</sup> percentile outcomes) illustrates a small likelihood of significant funded ratio deterioration over the projection period

Strategy	70% Return-Seeking			Current Policy (81% R-S)			90% Return-Seeking		
Year	2027	2037	2047	2027	2037	2047	2027	2037	2047
5th Percentile	39%	30%	23%	38%	29%	23%	36%	28%	23%
25th Percentile	58%	48%	42%	58%	50%	46%	58%	51%	49%
50th Percentile	76%	71%	69%	79%	78%	80%	82%	84%	90%
75th Percentile	100%	111%	143%	108%	130%	183%	115%	148%	225%
95th Percentile	142%	256%	605%	163%	315%	778%	181%	367%	956%
Probability > 100%	25%	32%	40%	32%	39%	45%	36%	44%	48%

\* 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

Strategy	70% Return-Seeking			Current Policy (81% R-S)			90% Return-Seeking		
Year	2026	2036	2046	2026	2036	2046	2026	2036	2046
5th Percentile	3%	2%	1%	3%	2%	0%	3%	1%	0%
25th Percentile	4%	4%	3%	4%	3%	3%	4%	3%	2%
50th Percentile	5%	5%	5%	5%	4%	5%	4%	4%	5%
75th Percentile	5%	6%	7%	5%	6%	7%	5%	6%	7%
95th Percentile	6%	8%	10%	6%	8%	10%	6%	8%	10%
Probability > 4%	81%	67%	67%	75%	61%	61%	67%	56%	57%

\* 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

### Economic Cost

Present Value of Contributions plus AL Funding Shortfall/(Surplus)\* at 7.50%, \$billions



### 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

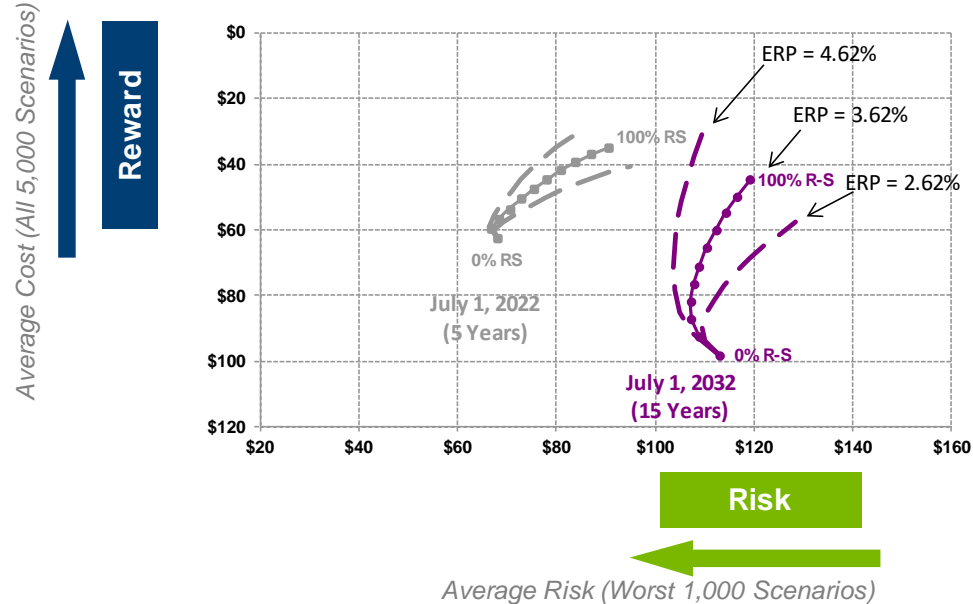
Note: Excludes 50% of surplus in excess of 110% of Actuarial liability, and includes twice the shortfall below 40% of Actuarial liability, on a market value basis

# Risk-Reward Analysis

## Sensitivity to Equity Risk Premium Assumption

### Economic Cost

Present Value of Contributions plus AL Funding Shortfall/(Surplus)\* at 7.50%, \$billions



### 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.

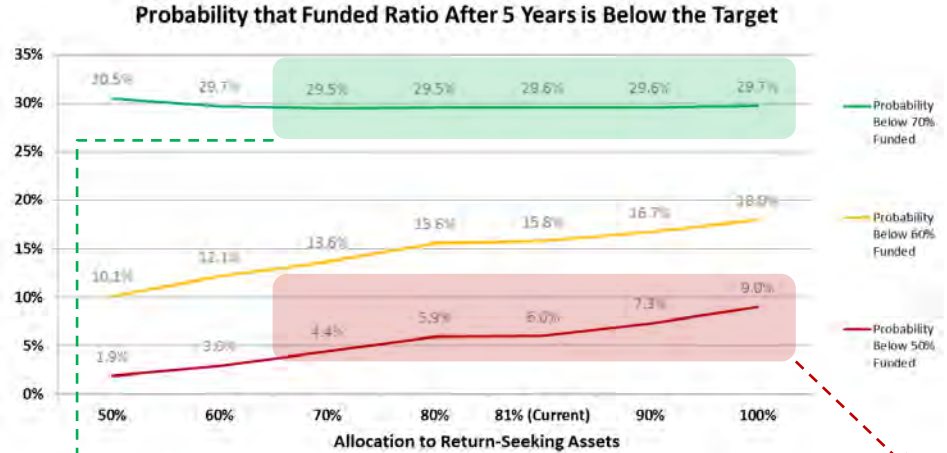
\* Projections assume constant 7.50% discount rate for pension liabilities for all investment policies studied.

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

Asset Allocation	FRS	Large Public Pension Plans (>\$5B)*	Total Public Pension Universe*	Wilshire Report on State Retirement Systems **	AHIC Public Peer Average ***
<b>Equity Exposure</b>					
Global Equity	53.0%	8.2%	7.9%		45.5%
Total U.S. Equity	0.0%	21.7%	22.1%	27.3%	
Total Int'l Equity	0.0%	16.1%	16.2%	20.1%	
Private Markets	6.0%	9.4%	9.0%	10.0%	12.1%
<b>Total Equity</b>	<b>59.0%</b>	<b>55.4%</b>	<b>55.2%</b>	<b>57.4%</b>	<b>57.6%</b>
<b>Fixed Income Exposure</b>					
U.S. Fixed Income	18.0%	21.4%	21.4%	21.1%	
High Yield Bonds / Bank Loans	0.0%				
Non-US Developed Bonds	0.0%	3.5%	3.5%	2.3%	
Emerging Market Debt	0.0%	1.3%	1.2%		
Inflation Protected	0.0%				
<b>Total Fixed Income</b>	<b>18.0%</b>	<b>26.2%</b>	<b>26.1%</b>	<b>23.4%</b>	<b>21.3%</b>
<b>Real Asset Exposure</b>					
US Infrastructure (Public + Private)	0.0%	0.4%	0.4%		
Commodities / Gold	0.0%	0.9%	1.0%		
Real Estate	10.0%	9.0%	9.0%	8.1%	
<b>Total Real Assets</b>	<b>10.0%</b>	<b>10.3%</b>	<b>10.4%</b>	<b>8.1%</b>	<b>12.9%</b>
Hedge Funds / Opportunistic	12.0%	4.1%	4.2%		5.8%
Multi-Asset / Risk Parity	0.0%	0.7%	1.0%		2.3%
Money Market / Cash	1.0%	1.1%	1.1%		0.4%
Leverage	0.0%				
Other	0.0%	2.0%	2.1%	11.1%	
<b>Net Other</b>	<b>13.0%</b>	<b>7.9%</b>	<b>8.4%</b>	<b>11.1%</b>	<b>8.5%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

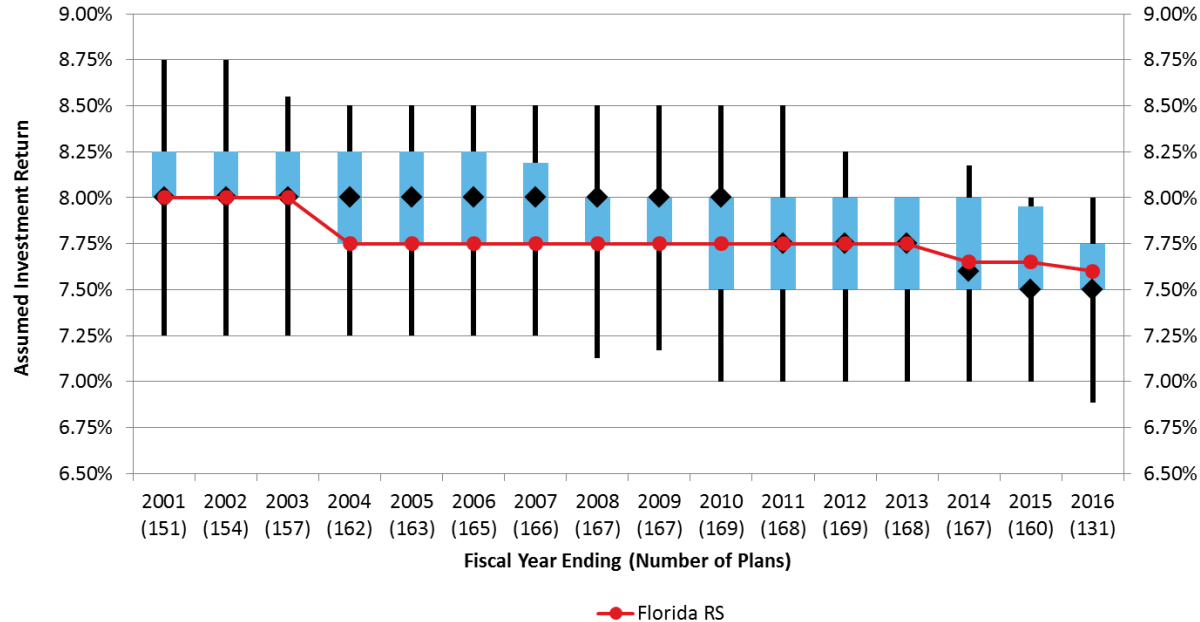
\* Source: "2016 U.S. Institutional Market Trends", Greenwich Associates

\*\* Source: "2016 Report on State Retirement Systems: Funding Levels and Asset Allocation", Wilshire Consulting

\*\*\* 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

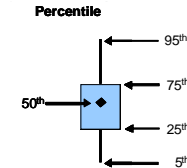
# Florida Retirement System (FRS) Expected Return Assumption versus Peers<sup>1</sup>

**Distribution of U.S. Public Pension Investment Return Assumptions**



## 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

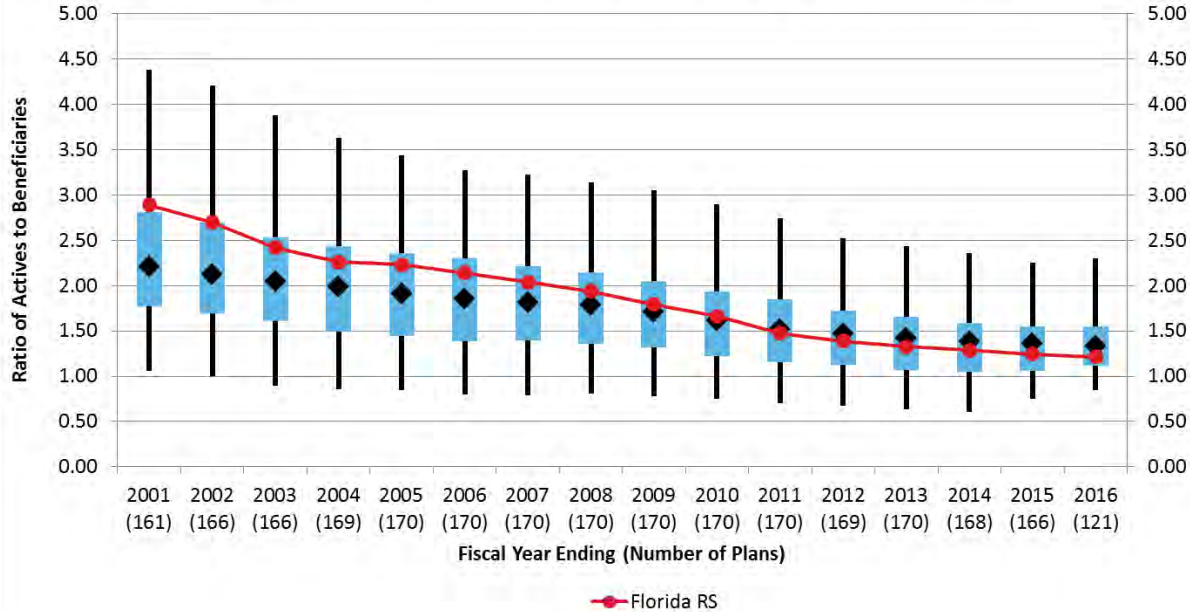


Sources: Public Plans Data (publicplansdata.org) as of July 2017; Expected Returns are the assumptions made by the plans included in the data set.

<sup>1</sup> Peers defined as public funds published within publicplansdata.org as of July 2017; Number of plans per year are shown in parentheses

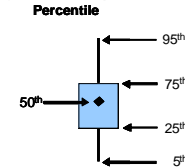
# Florida Retirement System (FRS) Demographic Data versus Peers<sup>1</sup>

Distribution of Actives to Beneficiaries Amongst U.S. Public Pension Plans



## 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

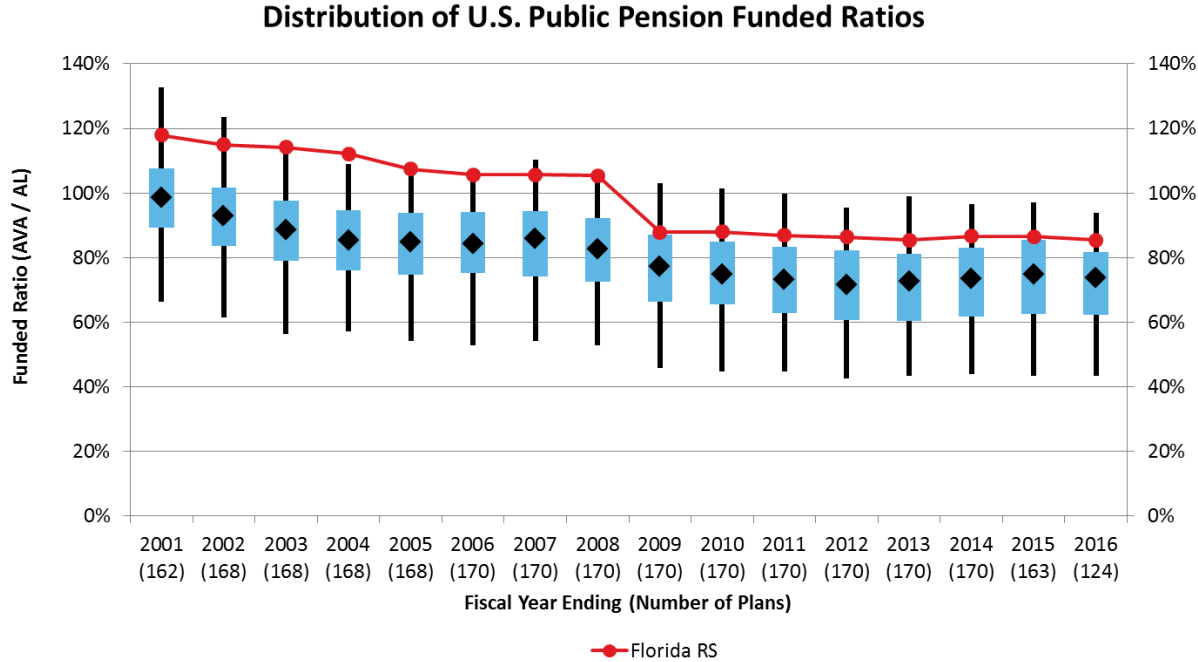


Sources: Public Plans Data (publicplansdata.org) as of July 2017;

<sup>1</sup> Peers defined as public funds published within publicplansdata.org as of July 2017; Number of plans per year are shown in parentheses

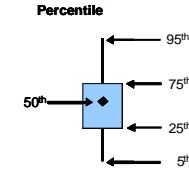
# Florida Retirement System (FRS)

## Funded Ratio (Based on Actuarial Value of Assets) versus Peers<sup>1</sup>



### 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 75<sup>th</sup> percentile relative to its peers



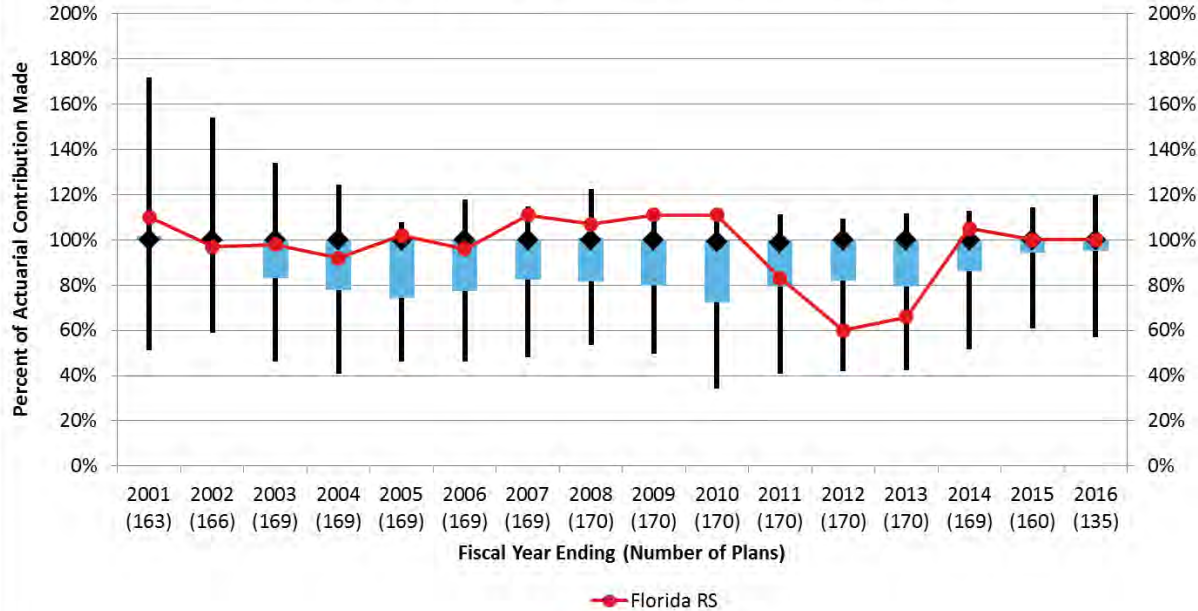
Sources: Public Plans Data (publicplansdata.org) as of July 2017;

<sup>1</sup> 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)

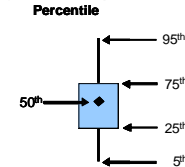
## Percentage of Actuarial Contribution Made versus Peers<sup>1</sup>

Distribution of U.S. Public Pension % of Actuarial Contribution



### 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](http://publicplansdata.org)) as of July 2017

<sup>1</sup> Peers defined as public funds published within [publicplansdata.org](http://publicplansdata.org) as of July 2017; Number of plans per year are shown in parentheses



# Summary & Conclusions

# Summary of Results

All Scenarios \$ billions	30-year Present Value of Contributions (ER + EE)		30-year Ending Funded Ratio (MVA / AL)	
	Expected <sup>1</sup>	Downside <sup>2</sup>	Expected <sup>1</sup>	Downside <sup>3</sup>
<b>Current Policy (81% RS)</b>	<b>\$66.6</b>	<b>\$115.9</b>	<b>80%</b>	<b>23%</b>
0% Return-Seeking	\$98.7	\$106.6	30%	18%
10% Return-Seeking	\$94.6	\$104.7	33%	20%
20% Return-Seeking	\$90.4	\$104.6	36%	21%
30% Return-Seeking	\$86.2	\$105.8	41%	22%
40% Return-Seeking	\$82.2	\$107.4	46%	23%
50% Return-Seeking	\$78.4	\$109.4	53%	23%
60% Return-Seeking	\$74.6	\$111.4	60%	23%
70% Return-Seeking	\$70.7	\$113.5	69%	23%
80% Return-Seeking	\$67.0	\$115.6	79%	23%
90% Return-Seeking	\$63.4	\$117.9	90%	23%
100% Return-Seeking	\$60.1	\$120.6	102%	22%

## 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

<sup>1</sup> Expected = 50<sup>th</sup> percentile outcome or central expectation across all 5,000 simulations

<sup>2</sup> Downside = 95<sup>th</sup> percentile outcome across all 5,000 simulations

<sup>3</sup> Downside = 5<sup>th</sup> percentile outcome across all 5,000 simulations

# Summary and Conclusions

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## 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

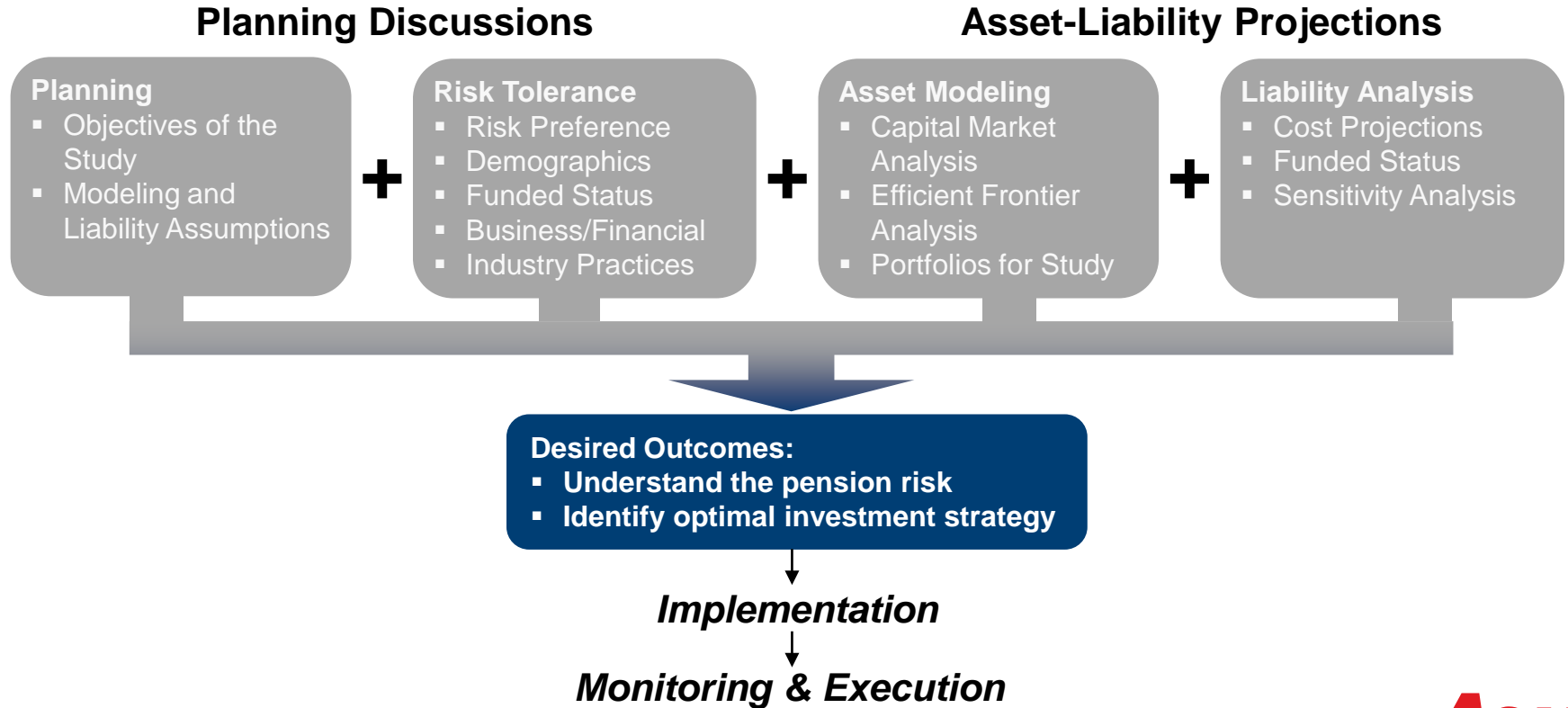
# Asset-Liability Management Background

## Key Risks for Public Pension Plans

Types of Risk	Time Horizon	Risk Management Tools and Controls
<b>Return Shortfall</b> <ul style="list-style-type: none"> <li>▪ Assets do not grow with liabilities</li> <li>▪ Investment return &amp; contribution less than liability growth</li> </ul>	<b>Long-Term</b> (10+ years)	<ul style="list-style-type: none"> <li>▪ Funding policy</li> <li>▪ Plan design</li> <li>▪ Investment policy</li> <li>▪ Assumptions &amp; methods</li> </ul>
<b>Liquidity</b> <ul style="list-style-type: none"> <li>▪ Cannot liquidate assets efficiently to meet needs</li> <li>▪ Lose control of asset allocation</li> </ul>	<b>Short- to Medium-Term</b> (<5 years)	<ul style="list-style-type: none"> <li>▪ Funding policy</li> <li>▪ Benefit accruals</li> <li>▪ Use of Illiquid investments</li> <li>▪ Scenario analysis</li> <li>▪ Monitoring</li> </ul>
<b>Investment</b> <ul style="list-style-type: none"> <li>▪ Asset allocation (policy)</li> <li>▪ Investment structure</li> <li>▪ Manager selection</li> <li>▪ Rebalancing</li> <li>▪ Scenario (or path risk)</li> <li>▪ Factor</li> </ul>	<b>Short-to Medium-Term</b> (<5 years)	<ul style="list-style-type: none"> <li>▪ Investment policy statement               <ul style="list-style-type: none"> <li>– Static/dynamic</li> <li>– Asset allocation</li> <li>– Rebalancing</li> <li>– Manager guidelines</li> <li>– Monitoring/roles &amp; responsibilities</li> </ul> </li> <li>▪ Risk budgeting</li> <li>▪ Monitoring / dashboards</li> <li>▪ Medium term views</li> <li>▪ Regression and scenario analysis</li> </ul>

# Asset-Liability Management Background

## Overview of the Asset-Liability Study Process



# Asset-Liability Management Background

## Modeling Process

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### 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

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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:

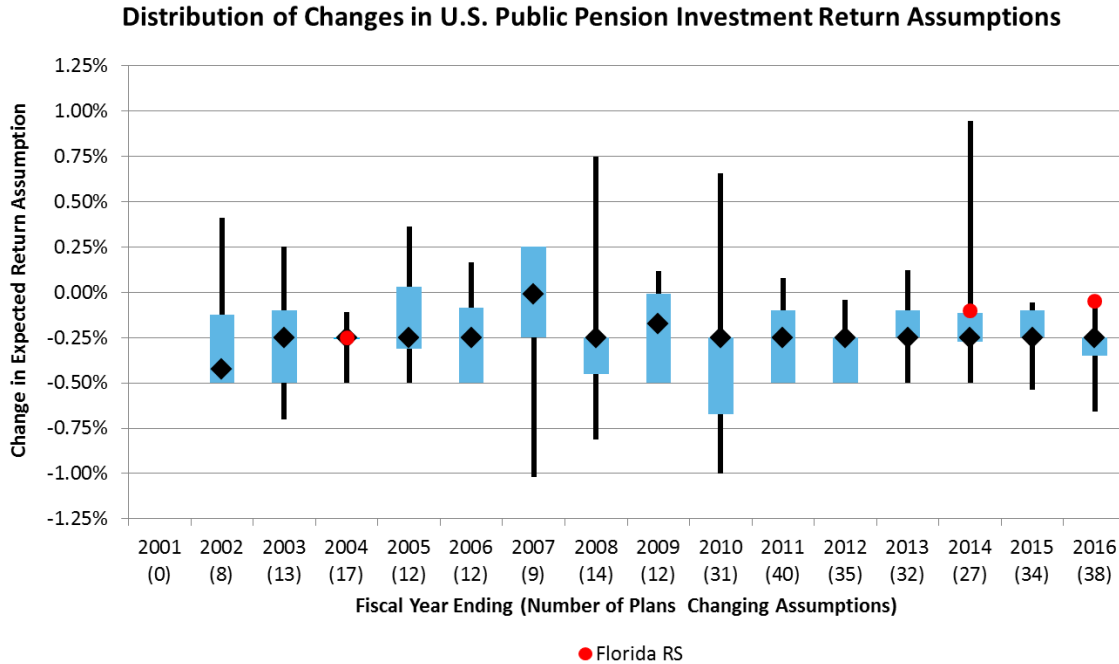
- Contributions cannot go below zero
- Long contribution holidays may create a false sense of how much the plan really costs, and lead to confusion when cost levels revert to “normal”
- Large surplus amounts can become a potential target for non-pension applications

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

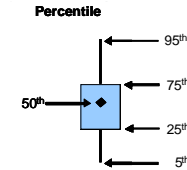
# Florida Retirement System (FRS)

## Magnitude of Expected Return on Assets Assumption Changes versus Peers<sup>1</sup>



### 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



Sources: Public Plans Data (publicplansdata.org) as of July 2017

Peers defined as public funds published within publicplansdata.org as of July 2017; Number of plans per year are shown in parentheses



# Appendix

- Assumptions & Methods

# Custom FRS Capital Market Assumptions—Q1 2018<sup>1</sup>

	<b>Expected Real Return<sup>1</sup></b>	<b>Expected Nominal Return<sup>1</sup></b>	<b>Expected Nominal Volatility</b>	
<b>Equity</b>				
<b>1</b>	Global Equity IMI	4.3%	6.7%	19.0%
<b>Fixed Income</b>				
<b>2</b>	Cash (Gov't)	0.1%	2.4%	1.5%
<b>3</b>	Intermediate Gov't Bonds (4-Year Duration)	0.3%	2.6%	3.5%
<b>4</b>	Intermediate Corporate Bonds (4-Year Duration)	1.2%	3.5%	5.0%
<b>Alternatives</b>				
<b>5</b>	Strategic Allocation (Custom) <sup>1</sup>	5.0%	7.4%	8.0%
<b>6</b>	Real Estate (Custom) <sup>2</sup>	3.0%	5.4%	11.5%
<b>7</b>	Private Equity	5.6%	8.0%	24.5%
<b>Inflation</b>				
<b>8</b>	Inflation	0.0%	2.3%	1.5%

<sup>1</sup> 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

<sup>2</sup> Strategic assumption breakdown is found on the next page

<sup>3</sup> Real Estate assumption was modeled as follows:

- 76.50% Core Real Estate
- 13.50% Non-Core Real Estate
- 10.00% REITS

# FRS Capital Market Assumptions—Q1 2018

## Strategic Investment Allocation

The Strategic Investment allocation was modeled as follows:

Capital Market Assumption	% of Total Asset Allocation	% of Strategic Investment
Commodities	0.4%	3.3%
Global Public Equities	0.8%	6.7%
Hedge Funds - CTAs (Buy List)	1.1%	9.2%
Hedge Funds - Direct Buy List (Diversified Portfolio of Direct HFs)	2.6%	21.7%
Hedge Funds - Distressed Debt (Buy List)	0.5%	4.2%
Hedge Funds - Equity Long/Short (Buy List)	0.5%	4.2%
Hedge Funds - Event Driven (Buy List)	0.4%	3.3%
Hedge Funds - Global Macro (Buy List)	0.8%	6.7%
Infrastructure	0.6%	5.0%
Insurance-Linked Securities (Catastrophe Bonds)	0.2%	1.7%
Non-Core Real Estate	0.5%	4.2%
Private Debt - Commercial Mortgages	0.5%	4.2%
Private Debt - Direct Lending	0.6%	5.0%
Private Equity - Distressed Debt	1.4%	11.7%
Private Equity - Mezzanine	0.6%	5.0%
Timberland	0.5%	4.2%
<b>Total</b>	<b>12.0%</b>	<b>100.0%</b>

# AHIC Capital Market Assumptions—Q1 2018

<b>Nominal Correlations</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>1</b>	Global Equity IMI	<b>1.00</b>	0.07	-0.06	0.07	0.82	0.45	0.67	0.07
<b>2</b>	Cash (Gov't)	0.07	<b>1.00</b>	0.61	0.48	0.12	0.16	0.09	0.55
<b>3</b>	Intermediate Gov't Bonds (4-Year Duration)	-0.06	0.61	<b>1.00</b>	0.78	-0.06	0.04	-0.04	0.27
<b>4</b>	Intermediate Corporate Bonds (4-Year Duration)	0.07	0.48	0.78	<b>1.00</b>	0.24	0.10	0.07	0.21
<b>5</b>	Strategic Allocation (Custom)	0.82	0.12	-0.06	0.24	<b>1.00</b>	0.44	0.56	0.14
<b>6</b>	Real Estate (Custom)	0.45	0.16	0.04	0.10	0.44	<b>1.00</b>	0.37	0.10
<b>7</b>	Private Equity	0.67	0.09	-0.04	0.07	0.56	0.37	<b>1.00</b>	0.06
<b>8</b>	Inflation	0.07	0.55	0.27	0.21	0.14	0.10	0.06	<b>1.00</b>

# AHIC Capital Market Assumptions

## Explanation of Capital Market Assumptions—Q1 2018 (30 Years)

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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)

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- **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)

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- **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.

# AHIC Capital Market Assumptions

## Explanation of Capital Market Assumptions—Q1 2018 (30 Years)

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### **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)

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- **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

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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

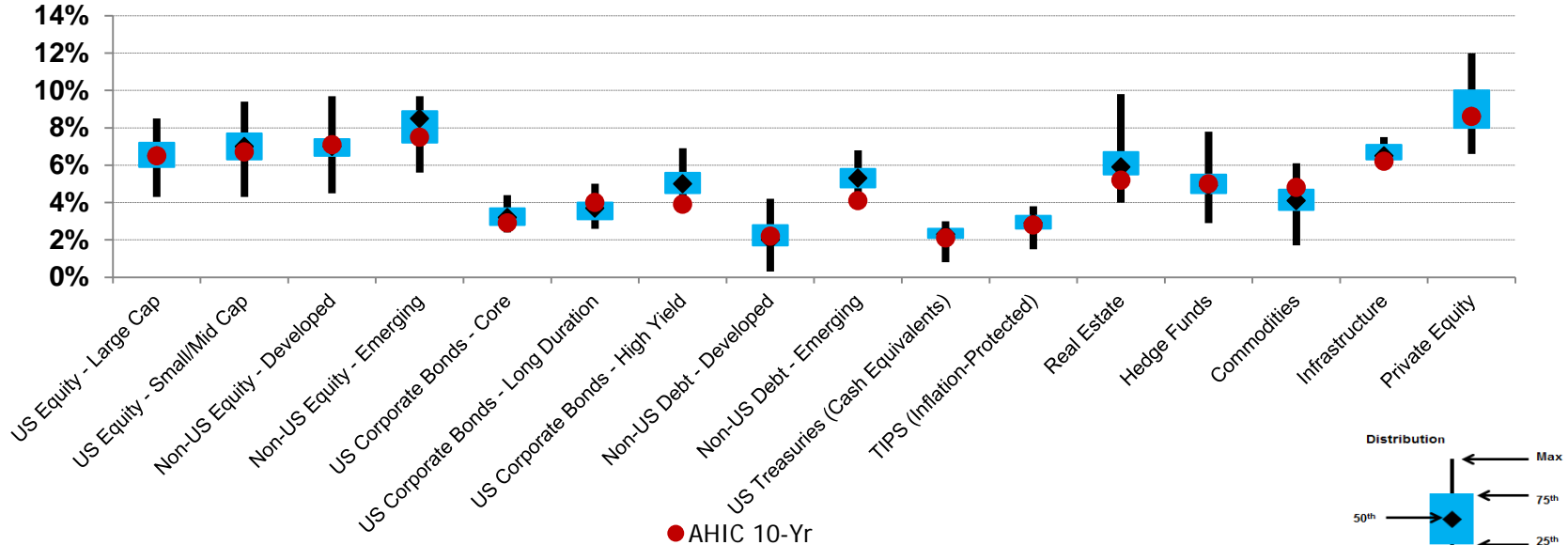
- AHIC equity assumptions are driven by market valuations, earnings growth expectations and assumed payouts to investors. Recent experience suggests strong equity market performance has been driven more by increasing valuations than increasing profits. As markets have become more expensive, our equity 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

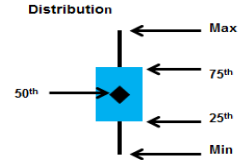
# 2017 Horizon Survey Results

## 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



# AHIC Versus Peers (2017 Horizon Survey)—10-Year Forecast

Asset Class	Horizon Survey		AHIC		Difference
	10 Year Horizon		10 Year Forecasts		
	Expected Return	Expected Risk	Expected Return	Expected Risk	
US Equity - Large Cap	6.5%	16.6%	6.5%	17.0%	0.0%
US Equity - Small/Mid Cap	6.9%	20.2%	6.7%	23.0%	-0.2%
Non-US Equity - Developed	7.0%	18.9%	7.1%	20.0%	0.1%
Non-US Equity - Emerging	8.0%	25.4%	7.5%	30.0%	-0.5%
US Fixed Income - Core	3.2%	5.5%	2.9%	4.0%	-0.3%
US Fixed Income - Long Duration Corp	3.6%	10.4%	4.0%	11.0%	0.4%
US Fixed Income - High Yield	5.1%	10.6%	3.9%	12.0%	-1.2%
Non-US Fixed Income - Developed	2.2%	7.4%	2.2%	5.5%	0.0%
Non-US Fixed Income - Emerging	5.3%	11.8%	4.1%	13.0%	-1.2%
Treasuries (Cash Equivalents)	2.3%	3.0%	2.1%	1.0%	-0.2%
TIPS (Inflation-Protected)	2.9%	6.3%	2.8%	4.5%	-0.1%
Real Estate	6.2%	14.5%	5.2%	11.5%	-1.0%
Hedge Funds	4.9%	8.0%	5.0%	9.0%	0.1%
Commodities	4.1%	17.9%	4.8%	17.0%	0.8%
Infrastructure	6.7%	14.6%	6.2%	14.5%	-0.5%
Private Equity	9.0%	22.0%	8.6%	24.0%	-0.4%
Inflation	2.2%	1.7%	2.2%	1.0%	0.0%

## 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

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## 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)



# Investment Guidance for Public Employee Retirement System Trustees<sup>1</sup>

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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 PERs 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

<sup>1</sup> Richard M. Ennis, *Is a Statewide Pension Fund a Person or a Cookie Jar? The Answer Has Implications for Investment Policy*, Financial Analysts Journal, November-December 1988



# Appendix

- About This Material

# About This Material

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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

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- 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<sup>1,2</sup>**
  - **Specified in advance:** the benchmark is specified prior to the start of an evaluation period and known to all interested parties
  - **Appropriate:** the benchmark is consistent with the manager's investment style or area of expertise
  - **Measurable:** the benchmark's return is readily calculable on a reasonably frequent basis
  - **Unambiguous:** the identities and weights of securities constituting the benchmark are clearly defined
  - **Reflective of current investment opinions:** the manager has current knowledge of the securities or factor exposures within the benchmark
  - **Accountable:** the manager is aware of and accepts accountability for the constituents and performance of the benchmark
  - **Investable:** it is possible to forgo active management and simply hold the benchmark

<sup>1</sup> 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*.

<sup>2</sup> 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

Asset Class	Benchmark	Recommendation	Rationale
Global Equity	MSCI ACWI IMI*	--	Broad coverage, investable
Fixed Income	Barclays U.S. Intermediate Aggregate Index	--	Broad coverage, investable
Real Estate	76.5% NFI-ODCE 13.5% NFI-ODCE +150 bps annum 10% FTSE EPRA/NAREIT Developed	--	Appropriately represents risk/return profile within the real estate portfolio and expected premium
Private Equity <i>Primary</i>	MSCI ACWI IMI + 300 bps	--	Appropriately represents opportunity cost of capital and expected premium
<i>Secondary</i>	Peer Universe Benchmark	--	Customizable based on SBA invested private equity portfolio
Strategic Investments <i>Primary</i>	An aggregation of individual portfolio level benchmark returns	--	Customizable, most appropriate short-term measure
<i>Secondary</i>	CPI + 4.5%	--	Total Fund objective / validates asset class
Cash <i>Primary</i>	iMoneyNet First Tier Institutional Money Market Funds Net Index	BofA Merrill Lynch 3-Month US Treasury Bill	Investable, measurable, unambiguous Proxy for risk-free investment
<i>Secondary</i>		iMoneyNet First Tier Institutional Money Market Funds Net Index	Leading provider of peer cash benchmarks
Total Fund	Policy Portfolio	--	Industry standard

\*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

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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

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## **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

Fund	Private Real Estate Benchmark
CalPERS	NFI-ODCE Index
CalSTERS	NFI-ODCE Index
New York Common	NCREIF
New York City Retirement	NFI-ODCE Index +100 bps
Texas Teachers	NFI-ODCE Index
New York State Retirement	Private Markets: NCREIF ODCE
Wisconsin Investment Board	NFI-ODCE Index
Ohio Public Employees	NFI-ODCE Index + 85bps
North Carolina	80% NFI-ODCE Index 20% FTSA/EPRA/NAREIT Global Index
Washington State Board	NCREIF Property Index
New Jersey Division of Investment	Blend of NFI-ODCE Index and Barclays Corp CMBS 2.0 Baa + 100bps
Virginia Retirement	NFI-ODCE Index
Oregon Public Employees	NCREIF Property Index
Ohio State Teachers	85% NCREIF Property Index 15% FTSE NAREIT Equity REITs Index
Massachusetts PRIM	NCREIF Property Index

Fund	Private Real Estate Benchmark
Michigan Retirement	NCREIF Property Index -130bps
Minnesota State Board	CPI + 1000 bps
LA County ERS	NFI-ODCE Index +40bps
Pennsylvania Employees Retirement	Private Core: NFI-ODCE Index Private Non Core: Burgiss Benchmark
Maryland State Retirement	85% NFI-ODCE Index 15% FTSE EPRA/NAREIT Developed (Net)
Teachers' System of Illinois	NCREIF Property Index
Tennessee Retirement System	NCREIF Property Index
Colorado Public Employees	NFI-ODCE Index +50bps
Missouri Teachers	NFI-ODCE Index
Illinois Municipal Retirement Fund	NFI-ODCE Index
Nevada Public Employees	NCREIF Property Index -75bps
Arizona State Retirement System	NFI-ODCE Index
Retirement Systems of Alabama	NCREIF Property Index
Connecticut Retirement Plans	NCREIF Property Index
South Carolina Retirement Systems	NFI-ODCE Index +75bps

# Private Equity Review

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## 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

Fund	Primary Benchmark	Premium (bps)
CalPERS	67% FTSE U.S. TMI 33% FTSE AW ex- U.S. TMI	300
CalSTERS	Russell 3000 Index	300
New York Common	Cambridge U.S. Private Equity Index	
New York City Retirement	Russell 3000 Index	300
Texas Teachers	State Street Private Equity Index	
New York State Retirement	Cambridge U.S. Private Equity Index	
Wisconsin Investment Board	Blended Benchmark of Burgiss Private Equity benchmarks, Credit Suisse Leveraged Loan Index +1% , and Bloomberg Barclays Duration-Adjusted Baa Corporate plus 20 bps	
Ohio Public Employees	State Street Private Equity Index	
North Carolina	Blended Benchmark of Burgiss Private Equity benchmarks	
Washington State Board	MSCI ACWI IMI	300

Fund	Primary Benchmark	Premium (bps)
New Jersey Division of Investments	Blended benchmark of Cambridge Associates Global Private Equity, Buyout and Growth Equity & Barclays U.S. Corp High Yield Index + 300 bps	
Virginia Retirement	MSCI ACWI IMI	250
Oregon Public Employees	Russell 3000 Index	300
Ohio State Teachers	Russell 3000 Index	100
Massachusetts PRIM	Russell 3000 Index	300
Michigan Retirement	S&P 500 Index	300
Minnesota State Board	CPI	1000
LA County ERS	Russell 3000 Index	400
Pennsylvania Employees Retirement	Blended Burgiss Benchmarks	
Maryland State Retirement	MSCI ACWI	200

# Private Equity Secondary Benchmark Review

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## 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

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## 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

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## **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

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## **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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# **Florida State Board of Administration**

**Comprehensive Benchmark Review**

**February 2018**



## **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.

As of 12/31/17	Trailing 3-Year	Trailing 5-Year	Trailing 10-Year
<b>Total Real Estate</b>	<b>10.1%</b>	<b>12.2%</b>	<b>6.4%</b>
<i>Real Estate Target</i>	<i>9.6%</i>	<i>10.3%</i>	<i>4.8%</i>
<b>Total Principal Investments</b>	<b>10.2%</b>	<b>12.3%</b>	<b>7.8%</b>
<i>NCREIF NPI Index</i>	<i>9.7%</i>	<i>10.3%</i>	<i>4.2%</i>

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.

Fund	Private Real Estate Benchmark	Premium
CalPERS	NFI-ODCE Index	
CalSTERS	NFI-ODCE Index	
New York Common	NCREIF	
New York City Retirement	NFI-ODCE Index	100
Texas Teachers	NFI-ODCE Index	
New York State Retirement	Private Markets: NFI-ODCE Index	
Wisconsin Investment Board	NFI-ODCE Index	
Ohio Public Employees	NFI-ODCE Index	85
North Carolina	80% NFI-ODCE Index 20% FTSA/EPRA/NAREIT Global Index	
Washington State Board	NCREIF Property Index	
New Jersey Division of Investment	Blend of NFI-ODCE Index and Barclays Corp CMBS 2.0 Baa + 100	
Virginia Retirement	NFI-ODCE Index	
Oregon Public Employees	NCREIF Property Index	
Ohio State Teachers	85% NCREIF Property Index 15% FTSE NAREIT Equity REITs Index	
Massachusetts PRIM	NCREIF Property Index	
Michigan Retirement	NCREIF Property Index	-130
Minnesota State Board	CPI + 1000 bps	
LA County ERS	NFI-ODCE Index	40
Pennsylvania Employees Retirement	Private Core: NFI-ODCE Index Private Non-Core: Burgiss Benchmark	
Maryland State Retirement	85% NFI-ODCE Index 15% FTSE EPRA/NAREIT Developed (Net)	
Teachers' System of Illinois	NCREIF Property Index	
Tennessee Retirement System	NCREIF Property Index	
Colorado Public Employees	NFI-ODCE Index	50
Missouri Teachers	NFI-ODCE Index	
Illinois Municipal Retirement Fund	NFI-ODCE Index	
Nevada Public Employees	NCREIF Property Index	-75
Arizona State Retirement System	NFI-ODCE Index	
Retirement Systems of Alabama	NCREIF Property Index	
Connecticut Retirement Plans	NCREIF Property Index	
South Carolina Retirement Systems	NFI-ODCE Index	75

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.

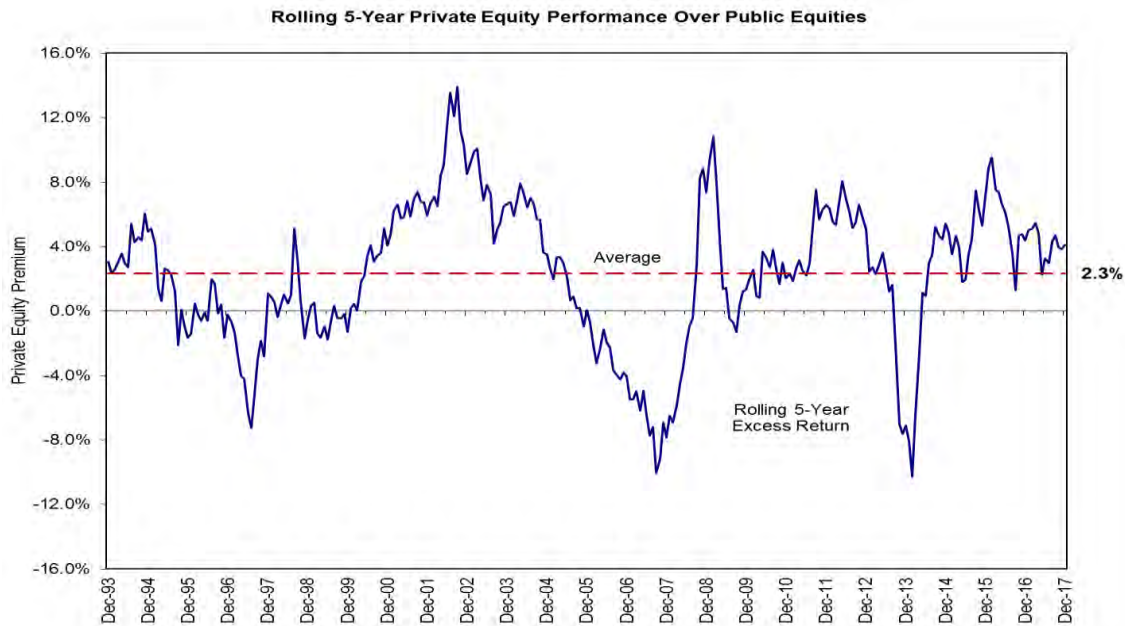
The table below illustrates our latest private equity return expectations:

Based on 1Q 2018 CMAs	Model Portfolio Weights	Expected Return	Premium
Venture Capital	24%	10.3%	3.3%
Buyouts (LBOs)	54%	7.7%	0.7%
Distressed Debt	16%	8.6%	1.6%
Mezzanine	6%	7.9%	0.9%
<b>Model Private Equity Portfolio</b>	<b>100%</b>	<b>8.5%</b>	<b>1.5%</b>

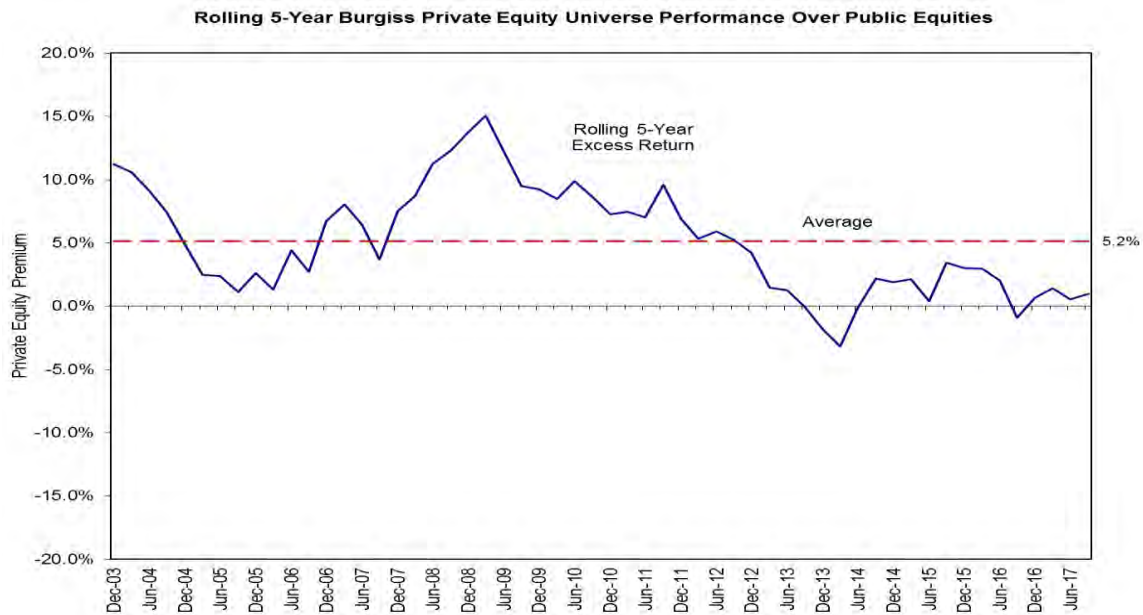
\*Premium reflects the expected return over global equity's expected return of 7.0%

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.

Fund	Private Equity Benchmark	Premium
CalPERS	67% FTSE U.S. TMI 33% FTSE AW ex- U.S. TMI	300
CalSTERS	Russell 3000	300
New York Common	Cambridge U.S. Private Equity Index	
New York City Retirement	Russell 3000	300
Texas Teachers	State Street Private Equity Index	
New York State Retirement	Cambridge U.S. Private Equity Index	
Wisconsin Investment Board	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	
Ohio Public Employees	State Street Private Equity Index	
North Carolina	Burgiss Group Private iQ indices: 50% Buyout 20% VC 30% Special Situation and Distressed	
Washington State Board	MSCI ACWI IMI	300
New Jersey Division of Investment	Blend of Cambridge Associates Global Private Equity, Buyout and Growth Equity, and Barclays U.S. Corp High Yield Index + 300 bps	
Virginia Retirement	MSCI ACWI IMI	250
Oregon Public Employees	Russell 3000	300
Ohio State Teachers	Russell 3000	100
Massachusetts PRIM	Russell 3000	300
Michigan Retirement	S&P 500	300
Minnesota State Board	CPI	1000
LA County ERS	Russell 3000	400
Pennsylvania Employees Retirement	Blended Burgiss Benchmark	
Maryland State Retirement	MSCI ACWI	200

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 is 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

## **Real Estate Asset Class Review**

Steve Spook, Senior Investment Officer-Real Estate

Lynne Gray, Senior Portfolio Manager-Principal Investments

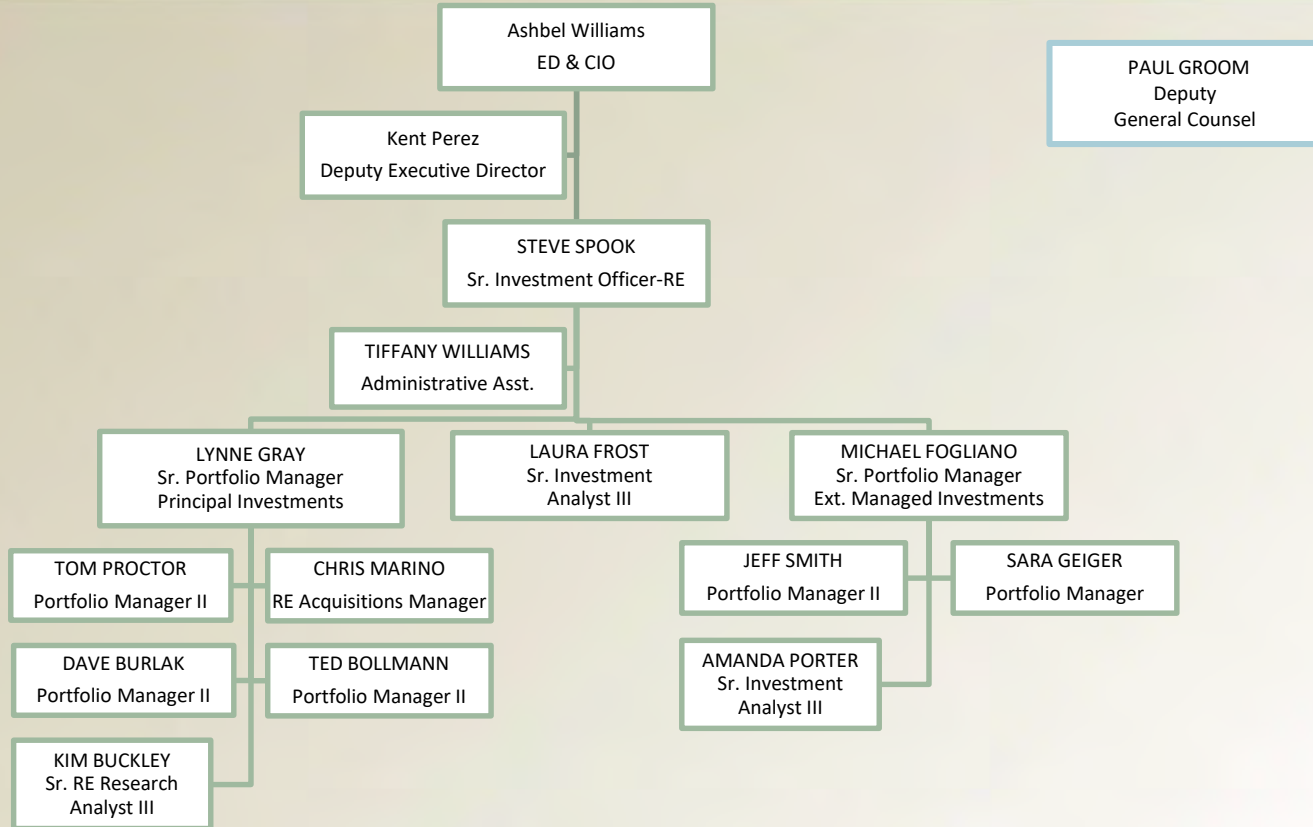
Michael Fogliano, Senior Portfolio Manager-Externally Managed Investments

## Investment Advisory Council Meeting

March 19, 2018



# Organizational Chart



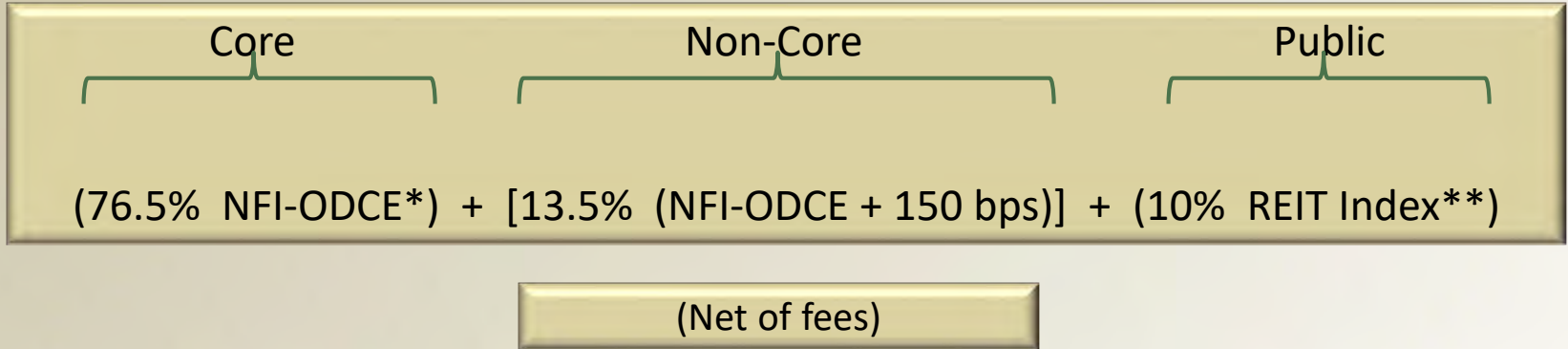
# Governance

- Executive Director & CIO (ED & CIO)
  - Delegated authority by Trustees to manage the investment of Florida Retirement System assets.
  - Approves Real Estate Annual Investment Work Plan.
  - Approves all new investment managers, direct owned acquisitions/dispositions/financings, new commingled fund investments, investment manager agreements, and joint ventures.
- Deputy Executive Director (DED)
  - Provides guidance and input for above Real Estate activities.
  - Concurrence required prior to submission to ED & CIO.
- Senior Investment Officer-Real Estate (SIO-RE)
  - Delegated authority by ED & CIO to effectuate the preceding and perform ownership responsibilities.

# Real Estate Consultant

- Real Estate Consultant
  - Prepares quarterly and annual performance reports
  - Investment provider monitoring and annual review
  - Fund due diligence
  - Research
  - Ad hoc projects

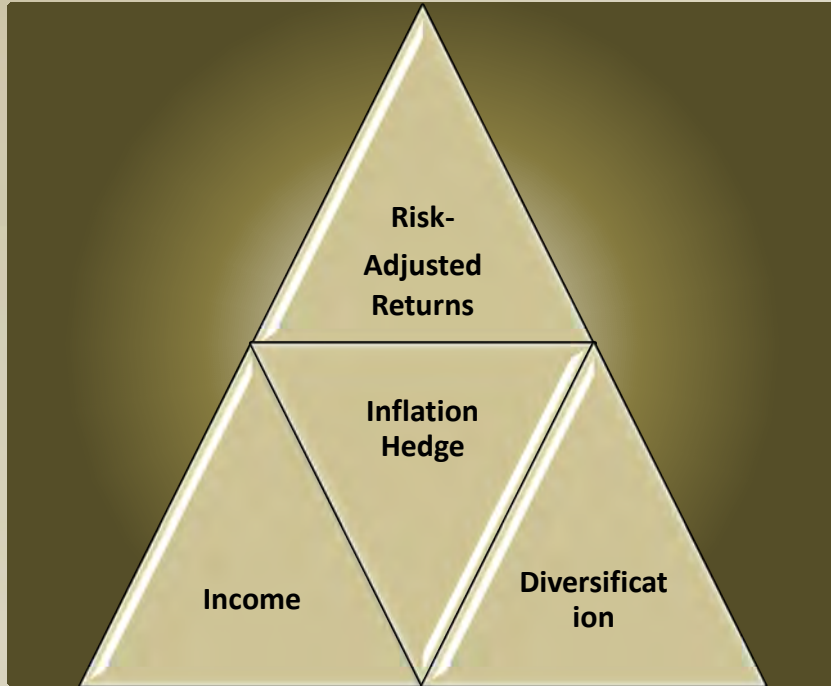
# Real Estate Benchmark



\* (NFI) National Council of Real Estate Investment Fiduciaries Fund Index, (ODCE) Open-end Diversified Core Equity

\*\* (REIT Index) Financial Times Stock Exchange, European Public Real Estate Association, National Association of Real Estate Investment Trusts

# Strategic Role of Real Estate



- Designed to provide:
  - Attractive risk adjusted returns
  - Diversification for total fund with low correlation to equities
  - Income focused
  - Inflation hedge

# Broad Strategies

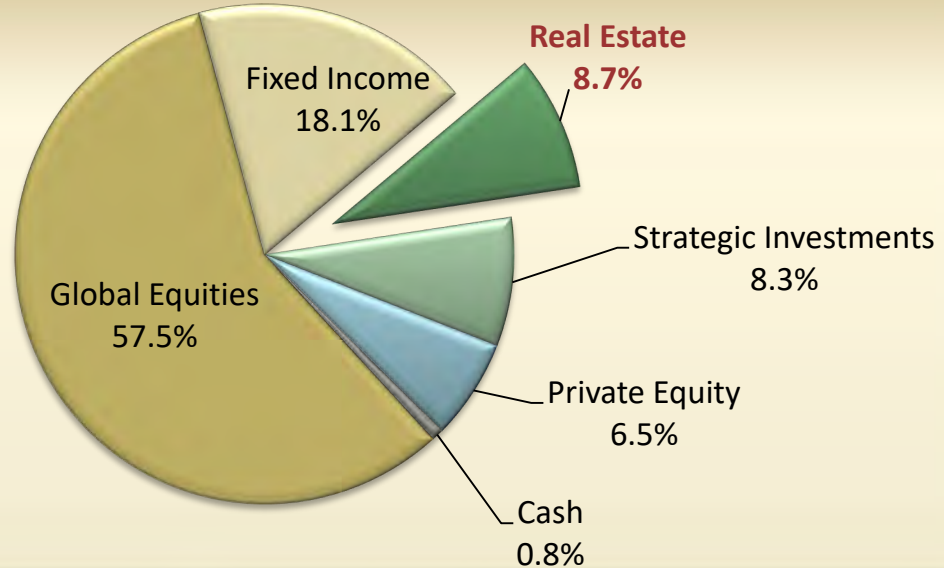
## PRIVATE REAL ESTATE

83% Core (Strategic)	17% Non-Core (Tactical)
<ul style="list-style-type: none"><li>• Income focused</li><li>• Institutional quality</li><li>• Stabilized (high occupancy)</li><li>• Low immediate capital needs</li><li>• Low leverage (less than 50%)</li><li>• Domestic</li></ul>	<ul style="list-style-type: none"><li>• Most return from appreciation</li><li>• More value (creation) to include:<ul style="list-style-type: none"><li>• Lease-up</li><li>• Development</li><li>• Redevelopment</li><li>• Repositioning</li><li>• Recapitalization</li></ul></li><li>• Higher leverage</li><li>• Includes International</li></ul>

# Real Estate Portfolio

## FRS Pension Plan

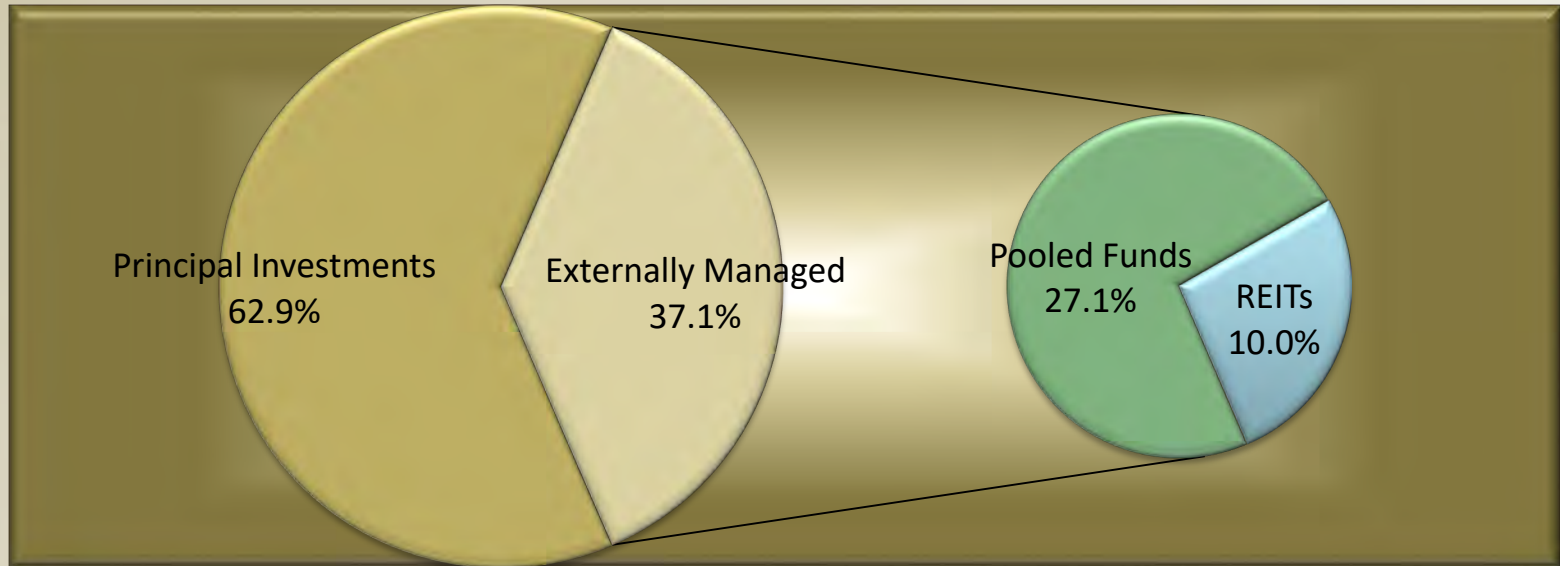
As of 9/30/2017



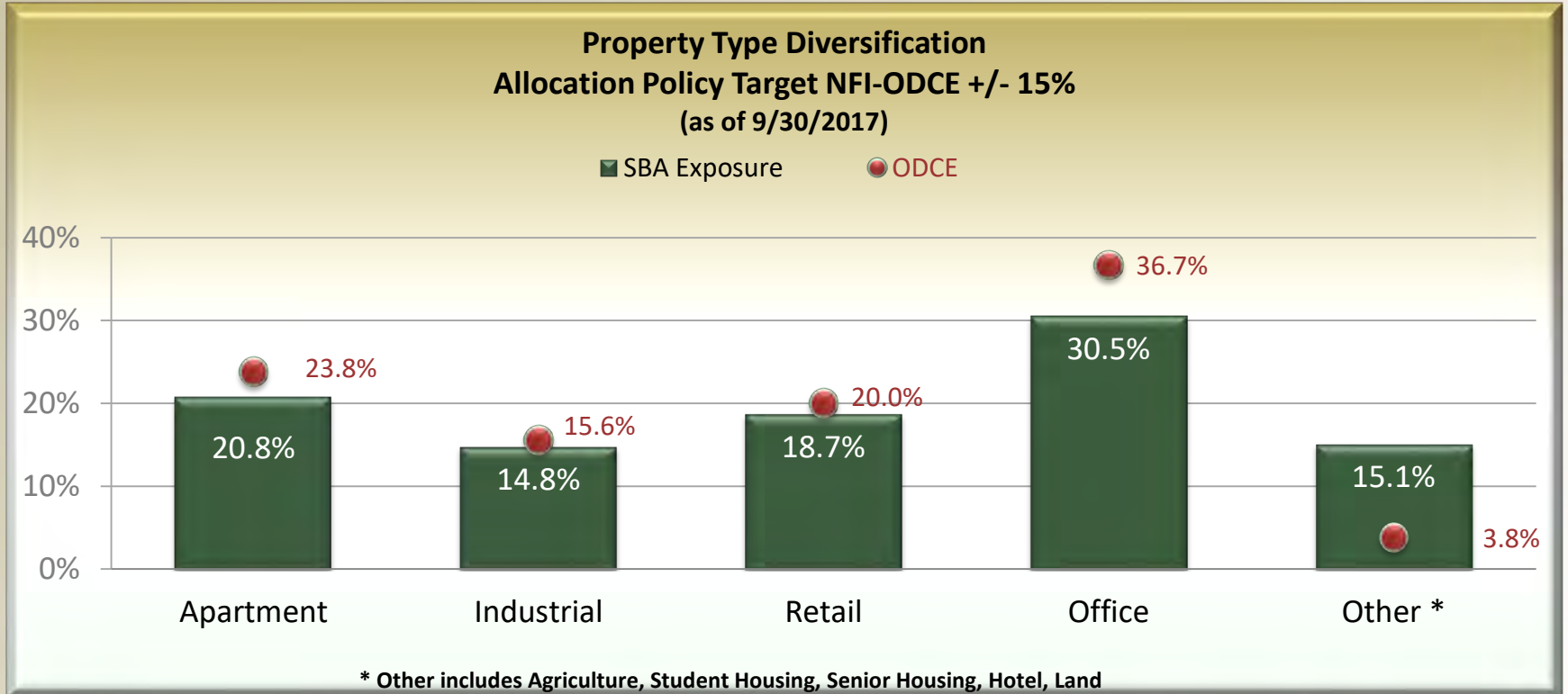
TOTAL FRS  
\$157,560,572,242

# Real Estate Portfolio

(as of 9/30/2017)

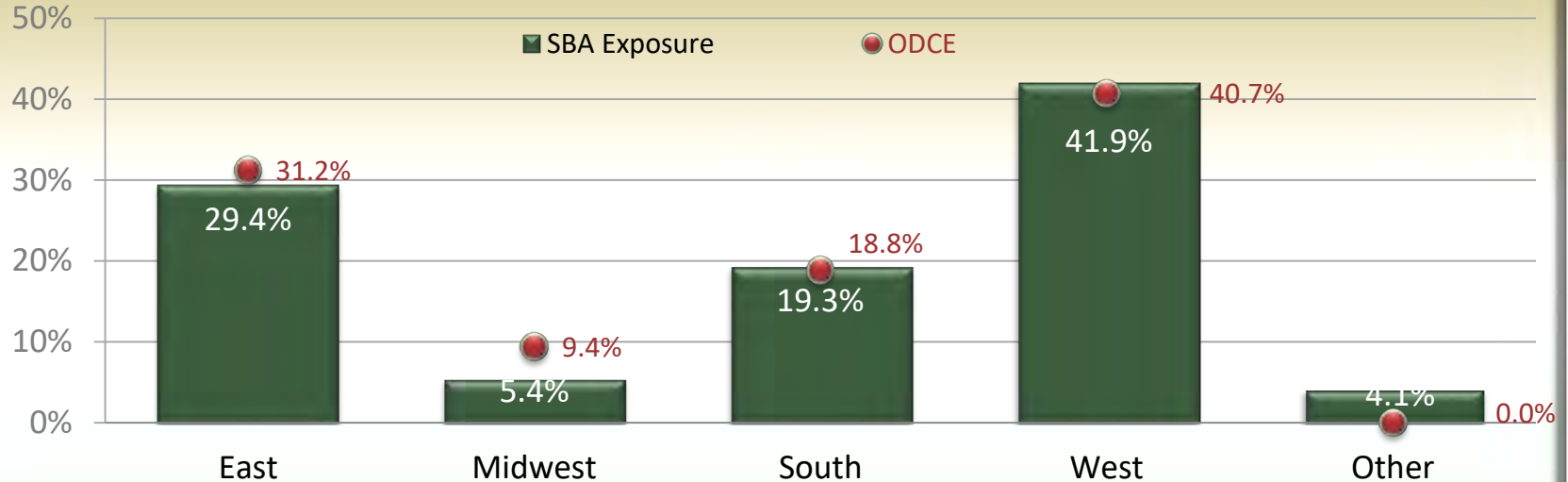


# Private Market Portfolio

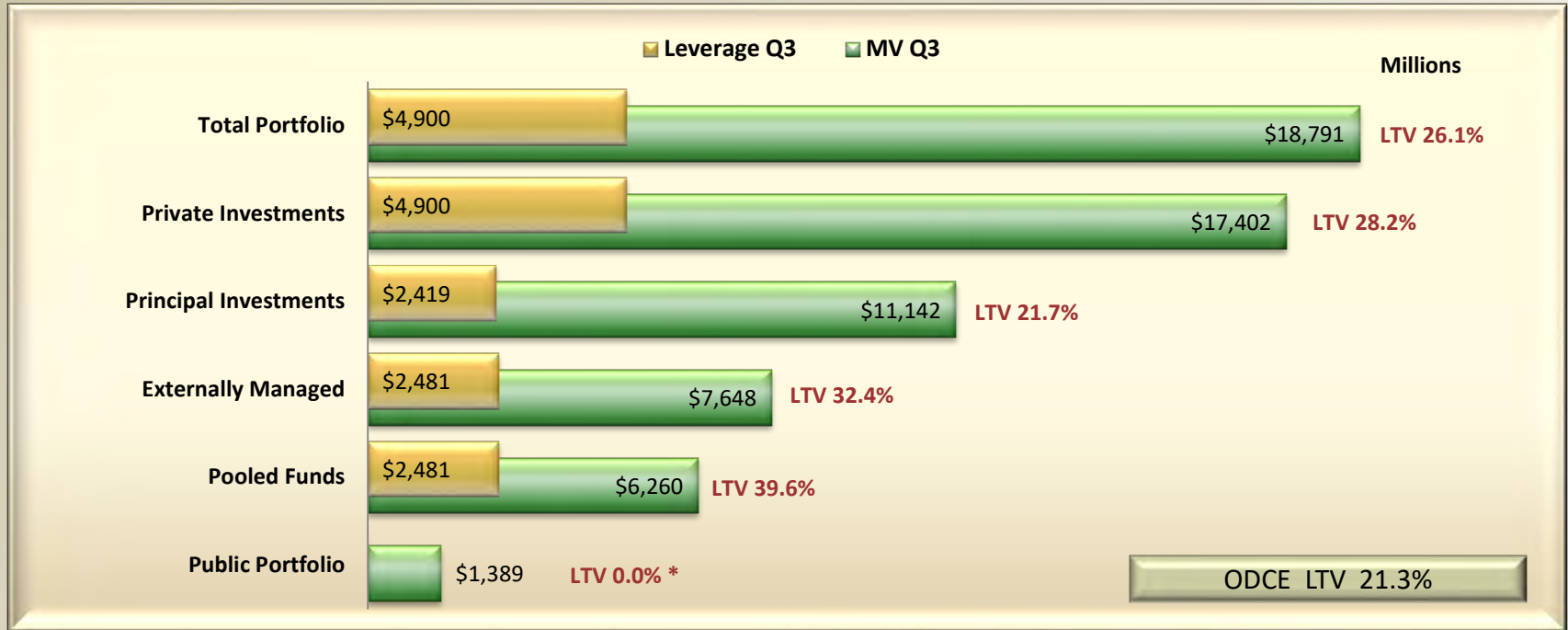


# Private Market Portfolio

**Geographic Diversification**  
**Allocation Policy Target NFI-ODCE +/- 15%**  
**(as of 9/30/2017)**



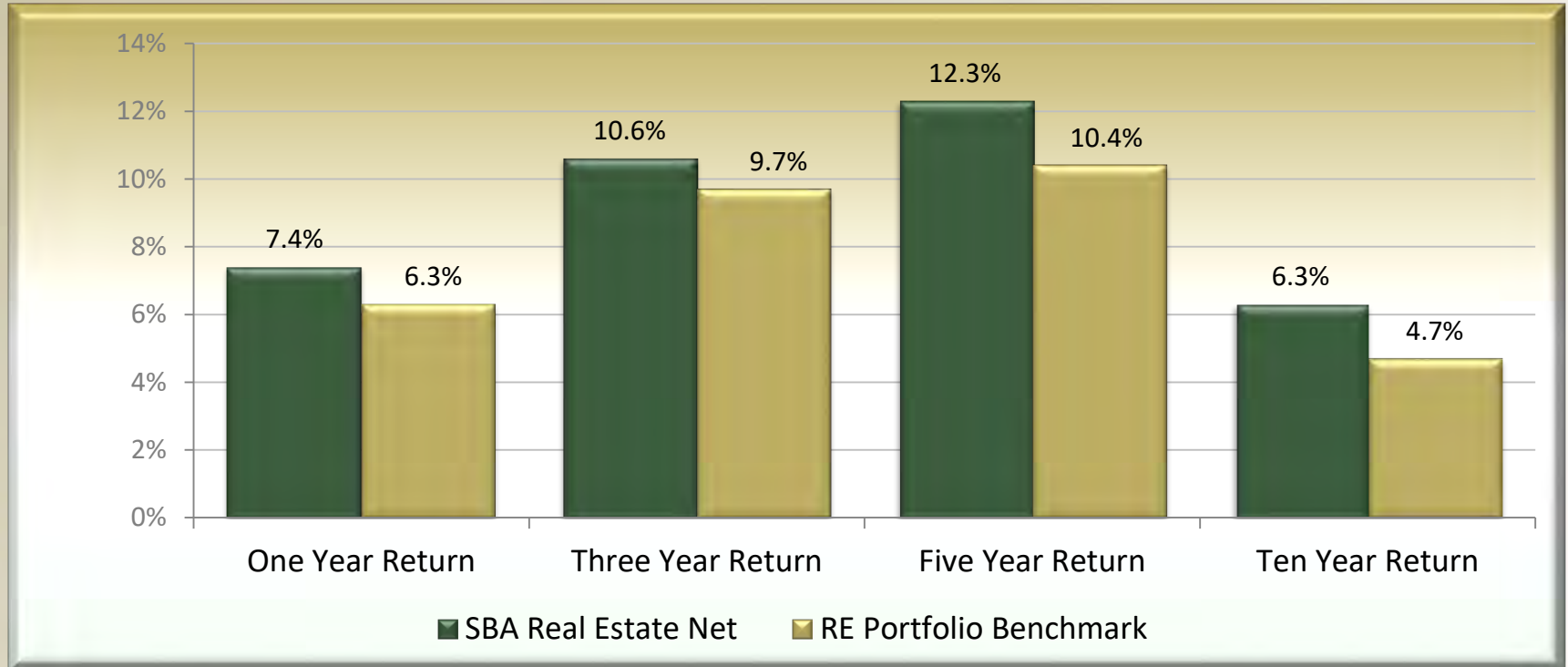
# Real Estate Portfolio Leverage



\* Individual REITs are levered on average 35%, however, SBA equity investment is not levered.

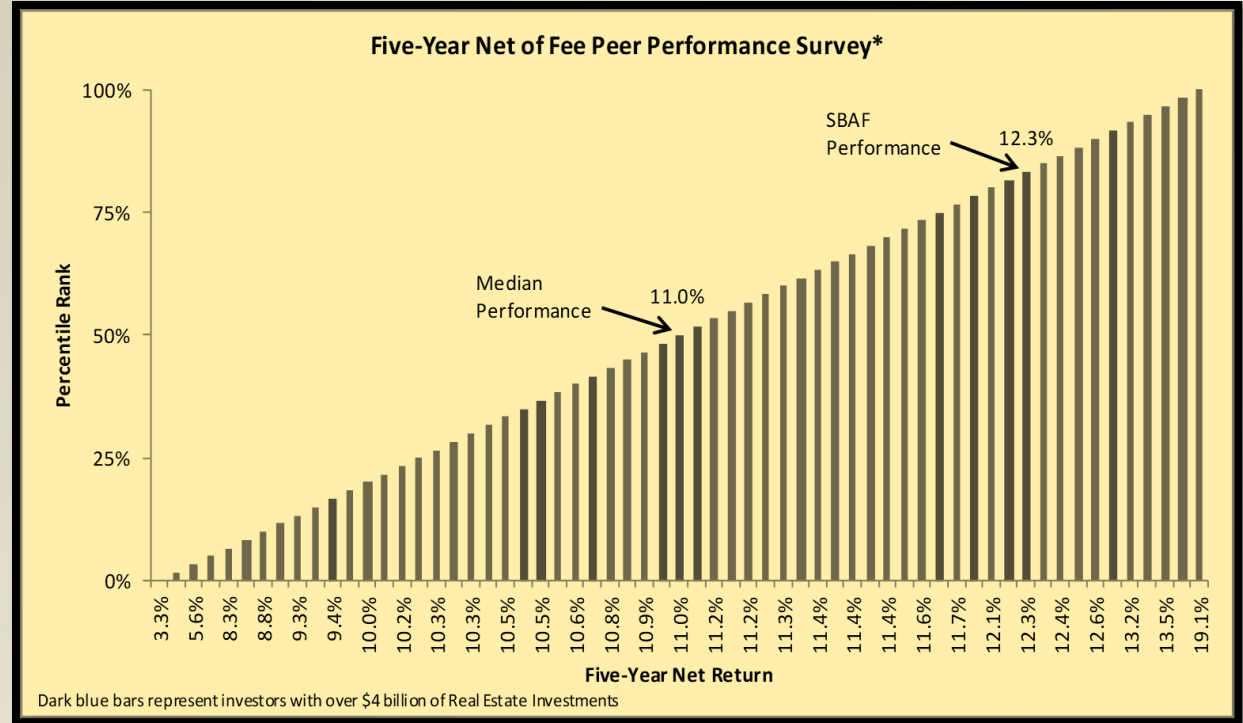
# Real Estate Returns

Data Through September 30, 2017



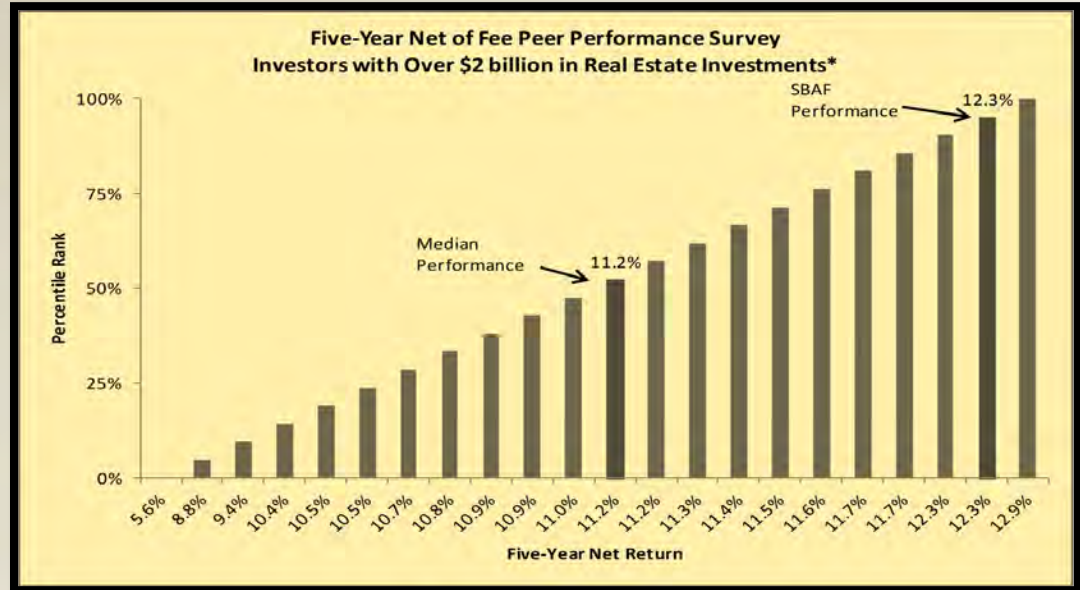
# Peer Performance

- SBAF's five-year net performance versus its peers (61 institutional real estate investors) ranks in the 83<sup>rd</sup> percentile.
- It is important to note, peer portfolio's will vary by investment strategy, investment type, risk appetite and portfolio inception dates.



# Peer Performance

Five Year Net Return	Real Estate Leverage
5.6%	18.0%
8.8%	27.1%
9.4%	34.8%
10.4%	21.5%
10.5%	43.3%
10.5%	40.0%
10.7%	20.2%
10.8%	30.0%
10.9%	40.0%
10.9%	31.4%
11.0%	33.0%
11.2%	42.2%
11.2%	35.4%
11.3%	37.1%
11.4%	26.5%
11.5%	35.8%
11.6%	41.1%
11.7%	34.7%
11.7%	37.9%
12.3%	38.5%
12.3%	26.6%
12.9%	38.5%



SBAF's five-year net performance versus its peers, 22 institutional real estate investors with Real Estate Investments exceeding \$2 billion, is a top ranking plan.

It is important to note, peer portfolio's will vary by investment strategy, investment type, risk appetite and portfolio inception dates.

# FY 2017-2018 YTD Activities

## Principal Investments Activity

### Acquisitions

- \$381.9 million equity in three office buildings
- \$32.0 million equity in three high street retail
- \$126.6 million equity in nine medical office buildings
- \$32.1 million equity in four self-storage
- \$62.2 million equity in JV multifamily partner buyout
- \$31.4 million equity committed to a multifamily development

### Dispositions

- \$115.2 million equity from two industrial portfolios
- \$49.0 million equity from three student housing properties
- \$138.5 million equity from a multifamily property
- \$31.5 million equity from an industrial property

### Financing

- \$463.5 million in loan activity (acquisitions and existing assets) across fourteen properties
- \$437.5 million in pending financing on existing properties

# FY 2017-2018 YTD Activities

## Externally Managed Portfolio Activity

### Commitments

- \$100 million commitment to a US opportunistic fund
- \$75 million commitment to a US value-add fund
- €50 million commitment to a Nordic value-add fund
- \$100 million commitment to a specialty focused US core-plus fund
- \$50 million commitment to a US industrial core-plus fund

### Redemptions

- \$100 million from a US core open-end fund
- \$50 million from a US core open-end fund

# Real Estate Principal Investments Portfolio

**Lynne Gray**  
*Senior Portfolio Manager*

# Principal Investments Portfolio

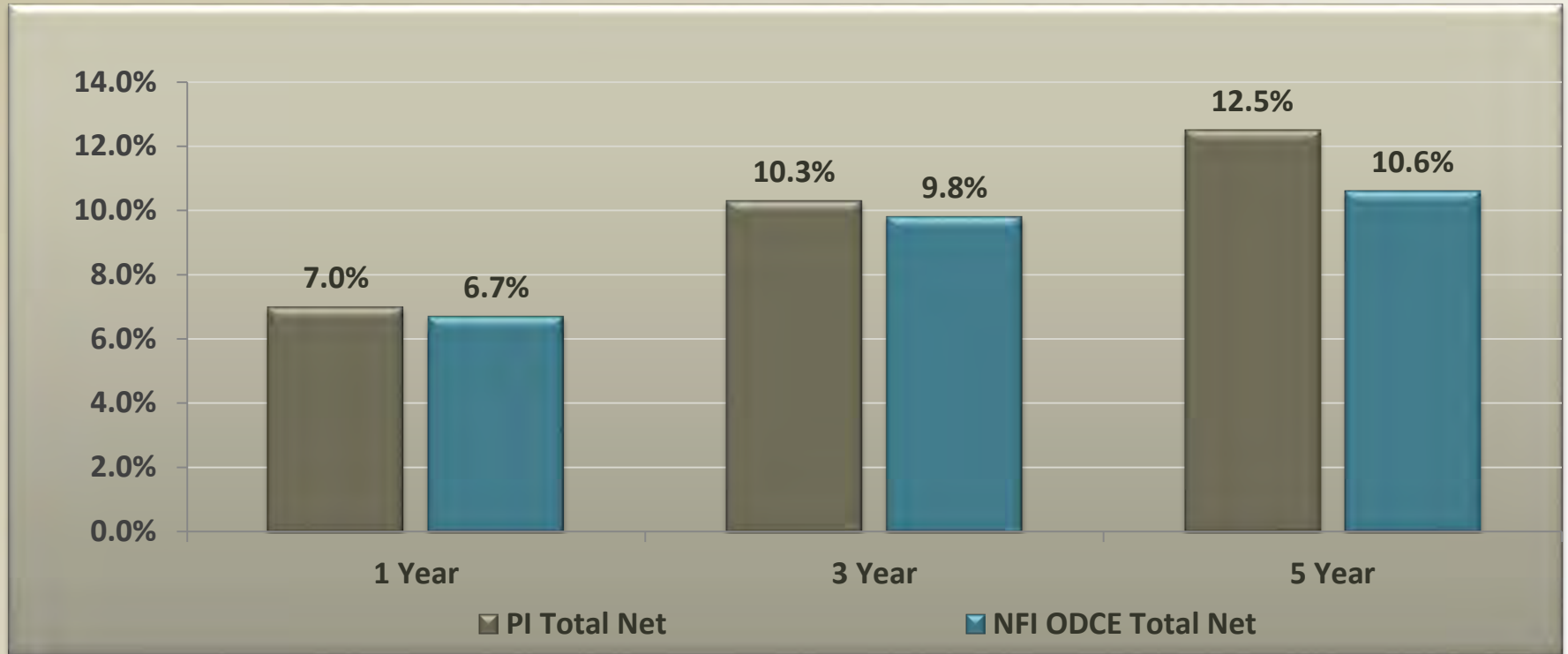
## **Objective**

Provide returns that, with an acceptable level of risk, meet or exceed the National Council of Real Estate Investments Fiduciaries Fund Index – Open End Diversified Core Equity (NFI-ODCE).

## **Investments**

Primarily high quality, well-located, stable real estate properties: Apartment, Office, Industrial, Retail and Specialty Sector. The specialty sector includes Agriculture, Student Housing, Senior Housing, and Self Storage. Non-core strategies, such as development, are permitted.

# Principal Investments Portfolio



Data through 09/30/17

# Investment Portfolio Guidelines

Guidelines for Managing and Monitoring  
Portfolio-Level and Asset-Level Risk

**Risk Profile**

**Sector**

**Geography**

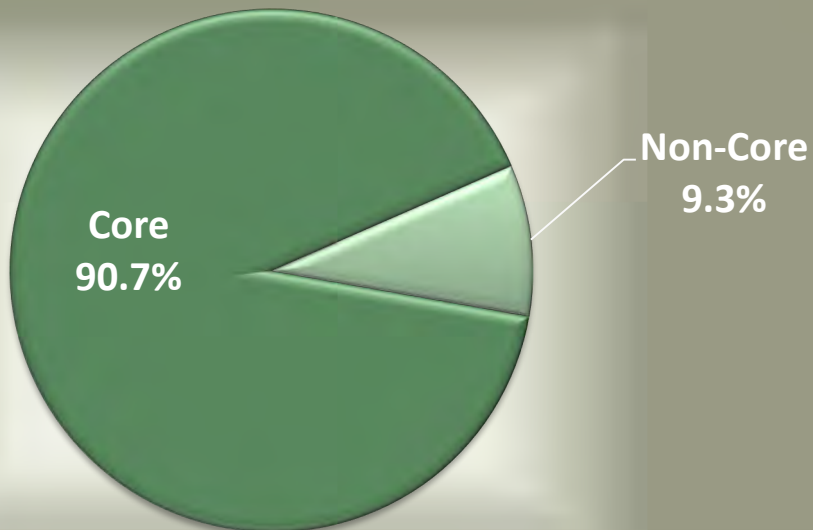
**Leverage**

**Investment  
Manager**

**Single  
Investment**

# Risk Profile

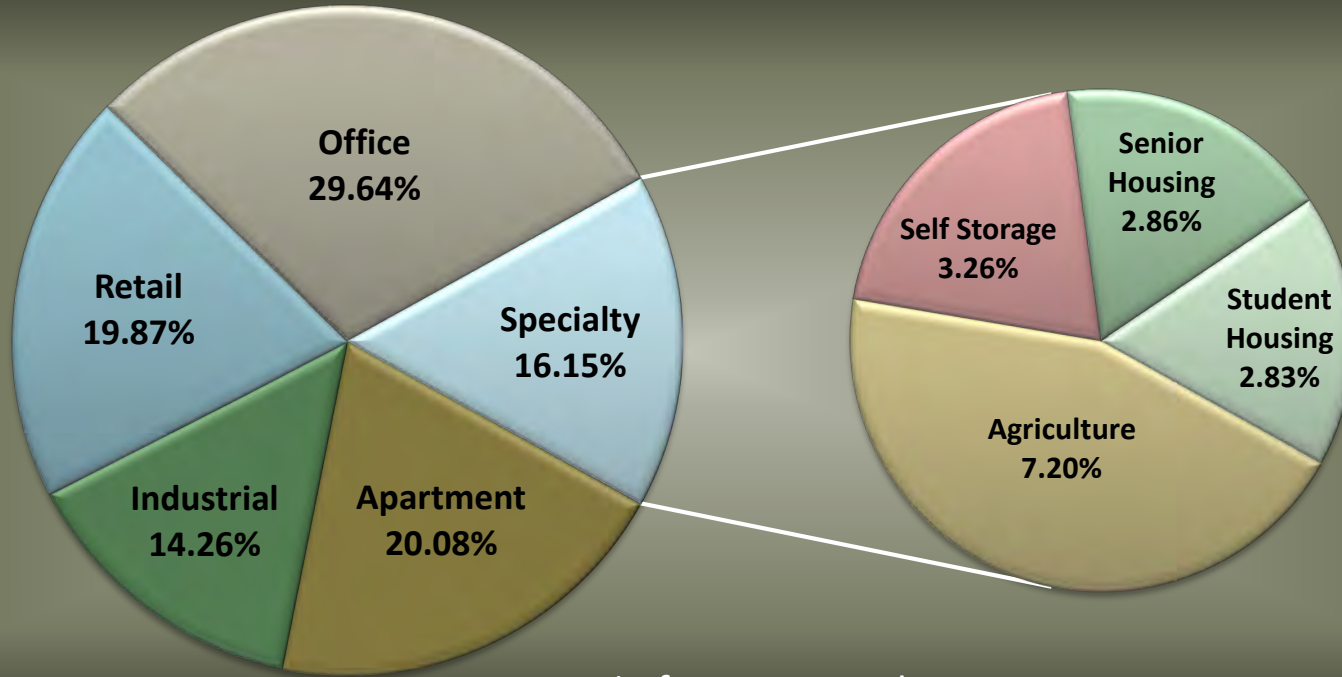
NAV \$8.8 billion as of 09/30/17



## Investment Portfolio Guidelines

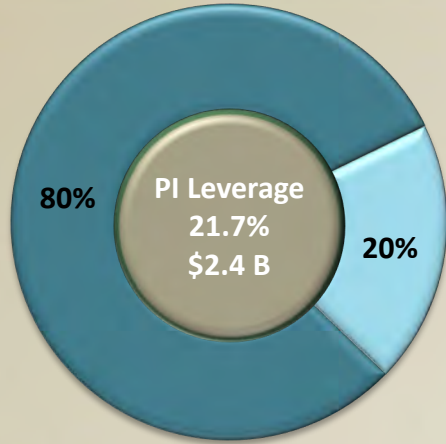
	Target	Range
Core	92.5%	85% - 100%
Non-Core	7.5%	0% - 15%

# Sector Diversification



% of Net Asset Value

# Principal Investments Leverage



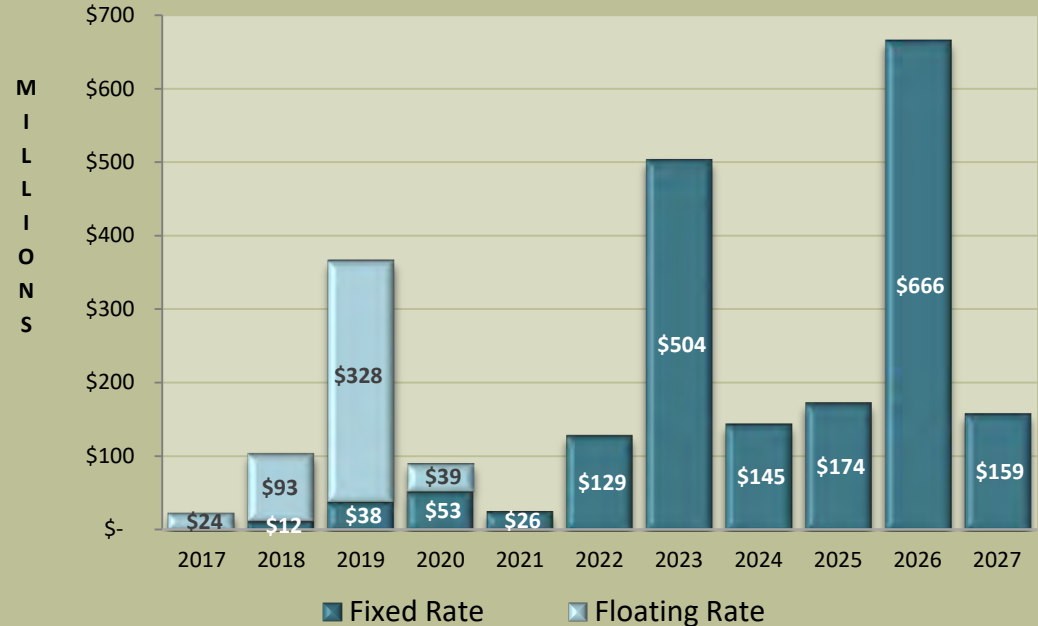
■ Fixed Rate      ■ Floating Rate

ODCE Leverage 21.3%

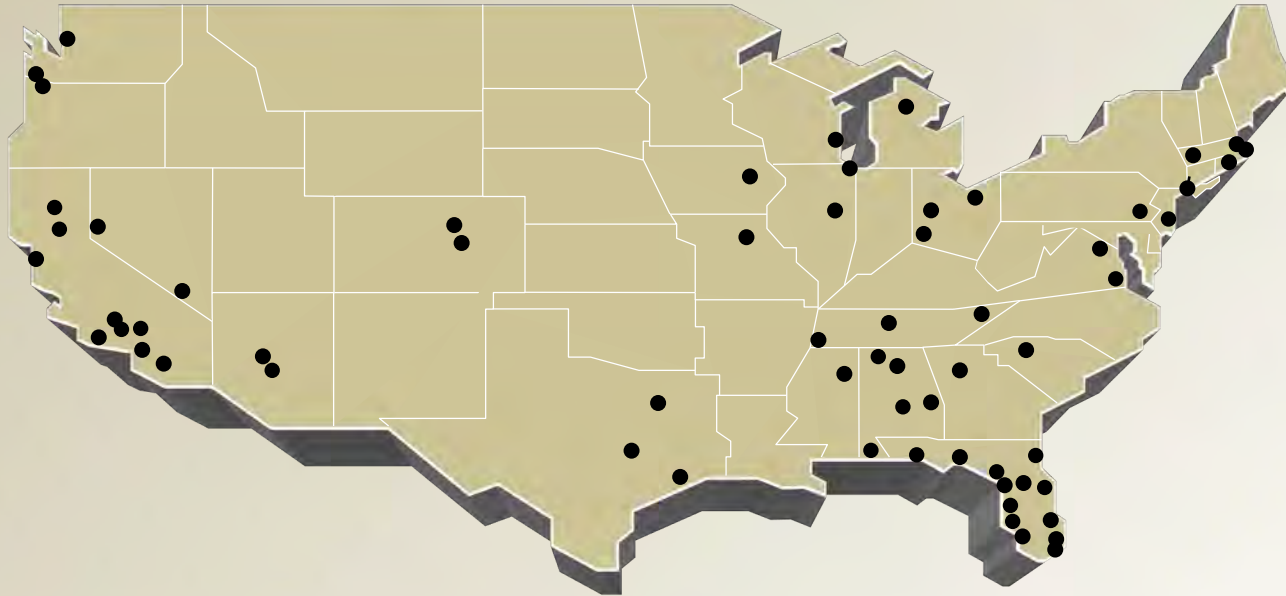
## Investment Portfolio Guidelines

- Portfolio Leverage limited to 30% Loan To Value (LTV)
- Individual Asset Level limited to 50% LTV
- JV Individual Asset limited to 70% LTV
- Nonrecourse to the SBA

## Debt Maturities

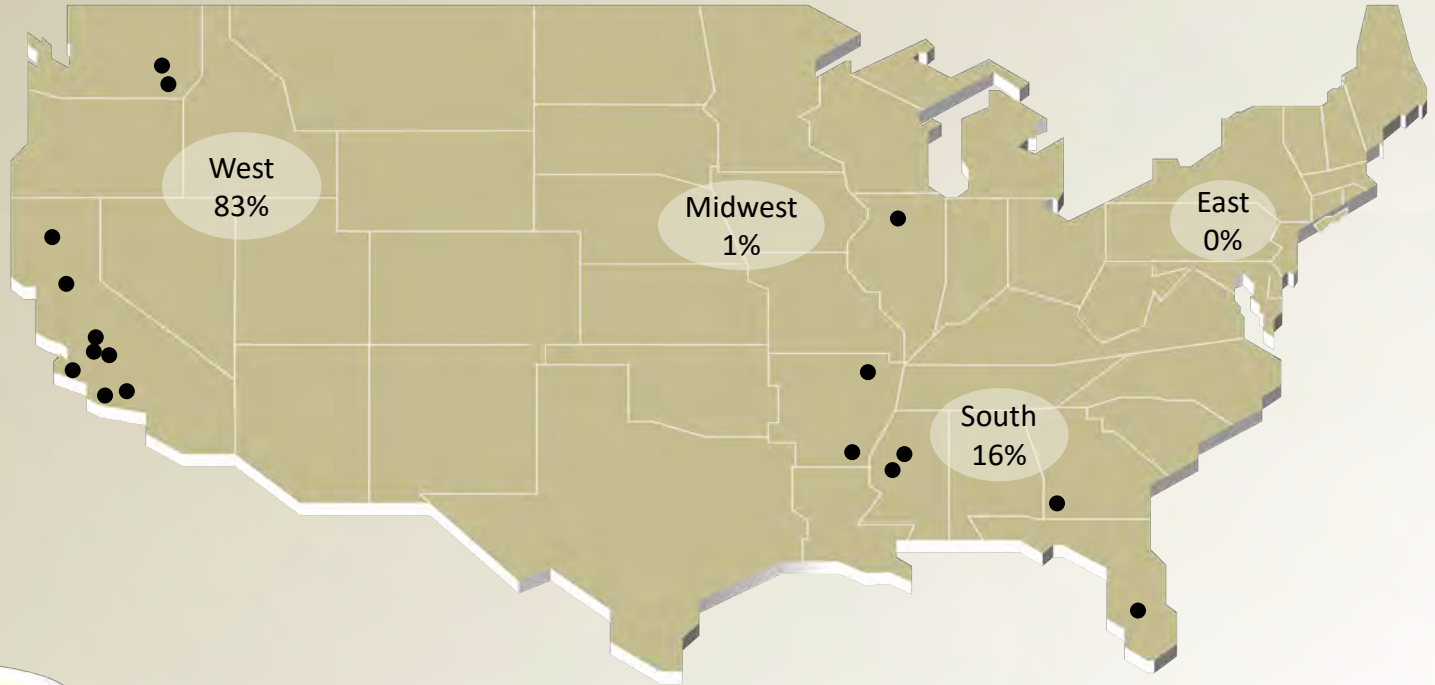


# Property Locations



Excludes Agriculture

# Agriculture Locations

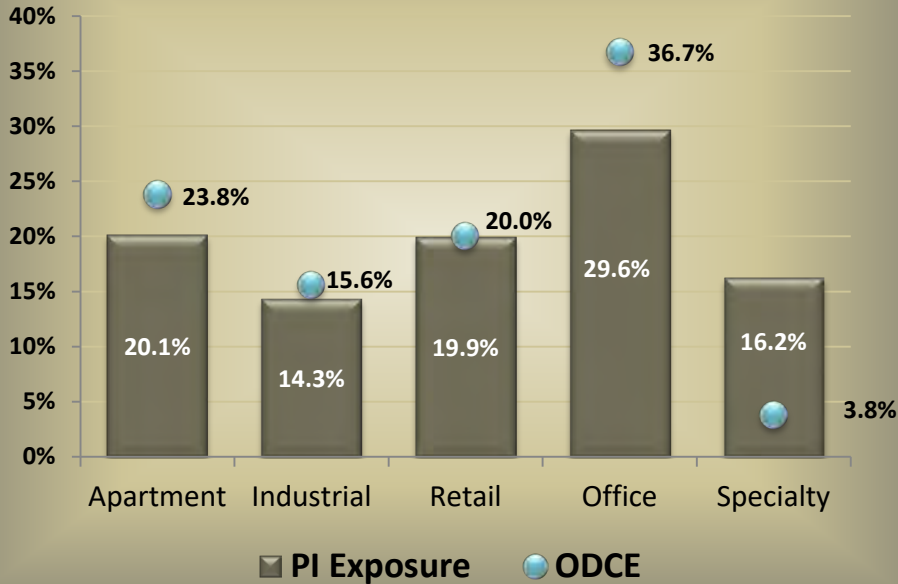


% of Net Asset Value

# Principal Investments vs Benchmark

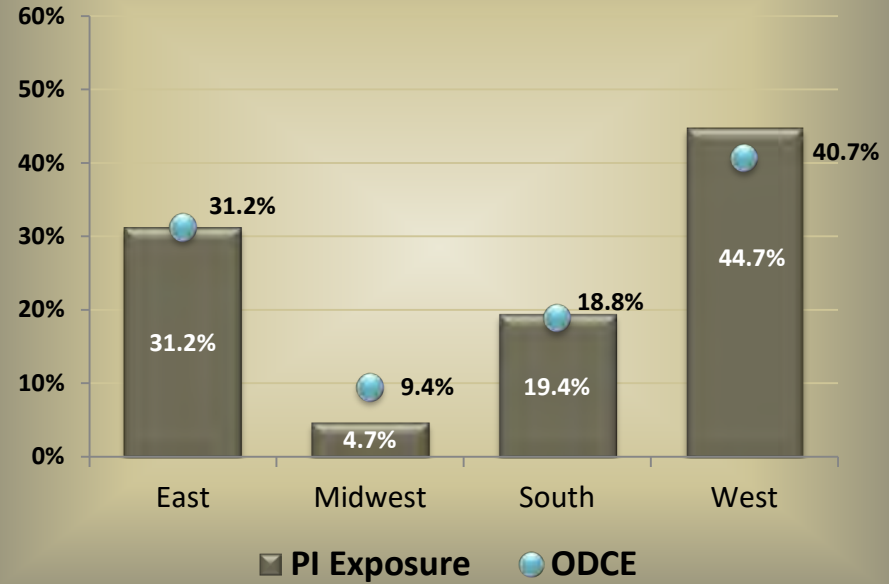
## Diversification by Property Type

% of Net Asset Value



## Diversification by Geography

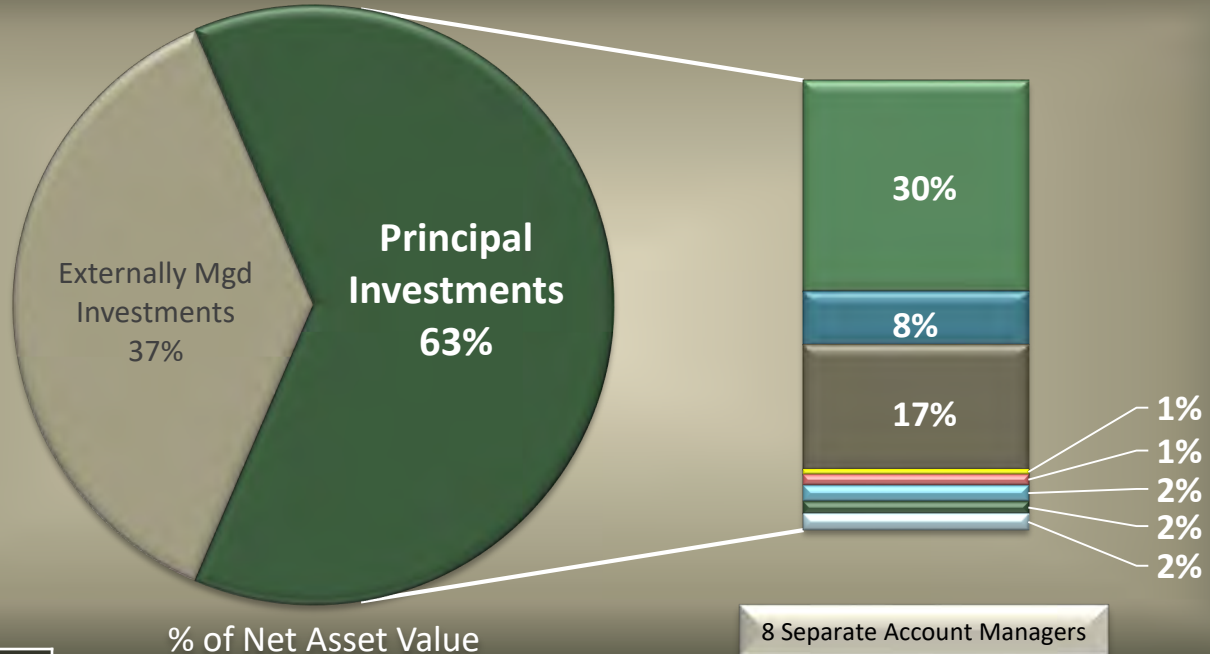
% of Net Asset Value



Investment Portfolio Guidelines

Range: ODCE +/- 15%

# Manager Concentration



% of Net Asset Value

8 Separate Account Managers

Investment Portfolio Guidelines

< 35% AUM per Manager

# Metro & Investment Exposure

## Top Ten Markets

Metropolitan Division		% PI NAV
1	Washington, DC	11.1%
2	San Francisco, CA	8.4%
3	Los Angeles, CA	7.9%
4	New York, NY	7.6%
5	Boston, MA	5.8%
6	Seattle, WA	3.7%
7	Ft. Lauderdale, FL	3.6%
8	Ontario, CA	3.6%
9	Atlanta, GA	3.5%
10	San Diego, CA	3.5%

## Five Largest Investments

Property Type	Location	% PI NAV
1 Office	Los Angeles, CA	5.3%
2 Retail	San Francisco, CA	3.4%
3 Office	Washington, DC	3.1%
4 Apartment	New York, NY	2.9%
5 Apartment	San Francisco, CA	2.9%

### Investment Portfolio Guidelines

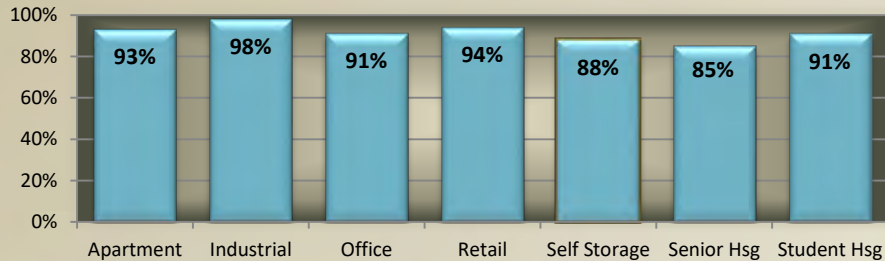
- Metropolitan Division exposure less than 15% of NAV\*
  - Single investment exposure less than 7% of NAV\*
- \* at the time of acquisition

# Summary of Investments

Property Type	# of Properties	Net Asset Value	Square Feet	# Units	# Beds	Acres
Agriculture	24	\$630,358,618				34,867
Apartment	17	\$1,758,330,055	5,717,305	6,152		
Industrial	54	\$1,248,645,277	25,148,280			
Office - Commercial	15	\$2,449,668,162	5,840,354			
Office - Medical	8	\$146,006,231	733,481			
Retail	25	\$1,740,610,620	3,242,309			
Self Storage	70	\$285,960,052	5,193,130			
Senior Housing	26	\$250,928,228			2,123	
Student Housing	11	\$248,035,800		2,648	8,946	
<b>Total</b>	<b>250</b>	<b>\$8,758,543,043</b>	<b>50,467,049</b>	<b>8,800</b>	<b>11,069</b>	<b>34,867</b>

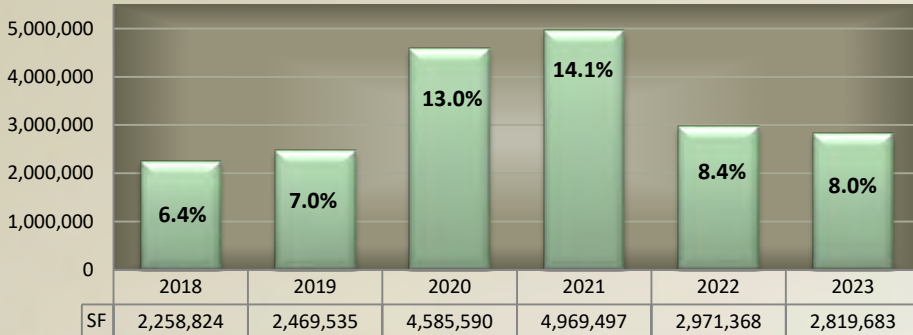
# Operational Metrics

## Portfolio Average Occupancy\*



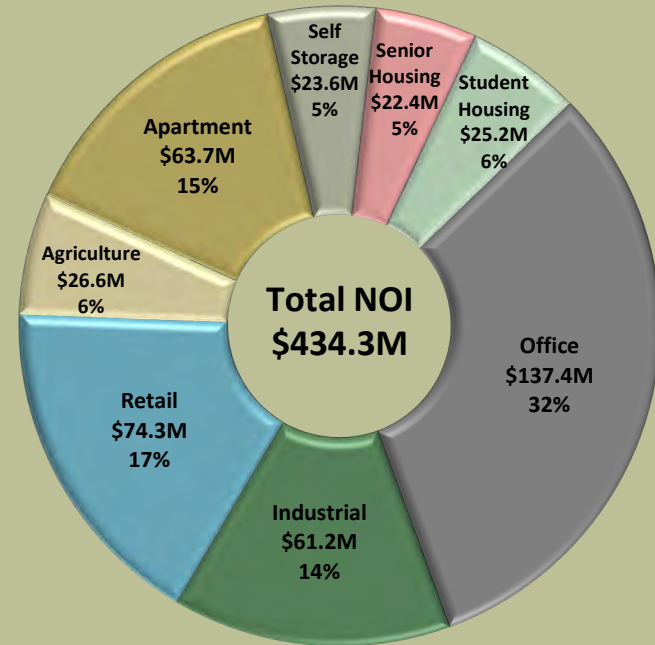
\*Stabilized Investments

## Commercial Lease Expirations



Source: VTS, unaudited

## Net Operating Income\*



\*Stabilized investments held for 12 months ending 12/31/17

# Investment Management

## PRINCIPAL INVESTMENTS

### Active Portfolio Management

- Investment Strategy
- Acquisitions / Dispositions
- Asset Management
- Financing Activity

### Third Party Service Providers

Investment Manager  
Property Management Companies  
Leasing Companies  
Investment Brokers

### Entity Board of Directors

Audit & Tax Program

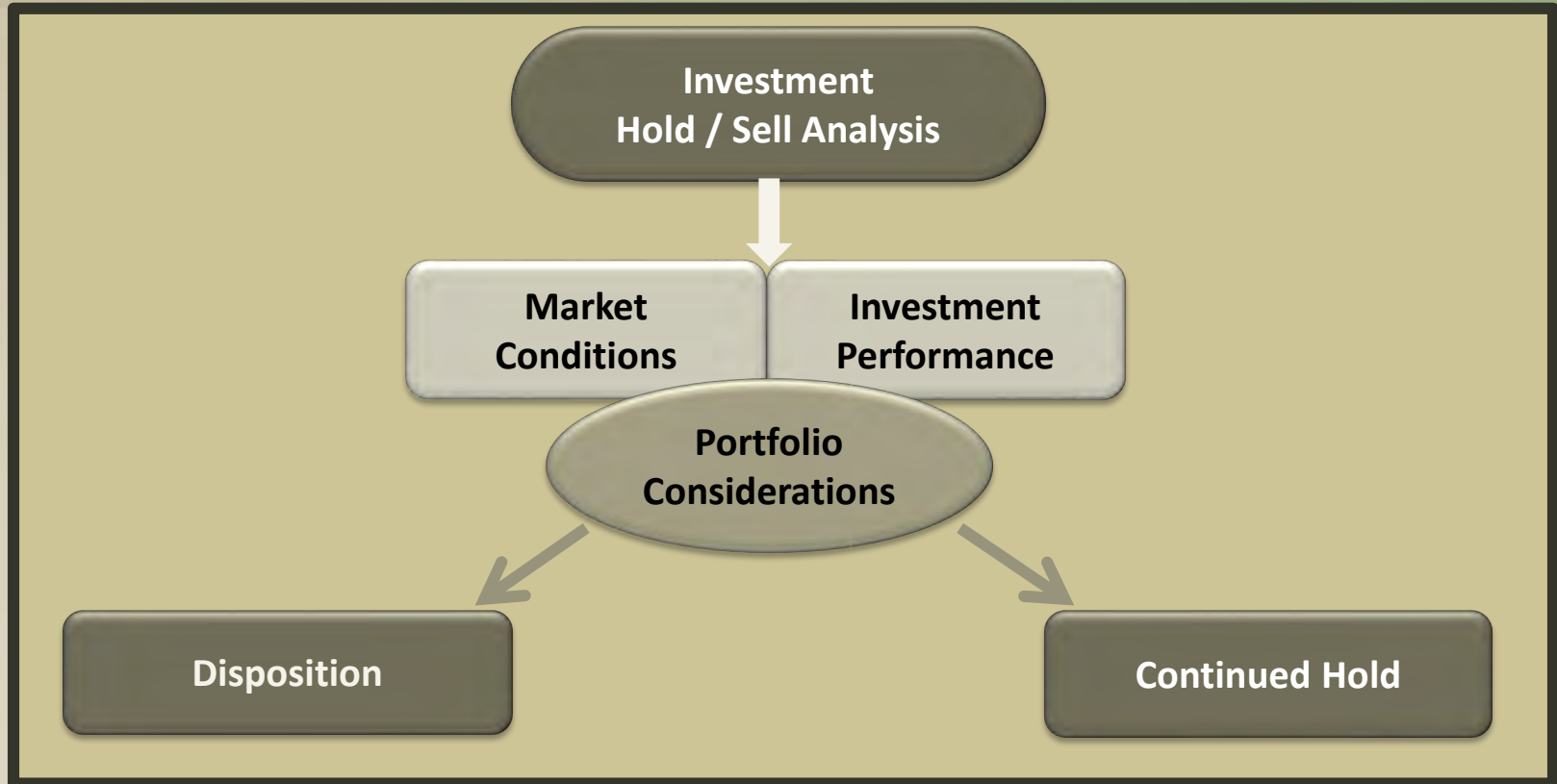
### SBA General Counsel

Legal Matters

### SBA Accounting

Valuation Program

# Strategic Portfolio Refinement



# Apartment



Ft. Lauderdale, FL



Seattle, WA



Arlington, VA

## Property Sub-Types

- Garden
- Mid-Rise
- High-Rise

## Key Considerations

- Urban core districts
- Transit Oriented Location
- Amenity Base
- High Barriers to entry
- Build to core strategy

# Industrial



Rutherford, New Jersey



Miami, FL



Denver, CO

## Property Sub-Types

- Warehouse
- Distribution Center

## Key Considerations

- Location near major population centers and major distribution hubs
- Areas of strong demand driven by e-commerce

# Office

Nashville, TN



New York, NY



## Property Sub Types

- Mid-Rise
- High-Rise

## Key Considerations

- Location (live/work/play) environment
- Physical condition (ceiling height, floor plates, floor plans)

Washington, DC



# Retail

Boston, MA



San Francisco, CA



Memphis, TN

## Property Sub Types

- Urban and High Street Retail
- Lifestyle Center
- Power and Community Centers

## Key Considerations

- Trade Area Demographics
- Metro Area
- Tenant Sales Performance
- Anchor Quality
- Competitive Position
- Supply Constraints

# Student Housing

Orlando, FL



Columbia, MO



East Lansing, MI



## Property Sub Types

- Purpose Built
- Cottage Style

## Key Considerations

- University
- Proximity to Campus
- Vintage
- Amenities

# Senior Housing



Cincinnati, OH



Naples, FL



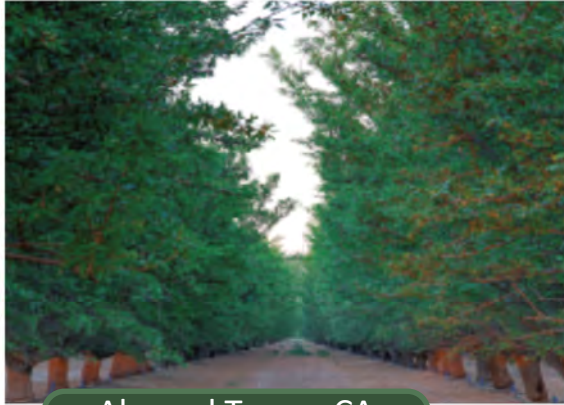
Pittsfield, MA

## Property Sub Types

- Independent Living
- Assisted Living
- Skilled Living

Triple net leased properties

# Agriculture



Almond Trees - CA



Table Grapes - CA



Nectarines - CA

## Property Sub Types

- Permanent Crops
- Row Crops

## Key Considerations

- Commodity Demand
- Location
- Water Supply

# Self Storage



Auburndale, FL



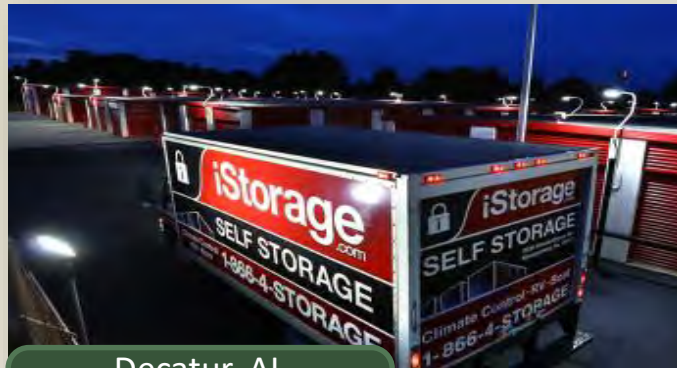
Canton, OH



Smithville, NJ



Sacramento, CA



Decatur, AL

## Key Considerations

- JV Partner Experience
- Property Location
- Surrounding HH Income
- Population Density

# Real Estate Externally Managed Portfolio

Michael Fogliano  
*Senior Portfolio Manager*

# Real Estate Externally Managed Portfolio

## Investment types

- Pooled funds
- REIT separate accounts

## Objectives

- Provide excess returns
- Enhance diversification
- Access to non-core investments

Portfolio make-up: Portfolio value \$5.2 billion, 44 investments, 23 investment managers

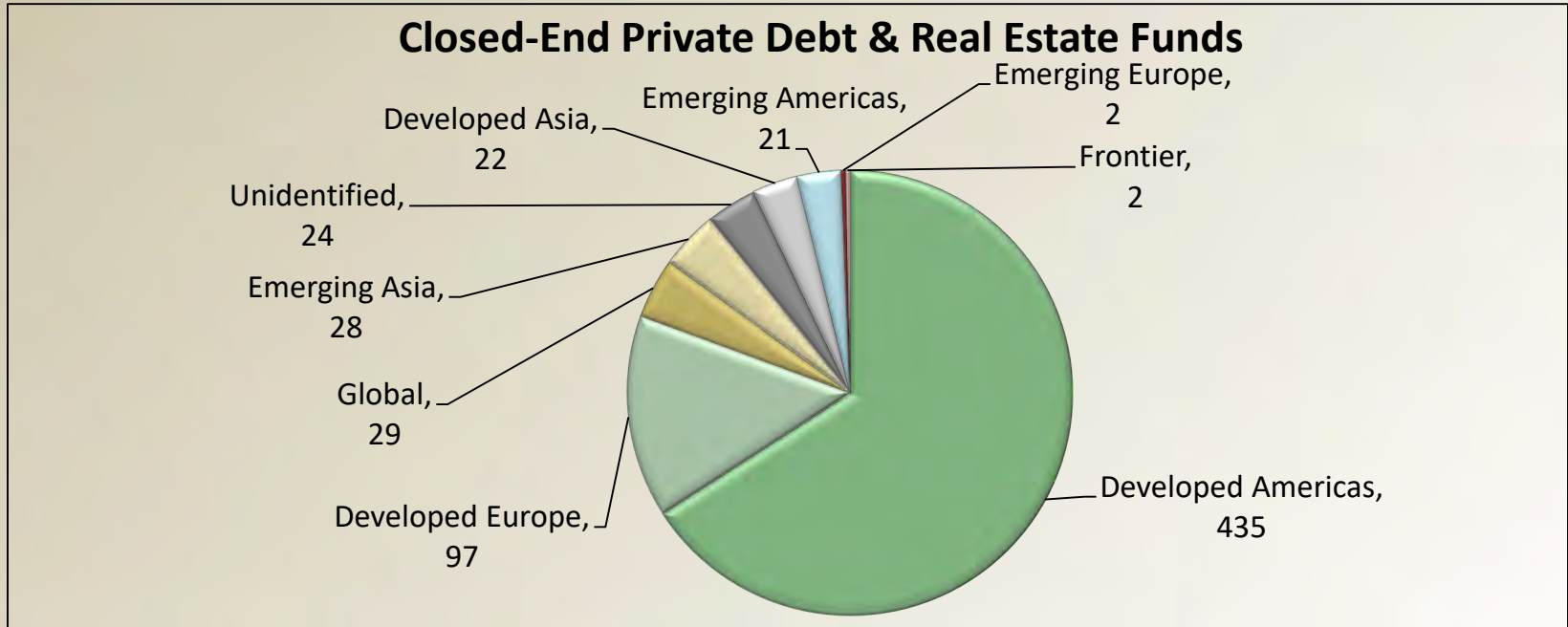
- Open-end funds: \$2.5 billion, 10 investments, 8 investment managers
- Closed-end funds: \$1.2 billion, 30 investments, 15 investment managers
- REITs: \$1.4 billion, 4 investments, 4 investment managers

# Pooled Funds

Open-End Pooled Funds	
Pros	Cons
<ul style="list-style-type: none"><li>• Relatively fast exposure</li><li>• Superior diversification</li><li>• Lower risk (leverage typically does not exceed 30%)</li><li>• Liquidity, subject to investor governance and market conditions</li><li>• Attractive cash returns</li><li>• Improved transparency</li></ul>	<ul style="list-style-type: none"><li>• Little control over execution of strategy</li></ul>
Closed-End Pooled Funds	
Pros	Cons
<ul style="list-style-type: none"><li>• Greatest number of investment strategies</li><li>• Diversification by strategy and manager</li><li>• Alignment of interests</li><li>• Typically target higher returns</li><li>• U.S. and International opportunities</li></ul>	<ul style="list-style-type: none"><li>• Least control</li><li>• Least liquidity</li><li>• Higher fees</li><li>• Little control of execution of strategy</li><li>• Typically experiences J-curve effect early in fund life</li></ul>

# Closed-End Funds

- Over 600 closed-end funds are actively raising capital today



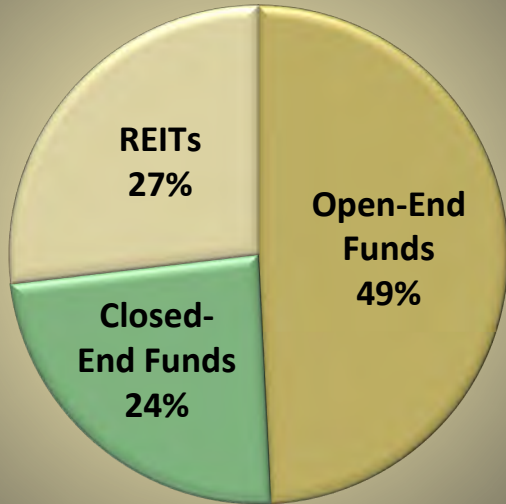
# REITs

A REIT, or Real Estate Investment Trust, is a company that invests in real estate or mortgages. A REIT stock is traded on the exchanges, which allows anyone to gain access to large commercial real estate equity or debt strategies.

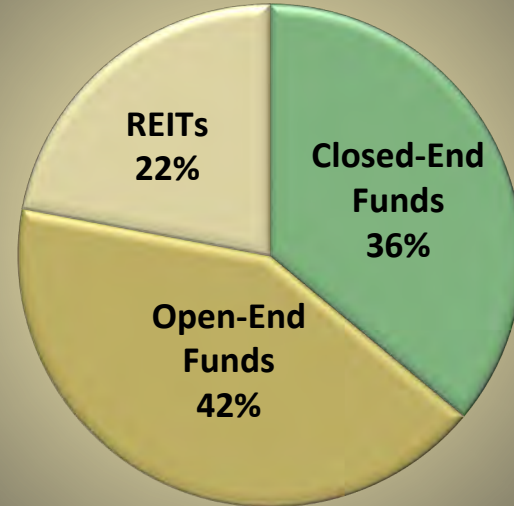
REITs	
Pros	Cons
<ul style="list-style-type: none"><li>• High liquidity</li><li>• High diversification</li><li>• Global exposure</li><li>• Low fees</li><li>• Not perfectly correlated with private real estate</li></ul>	<ul style="list-style-type: none"><li>• More volatile</li><li>• Subject to local currency fluctuations</li></ul>

# Externally Managed Portfolio by Investment Type

NAV \$5.2 B

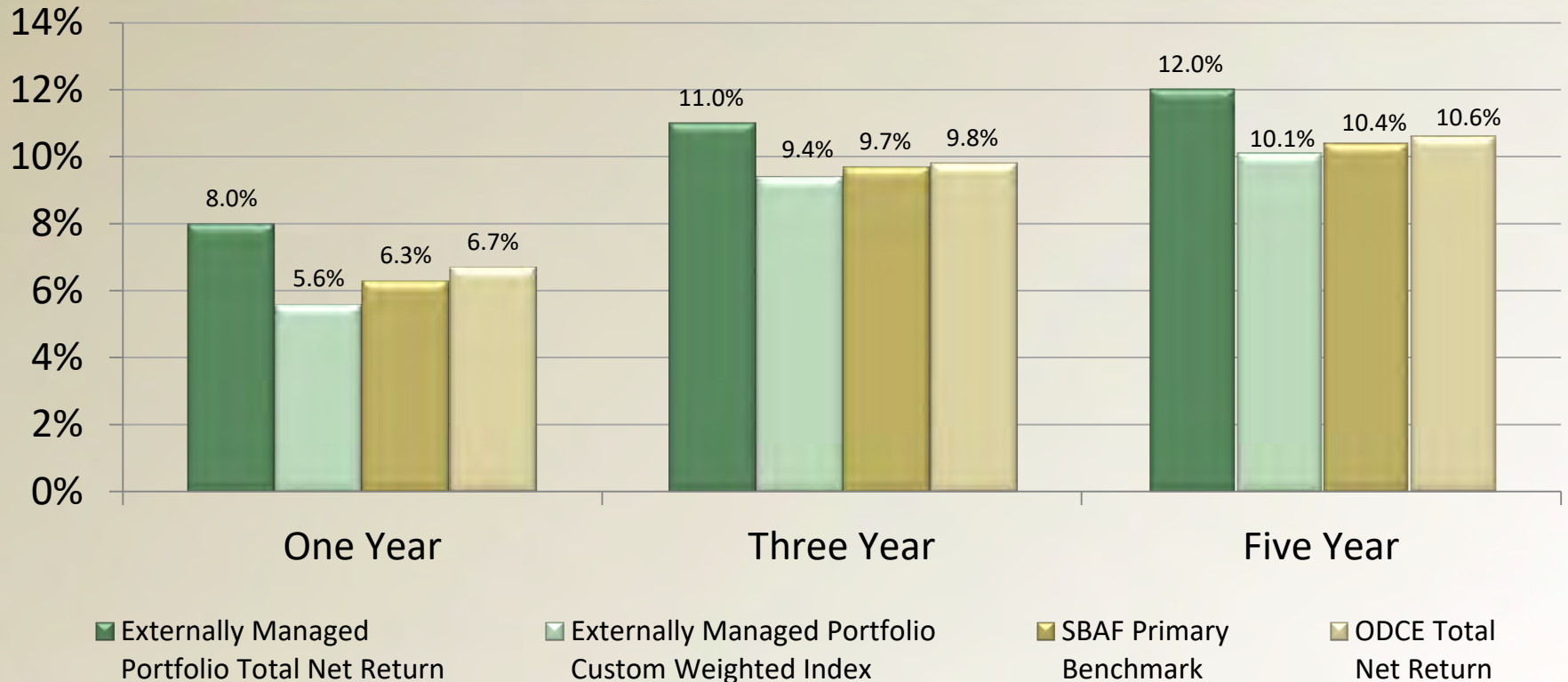


NAV (\$5.2B + Callable Capital (\$1.1B))



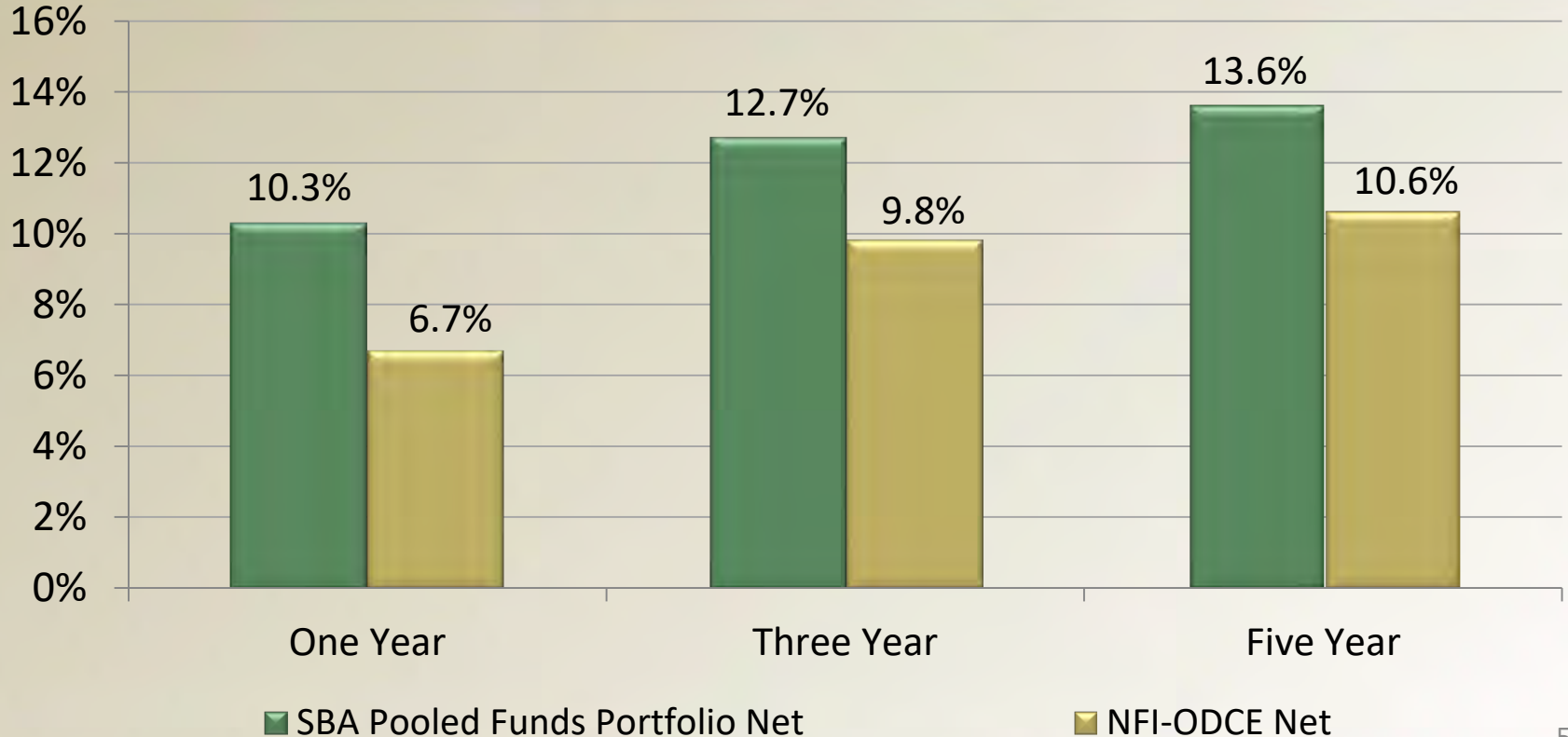
# Externally Managed Portfolio Returns

Data through September 30, 2017



# Externally Managed Pooled Fund Returns

Data through September 30, 2017

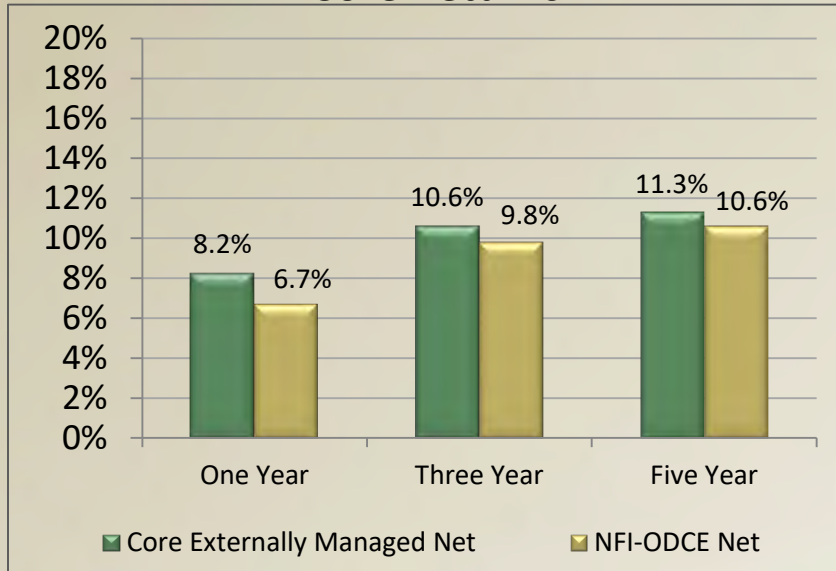


# Externally Managed Pooled Fund Returns

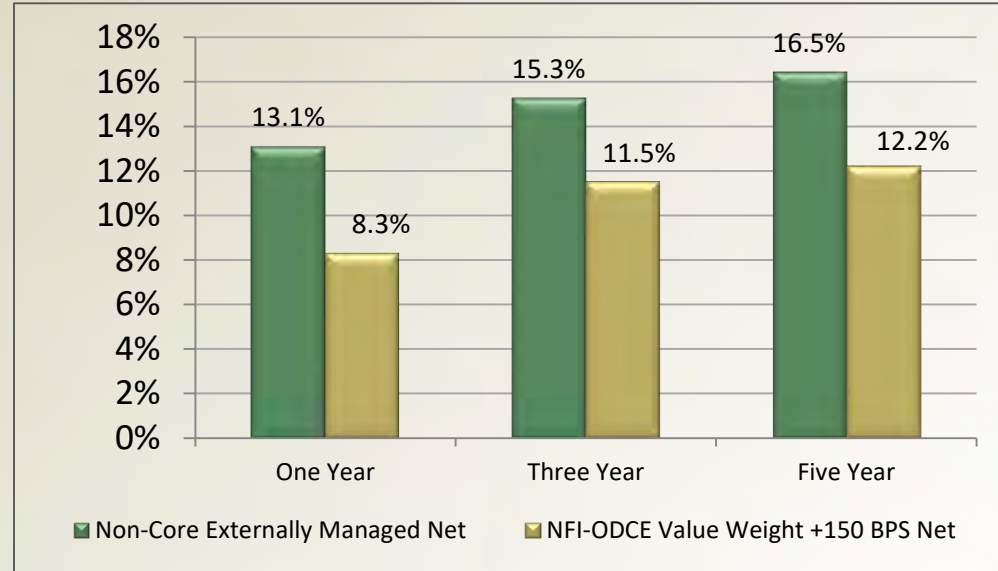
Data through September 30, 2017

## Core vs. Non-Core Performance

### Core Returns

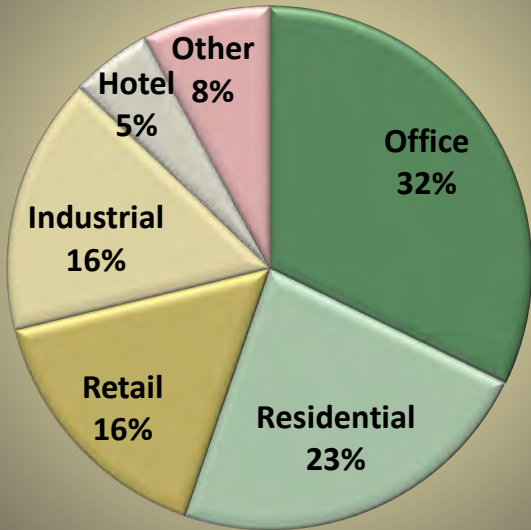


### Non-Core Returns

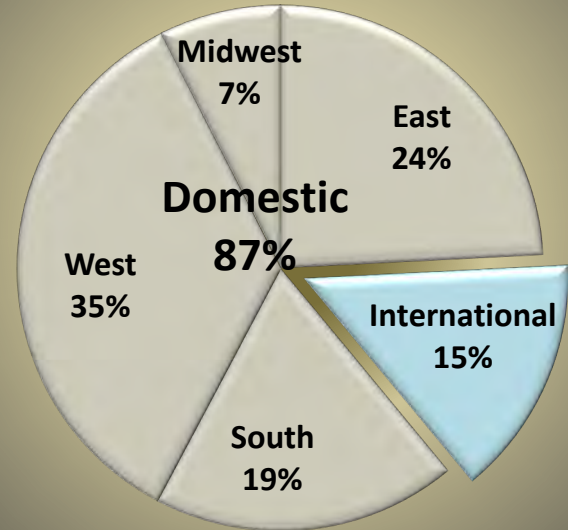


# Pooled Funds

## Pooled Funds by Property Type



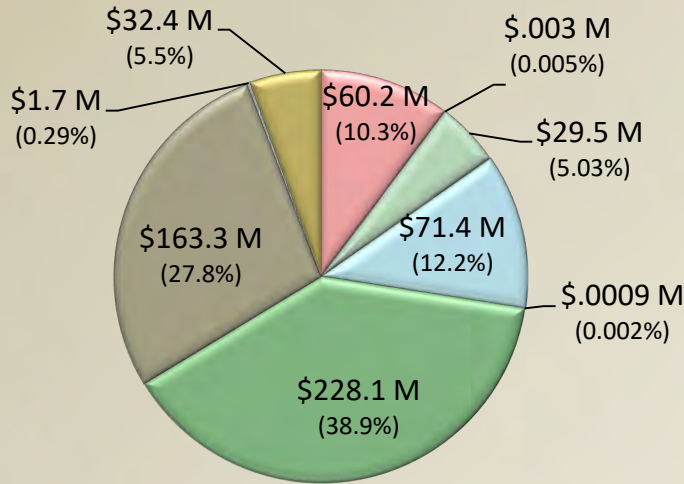
## Pooled Funds by Geography



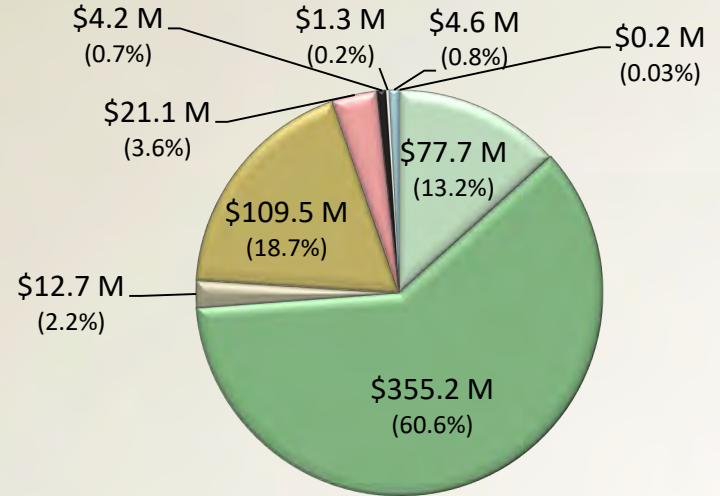
# International Pooled Funds

Data through September 30, 2017

## International Pooled Funds by Property Type



## International Pooled Funds by Geography



- Apartment
- Industrial
- Retail
- Health Care
- Land
- Student Housing
- Hotel
- Office
- Other\*

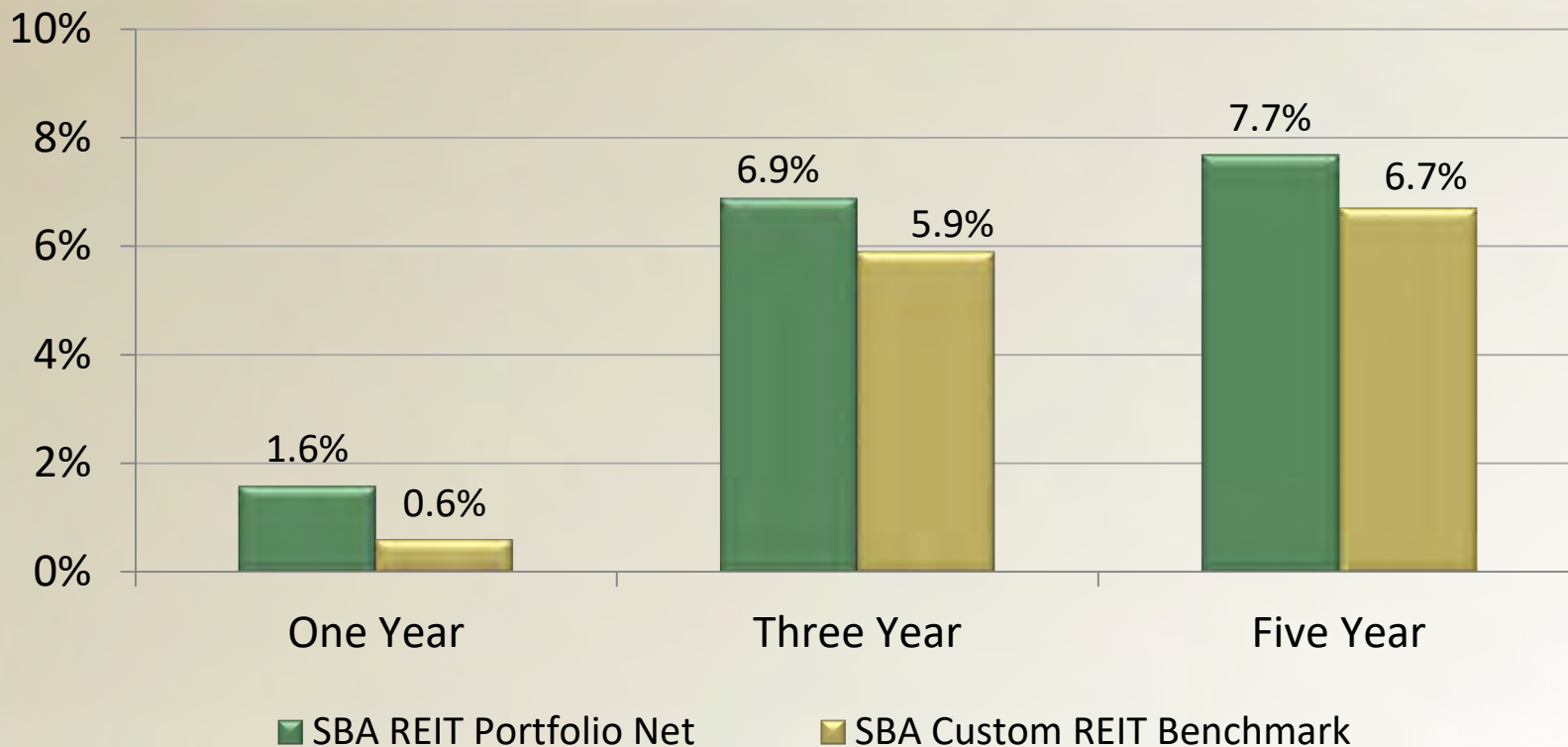
- Developed Americas
- Emerging Americas
- Emerging Middle East
- Developed Asia
- Emerging Asia
- Frontier
- Developed Europe
- Emerging Europe
- Other\*\*

\* "Other" includes property types includes assets such as data centers, entertainment, sale residential, parking, self-storage and senior living .

\*\* "Other" consists of hotel assets in various unspecified locations.

# Externally Managed REIT Returns

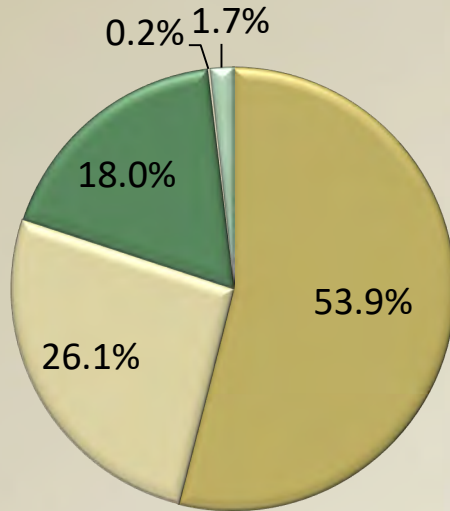
Data through September 30, 2017



# REIT Portfolio

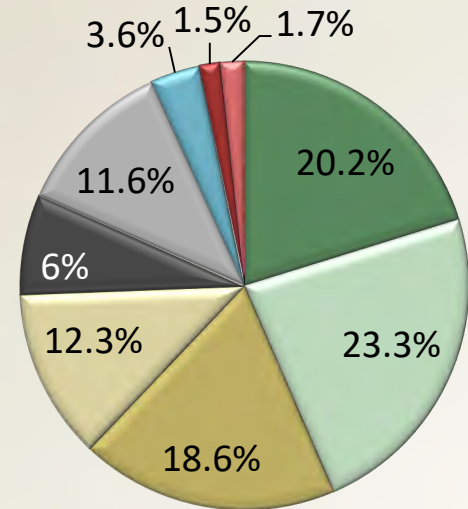
Data through September 30, 2017

## Regional Allocations



- North America
- Asia Pacific
- Europe
- Cash
- Other

## Sector Allocations



- Real Estate Holding & Devel.
- Retail REITs
- Diversified REITs
- Hotel & Lodging REITs
- Cash
- Industrial & Office REITs
- Residential REITs
- Specialty REITs
- Other

# Externally Managed Portfolio

## Portfolio Management

- Determine steps required to tweak portfolio for optimal performance
- Review property type, geographic exposure and risk profile to make appropriate portfolio acquisitions and dispositions
- Invest time and effort in understanding new markets
- Review open-end funds for redemptions, and explore the secondary market when considering disposition of a closed-end fund
- Review other options to enhance portfolio including club deals, co-investments, secondaries, and other related opportunities
- Risk rate select assets

# Externally Managed Portfolio

## Pooled Funds Process

# Pooled Fund Life Cycle

ACQUISITIONS - Source Opportunities	
External	SBAF Staff
<ul style="list-style-type: none"><li>• Real Estate Consultant</li><li>• Placement agents (Industry brokers)</li></ul>	<ul style="list-style-type: none"><li>• Industry contacts</li><li>• Existing partner relationships</li><li>• Industry conferences and roundtables</li></ul>

# Pooled Fund Life Cycle

## ACQUISITIONS - Screen Opportunities

- Starts with a conversation via referral source
- Review offering materials
- Discussions with real estate consultant
- Conference call with manager
- Face-to-face meeting
- If still interested, initiate underwriting

# Pooled Fund Life Cycle

## ACQUISITIONS –Thorough Underwriting Approach

- Engage real estate consultant
- Send the newly created SBAF Supplemental Due Diligence Questionnaire to potential fund manager
- Assess fund strategy to current market conditions
- Review organizational stability and platform
- Review prior fund performance & fund terms
- Assess deal pipeline & seed assets (attempt to visit several seed assets)
- Review Real Estate consultant reports

# Pooled Fund Life Cycle

## ACQUISITIONS –Thorough Underwriting Approach (continued)

- Review background checks on key employees
- Perform reference checks
- Create on-site interview questions for face-to-face meeting with manager;  
(Questions accumulated from all due diligence to that point)
- Assess and measure risks for acceptability and attempt to mitigate

# Pooled Fund Life Cycle

## ACQUISITIONS – Negotiate

- Management and Incentive fees
- Co-investment rights
- Accounting & reporting needs (Accounting DDQ)
- Transfer rights
- Fund restrictions
- Obtain an Advisory Board seat
- Underwriting works with internal and external counsel to vet legal and business issues
- Request manager confirmation of compliance with SBAF's policies & Florida statutes

# Pooled Fund Life Cycle

## INVESTMENT MONITORING

- Review quarterly financials and manager reports
- Compare acquisitions to fund strategy & restrictions/guidelines
- Compare fund performance to fund objectives
- Review fund amendments, extension requests, etc.
- Attend annual investor/advisory board meetings
- Review quarterly reports from Townsend
- Produce internal quarterly reports for enhanced asset & portfolio management

# Pooled Fund Life Cycle

## INVESTMENT MONITORING (continued)

- Quarterly calls with managers
- Frequent calls with Townsend on manager issues, market views and potential new managers
- Quarterly calls with existing managers and potential managers on their market views
- Calls with market research specialists for unbiased market views
- Monitored by External Investment Management Oversight group
- Monitored by Internal Audit



# The State Board of Administration of Florida ("SBAF")

Real Estate Performance Measurement Report

March 2018



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**REAL ESTATE PERFORMANCE**

**MARKET OVERVIEW**

**APPENDIX:**

**DEFINITIONS AND DISCLOSURES**

# Real Estate Performance



# Real Estate Portfolio Highlights and Significant Events

## PORTFOLIO HIGHLIGHTS

- Real estate performance continues to remain strong and outperform the plans benchmark, exceeding the benchmark on a net basis over the five-year period by 190 basis points.
- As of September 30, 2017, on an invested basis, the real estate Portfolio represented 8.8% of total plan assets (\$13.9 billion). This is a slightly lower allocation compared to last year due to asset sales combined with significant growth at the total plan level (denominator effect).
- SBAF received \$911 million in distributions (return “on” capital invested) as of the one-year ending September 30, 2017 as well \$1.2 billion of capital returned from asset sales (return “of” capital invested).

## SIGNIFICANT EVENTS

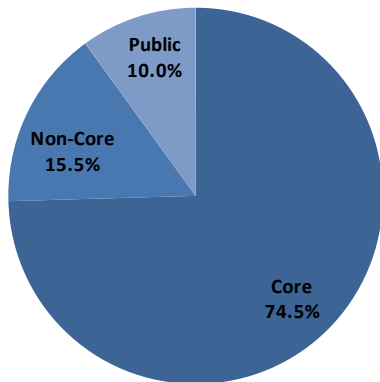
- During 2017, SBAF made approximately \$385 million of Externally Managed fund commitments across the core and non-core sectors; as well as \$150 million in core fund redemptions. Strategies included the following: Demographic driven core and non-core assets, core industrial, diversified non-core assets in the Nordic region, and value-added opportunities in the US.
- During 2017, SBAF made 18 Principal Investment acquisitions requiring approximately \$405 million. This includes eleven office, three retail, three self storage, and one agriculture investment. Additionally, the Principal Investments portfolio sold eleven investments during the calendar year and added additional financing to a large multifamily asset as well as two industrial assets.

# Total Real Estate Composition

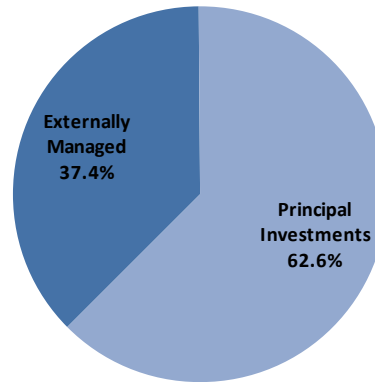
## RISK SECTOR AND CONTROL

- The SBAF real estate portfolio is invested in Core, Non-Core, and REIT investments. The Portfolio is further allocated between Principal Investments and Externally Managed investments.
  - Principal Investments - SBAF staff retains key authorities related to approving acquisitions, dispositions, financing activities and annual business plans.
  - Externally Managed - Investments include those where SBAF has given discretion over these decisions to the investment manager (to include pooled funds and REIT separate accounts).

**Total Portfolio Composition**



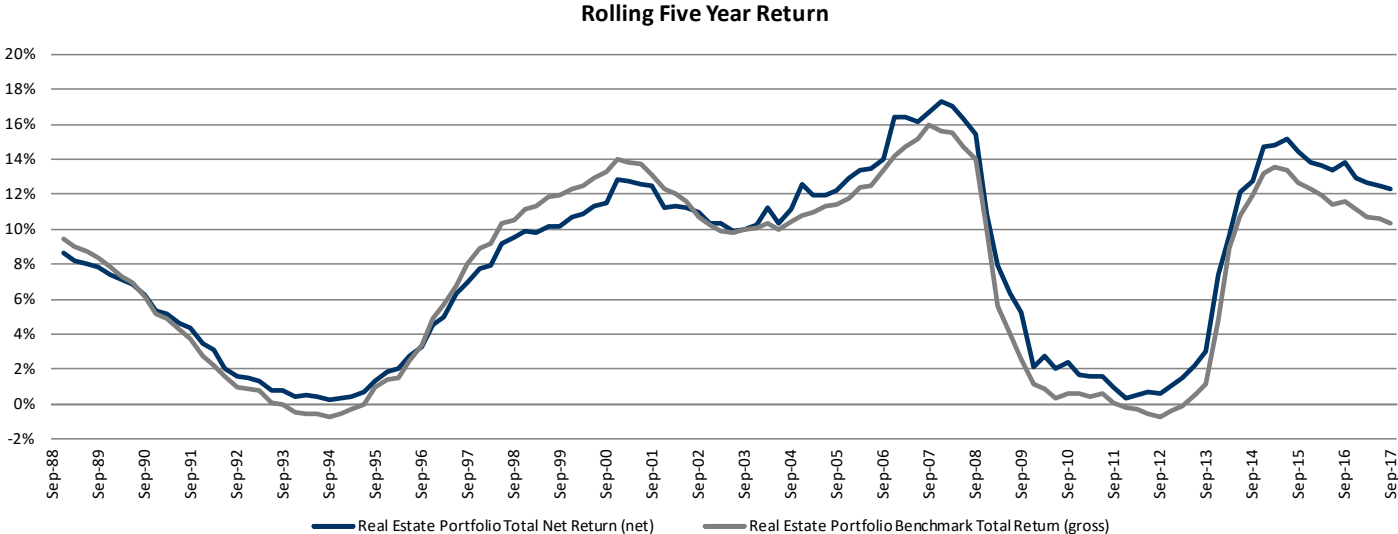
**Total Portfolio Composition**



# Total Real Estate Portfolio Performance

## ROLLING FIVE-YEAR RETURN

- The Real Estate Portfolio’s five-year total return of 12.3% outperformed the benchmark by 190 basis points.
- The Portfolio has consistently outperformed over the five-year measurement period since 2002.
- Additionally, the Real Estate Portfolio exceeded the benchmark by 160 basis points and 140 basis points over the 10 and 15-year periods, respectively.



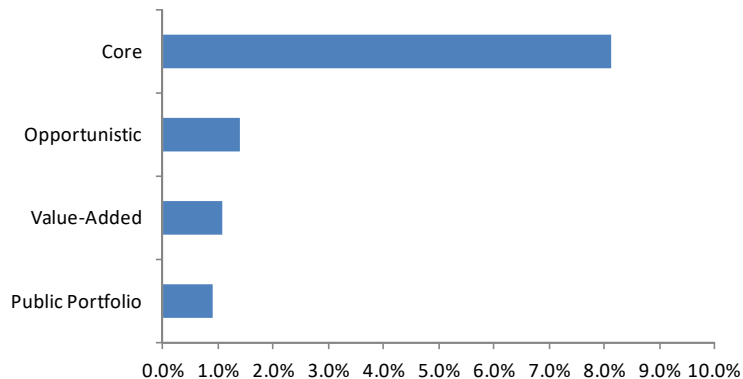
All performance is comprised of manager provided data collected by The Townsend Group as of 9/30/17. Townsend’s views are as of the date of this publication and may be changed or modified at any time and without notice. Past performance is not indicative of future results. Investing involves risk, including loss of principal. See back pages for further disclosure and definitions.

# Total Real Estate Portfolio Performance

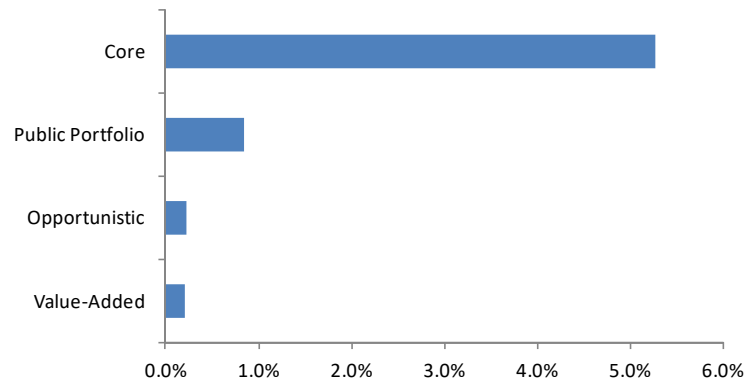
## CONTRIBUTION TO RETURNS

- Portfolio diversification and construction continues to drive outperformance.
- While Public investments have been the smallest contributor to performance over the five-year period, the public portfolio was the second biggest driver of performance over the ten-year period.
- The total portfolio generated net returns over the five and ten-year periods of 12.3% and 6.3%, respectively.
- Core continues to be the driver of performance given size of portfolio and consistent strong returns.

**Portfolio Contribution to 5-Year Net Return\***



**Portfolio Contribution to 10-Year Net Return\***

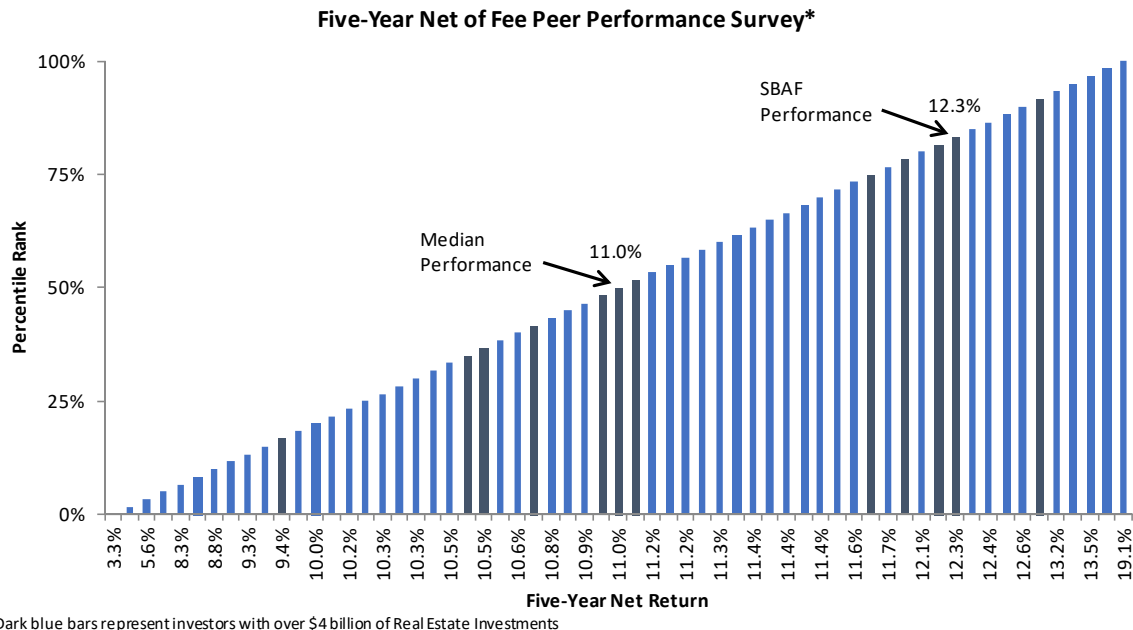


\*Note: performance of each sector adds up to the portfolio's total performance.

# Relative Performance

## PEER COMPARISON

- SBAF's five-year net performance versus its peers (61 institutional real estate investors) ranks in the 83<sup>rd</sup> percentile.
- It is important to note, peer portfolio's will vary by investment strategy, investment type, risk appetite and portfolio inception dates.



All performance is comprised of manager provided data collected by The Townsend Group as of 9/30/17.

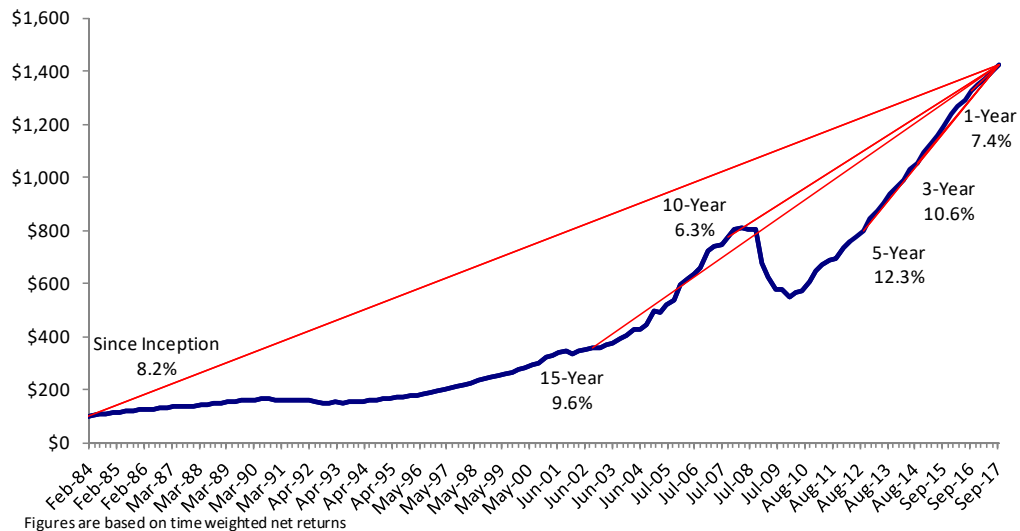
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# Total Real Estate Performance

## GROWTH OVER TIME

- Returns are impacted by the starting point of the measurement period.
- The shorter term excludes the negative performance experienced during the Global Financial Crisis.
- Over the long-term (multiple market cycles), the portfolio continues to generate strong returns.

**Growth of \$100 in the Real Estate Portfolio**



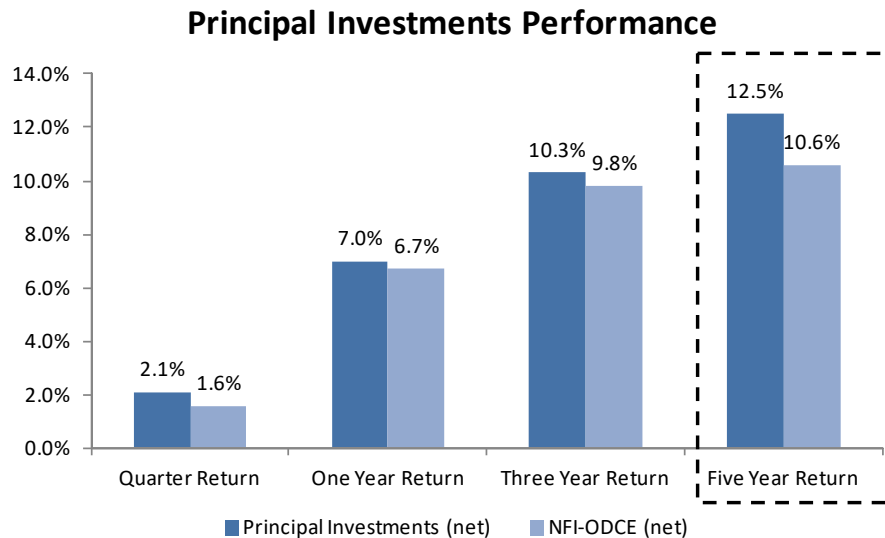
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# Drivers of Performance

## PRINCIPAL INVESTMENTS

- Principal Investments exposure is diversified across Core (94%) and Non-Core investments (6%).
- While performance over shorter time periods can be volatile, the Principal Investments portfolio has consistently outperformed the NFI-ODCE net benchmark over the time periods measured, including the 10 and 15 year periods.



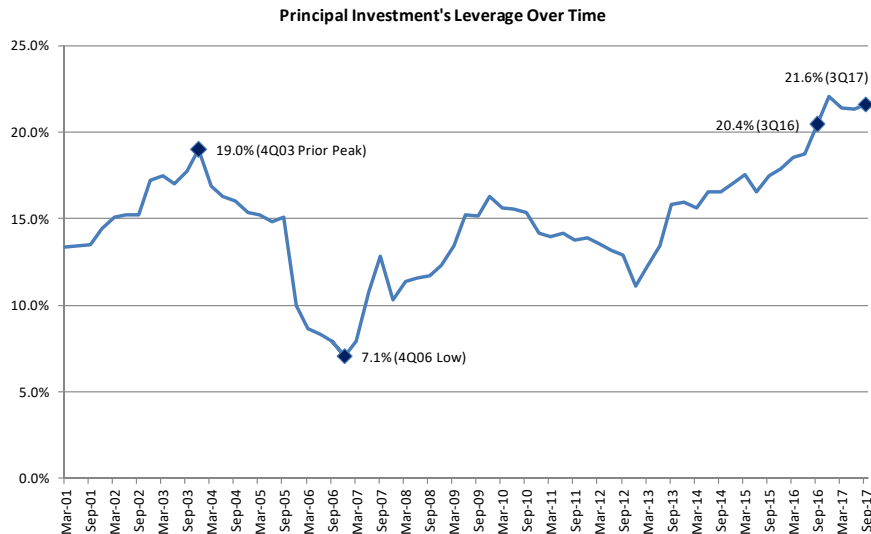
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# Principal Investments

## LEVERAGE PROFILE

- The chart below shows the historical quarterly leverage of the Principal Investments portfolio over the last 16+ years.
- The portfolio's leverage as of 3Q17 is near an all time high of 21.6%, versus the NFI-ODCE benchmark leverage of 21.3%.
- SBAF's leverage has steadily increased since the end of 2012 and increased by 120 bps over the last 12 months while the benchmark leverage has decreased. The sale of levered assets after 1Q17, resulted in a slight decrease in leverage.



All performance is comprised of manager provided data collected by The Townsend Group as of 9/30/17.

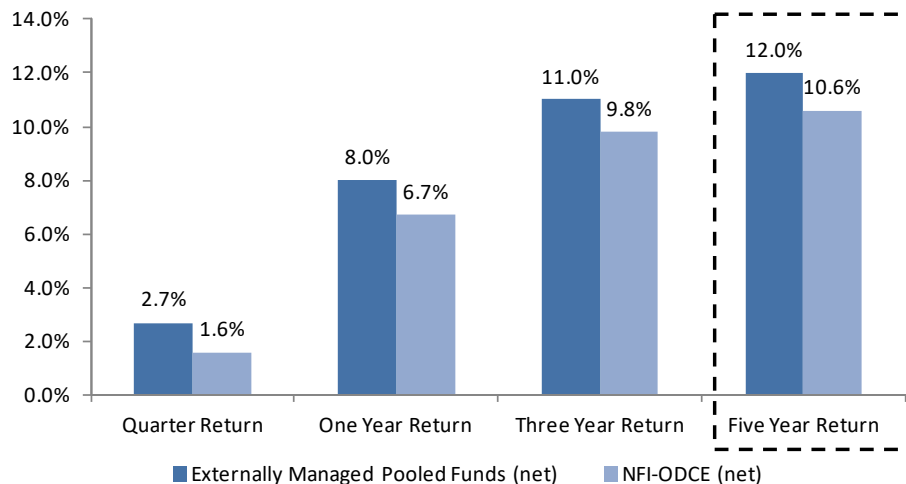
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# Drivers of Performance

## EXTERNALLY MANAGED

- The Externally Managed Pooled Fund and REIT Portfolio outperformed the benchmark on a net of fee basis over all time periods measured below. Performance was broad based but significantly driven by opportunistic investments both in the U.S. and Europe.
- Over the five-year period, the aggregated net return outperformed by 140 basis points.

### Externally Managed Pooled Funds Performance



All performance is comprised of manager provided data collected by The Townsend Group as of 9/30/17.

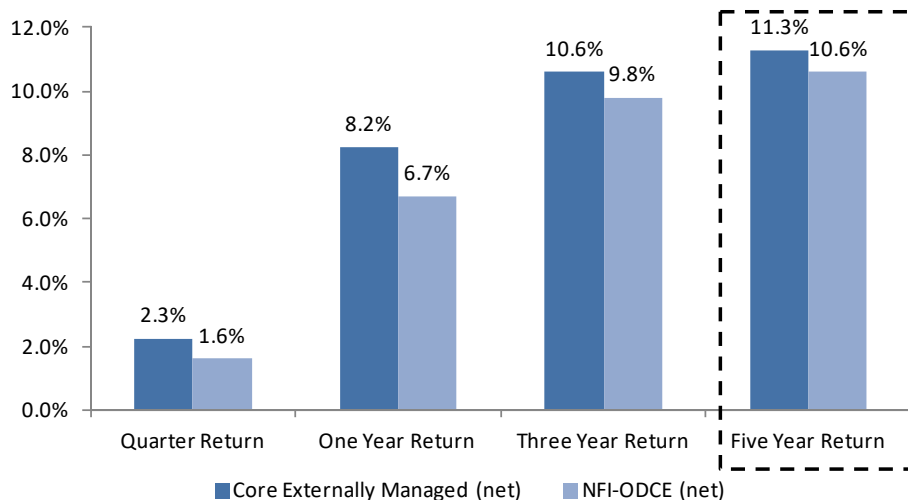
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# Drivers of Performance

## EXTERNALLY MANAGED CORE

- Core investments represent approximately 41% of the Externally Managed portfolio.
- The Core portfolio is invested/committed to eight different open end funds and has exposure to over 1,450 individual assets.
- Recent Core performance has been strong outperforming the NFI-ODCE index over all measured periods below.

### Core Externally Managed Performance



All performance is comprised of manager provided data collected by The Townsend Group as of 9/30/17.

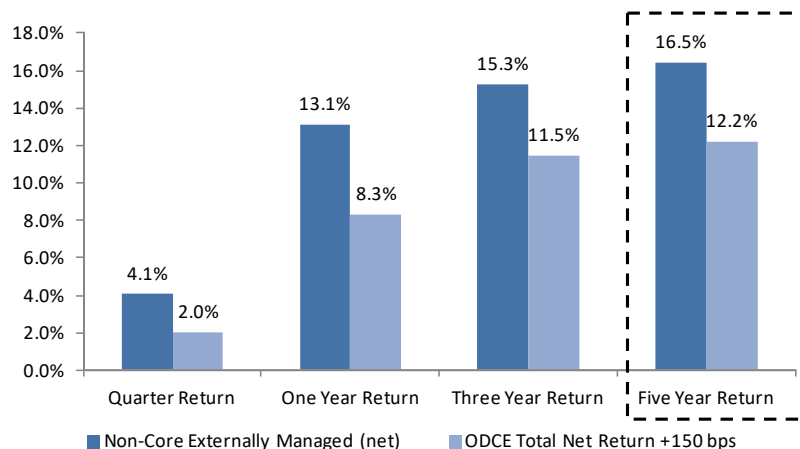
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# Drivers of Performance

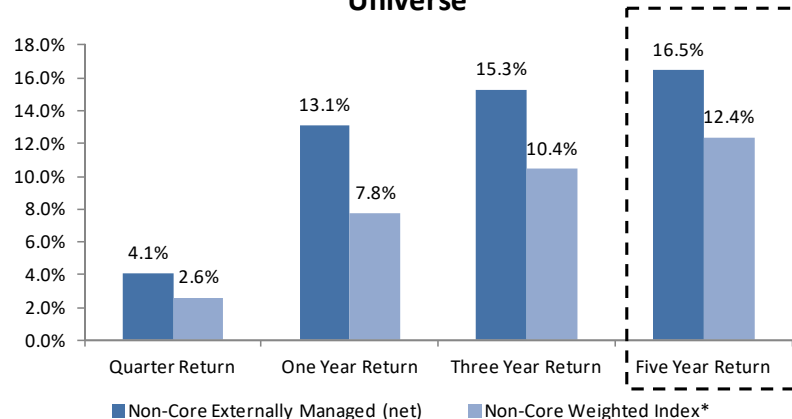
## EXTERNALLY MANAGED NON-CORE

- Non-Core investments represent approximately 32% of the Externally Managed portfolio.
- Recent Non-Core performance has been strong outperforming the NFI-ODCE +150 bps index over all measured periods below.
- For comparison purposes the Non-Core performance is also compared to the investable universe (Weighted Index) and outperforms the relative investment universe.

### Non-Core Performance versus NFI-ODCE



### Non-Core Performance versus Comparative Universe

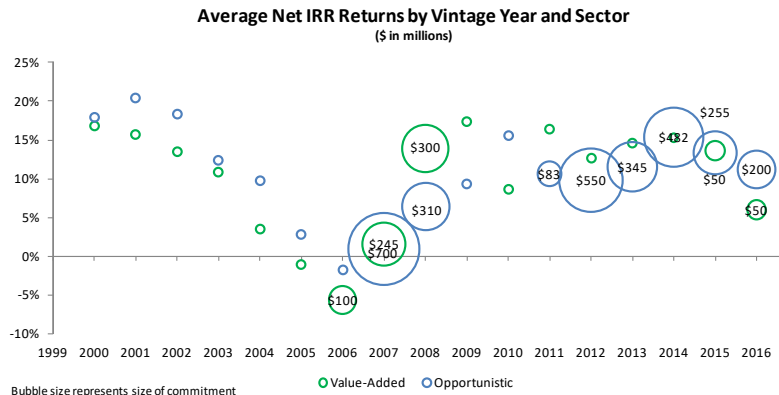


\*Non-Core Weighted Index is a combination of the Townsend Core Plus, Value Added Opportunistic Fund Indices.

# Drivers of Performance

## EXTERNALLY MANAGED – NON-CORE VINTAGE YEAR EXPOSURE

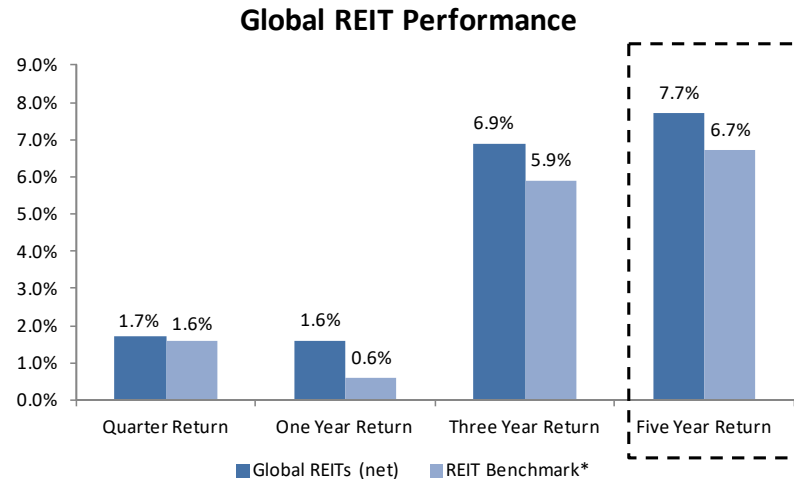
- The chart below represents respective value-added and opportunistic index returns as well as SBAF commingled fund commitments by vintage year.
- When appropriate, Townsend continues to favor a combination of diversified allocator fund investments and operator platforms when building a globally diversified portfolio.
- During 2017, SBAF made three fund commitments targeting demographic driven value-add and opportunistic strategies in the U.S., as well as a Nordic focused opportunistic strategy. New 2017 non-core fund commitments totaling approximately \$235 million are not graphed, as limited, or no performance has been generated to date. Additionally, investments made over the past few years are subject to j-curve and therefore returns are less meaningful.



# Drivers of Performance

## EXTERNALLY MANAGED – GLOBAL PUBLIC REITS

- Global REITs comprise approximately 27% of the Externally Managed portfolio.
- The Global Public Investments portfolio remains volatile; however, the portfolio has outperformed the benchmark over all measured periods below, as well as the 10 and 15 year periods.
- Calendar year-to-date, the Global REIT index has generated a -3.8% total return (as of 2/19/18).



\*EPRA/NAREIT Global Index. Historical benchmark has adjusted with the availability of additional indices and changing portfolio strategy.

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# Real Estate Portfolio Compliance

## POLICY COMPLIANCE

- The real estate portfolio's investment allocation was in compliance as of September 30, 2017.
- The portfolio is well diversified by property type and geography while maintaining compliance compared to the NFI-ODCE index.

### Private Portfolio Diversification / Compliance

Property	Range (ODCE +/- 15%)	Actual Weight
Apartment	9.3% - 39.3%	20.8%
Industrial	0.0% - 28.7%	14.8%
Retail	4.7% - 34.7%	18.7%
Office	23.3% - 53.3%	30.5%
Other	0.0% - 19.0%	15.1%

Geography	Range (ODCE +/- 15%)	Actual Weight
East	16.3% - 46.3%	29.4%
Midwest	0.0% - 24.7%	5.4%
South	4.4% - 34.4%	19.3%
West	24.6% - 54.6%	41.9%
International	0.0%	4.1%

Exposure	Maximum Exposure	Actual Weight
Single Asset	7%	3.7%
Directed-Owned Manager	35%	32.8%
Pooled Funds	10%	4.7%
REIT Manager	10%	2.6%
Leverage	40%	28.2%

Portfolio Compliance	Target	Range	Exposure	Compliance
Private Investments	90%	85-95%	90%	Yes
Core Investments	85%	70-100%	83%	Yes
Non-Core Investments	15%	0-30%	17%	Yes
Value-Added Investments			8%	
Opportunistic Investments			9%	
Public Investments	10%	5-15%	10%	Yes

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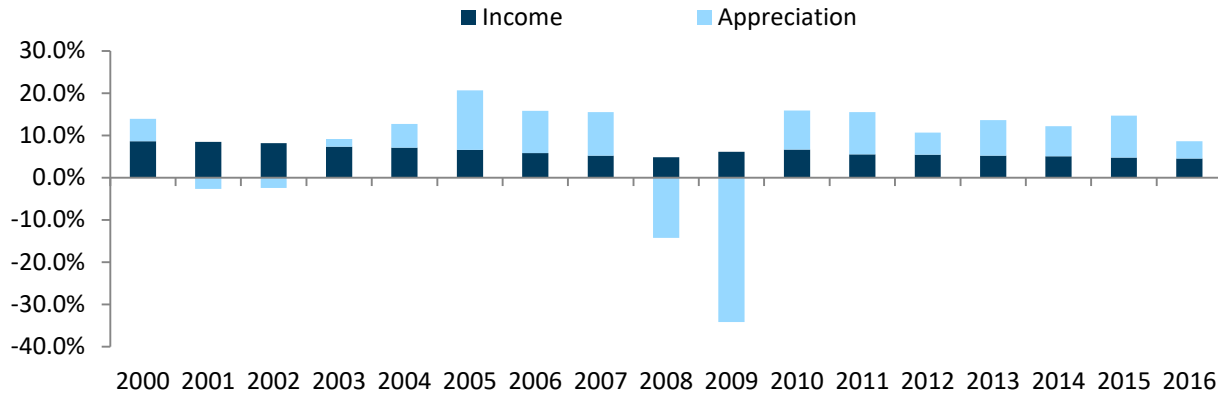
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# Market Overview

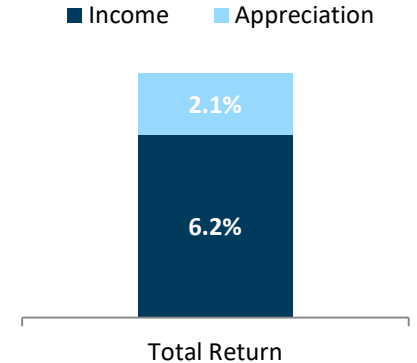


# Moderating Returns

**Core Real Estate Gross Annual Return**

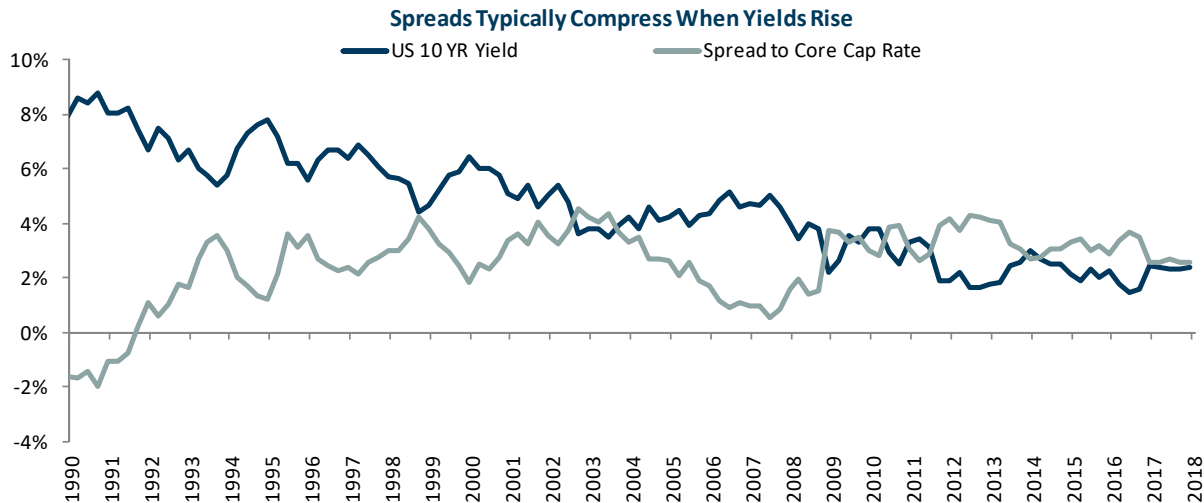


**Core Real Estate Return Since 2000**



- High quality real estate income generation has been resilient, even during the toughest of economic times
- Over the period 2000 – 2016, approximately 70% of the total return generation of high-quality core real estate has been through income

## As Rates Rise, Investors Prefer Real Estate Due To Income Growth Potential



- Real estate investments offer attractive characteristics in a period of rising interest rates:
  - Ability to benefit from inflation by growing rents unlike other fixed income investments
  - Current income generation that offers downside support to valuations
  - Strong diversification to listed equities, a feature highly desirable during a period of overall valuation uncertainty when rates rise
  - Potential to invest in sectors like senior housing, student housing and self-storage that offer returns with low correlation to broader economy, an attractive quality over a period when rising rates may introduce economic growth uncertainty

Source: NCREIF, September 30, 2017. Townsend's views are as of the date of this publication and may be changed or modified at any time and without notice.

Past performance is not indicative of future results. As with any real estate investment, there are various risks including, but not limited to, unfavorable market conditions, loss of principal and limited liquidity. 20

# Global Economic Outlook and Real Estate Investment Opportunities



Macro Factors	U.S.	Europe	China	Japan
GDP ('18)	2.7%	2.3% (U.K. 1.5%, DE 2.4%, FR 2.1%)	6.5%	1.3%
Unemployment ('18)	3.9%	8.4% (U.K. 4.3%, DE 5.4%, FR 9.1%)	4.0%	2.7%
Key Real Estate Themes	<p>Fundamentals diverge significantly across sectors and submarkets</p> <p>Core offers good income and protection against a potential slowdown</p> <p>Non-Core selectively mispriced</p>	<p>Yields typically higher than in the U.S., but lower growth</p> <p>Repositioning opportunities attractive</p> <p>Low debt cost offers good leverage, without adding much risk</p>	<p>Slowing growth raising over supply risks, but continued strong urbanization</p> <p>Focus on Tier I and II cities</p> <p>Leverage preferred equity/mezz structure to lower risk</p>	<p>Low growth despite easing</p> <p>Existing stock old, provides attractive repositioning opportunities</p> <p>Low debt cost offers good leverage, without adding much risk</p>
Office	<p>Select markets offer good rent growth, energy market have begun recovering while tech markets may be peaking</p> <p>Repositioning and high income producing investments likely to outperform low cap rate opportunities</p>	<p>Recovery in continental Europe providing modest rent tailwind; attractive income generation potential</p> <p>In the UK, Brexit related demand slowdown and significant new supply to limit returns</p>	<p>High supply, credit risk, and slowing economy could lead to pockets of oversupply</p> <p>Prefer asset repositioning opportunities at attractive basis</p>	<p>Modestly rising rent growth outlook</p> <p>Old stock in good locations in Tokyo/ Osaka offers attractive upgrading opportunities</p>
Industrial	<p>E-commerce and imports driving demand at record high level</p> <p>Supply rising in hotbeds, requiring focus on quality assets in neglected markets</p>	<p>Strong demand from logistic players and e-commerce</p> <p>Stable fundamentals offer attractive cash returns boosted by low-cost debt</p>	<p>Strong demand for industrial properties conforming to modern standards</p> <p>Limited deal flow due to delay in land availability</p>	<p>Strong demand for modern logistics assets driven by 3PLs</p> <p>Supply building in town peripheries that is likely to limit rent growth</p>
Retail	<p>E-commerce reshaping landscape leading to shrinkage in per capita space</p> <p>Neighborhood retail presents interesting side play</p>	<p>E-commerce driven reshaping will put retail at risk</p>	<p>Shift to consumer economy leading to strong demand for productive sites</p> <p>Oversupply in central locations, but non-core locations still undersupplied</p>	<p>Select repositioning opportunities attractive given poor existing asset quality</p> <p>E-commerce likely to be a headwind</p>
Residential	<p>Rent affordability remains stretched in higher-end apartments; supply glut is being worked through</p> <p>Refurbishing Class B attractive, prefer debt oriented entry point</p>	<p>Most large cities under supplied with dwellings, but still limited opportunities</p> <p>Select condo conversion and repositioning plays attractive</p>	<p>Urbanization trend driving strong demand albeit very volatile</p> <p>Prefer preferred equity/mezz structures to contain risk</p>	<p>Attractive residential development opportunities in high-growth cities like Tokyo and Osaka</p> <p>Secular demand growth for aged care</p>

Actively Pursuing
  Neutral
  Selectively Pursuing

Source: The Townsend Group, Consensus Estimates- Bloomberg (February 2018)

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## Definitions and Disclosures



# Definitions

## THE NCREIF PROPERTY INDEX (NPI)

The NCREIF Property Index represents data collected from the Data Contributing Members of the National Council of Real Estate Investment Fiduciaries (NCREIF). The NPI is an unlevered domestic index, gross of fees, that aggregates the returns privately owned institutional investment properties. All properties have been acquired, at least in part, on behalf of tax-exempt institutions and held in a fiduciary environment. The properties are wholly owned and joint venture investments consisting of operating properties only – no development projects. It is not possible for investors to invest in or duplicate the NPI.

## NFI-ODCE

The NFI-ODCE, like the NCREIF Property Index and other stock and bond indices, is a capitalization-weighted index based on each funds Net Invested Capital. The NFI-ODCE is a gross or net of fee time-weighted return index consisting of Open-end Core Funds. Open-end Funds are defined as infinite-life vehicles consisting of multiple investors who have the ability to enter or exit the fund on a periodic basis, subject to contribution and/or redemption requests, thereby providing a degree of potential investment liquidity.

## THE NCREIF FARMLAND PROPERTY INDEX (NFI)

The NCREIF Farmland Property Index represents data collected from the Data Contributing Members of the National Council of Real Estate Investment Fiduciaries (NCREIF). The NFI is an unlevered domestic index, gross of fees, that aggregates the returns of privately owned institutional investment properties. All properties have been acquired, at least in part, on behalf of tax-exempt institutions and held in a fiduciary environment. The properties are wholly owned and joint venture investments consisting of Agricultural properties only. Note that the NFI is not an investable or duplicable universe. Also, the NFI may not fully illustrate the performance of the institutional property universe.

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There can be no assurance that any account will achieve results comparable to those presented. Past performance is not indicative of future results.

# Global Equity Update

*Alison Romano, Senior Investment Officer*

*Tim Taylor, Senior Investment Officer*

Investment Advisory Council

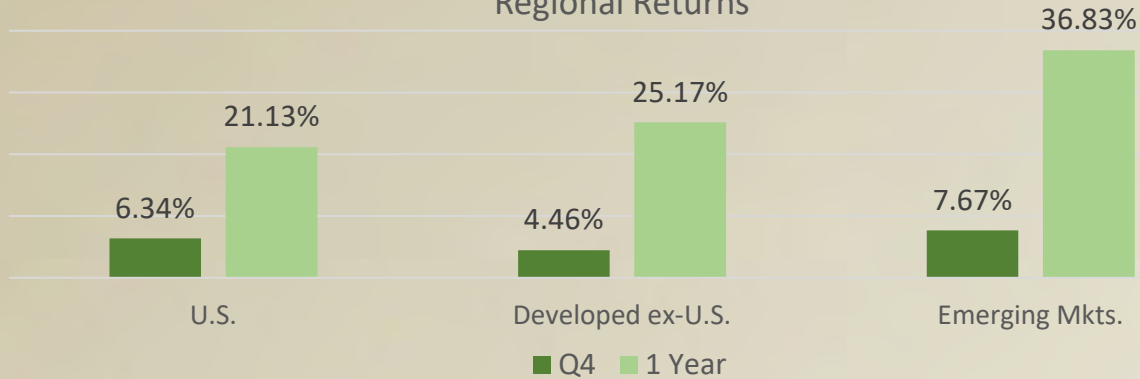
March 19, 2018



# 2017: Persistent and Broad Rise in Equity Markets

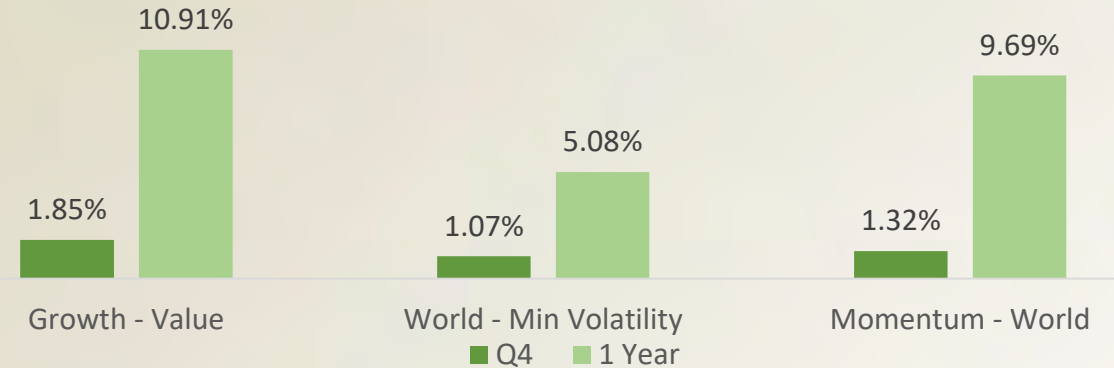
## Strong Equity Markets across Regions

Regional Returns



## Growth, Momentum and Risk Remain in Favor

World Return Spreads



## Cyclicals and Secular Growth Lead Markets

ACWI IMI Returns by Sector

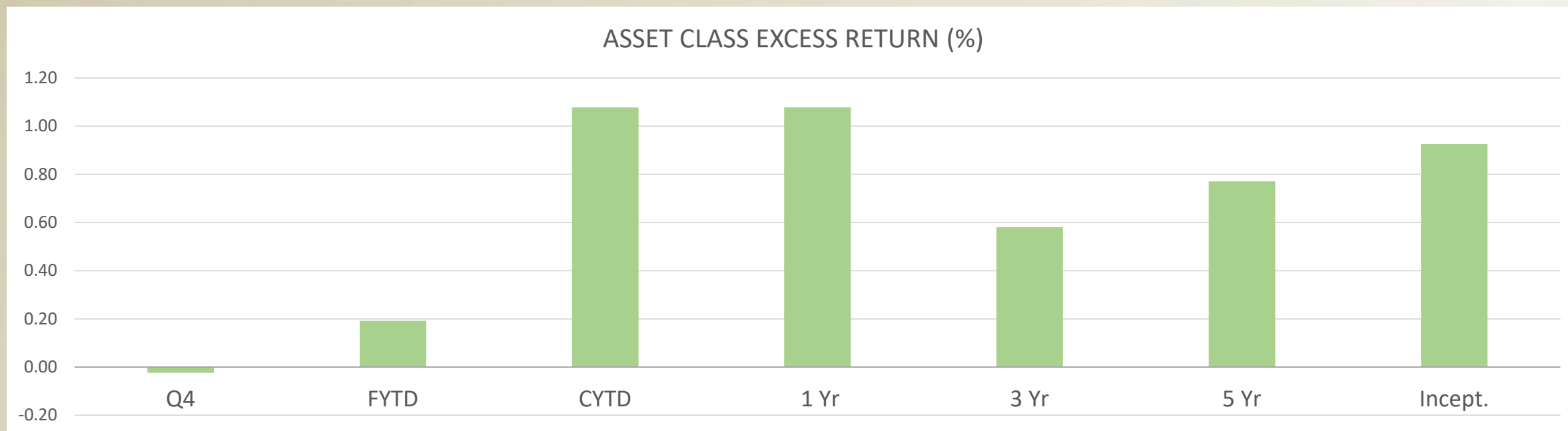


## 2017 Global Market Dynamics

- 2017 saw strong equity markets, solid corporate earnings growth and positive economic data. Expectations for economic growth were and continue to be broad-based.
- The IT sector was particularly strong, with optimism over global consumer demand helping bolster returns for the megacap internet names.
- Good earnings and tax reforms supported continued strength in US Equities.
- Non-US Equity market returns were boosted by weakness in the US Dollar.
  - European cyclicals performed well at year end on improving economic growth.
  - GDP growth in Japan accelerated in 2Q and 3Q, which helped drive an improved outlook and 4Q equity returns that led the developed markets.
- Emerging markets delivered its highest annual return since 2009, outpacing developed non-US markets by almost 9%.

# Aggregate Performance Summary

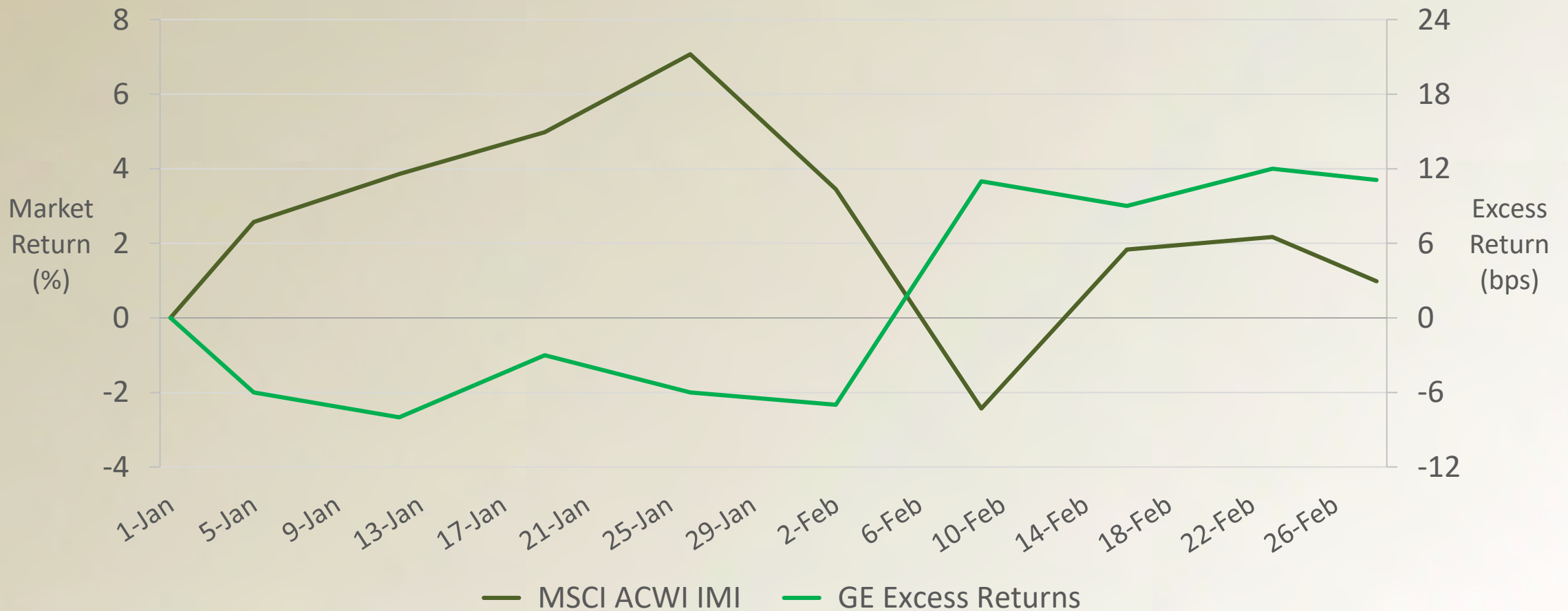
	4Q17	FYTD	CYTD	1 Yr	3 Yr	5 Yr	Incept.
<b>Total Asset Class Return</b>	5.70	11.53	25.07	25.07	10.13	11.84	12.38
<b>Benchmark</b>	5.72	11.33	24.00	24.00	9.54	11.07	11.46
<b>Excess Return</b>	-0.02	0.19	1.08	1.08	0.58	0.77	0.93
<b>Tracking Error</b>					0.54	0.50	0.51
<b>Return / Risk (IR)</b>					0.93	1.35	1.58



Note: All returns through 12/29/2017. Inception 7/1/10. Benchmark is Custom Iran Sudan Free ACWI IMI Index.

# Cumulative Performance: YTD 2018

## Cumulative Market vs. Total Asset Class Excess Returns



Note: Preliminary performance YTD 2018 through February 28, 2018.

# Active Strategy Performance Summary

Active Strategy Group	Excess Returns by Aggregate					What Happened in 2017
	Weight (% of Asset Class)	4Q 2017	1 Year	3 Year	5 Year	2017 Performance Drivers
Foreign Developed Large Cap	21%	0.39%	5.11%	2.10%	1.78%	Strong stock selection supported by momentum and growth tailwinds as well as exposure to Chinese Internet names
Emerging Markets	11%	-1.32%	-2.52%	-0.41%	0.11%	Hurt by underweight to Chinese Internet names and by cash exposure in a market that was up 37%
Dedicated Global	8%	-0.63%	0.17%	0.00%	0.19%	Growth managers took advantage of markets led by momentum and growth. Defensive managers with exposure to dividend yield and value detracted
Foreign Developed Small Cap	5%	-0.52%	0.92%	-0.23%	0.18%	Positive stock selection supported by momentum tailwinds, British Pound exposure and real estate underweight
US Large Cap	5%	1.35%	0.64%	-1.29%	-0.42%	Performance driven by beta and momentum tailwinds
Currency	5%	-0.30%	-1.32%	0.26%	--	Aggregate long USD positioning drove underperformance, with the Euro's strength against the Dollar the most significant detractor
US Small Cap	2%	-0.06%	-0.99%	-1.19%	-0.94%	Hurt by larger size tilt and stock selection challenges within healthcare and consumer discretionary
<b>Total Active Aggregate</b>	<b>53%</b>	<b>-0.17%</b>	<b>1.57%</b>	<b>0.41%</b>	<b>0.65%</b>	<b>Positive stock selection supported by momentum tailwinds</b>

Note: All returns through 12/29/2017. 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

- Implementing aggregate structure enhancements
  - Completed Foreign Developed Value search. Hired 2 managers
  - Completed funding for 2 US Small cap managers
  - Increased funding to internal factor index strategy
  - Researching opportunities for additional internally managed strategies
- Continuing to negotiate fee concessions on select strategies
- Upgrading Trade Order Management system

## Provide Liquidity

- Raised \$7.1 Billion in 2017 to support beneficiary payments as well as asset allocation resulting from equity market strength

State Board of Administration

# Fixed Income Update

Katy Wojciechowski

Senior Investment Officer Fixed Income

Investment Advisory Council

March 19, 2018

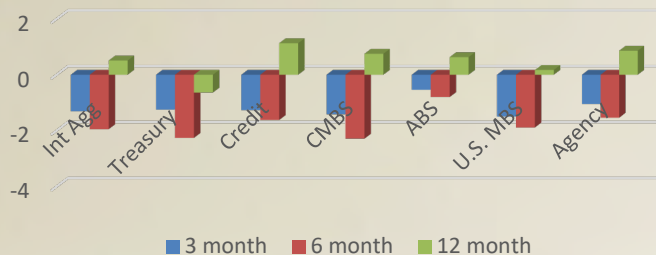


# Fixed Income Review and Outlook

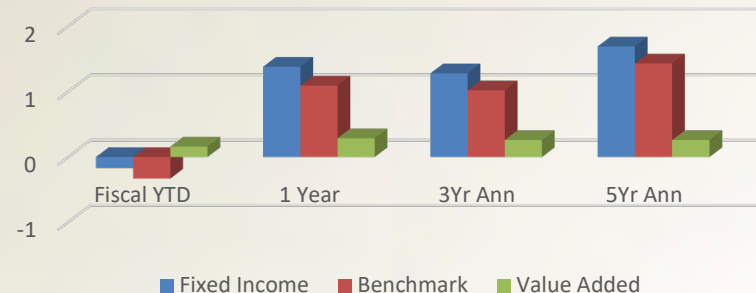
## March 2018

- 12 Month Returns for the Fixed Income benchmark – Barclays Intermediate Aggregate through 2/28/2018 were 0.51%.
  - Annual Returns were slightly positive– with positive contributions from all spread sectors, especially credit, agency debt and CMBS.
  - Treasury yields rose during the period– 2.406 at the end of December to 2.86 on the 10 Year Treasury at 2/28. Yield on the entire Benchmark is only 3.01% with a 4.68yr duration

Fixed Income Benchmark Returns  
2/28/2018



Fixed Income Asset Class Returns  
1/31/2018



# Fixed Income Review

## March 2018

Incremental yield for Credit widened slightly as the reach for yield continued and global QE generally continues

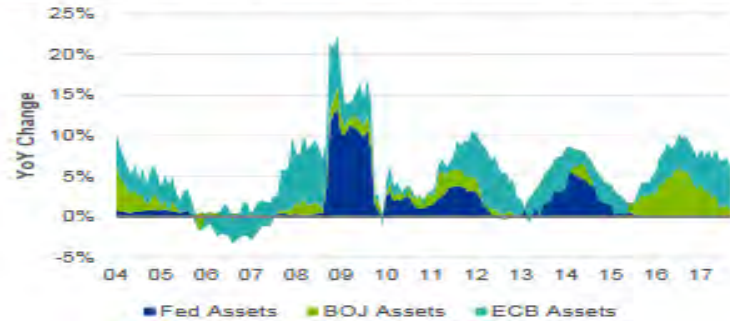


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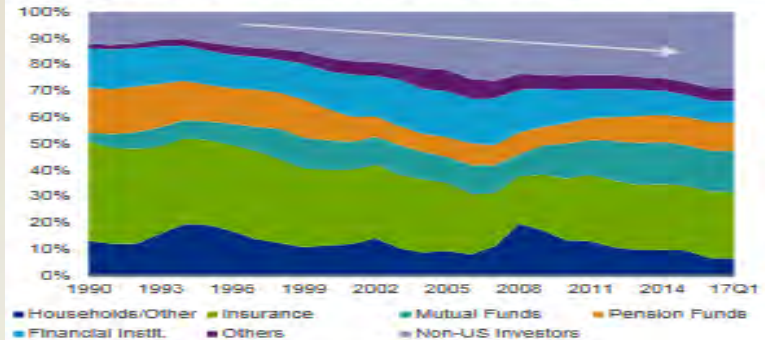
1

Source: Barclays Live - Char

Global liquidity grew \$13.8tr from 2008 to 2017; the Fed led major CBs that provided \$9.7tr (70%)<sup>2</sup>



Foreign buyers are likely to continue to be a steady force in the global search for yield<sup>2</sup>



# Fixed Income Review and Outlook

## March 2018

### Annualized Total Risk



### Annualized Active Risk



# 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*
- 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*
  - *Advancing discussions regarding several new strategies*

# State Board of Administration

## Private Equity Asset Class Update

John Bradley, SIO Strategic Investments & Private Equity

Investment Advisory Council

March 19, 2018

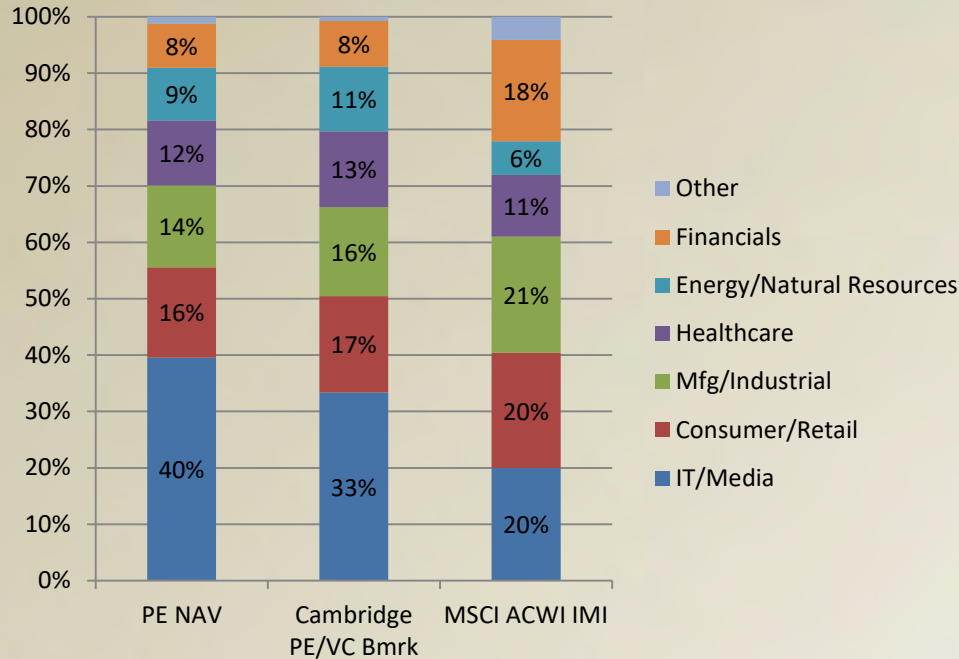


# Market/Portfolio Update

- Market/Portfolio Update:
  - Market
    - 2017 was a strong year for fundraising globally
    - Purchase price multiples continue to rise in aggregate: led by large buyout, middle market saw a slight decrease
    - Leverage multiples up slightly and equity contributions at record levels
  - Portfolio
    - 2017 net cash flow: \$706 million
    - Strong 1yr performance from buyout, distressed and secondary strategies. Venture and growth strategies lagged

# Sector Exposure

As of September 30, 2017

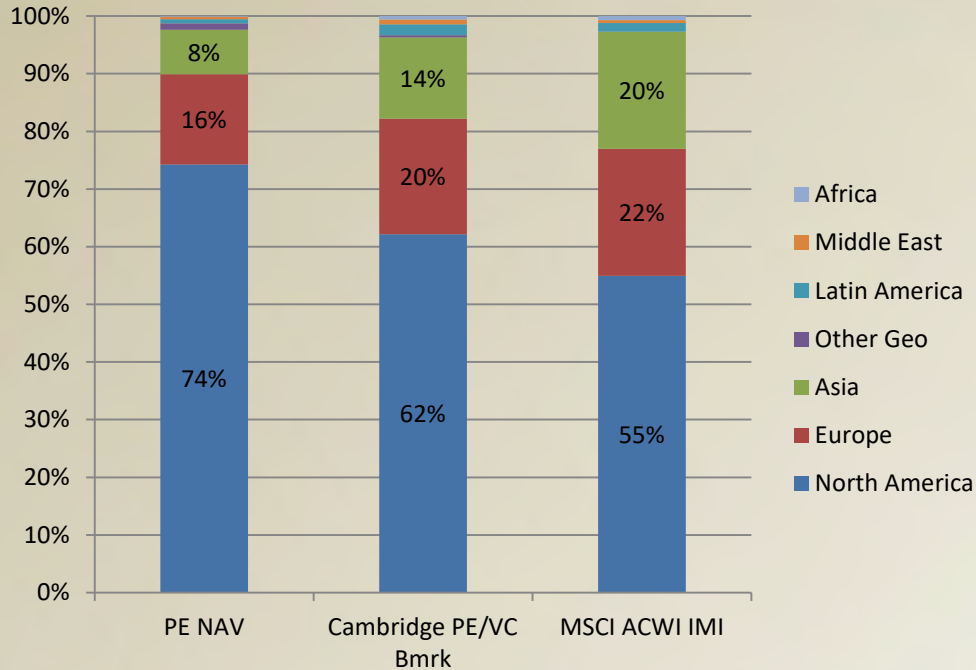


Source: Cambridge Associates

- Technology remains the largest exposure in the portfolio at 40%. This is 700 bps higher than the PE benchmark exposure of 33%
- Relative to the asset class primary benchmark, the portfolio is overweight technology (+21%) and underweight the financials sector (-10%)

# Geographic Exposure

As of September 30, 2017

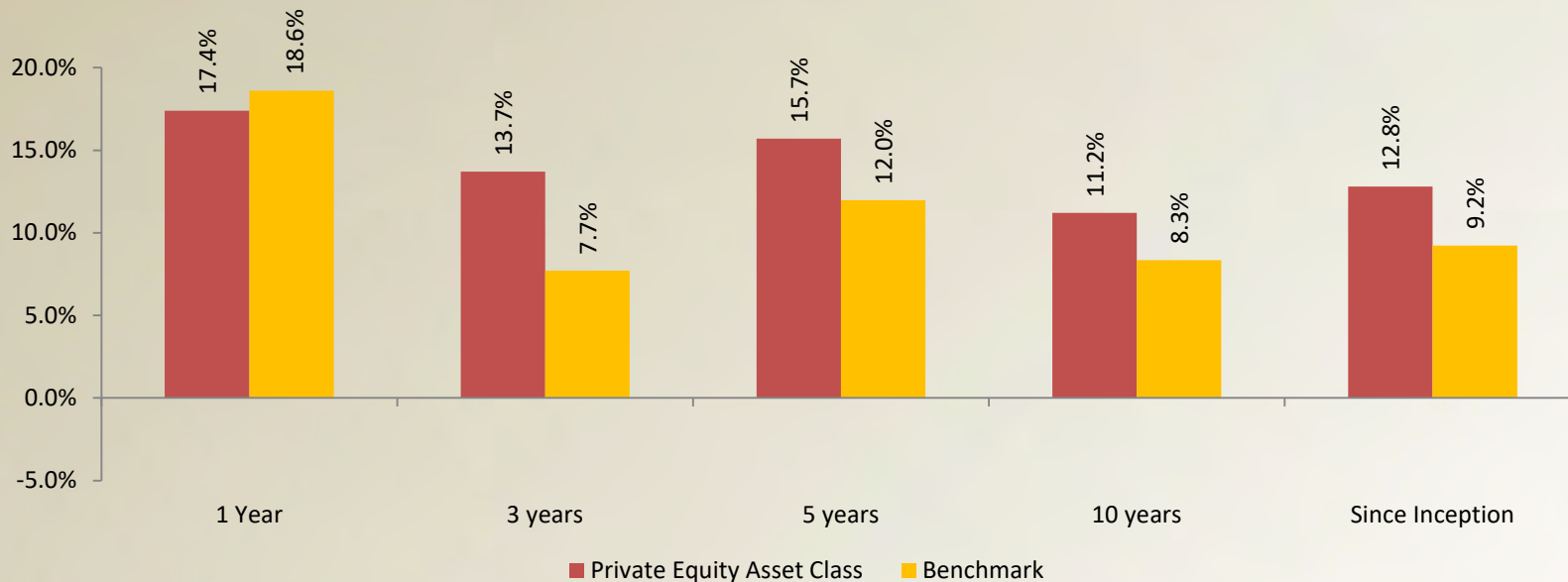


Source: Cambridge Associates

- The portfolio remains overweight North America while underweight Europe and Asia
- Exposure outside of the U.S. continues to grow

# Private Equity Asset Class Performance

Asset Class - Net Managed and Benchmark Returns (IRRs) as of September 30, 2017



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.

# Sub-strategy Performance

As of September 30, 2017

	<u>1yr</u>	<u>3yr</u>	<u>5yr</u>	<u>10yr</u>	<u>Since Inception</u>	<u>Benchmark</u>
<b>U.S. Buyouts</b>	20.8%	14.3%	16.0%	10.6%	12.1%	11.0%
<b>Non-U.S. Buyouts</b>	21.7%	15.7%	16.8%	10.9%	11.0%	7.6%
<b>U.S. Venture</b>	8.9%	11.7%	14.5%	11.3%	10.5%	8.0%
<b>U.S. Growth Equity</b>	13.4%	15.5%	16.6%	12.9%	13.0%	10.5%
<b>Non-U.S. Growth Equity</b>	11.9%	10.0%	11.7%	--	6.6%	11.0%
<b>Distressed/Turnaround</b>	19.5%	14.6%	16.7%	14.5%	20.5%	10.0%
<b>Secondaries</b>	18.7%	10.5%	12.3%	8.9%	15.9%	14.8%
<b>Total PE Asset Class</b>	17.4%	13.7%	15.7%	11.2%	12.8%	10.9%

Sub-strategy returns and benchmark returns provided by Cambridge Associates and are calculated net of all fees and expenses. The Cambridge benchmark is the median return for the respective sub-strategy.

# 2018 Commitment Activity

- PE committed \$265 million to 3 funds through Feb. 28, 2018
  - \$265 million to 3 buyout funds
    - Small 34%, Middle-Market 28%, Large 38%
  - Geographic Focus
    - US 66%, Europe 34%

# Appendix

# Private Equity Aggregates

## Dollar-Weighted Performance (IRRs) as of September 30, 2017

	<u>Inception Date</u>	<u>Market Value (in Millions)</u>	<u>1yr</u>	<u>3yr</u>	<u>5yr</u>	<u>10yr</u>	<u>Since Inception</u>
Total Private Equity	1/27/1989	\$10,503.6	17.4%	13.7%	15.3%	9.8%	9.3%
Custom Iran- and Sudan-free ACWI IMI +300bps			18.6%	7.6%	12.0%	7.5%	7.9%
Private Equity Legacy Portfolio	1/27/1989	\$9.3	-7.4%	-11.7%	-15.1%	-8.1%	3.7%
Custom Iran- and Sudan-free ACWI IMI +300bps			18.7%	6.9%	14.6%	2.3%	6.9%
Private Equity Asset Class Portfolio	8/31/2000	\$10,494.3	17.4%	13.7%	15.7%	11.2%	12.8%
Custom Iran- and Sudan-free ACWI IMI +300bps			18.6%	7.7%	12.0%	8.3%	9.2%

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.

# State Board of Administration

## **Strategic Investments Asset Class Review**

Trent Webster

*Senior Investment Officer, Strategic Investments & Private Equity*

Investment Advisory Council Meeting

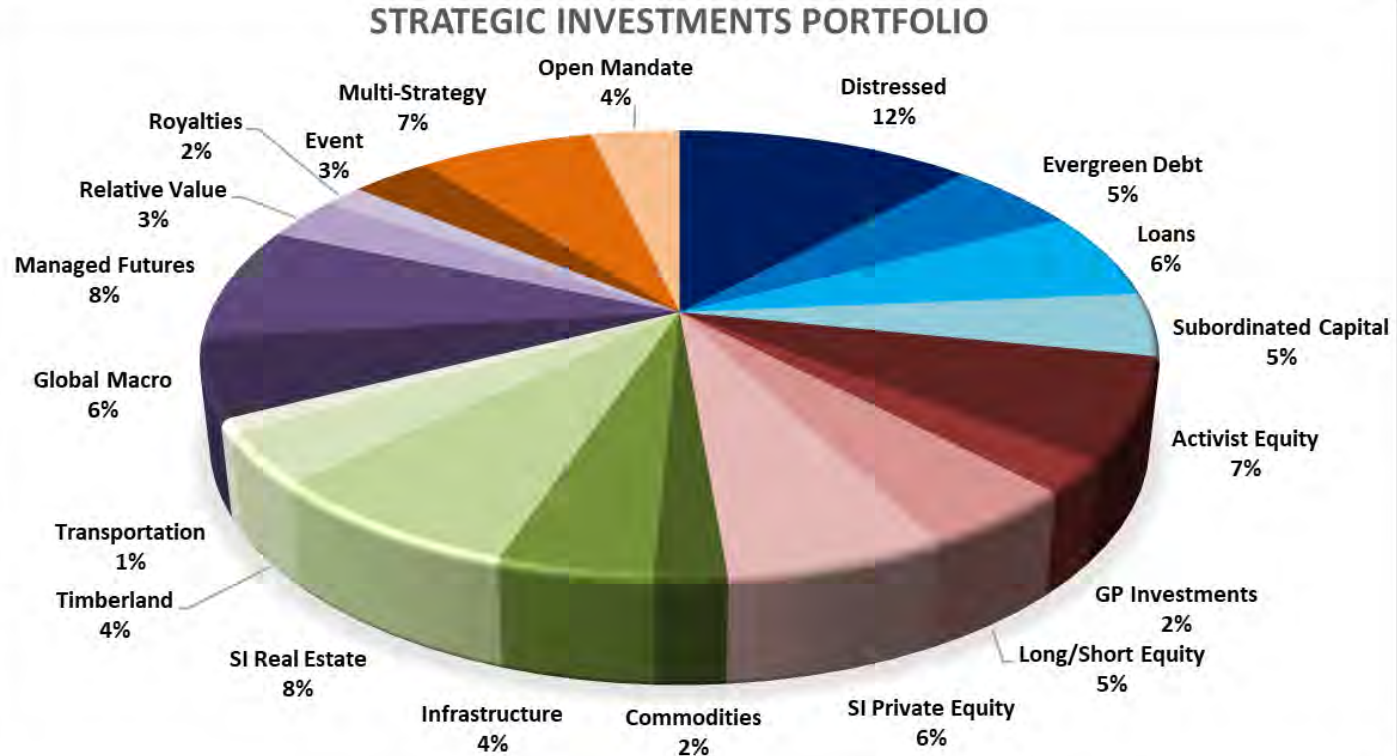
March 19, 2018



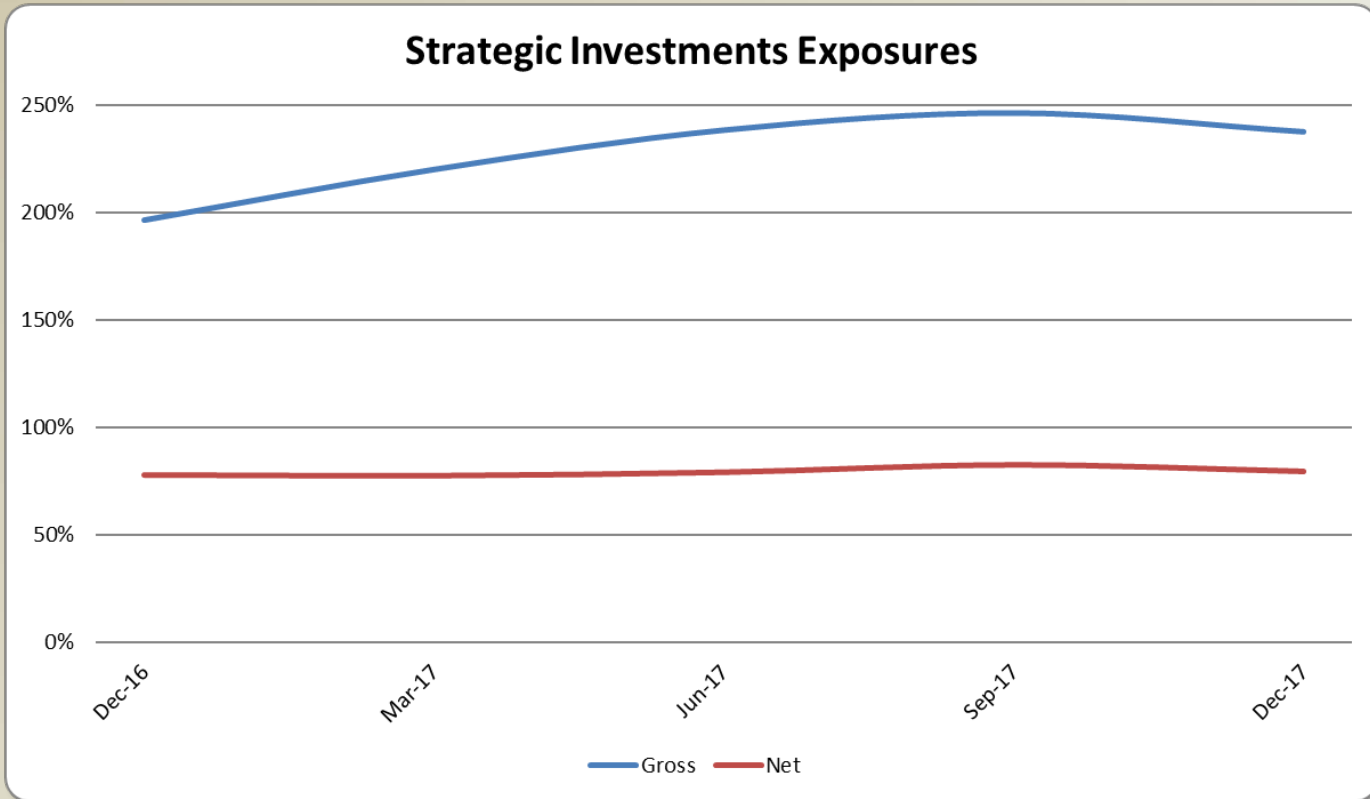
# Policy Objectives

- Generate a 4.5% real return over the long-term
- Reduce the volatility and improve the risk-adjusted return of the FRS
- Outperform the FRS during periods of significant market declines
- Invest opportunistically and in new strategies

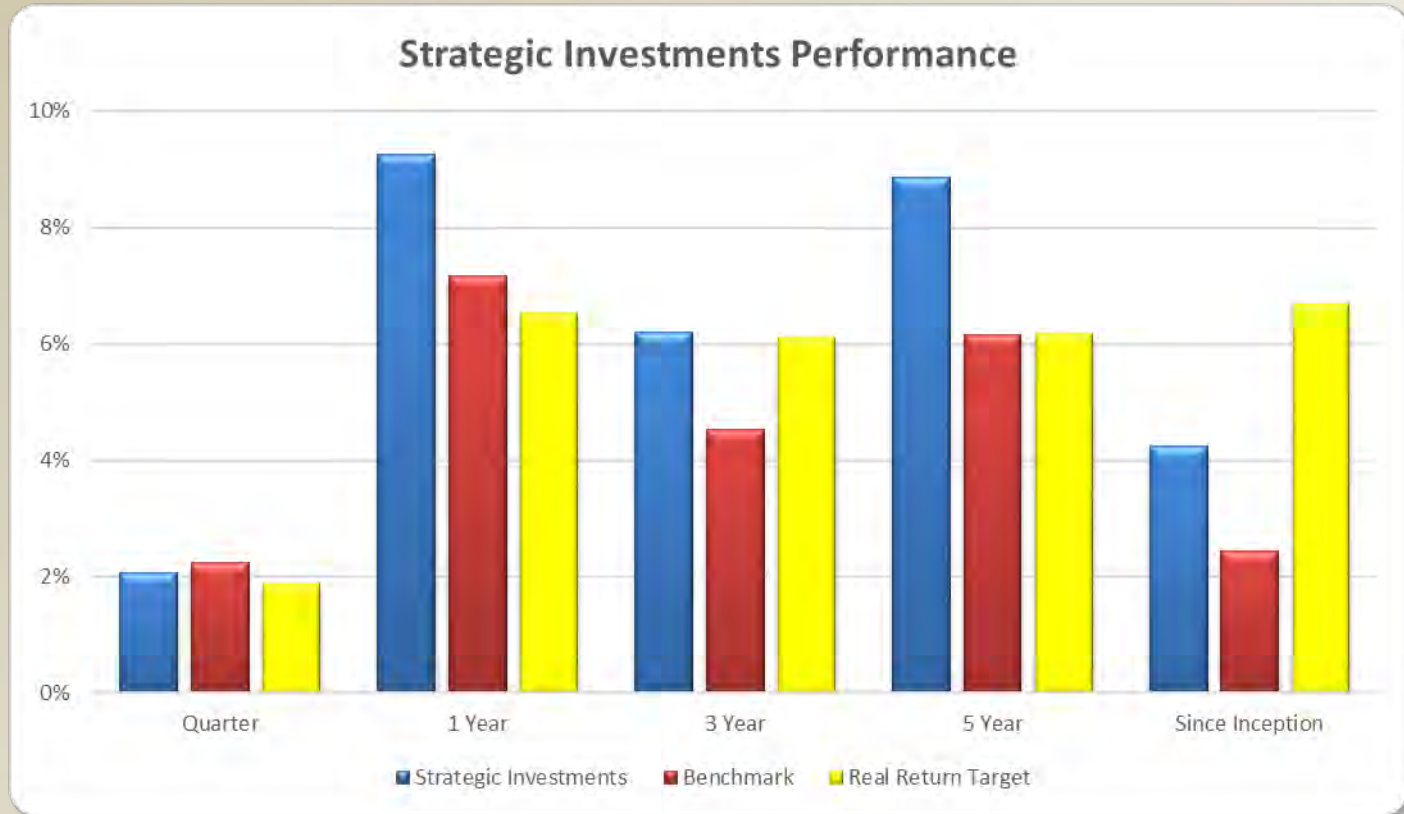
# Portfolio by Sub-Strategy



# Gross and Net Exposures



# Performance



# Recent Activity

- Will formally separate from Private Equity on July 1, 2018
- Quarterly cash outflow was \$92 million
- Calendar year cash outflow has been \$187 million
- Five new funds totaling \$650 million were closed in the most recent quarter
- One new fund totaling \$50 million was closed this quarter
- Twenty-one funds were allocated capital in the calendar year totaling \$2.57 billion in investment activity
- Four funds totaling \$500 million are in the pipeline

# FRS INVESTMENT PLAN



# FRS Investment Plan Snapshot

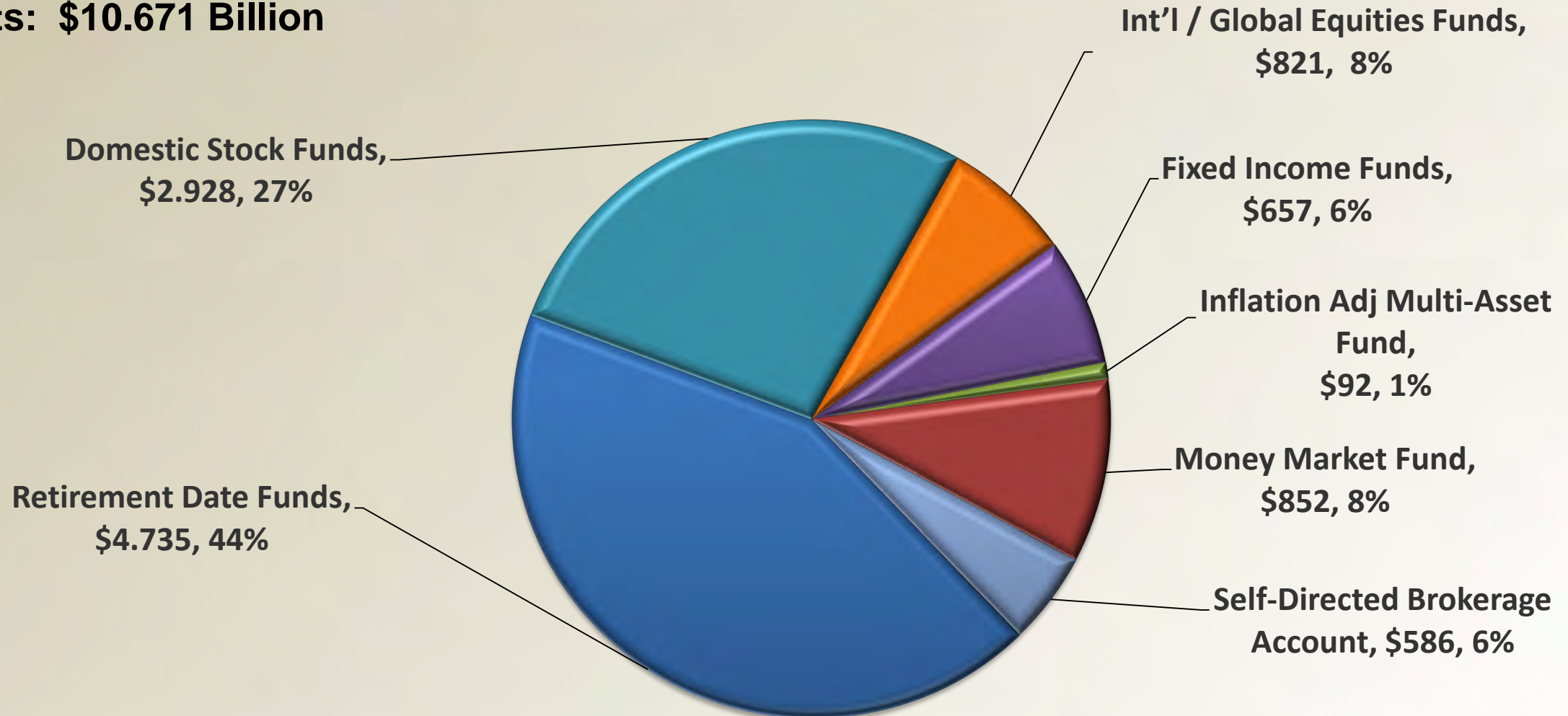
(as of December 31, 2017)

- **Assets:** **\$10.671 B** (14.8% increase since December 31, 2016)
  - +4.09% - 4th Quarter 2017
  - +16.36% - Calendar Year to Date Return
  - +8.16% - Fiscal Year to date (Jul 17 – Dec 17)
- **Members:** **185,956** (up 8% since December 31, 2016)
  - Active – 127,650
  - Inactive – 58,306
- **Average Acct Balance:** **\$57,386** (6% increase since December 31, 2016)
- **Average Age:** **47**
  - Males 49 (36.3% of members)
  - Females 46 (63.7% of members)
- **Average Yrs of Service:** **5** (active members)
- **Retirees:** **121,879** (increase of 10% since December 31, 2016)
- **Distributions:** **\$11.4 B**
  - Lump Sum Payouts – 39%
  - Rollovers – 61%

# FRS Investment Plan AUM by Asset Class

(as of December 31, 2017 in \$ millions)

**Total Assets: \$10.671 Billion**



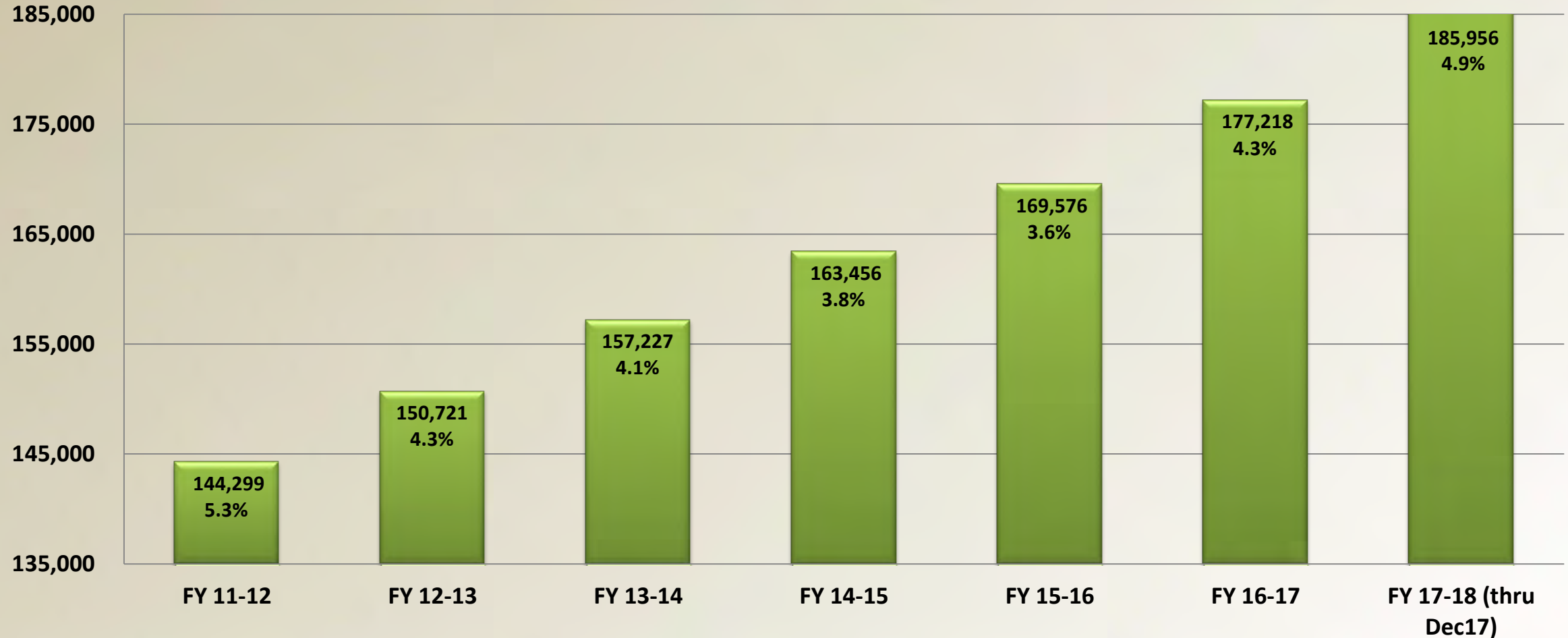
Asset allocation is a result of member investment selection

## FRS Investment Plan Performance by Asset Class (as of December 31, 2017)

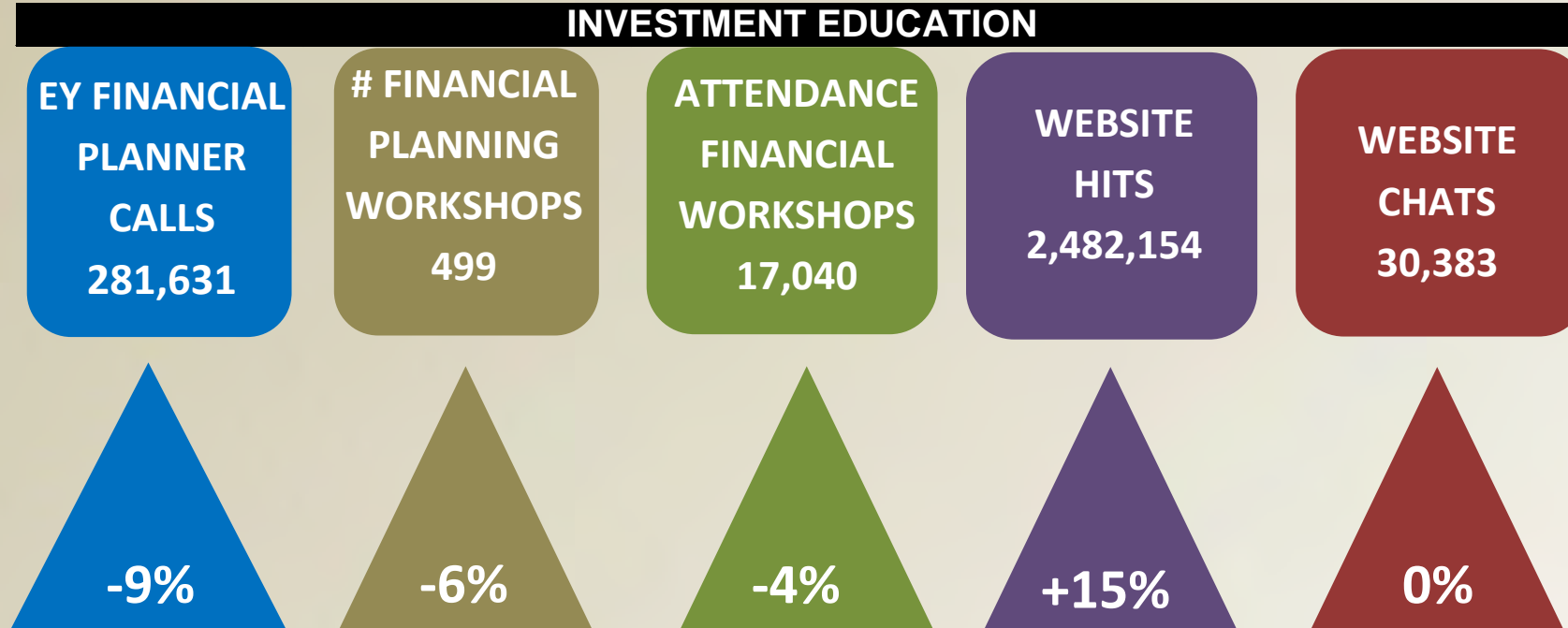
	QTD	FYTD	1 Year	3 Years	5 Years	Inception
<b>Total Fund</b>	<b>4.09%</b>	<b>8.15%</b>	<b>16.36%</b>	<b>7.59%</b>	<b>8.54%</b>	<b>7.20%</b>
<b>Money Market</b>	<b>0.35%</b>	<b>0.69%</b>	<b>1.22%</b>	<b>0.68%</b>	<b>0.49%</b>	<b>1.51%</b>
<b>Real Assets &amp; TIPS</b>	<b>2.07%</b>	<b>4.67%</b>	<b>8.14%</b>	<b>1.82%</b>	<b>-0.72%</b>	<b>0.09%</b> <b>(7/1/14)</b>
<b>Fixed Income</b>	<b>0.34%</b>	<b>1.40%</b>	<b>4.37%</b>	<b>3.11%</b>	<b>2.57%</b>	<b>4.87%</b>
<b>Domestic Equities</b>	<b>6.15%</b>	<b>11.38%</b>	<b>20.83%</b>	<b>11.43%</b>	<b>15.83%</b>	<b>10.03%</b>
<b>Global &amp; Intl Equities</b>	<b>5.10%</b>	<b>11.65%</b>	<b>28.64%</b>	<b>9.40%</b>	<b>9.02%</b>	<b>8.84%</b>
<b>Retirement Date Funds</b>	<b>4.05%</b>	<b>8.20%</b>	<b>17.18%</b>	<b>7.57%</b>	<b>N.A.</b>	<b>6.10%</b> <b>(7/1/14)</b>
<b>TF x RDFs</b>	<b>4.14%</b>	<b>8.12%</b>	<b>15.70%</b>	<b>7.61%</b>	<b>N.A.</b>	<b>6.91%</b> <b>(7/1/14)</b>

# FRS Investment Plan Membership Growth

## Percent Membership Growth Year to Year



# FRS Financial Guidance Program (as of December 31, 2017)



**13 Annuities purchased last 12 months (\$1 million)**  
**102 Total Annuities purchased inception to date (\$12.43 million)**

Questions?

# Investment Programs & Governance (IP&G)

**Michael McCauley**  
**Senior Officer**

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Investment Advisory Council Meeting – March 19, 2018



# Recent Activity

## **Proxy Voting:**

- CY2017 voting levels over 10,500 meetings, covering over 102,000 ballot items
- 19.3% of all votes cast against management
- Most active market—United States (2,799 meetings voted)

## **“Over-boarding” Study:**

- Published in January on “over-boarded” directors within Russell 3000
- Finds inverse relationship between level of directorships and TSR across 1, 3, and 5 years
- Boards with above average directorship levels had 1.4% lower 5-year TSR
- SBA withheld support for 5.6% of all U.S. directors who are over-boarded

# Proposed 2018 Proxy Voting Guideline Amendments

- Expand and retitle the “Exclusive forum” voting guideline to include other restrictions on legal recourse for shareowners
- Insert a new guideline concerning equal access to preliminary vote tabulations for proponent and management
- Expand the “Change authorized share capital” guideline to incorporate aspects of voting on rights issues and the impact on ownership concentration
- Expand the “Establish or set membership of board committees” guideline to include analysis of governmental party committees
- Expand the “Operations in high risk markets” guideline to include statutory requirements concerning Venezuela
- Update the “Mandatory holding periods” guideline to clearly support retention of a majority of shares

# Appendix

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SBA Corporate Governance Statistics

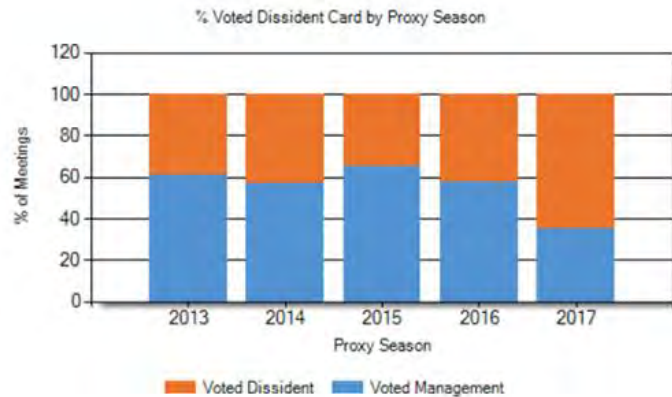


# SBA Voting in Proxy Contests

## Voting at Proxy Contests

Number of Proxy Contests Voted	% Times Voted Dissident Card	% Voted all Dissidents	% Match ISS	% Match GL
128	45.31	24.22	87.27	84.00

## % Voted Dissident Card by Proxy Season



## Support by Dissident

Dissident	PC (#)	Diss (#)	Diss (%)
GAMCO Asset Management	8	3	37.0
Starboard Value	4	4	100.0
JCP Investment Management, LLC	3	2	66.0
Clinton Group	3	2	66.0
Engaged Capital	3	3	100.0
Elliott Management	2	2	100.0
Biglari Holdings	2	0	0.0
Land & Buildings Investment Management LLC	2	1	50.0
Ian Dunlop	2	0	0.0
Stephen Mayne	2	0	0.0

Source: Proxy Insight database as of February 22, 2018.

# U.S. Activism



Source: FactSet Research Shark Repellent database as of February 22, 2018.



# TIME IS **MONEY**

The Link Between Over-Boarded  
Directors and Portfolio Value



TIME IS  
**MONEY**

The Link Between Over-Boarded  
Directors and Portfolio Value

# KEY TAKEAWAYS



-1.4%

## HIGH DIRECTORSHIPS LINKED TO LOWER STOCK PERFORMANCE

---

Corporate boards with above average levels of directorships exhibited lower average 5-year stock performance of approximately 140 basis points (1.4%). For companies with the highest level of multiple directorships, those firms underperformed by 102 basis points (1.02%) when compared to the full stock universe. A near inverse relationship between the level of directorships and TSR was found in the data across the 1, 3, and 5 year time periods.



77%

## MOST LARGE COMPANIES LIMIT OUTSIDE BOARD MEMBERSHIP

---

A strong majority of S&P 500 boards place limits on directors' acceptance of corporate directorships, up sharply over the last decade.



<4

## SBA POLICY ENCOURAGES LESS THAN 4 DIRECTORSHIPS

---

SBA corporate governance principles advocate for each board member to limit the maximum number of simultaneous directorships to less than four boards. Numerous academic and industry studies point to the likelihood of both higher costs and lower performance when directors are "over-boarded."



26.2

## AVERAGE SUM OF DIRECTORSHIPS ACROSS THE BOARD AT TOP 50 HIGHEST DIRECTORSHIP COMPANIES

---

At those companies with the highest sum of directorships among all board members, the level of full board directorships was 76 percent higher than the average firm, and their 1, 3, and 5-year stock performance is lower than other companies with lower average board directorships.

# TIME IS MONEY

## Are distracted directors lowering share-owner returns?

For the last two decades, the SBA has advocated limiting the number of simultaneous directorships held by U.S. board members. The SBA's Corporate Governance Principles & Proxy Voting Guidelines espouse non-CEO directors who are also employed full time to hold less than four simultaneous directorships. In line with this policy, SBA staff have routinely cast commensurate proxy votes based on this numerical threshold and applied the policy on a global basis, regardless of any home country bias or local market norms.

As part of the review of individual director service, we qualitatively examine other types of board membership including non-public entities (e.g., private companies), boards of trustees (e.g. for mutual funds), philanthropies, and foundations. So the analysis extends well beyond merely counting the number of public board seats an individual director maintains.

Over the last few years, numerous studies have found a negative link between "busy" directors and the financial and stock performance of companies.

One study found poor oversight and subsequent risks to investors from over-boarded individual directors, particularly at large financial institutions such as JPMorgan, Wells Fargo, and PNC. The study states, "...busy directors generally detract from firm performance and that the drawbacks of director busyness are more severe for larger firms." The authors stipulated that busy directors were less able to provide oversight of management and, thereby, increased the risk of firm failure of a regulatory or financial nature.

Equilar, a compensation consultant, recently analyzed director service levels for the Wall Street Journal and compared the figures to company performance. Equilar found that among the S&P 500 stock universe where Chief Executive Officers (CEOs) served on at least two

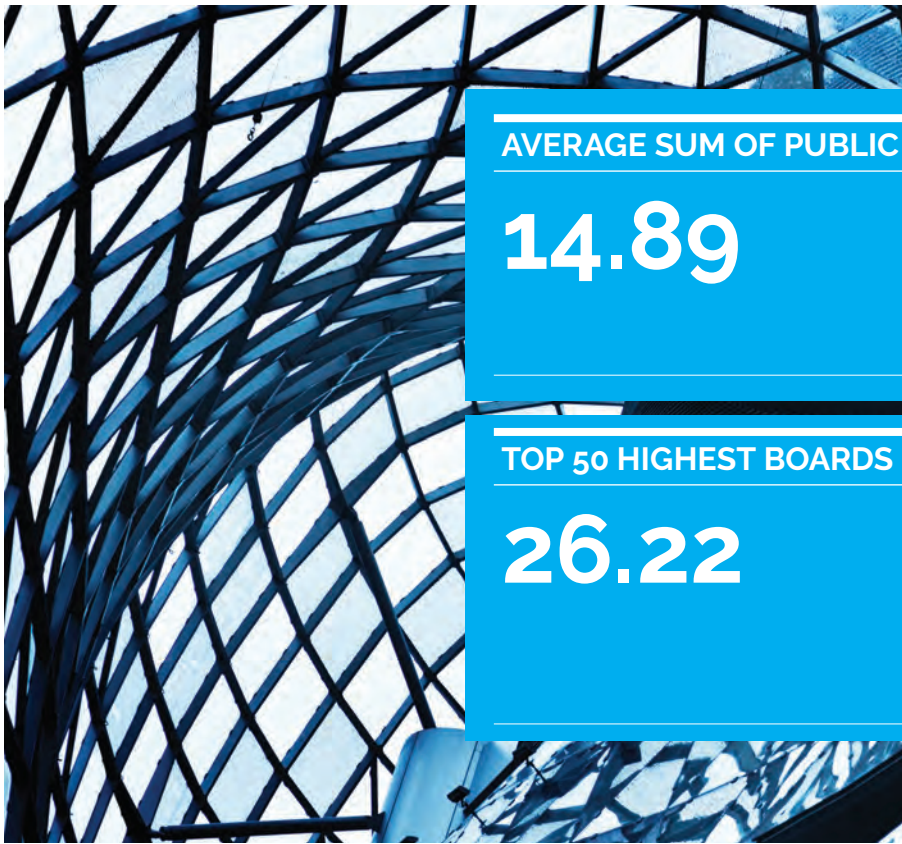
outside boards, those CEOs earned median compensation 13 percent higher than those CEOs who served on zero outside boards. The average director compensation at large capitalization companies is approximately \$290,000 a year. Equilar also found 1-year investor returns to be almost 50 percent lower at companies with over-boarded CEOs. This relationship also held for Chief Financial Officers, with CFO's serving on more than two outside boards exhibiting lower stock performance, lower revenue, and lower net income at their companies. Non-boarded CFOs with zero outside directorships had 1 and 3 year total stockholder return (TSR) of 15.6% and 10.4%, respectively, whereas companies with CFO's serving on 2 or more boards exhibited 1 and 3 year TSR of 9.3% and 3.3%, respectively.

According to a separate Equilar study, the percentage of director seats occupied by an individual that serves on multiple public boards increased from 48.6 percent to 53.6 percent over the past five years—with the percentage on four simultaneous boards almost doubling since 2012.

### "BUSY" DIRECTORS

One study analyzed whether "busy directors", and in turn the busyness level of the entire board of directors, is either beneficial or harmful to share-owners. The authors hypothesized that busy directors may bring positive synergies across firms and potentially offer strategic interaction among all the directors on the board. Many critics of busy directors allege that such individuals don't have the time and resources to adequately monitor all the firms for which they serve. And as a result, they achieve poor levels of strategic management and oversight—that is, the corporate governance at those firms is less than what it would be if they were not over-boarded.

Because of this alleged deficiency, many investors oppose busy directors, either through direct engagement with



## AVERAGE SUM OF PUBLIC BOARDS

# 14.89

Average sum of all directorships held by all board members at Russell 3000 stock index companies.

AVERAGE NUMBER OF BOARDS AMONG ALL INDIVIDUAL DIRECTORS IN THE INDEX EQUALS 1.65.

## TOP 50 HIGHEST BOARDS

# 26.22

At those companies with the highest sum of directorships among all board members, the level of full board directorships was 76% higher than the average firm.

THESE COMPANIES EXHIBIT LOWER 1, 3, AND 5 YEAR TSR FIGURES.

the company or through proxy votes cast at owned companies. The researchers defined synergies as those that, "...arise when the information or expertise acquired in monitoring one firm is transferable across firms." They also noted that strategic interaction could arise from managerial misconduct or accounting fraud, fostering collaborative and increased effort to curb such management behaviors. The researchers found mixed results suggestive of busy directors only being harmful, "when the firms on whose boards she serves have so little in common informationally that tight time constraints result in negative monitoring synergies." Likewise, the authors found that firms may benefit when their common directors become busier on another of their boards.

Two other long-term studies published in the last year found that over-boarded directors impair share-owner value. One study developed a measure of director "distraction" and the other examined director and board-level busyness. Both studies found that over-boarded directors attended significantly fewer board meetings and were associated with lower performing companies (exhibiting lower market-to-book ratios and lower profitability). Researchers found these effects were reversed for younger companies, possibly due to positive effects of director networks for emerging and growing companies.

## SBA Proxy Voting Guideline on Multiple Directorships

The following language is from the SBA's proxy voting guidelines:

*Serving on too many boards ("over-boarding"): generally a director who serves on more than 3 company boards and who is employed in a full-time position. Directors with significant outside responsibilities such as serving as CEO of a public company should not exceed one external board membership. Surveys of directors have indicated that the average board membership requires over 250 hours of active, committed work, making service on multiple boards difficult for executives, particularly CEOs, and leading to many investors embracing similar limits as the SBA.*

**WANT TO FIND OUT MORE ABOUT SBA POLICIES AND GOVERNANCE RESEARCH STUDIES?**

<https://www.sbafla.com/fsb/Governance.aspx>

## SELECTED RESEARCH ON “BUSY” BOARDS

### *Busy Directors and Shareholder Satisfaction*

Kevin Chen & Wayne Guay, Wharton School, University of Pennsylvania, December 2017

Abstract excerpt: “...the negative relation between shareholder satisfaction and busyness is smaller for retired directors, and is larger for directors who are full-time executives and who sit on boards where fiscal-year ends cluster in the same month. We also find that the potential expertise benefit of busy directors is more pronounced in early-stage firms, firms with higher CEO ownership, and firms with lower book-to-market ratios. Our analyses shed new light on the heterogeneity of busy directors and, more broadly, highlight the useful role of shareholder voting in board composition research.”

### *Busy Directors: Strategic Interaction and Monitoring Synergies*

Alexander Ljungqvist, New York University, Konrad Raff, Norwegian School of Economics, September 2017

Abstract excerpt: “we find that busy directors increase monitoring at spillover firms when synergies are positive (which we show increases expected firm value) and reduce monitoring at spillover firms when synergies are negative (which we show reduces expected firm value).”

### *Better Directors or Distracted Directors? An International Analysis of Busy Boards*

Stephen Ferris, Trulaske College of Business, University of Missouri, Narayanan Jayaraman, Scheller College of Business, Georgia Institute of Technology, Min-Yu (Stella) Liao, Illinois State University, August 2017

Abstract excerpt: “We find that busy directors and boards are a global phenomenon. We determine that firms with busy boards exhibit lower market-to-book ratios and reduced profitability. A demographic analysis shows that multiple directorships are positively associated with firm performance and education, but negatively associated with female directors.”

### *Director Attention and Firm Value*

Rex Wang Rejie, Erasmus School of Economics, Patrick Verwijmeren, Erasmus School of Economics & University of Melbourne, June 2017

Abstract excerpt: “Directors attend significantly fewer board meetings when they are distracted. Firms with distracted board members tend to be inactive and experience a significant decline in firm value. Overall, this paper highlights the impact of limited director attention on the effectiveness of corporate governance.”

### *Board to Death: How Busy Directors Could Cause the Next Financial Crisis*

Jeremy Kress, Stephen M. Ross School of Business, University of Michigan, June 2017

Abstract excerpt: “This article argues that the directors of the United States’ largest financial institutions are too busy to execute their governance roles effectively. These outside commitments provide important learning and networking opportunities that can enhance a director’s effectiveness. Outside commitments, however, might also limit the time that a director spends assessing the firm’s strategy and risk or contribute to cognitive overload. Over-committed directors, therefore, might consciously or subconsciously shirk their advising and monitoring responsibilities.”



**DIRECTORSHIPS ARE AN IMPORTANT DRIVER OF SBA GLOBAL PROXY VOTING AND ARE LINKED TO PORTFOLIO VALUE**

**30%**

**ONE THIRD OF ALL SBA PROXY VOTES OPPOSING DIRECTOR CANDIDATES ARE DUE TO RISKS OF OVER-BOARDING**



Applying the SBA proxy voting guideline to U.S. firms results in withholding support (or voting against) almost 6% of all directors at American companies. These directors are opposed because of the risk posed by "busy" members of the board of directors. These over-boarded companies are also correlated with lower stock performance.

#### SBA PROXY VOTING ON DIRECTORS

Calendar Year 2017

	Total Director Votes	Votes Against Directors	Votes Against Directors Due to Concerns With Over-Boarding
All Global Equity Investments	48,015	15.8%	5.5%
United States	20,029	18.3%	5.6%
Japan	11,358	18%	1.8%
India	830	52.2%	14.5%
United Kingdom	2,620	15.5%	5.7%
China / Hong Kong / Taiwan (combined)	2,362	31.3%	10.9%

Source: SBA, Glass Lewis.

# OVER-BOARDING HURTS RETURNS

In its own review of directorships at companies within the Russell 3000 stock index, SBA staff found that boards exhibiting an above average level of over-boarded directors were associated with lower average annualized total-shareholder-return (TSR).

Using data from Institutional Shareholder Services' (ISS) DataDesk database, SBA staff analyzed both the level of multiple directorships exhibited by the full board of directors and the sum of individual directors' multiple directorships. Examining data through October 2017, staff found that corporate boards with above average levels of directorship exhibited lower average 5-year TSR performance of approximately 140 basis points (1.4%). For those companies where the deviation was the most extreme—the top 50 companies by level of multiple directorship—firms underperformed by 102 basis points (1.02%) when compared to the full stock universe. A near inverse relationship between the level of directorships and TSR was found in the data across the 1, 3, and 5-year time periods.

As of October 2017, 63 directors within the S&P 500 stock universe served on five or more public boards, down from 83 in 2012.



## UNDER-PERFORMANCE OF OVER-BOARDED FIRMS

# -1.02%

Average level of directorship for the full board is calculated by dividing the total number of directorships held by all board members by the number of board seats.

## 1 OR MORE OVER-BOARDED DIRECTORS

# 1.88

Average directorship level of the full board was 14% higher at companies with 1 director exceeding the SBA voting guideline of less than 4 directors.

THESE COMPANIES EXHIBIT LOWER 1, 3, AND 5 YEAR TSR FIGURES.

## TOP 50 FIRMS WITH HIGHEST # OF DIRECTORSHIPS

# 3.14

Average directorship level of the full board at the top fifty firms was almost double that of all companies.

THESE COMPANIES EXHIBIT LOWER 1, 3, AND 5 YEAR TSR FIGURES.

## A MAJORITY OF U.S. DIRECTORS AMONG S&P 500 COMPANIES FACE RESTRICTIONS ON ADDITIONAL BOARD SERVICE

- » 77% of S&P 500 boards have limits on directors' acceptance of corporate directorships, up from only 27% in 2006.
- » 64% of boards set a numerical limit for other board service applying to all directors: of those, 4% cap additional directorships at two, 36% at three, 49% at four, and 11% at five or six.
- » 24% of boards set restrictions for directors who are public company CEOs or are otherwise fully employed; most often, these directors are limited to two other outside public company boards. No board allows directors who are employed executives (CEOs or CFOs) to serve on more than three additional boards.
- » Most companies do not restrict their CEOs from serving on outside boards. Only 22% of S&P 500 boards set a specific limit in their corporate governance guidelines on the CEO's outside board service; 65% of those boards limit CEOs to two outside boards and 32% set the limit at one outside board. Only one company does not allow the company's CEO to serve on any outside corporate boards.
- » Fewer CEOs serve on outside boards: 33% of S&P 500 CEOs serve on one outside corporate board in addition to their own board, with only 4% serving on more than two boards. In 2006, 55% of CEOs served on at least one outside board.

Source: Spencer Stuart, U.S. Board Index 2017

# CONTACT US

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THE STATE BOARD OF ADMINISTRATION (SBA) IS A BODY OF FLORIDA STATE GOVERNMENT THAT PROVIDES A VARIETY OF INVESTMENT SERVICES TO CLIENTS AND GOVERNMENTAL ENTITIES. THESE INCLUDE MANAGING THE ASSETS OF THE FLORIDA RETIREMENT SYSTEM, THE LOCAL GOVERNMENT SURPLUS FUNDS TRUST FUND (FLORIDA PRIME), THE FLORIDA HURRICANE CATASTROPHE FUND, AND OVER 30 OTHER FUND MANDATES.

## Proposed 2018 Proxy Voting Guideline Amendments

<https://www.sbafla.com/fsb/Portals/FSB/Content/CorporateGovernance/ProxyVoting/2017%20SBA%20Corporate%20Governance%20Voting%20Guidelines.pdf?ver=2017-05-25-120900-293>

Page 12, Add at the end of the ESTABLISH OR SET MEMBERSHIP OF BOARD COMMITTEES GUIDELINE: SBA is typically unsupportive of proposals that specify establishment of a governmental party committee (as seen in certain proposals to add a Communist party committee for Chinese or Hong Kong state-owned entities) without disclosing board decision-making processes or the respective responsibilities of the party organization and the board. Companies should disclose as much relevant information on the interaction between the company and the government party committee as possible to help shareowners understand the company's decision-making process—particularly in those circumstances where the board allows the party committee to make material decisions. SBA generally votes against such proposals as they may erode the ability of shareowner-elected directors to govern the firm and sever the ties of accountability between the board and shareowners.

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EXCLUSIVE FORUM RESTRICT LEGAL RECOURSE METHODS: AGAINST

The SBA generally opposes restrictions on shareowner ability to pursue options of legal recourse. This includes binding or forced arbitration, fee-shifting, and exclusive forum bylaws. derivative claims and to participate in the selection of appropriate venue.<sup>43</sup> Standard access to the court system is considered to be a fundamental shareowner right. SBA generally votes against proposals to establish exclusive forum and supports proposals requesting that exclusive forum provisions be ratified by shareowners. SBA will critically examine the company's rationale for limiting shareowners' rights to legal remedy, including choice of venue and any material harm that may have been caused by related litigation outside its jurisdiction of incorporation in making a voting decision.

Page 26

CHANGE AUTHORIZED SHARE CAPITAL: CASE-BY-CASE

The SBA generally supports authorized share capital increases up to 100 percent of the current number of outstanding shares. We will consider additional increases if management demonstrates a reasonable use. It is important that publicly-held corporations have authorization for shares needed for ordinary business purposes, including raising new capital, funding reasonable executive compensation programs, business acquisitions, and facilitating stock splits and stock dividends. Increases beyond 100 percent of the current number of outstanding shares will be carefully scrutinized to ensure its use will benefit shareowners. We apply a stricter standard if the company has not stated a use for the additional shares or has significant levels of previously authorized shares still available for issue. Proposals that include shares with unequal voting rights will likely be opposed.

In the case of rights offerings, SBA considers the dilution and extent to which issued rights may be subscribed, both by SBA individually and other shareowners collectively, and how that may affect or adversely concentrate the level of control if a large single shareowner exists.

Proposals to reduce authorized share capital can result from a variety of corporate actions, ranging from routine accounting measures to reductions pertaining to a significant corporate restructuring in the face of bankruptcy. These proposals can vary significantly from market to market as a result of local laws and accounting standards. In all instances, the SBA considers whether the reduction in authorized share capital is for legitimate corporate purposes and not to be used as an antitakeover tactic.

Page 30 (new guideline)

ACCESS TO PRELIMINARY VOTING TABULATIONS CONCERNING SHAREOWNER PROPOSALS: CASE-BY-CASE: The SBA supports equal access by management and shareowner proponents to preliminary voting results of shareowner proposals. Some proponents are concerned that companies may receive preliminary voting results and use the information to target shareowner engagement at a disadvantage to the proponent. Generally, the SBA will not support restricting access to this voting data to either party. Some proposals seek to restrict access while others may seek to place conditions on using the information.

Page 38

MANDATORY HOLDING PERIODS: CASE-BY-CASE

SBA supports proposals asking companies to adopt a-substantial mandatory holding periods for their executives, as well as requiring executives to meet stock ownership ~~requirements~~retention of at least of majority of shares granted or otherwise transferred in executive compensation arrangements. When making voting decisions, SBA considers whether the company has any holding period or officer ownership requirements in place and how ~~the company's executives'~~ actual stock ownership of executive officers compares to the proposal's suggested holding period and the company's present ownership or retention requirements.

Page 41, append to OPERATIONS IN HIGH RISK MARKETS guideline:

SBA will not vote in favor of any proxy resolution advocating the support of the Maduro Regime in Venezuela per resolution of the Trustees of the State Board of Administration.



# State Board of Administration of Florida

## Major Mandate Review Fourth Quarter 2017

**Aon Hewitt** | Retirement and Investment  
Investment advice and consulting services provided by Aon Hewitt Investment Consulting, Inc., an Aon Company.



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1. Executive Summary
2. Pension Plan Review
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## Executive Summary

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- The major mandates each produced generally strong returns relative to their respective benchmarks over both short- and long-term time periods ending December 31, 2017.
- The Pension Plan underperformed its Performance Benchmark during the fourth quarter and outperformed 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 fourth quarter and over the trailing one-, three-, five-, and ten-year periods.
- The Lawton Chiles Endowment Fund outperformed its benchmark during the fourth 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.

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## Pension Plan: Executive Summary

- The Pension Plan assets totaled \$162.1 billion as of December 31, 2017 which represents a \$4.5 billion increase since last quarter.
- The Pension Plan, when measured against the Performance Benchmark, underperformed its return during the fourth quarter and outperformed over 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 ten-year period, and outperformed over the trailing one-, three-, five-, fifteen-, twenty-, 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.

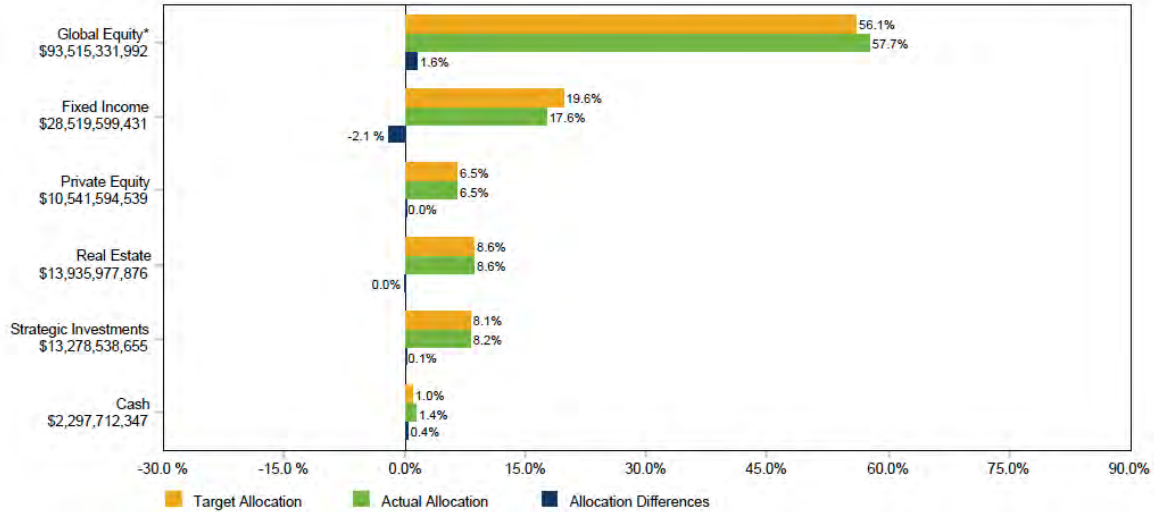
## FRS Pension Plan Change in Market Value Periods Ending 12/31/2017

Summary of Cash Flows		
	Fourth Quarter	Fiscal YTD*
<b>Beginning Market Value</b>	\$157,560,572,242	\$153,573,300,933
<b>+/- Net Contributions/(Withdrawals)</b>	\$(1,571,530,167)	\$(3,460,855,710)
<b>Investment Earnings</b>	\$6,099,712,768	\$11,976,309,620
<b>= Ending Market Value</b>	\$162,088,754,843	\$162,088,754,843
<b>Net Change</b>	\$4,528,182,601	\$8,515,453,910

\*Period July 2017 – December 2017

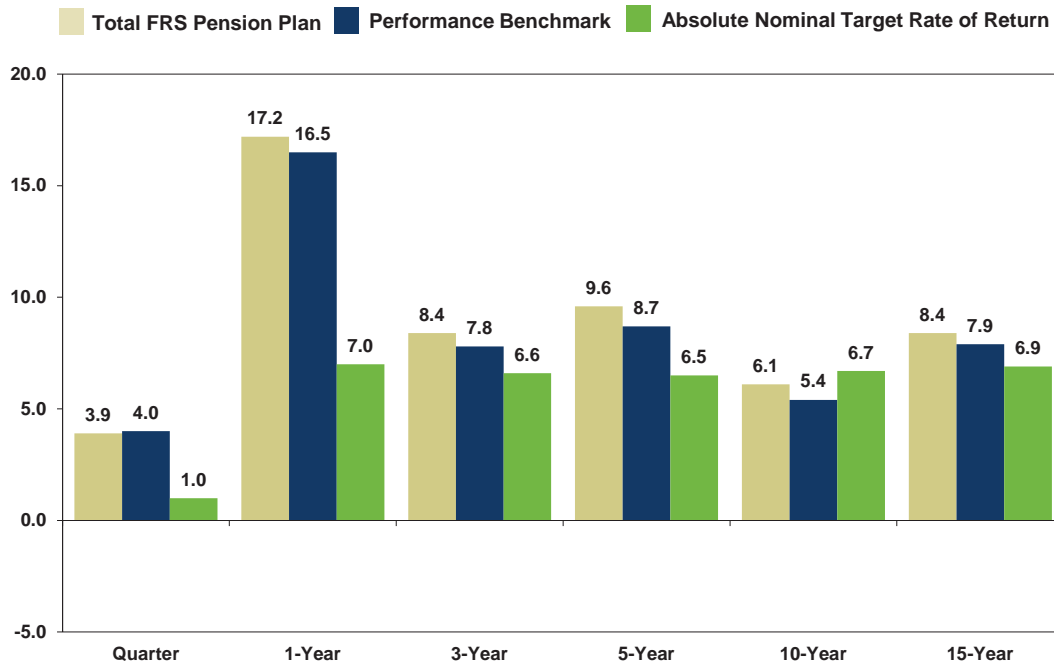
## Asset Allocation as of 12/31/2017 Total Fund Assets = \$162.1 Billion

	Market Value (\$)	Current Allocation (%)	Target Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)
Total Fund	162,088,754,841	100.0	100.0		
Global Equity*	93,515,331,992	57.7	56.1	45.0	70.0
Fixed Income	28,519,599,431	17.6	19.6	10.0	26.0
Private Equity	10,541,594,539	6.5	6.5	2.0	9.0
Real Estate	13,935,977,876	8.6	8.6	4.0	16.0
Strategic Investments	13,278,538,655	8.2	8.1	0.0	16.0
Cash	2,297,712,347	1.4	1.0	0.3	5.0



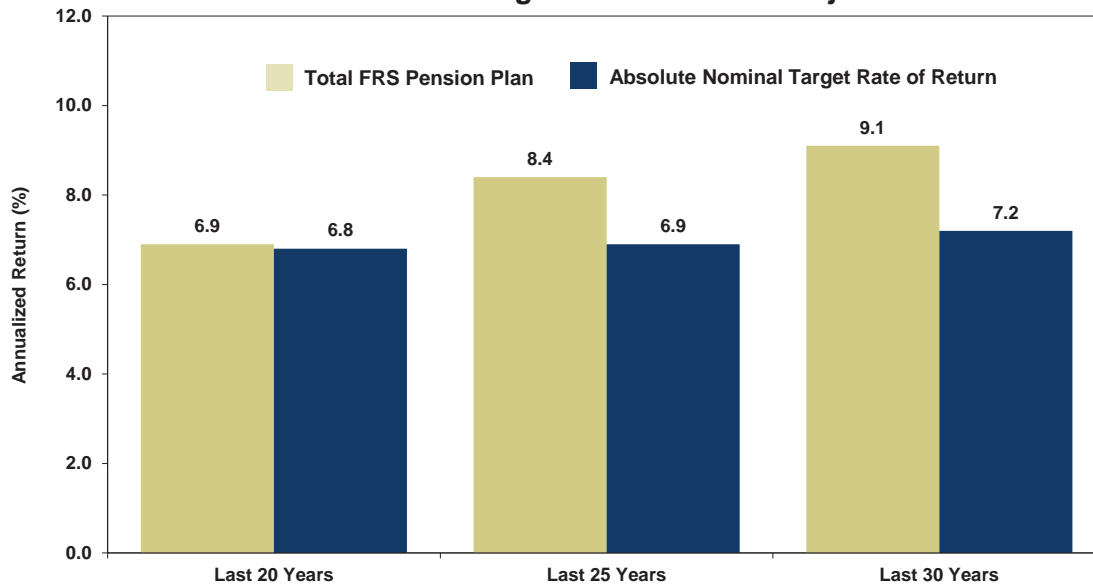
\* Global Equity became an asset class in July 2010. The historical return series prior to July 2010 was derived from the underlying Domestic Equities, Foreign Equities, and Global Equities components.

## FRS Pension Plan Investment Results Periods Ending 12/31/2017



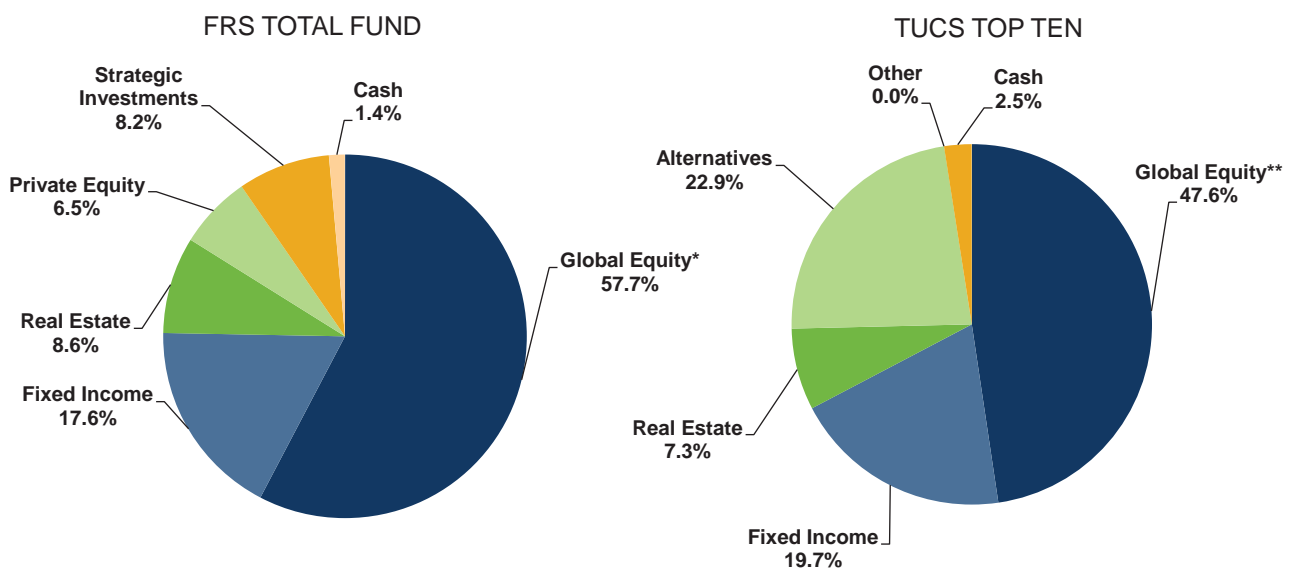
# FRS Pension Plan Investment Results Periods Ending 12/31/2017

## Long-Term FRS Pension Plan Performance Results vs. SBA's Long-Term Investment Objective



## Comparison of Asset Allocation (TUCS Top Ten) As of 12/31/2017

### FRS Pension Plan vs. Top Ten Defined Benefit Plans



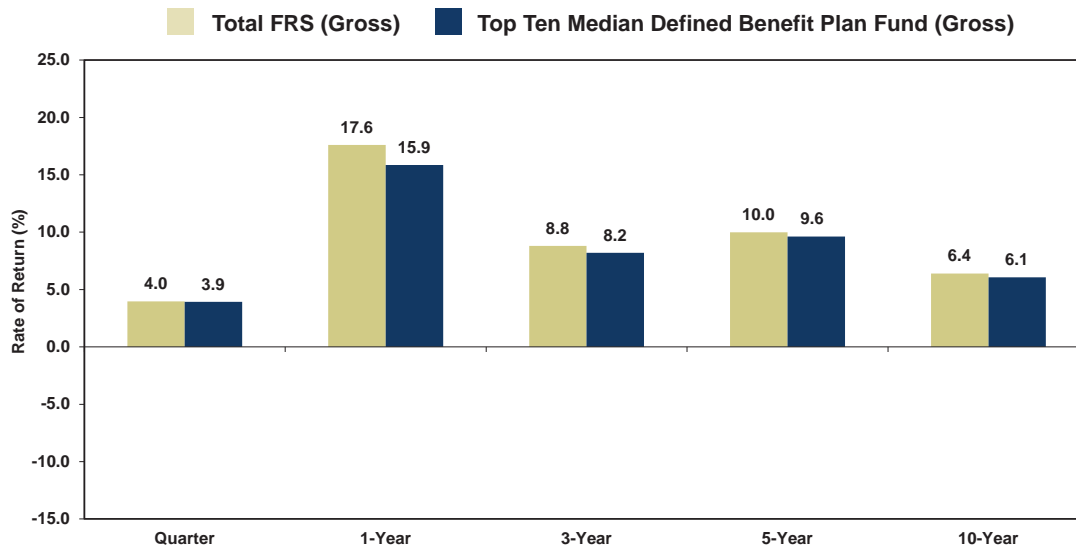
\*Global Equity Allocation: 26.3% Domestic Equities; 25.2% Foreign Equities; 5.8% Global Equities; 0.4% Global Equity Liquidity Account. Percentages are of the Total FRS Fund.

\*\*Global Equity Allocation: 29.3% Domestic Equities; 18.3% Foreign Equities.

Note: The TUCS Top Ten Universe includes \$1,532.0 billion in total assets. The median fund size was \$151.3 billion and the average fund size was \$153.2 billion.

Note: Due to rounding, percentage totals displayed may not sum perfectly.

## FRS Results Relative to TUCS Top Ten Defined Benefit Plans Periods Ending 12/31/2017



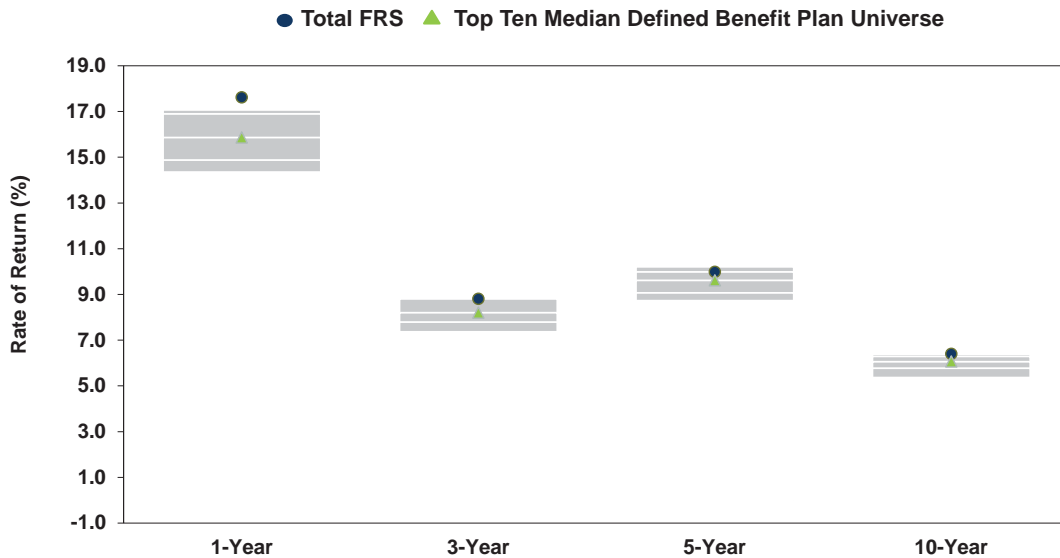
Note: The TUCS Top Ten Universe includes \$1,532.0 billion in total assets. The median fund size was \$151.3 billion and the average fund size was \$153.2 billion.

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## Top Ten Defined Benefit Plans FRS Universe Comparison (TUCS) Periods Ending 12/31/2017



FRS Percentile Ranking

1                      25                      25                      5

Note: The TUCS Top Ten Universe includes \$1,532.0 billion in total assets. The median fund size was \$151.3 billion and the average fund size was \$153.2 billion.

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## 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

### Periods Ending 12/31/2017\*

	One-Year	Three-Year	Five-Year	Ten-Year
<b>FRS Investment Plan</b>	<b>16.4%</b>	<b>7.6%</b>	<b>8.5%</b>	<b>5.4%</b>
<i>Total Plan Aggregate Benchmark**</i>	15.5%	7.3%	8.2%	5.0%
FRS Investment Plan vs. Total Plan Aggregate Benchmark	0.9	0.3	0.3	0.4

### Periods Ending 12/31/2016\*\*\*

	Five-Year Average Return****	Five-Year Net Value Added	Expense Ratio
<b>FRS Investment Plan</b>	<b>7.2%</b>	<b>0.1%</b>	<b>0.33%*****</b>
<i>Peer Group</i>	8.2	0.2	0.26
FRS Investment Plan vs. Peer Group	-1.0	-0.1	0.07

\*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 - \$15.5 billion.

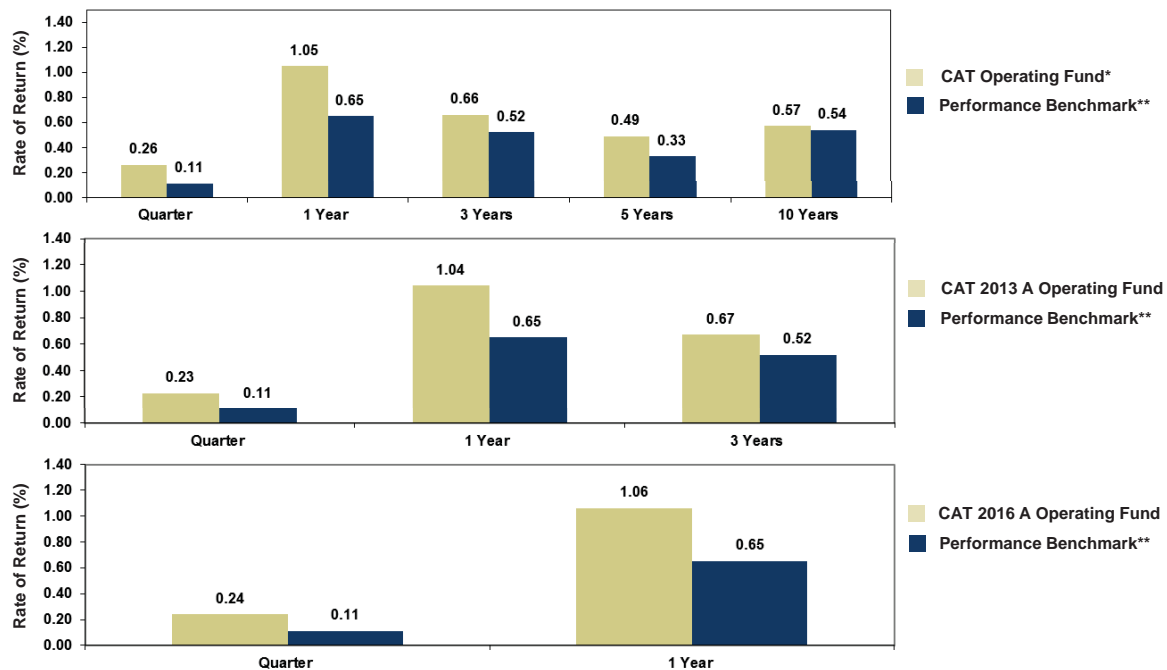
\*\*\*\*Returns shown are gross of fees.

\*\*\*\*\*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.
- Performance on a relative basis has been favorable over both short- and long-term periods, as the CAT Funds outperformed during the quarter and over the trailing one-, three-, five-, and ten-year time periods.
- 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 12/31/2017



\*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.

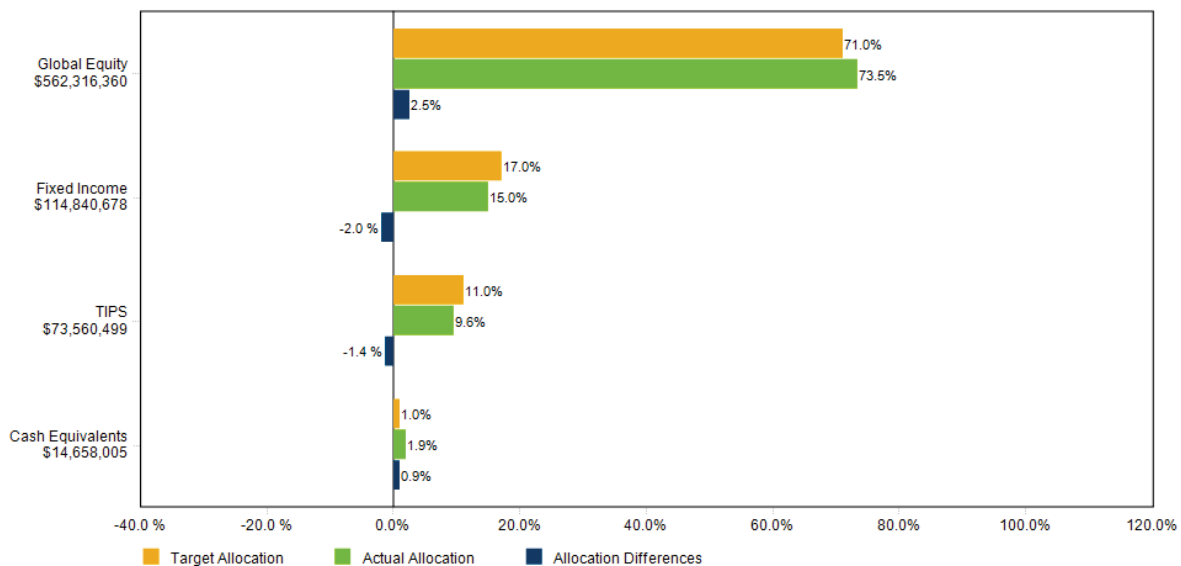
\*\*Performance Benchmark: The CAT Fund was benchmarked to the IBC First Tier through February 2008. From March 2008 to December 2009, it was the Merrill Lynch 1-Month LIBOR. From January 2010 to June 2010, it was a blend of the average of the 3-Month Treasury Bill rate and the iMoneyNet First Tier Institutional 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 iMoneyNet 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.

## 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 \$765.4 million as of December 31, 2017.
- The Endowment's return outperformed its Target over the quarter and the trailing one-, three-, five-, and ten-year time periods.

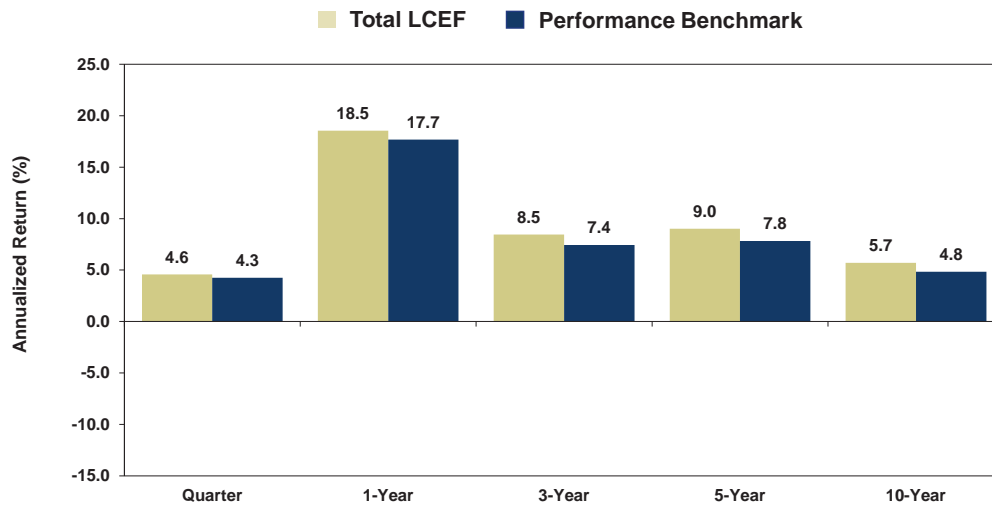
## Asset Allocation as of 12/31/2017 Total LCEF Assets = \$765.4 Million

	Market Value (\$)	Current Allocation (%)	Target Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)
LCEF Total Fund	765,375,543	100.0	100.0		
Global Equity	562,316,360	73.5	71.0	61.0	81.0
Fixed Income	114,840,678	15.0	17.0	12.0	22.0
TIPS	73,560,499	9.6	11.0	6.0	16.0
Cash Equivalents	14,658,005	1.9	1.0	0.0	10.0



# LCEF Investment Results

## Periods Ending 12/31/2017

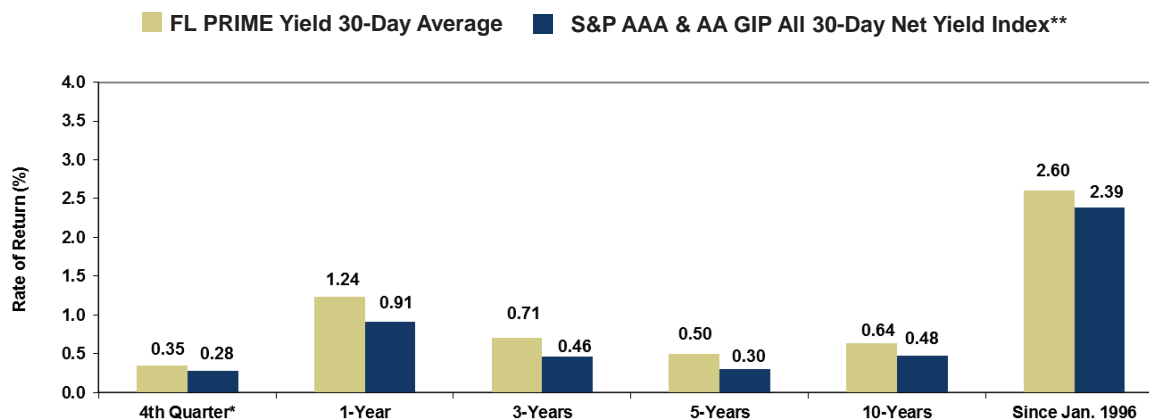


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## Florida PRIME: Executive Summary

- 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 December 31, 2017, the total market value of Florida PRIME was \$11.4 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.

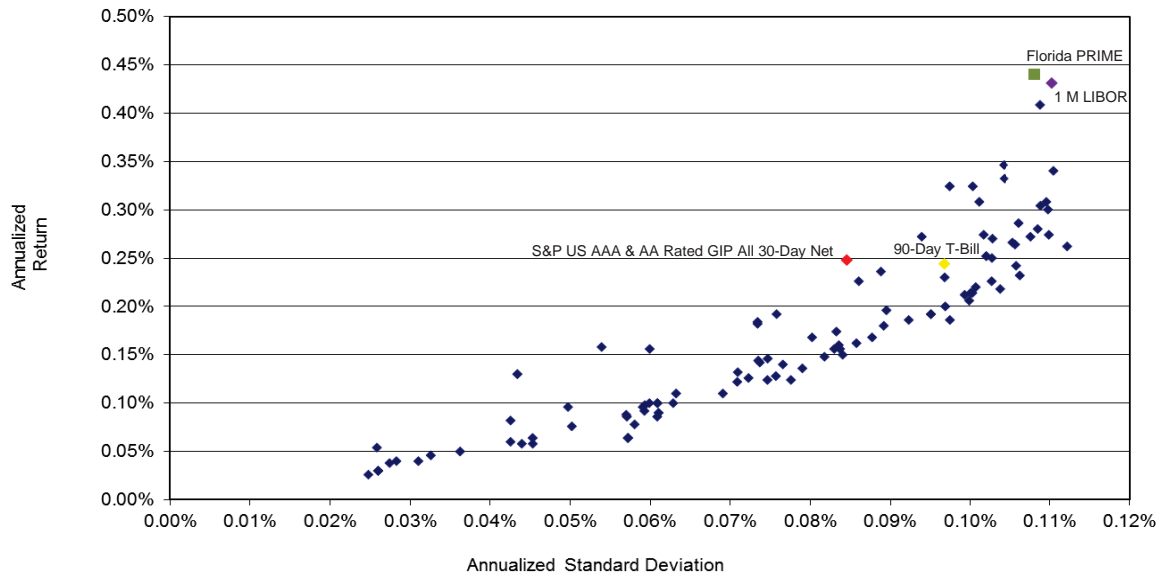
## Florida PRIME Investment Results Periods Ending 12/31/2017



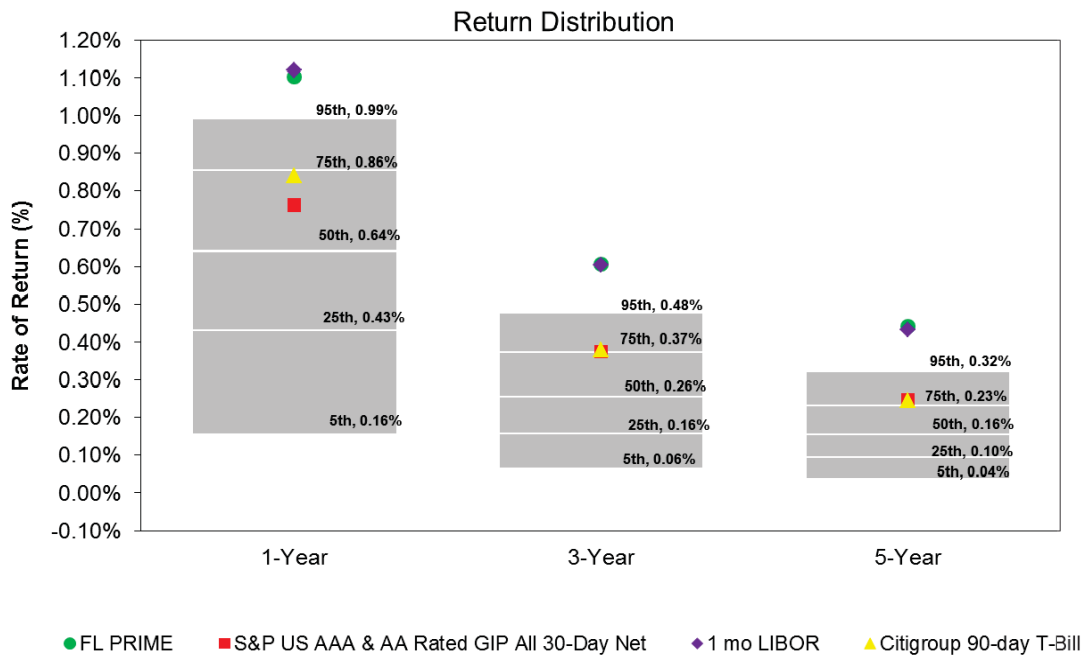
\*Returns less than one year are not annualized.

\*\*S&P AAA & AA GIP All 30-Day Net Yield Index for all time periods shown.

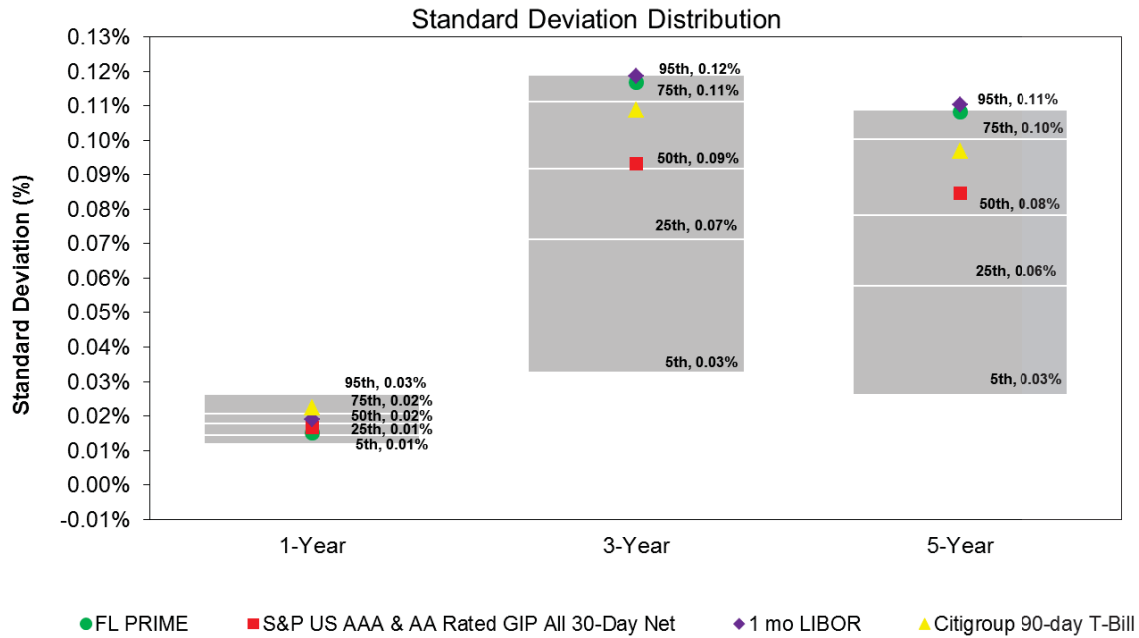
# Florida PRIME Risk vs. Return 5 Years Ending 12/31/2017



# Return Distribution Periods Ending 12/31/2017



# Standard Deviation Distribution Periods Ending 12/31/2017



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## Appendix

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## FRS Investment Plan Costs

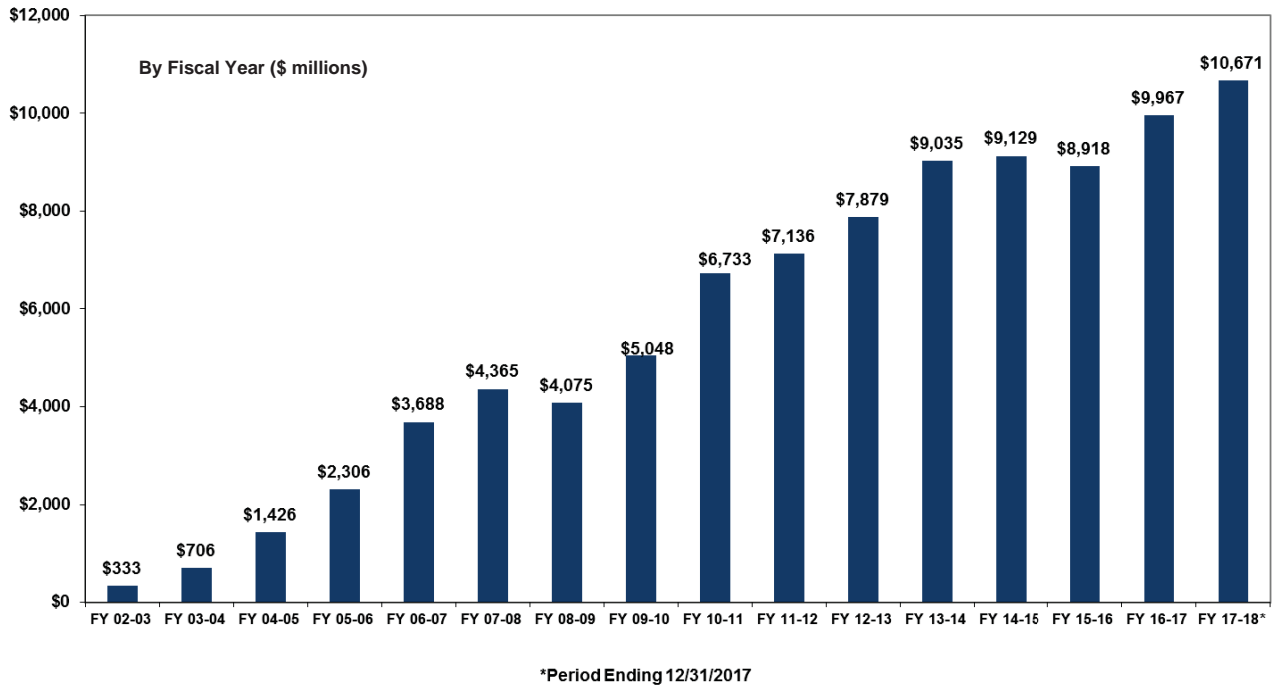
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Investment Category	Investment Plan Fee*	Average Mutual Fund Fee**
Large Cap Equity	0.16%	0.84%
Small-Mid Cap Equity	0.59%	1.03%
International Equity	0.31%	1.05%
Diversified Bonds	0.15%	0.58%
Target Date	0.11%	0.64%
Money Market	0.06%	0.18%

\*Average fee of multiple products in category as of 12/31/2017.

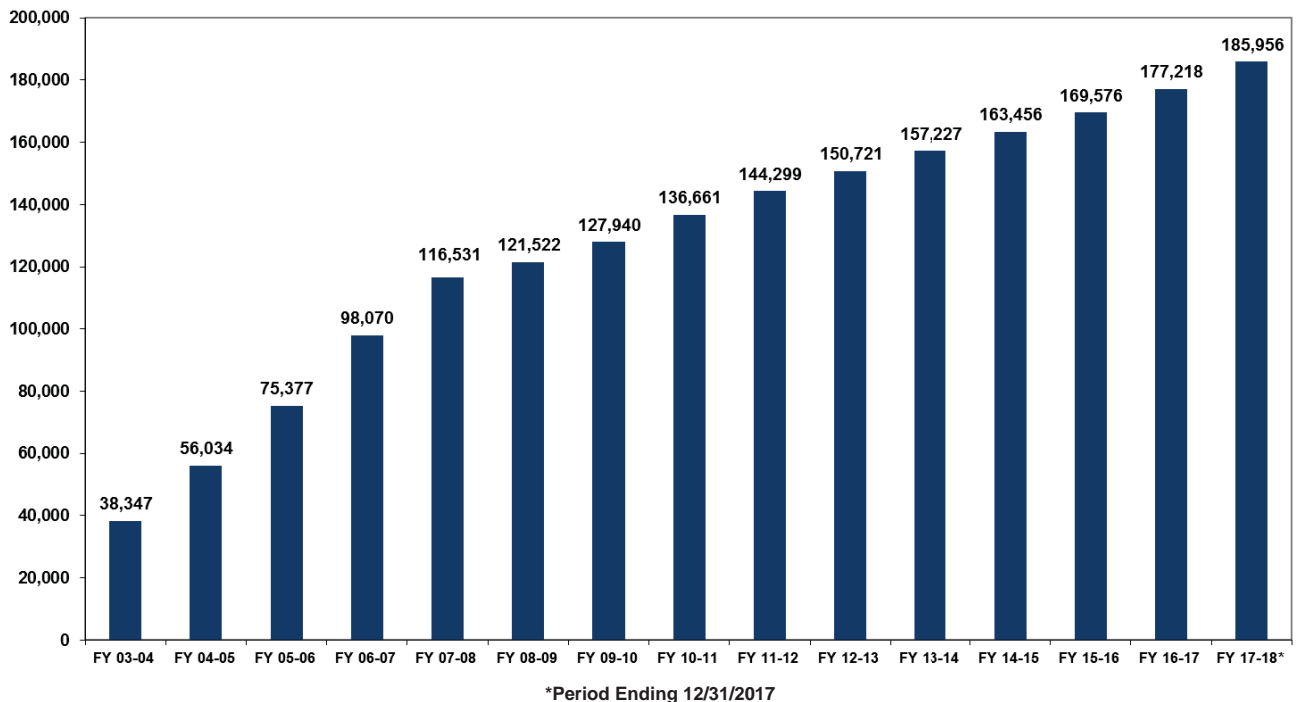
\*\*Source: AHIC's annual mutual fund expense analysis as of 12/31/2016.

## Investment Plan Fiscal Year End Assets Under Management



Source: Investment Plan Administrator

## Investment Plan Membership



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 December 31, 2017, the total value of all FHCF accounts was \$17.6 billion.

## CAT Operating Fund Characteristics Period Ending 12/31/2017

<b>Maturity Analysis</b>	
1 to 30 Days	29.18%
31 to 60 Days	18.21
61 to 90 Days	15.51
91 to 120 Days	4.74
121 to 150 Days	4.44
151 to 180 Days	5.42
181 to 270 Days	5.88
271 to 365 Days	5.27
366 to 455 Days	3.03
>= 456 Days	8.32
<b>Total % of Portfolio:</b>	<b>100.00%</b>

<b>Bond Rating Analysis</b>	
AAA	42.48%
AA	20.04
A	37.48
Baa	0.00
Other	0.00
<b>Total % of Portfolio</b>	<b>100.00%</b>

## CAT 2013 A Fund Characteristics Period Ending 12/31/2017

<b>Maturity Analysis</b>	
1 to 30 Days	5.42%
31 to 60 Days	15.65
61 to 90 Days	2.32
91 to 120 Days	6.28
121 to 150 Days	1.98
151 to 180 Days	37.77
181 to 270 Days	8.96
271 to 365 Days	7.06
366 to 455 Days	0.60
>= 456 Days	13.96
<b>Total % of Portfolio:</b>	<b>100.00%</b>

<b>Bond Rating Analysis</b>	
AAA	72.03%
AA	16.46
A	11.51
Baa	0.00
Other	0.00
<b>Total % of Portfolio</b>	<b>100.00%</b>

## CAT 2016 A Fund Characteristics Period Ending 12/31/2017

<b>Maturity Analysis</b>	
1 to 30 Days	19.13%
31 to 60 Days	14.94
61 to 90 Days	2.07
91 to 120 Days	6.21
121 to 150 Days	2.48
151 to 180 Days	6.23
181 to 270 Days	23.38
271 to 365 Days	7.97
366 to 455 Days	0.74
>= 456 Days	16.85
<b>Total % of Portfolio:</b>	<b>100.00%</b>

<b>Bond Rating Analysis</b>	
AAA	60.49%
AA	23.45
A	16.06
Baa	0.00
Other	0.00
<b>Total % of Portfolio</b>	<b>100.00%</b>

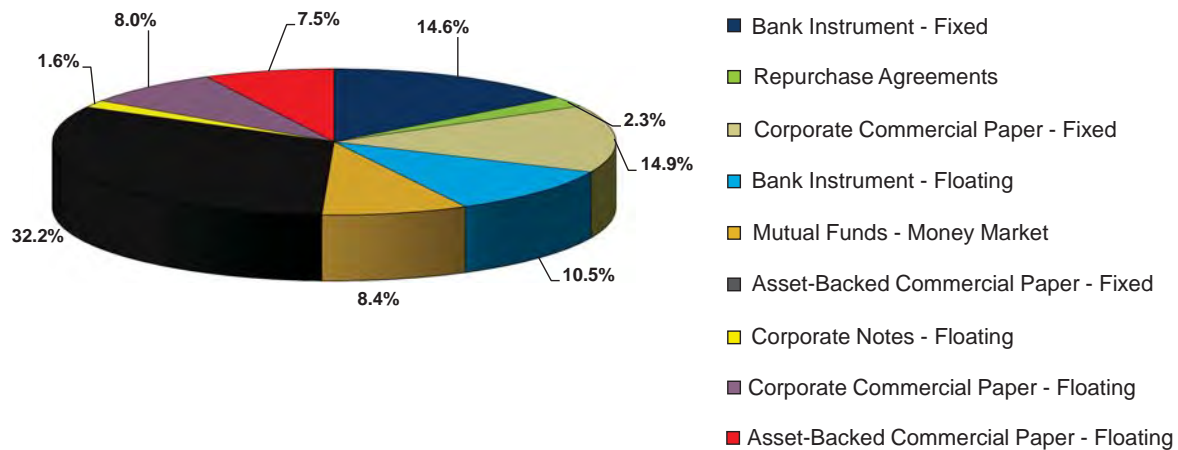
## Florida PRIME Characteristics Quarter Ending 12/31/2017

Cash Flows as of 12/31/2017	Fourth Quarter	Fiscal YTD*
Opening Balance	\$8,042,974,215	\$9,329,349,587
Participant Deposits	\$10,234,352,011	\$13,173,469,524
Gross Earnings	\$31,749,044	\$61,900,591
Participant Withdrawals	(\$6,879,389,487)	(\$11,134,297,455)
Fees	(\$731,249)	(\$1,467,714)
Closing Balance (12/31/2017)	\$11,428,954,534	\$11,428,954,534
<b>Change</b>	<b>\$3,385,980,319</b>	<b>\$2,099,604,947</b>

\*Period July 2017 – December 2017

## Florida PRIME Characteristics Quarter Ending 12/31/2017

### Portfolio Composition



## Florida PRIME Characteristics Period Ending 12/31/2017

Effective Maturity Schedule	
1-7 Days	40.8%
8 - 30 Days	18.2%
31 - 90 Days	28.5%
91 - 180 Days	7.3%
181+ Days	5.2%
<b>Total % of Portfolio:</b>	<b>100.0%</b>

S & P Credit Quality Composition	
A-1+	64.4%
A-1	35.6%
<b>Total % of Portfolio:</b>	<b>100.0%</b>



FRS Pension Plan | Fourth Quarter 2017

## Quarterly Investment Review

Visit the Aon Hewitt Retirement and Investment Blog (<http://retirementandinvestmentblog.aon.com>); sharing our best thinking.

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7	Fixed Income	37
8	Private Equity	41
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10	Strategic Investments	49
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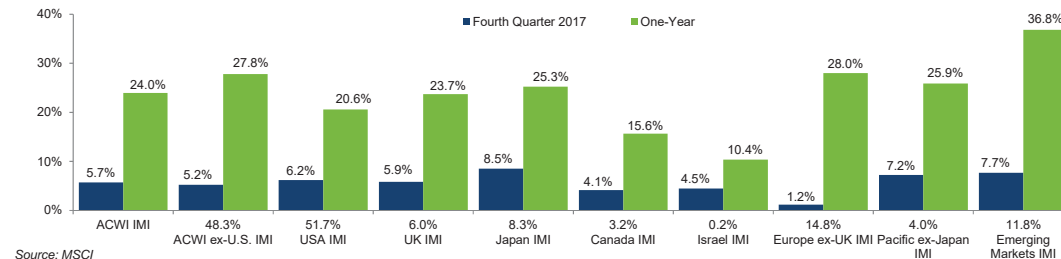


## Market Environment

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## Global Equity Markets

### GLOBAL MSCI IMI INDEX RETURNS AS OF 12/31/2017



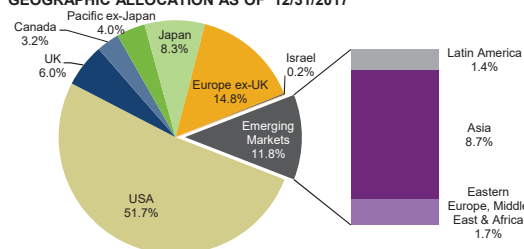
Source: MSCI

A strong earnings season for corporates combined with continued supportive monetary policy and synchronized pick-up in global growth helped global equities return 5.7% in Q4 2017 in U.S. dollar terms. The weakening of the U.S. dollar (0.4% in trade-weighted terms) led to a lower return of 5.3% in local currency terms.

All regions shown above generated positive returns over the quarter. Japan was the strongest performer, returning 8.5% in the fourth quarter of 2017. The Japanese economy and equities ended 2017 in strong footing with a number of economic releases and corporate earnings exceeding analyst forecasts. A positive result in the snap Japanese election and expectations of continued easy monetary policy provided additional support to the strong performance over the quarter

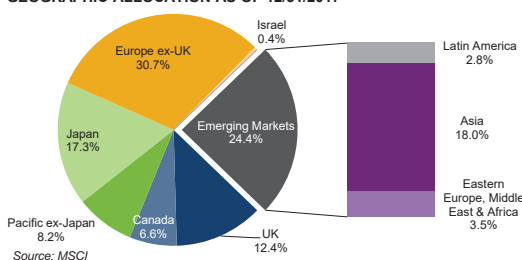
## Global Equity Markets

### MSCI ALL COUNTRY WORLD IMI INDEX GEOGRAPHIC ALLOCATION AS OF 12/31/2017



Source: MSCI

### MSCI ALL COUNTRY WORLD EX-U.S. IMI INDEX GEOGRAPHIC ALLOCATION AS OF 12/31/2017

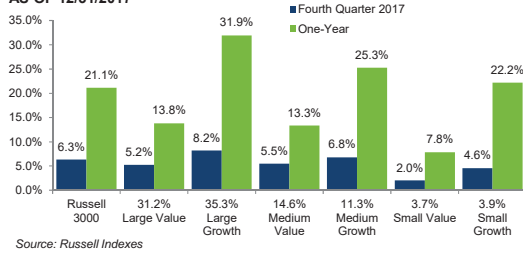


Source: MSCI

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.

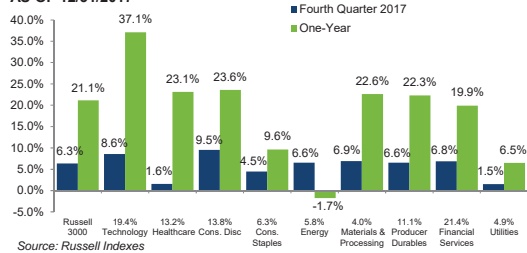
## U.S. Equity Markets

**RUSSELL STYLE RETURNS AS OF 12/31/2017**



Source: Russell Indexes

**RUSSELL GICS SECTOR RETURNS AS OF 12/31/2017**



Source: Russell Indexes

The Russell 3000 Index returned 6.3% during the fourth quarter and 21.1% over the one-year period.

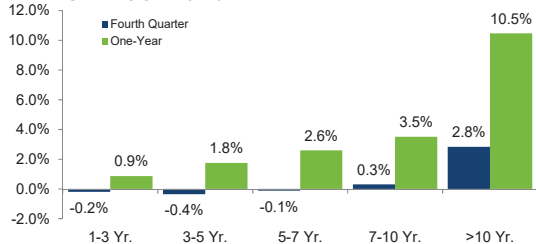
During the fourth quarter, the consumer discretionary sector continued to be the strongest performer, posting returns of 9.5%. More defensive sectors, which are not sensitive to economic activity, underperformed more cyclical sectors. In particular, utilities and healthcare were the weakest sectors, posting returns of 1.5% and 1.6% respectively in Q4 2017.

Performance was positive across the market capitalization spectrum over the quarter. The impressive run for the U.S. equities was sustained in the latter stages of 2017 as it became increasingly clear that the tax reform plan would be signed into law, entering 2018 with fourteen consecutive months of market gains. Large cap stocks outperformed small cap stocks on a one-year basis. In general, growth stocks outperformed value stocks.



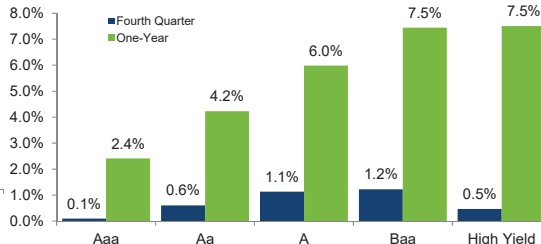
## U.S. Fixed Income Markets

**BLOOMBERG BARCLAYS U.S. AGGREGATE RETURNS BY MATURITY AS OF 12/31/2017**



Source: Bloomberg Barclays

**BLOOMBERG BARCLAYS U.S. AGGREGATE RETURNS BY QUALITY AND HIGH YIELD RETURNS AS OF 12/31/2017**

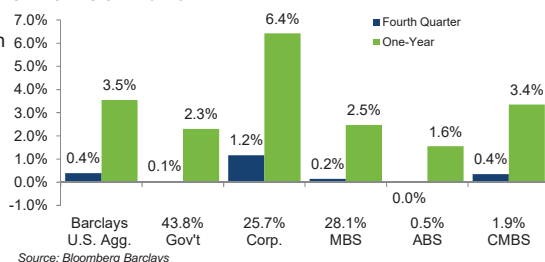


Source: Bloomberg Barclays

The Bloomberg Barclays U.S. Aggregate Bond Index returned 0.4% in the fourth quarter. Credit spreads narrowed over the quarter which supported corporate bond returns. Corporate bonds posted the highest return over the quarter at 1.2%, particularly outperforming securitized assets which broadly edged slightly up. Although performance was positive across all credit qualities, lower quality investment grade bonds outperformed with greater scope for spread tightening.

The yield curve flattened over the quarter with short maturity bond yields moving higher while long maturity yields fell. This flattening led to long duration bonds outperforming intermediate and short duration bonds through the quarter.

**BLOOMBERG BARCLAYS U.S. AGGREGATE RETURNS BY SECTOR AS OF 12/31/2017**

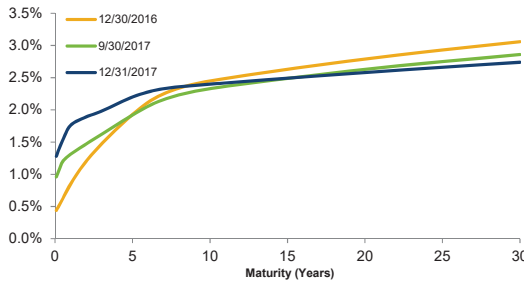


Source: Bloomberg Barclays



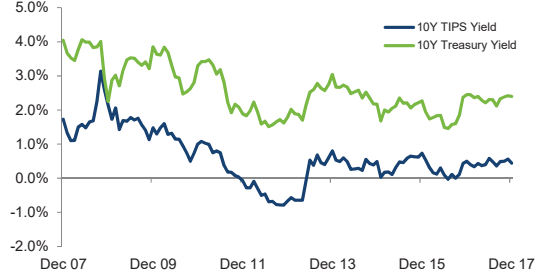
## U.S. Fixed Income Markets

U.S. TREASURY YIELD CURVE



Source: U.S. Department of Treasury

U.S. 10-YEAR TREASURY AND TIPS YIELDS



Source: U.S. Department of Treasury

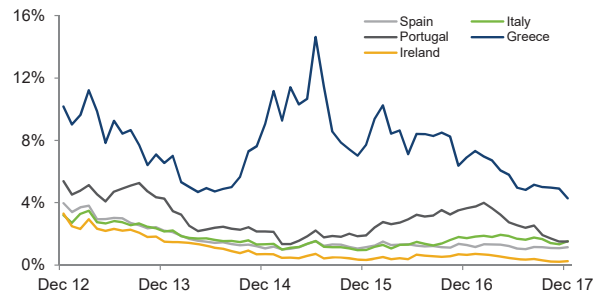
The Treasury yield curve flattened over the quarter, as yields of short to long term maturity bonds rose as expectations of greater monetary tightening grew while longer maturity bond yields fell.

The 10-year U.S. Treasury yield ended the quarter at 2.4%, 7 basis points (bps) higher than at the start of the quarter. This was largely driven by higher breakeven inflation which moved 14 bps higher thereby offsetting the fall in real yields.

The 10-year TIPS yield fell by 5 bps over the quarter and ended the period at 0.4%.

## European Fixed Income Markets

EUROZONE PERIPHERAL BOND SPREADS  
(10-YEAR SPREADS OVER GERMAN BONDS)



Source: DataStream

In the Eurozone, bond spreads over 10 year German bunds fell across the peripheral region (except for Spain which remained flat). Spanish government bond yields fell by 4 bps with the majority of the fall being recovered towards end of the quarter as Spain pro-independence parties maintained a majority in the Catalan regional elections.

Italian bond yields fell by 16 bps, however, yields rose sharply towards the end of the quarter as President Sergio Mattarella dissolved parliament ahead of elections in March 2018.

Portuguese government bond yields fell sharply, moving 45 bps lower as Fitch (a major credit rating agency) followed S&P Global Ratings and upgraded the Portuguese bonds credit rating to investment grade.

Greek government bond yields fell by 76 bps to 4.70% due to upbeat economic data and the progress made on the bailout program; the spread between Greek bonds and German Bunds moved 73 bps lower over the same period.

## Credit Spreads

Spread (bps)	12/31/2017	9/30/2017	12/31/2016	Quarterly Change (bps)	1-Year Change (bps)
U.S. Aggregate	36	38	43	-2	-7
Long Gov't	2	2	3	0	-1
Long Credit	139	149	167	-10	-28
Long Gov't/Credit	83	90	104	-7	-21
MBS	25	22	15	3	10
CMBS	62	71	75	-9	-13
ABS	36	44	59	-8	-23
Corporate	93	101	123	-8	-30
High Yield	343	347	409	-4	-66
Global Emerging Markets	215	235	288	-20	-73

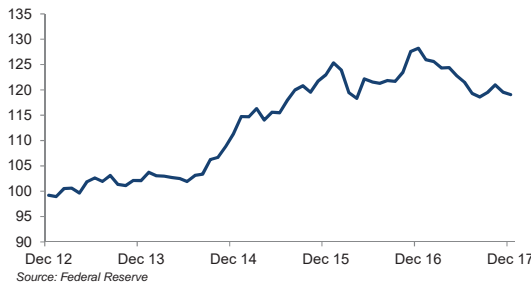
Source: Bloomberg Barclays

During the fourth quarter, credit spreads fell across all the areas of the bond market except for MBS bonds which rose by 3 bps. Meanwhile, Long Government bonds remained flat.

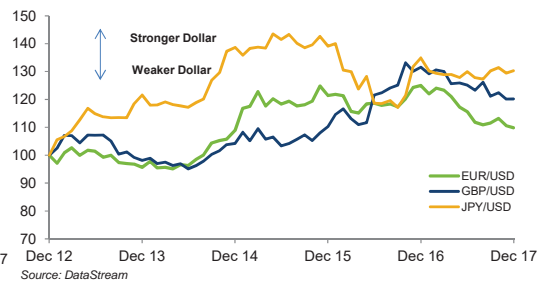
Global emerging market bond spreads fell by the most over the quarter, narrowing by 20 bps. They were followed by Long Credit bonds which fell by 10 bps.

## Currency

**TRADE WEIGHTED U.S. DOLLAR INDEX**  
(1997 = 100)



**U.S. DOLLAR RELATIVE TO EUR, GBP AND JPY**  
REBASED TO 100 AT 12/31/2012

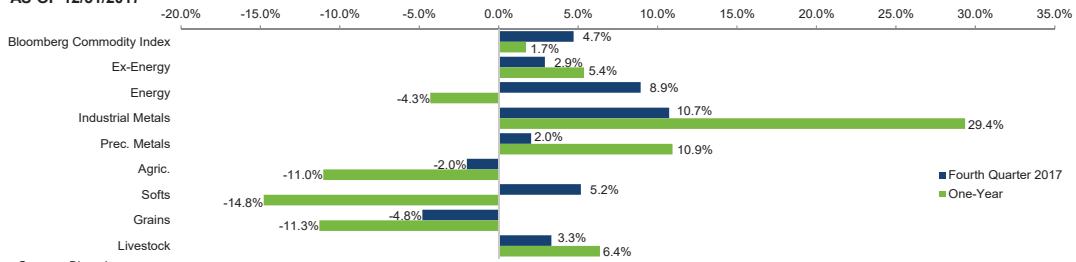


The U.S. dollar weakened by 0.4% on a trade-weighted basis over the quarter which saw the U.S. Federal Reserve (Fed) raising interest rates for the third time in a year. The Fed raised their benchmark rates by 25 bps to a range of 1.25%-1.50%. Widening interest rate differentials and the passing of the stimulatory tax reform was not enough to stem the downward trend in the U.S. dollar.

The U.S. dollar depreciated against all the major currencies with the exception of the Japanese yen. The Bank of England (BoE) hiked the base for the first time in a decade, restoring the base rate back to the pre-Brexit level of 0.5%. Brexit talks showed signs of progress with the European Union and the UK agreeing to a deal on the first stage of Brexit negotiations which sent sterling 0.8% higher against the U.S. dollar. The yen marginally fell by 0.1% against the U.S. dollar. Positive economic data emanating from the Eurozone supported the euro's 1.6% appreciation against the 'greenback'.

## Commodities

### COMMODITY RETURNS AS OF 12/31/2017



Source: Bloomberg

Note: Softs and Grains are part of a wider Agriculture Index

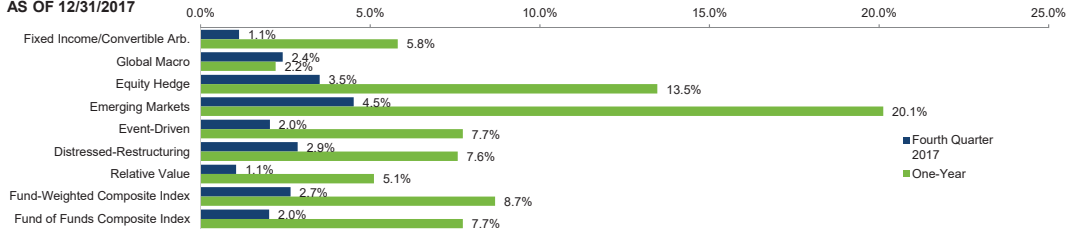
A strong upturn in commodity prices over the quarter saw the Bloomberg Commodity Index return 4.7%, driven mainly by the increase in crude oil prices. The price of WTI crude oil rose 17.0% to over \$60/bbl.

Over the quarter, the best performing segment was Industrial Metals with a return of 10.7%, followed by Energy (8.9%).

Grains and agriculture were the worst performing sectors over the quarter, returning -4.8% and -2.0% respectively.

## Hedge Fund Markets Overview

### HEDGE FUND PERFORMANCE AS OF 12/31/2017



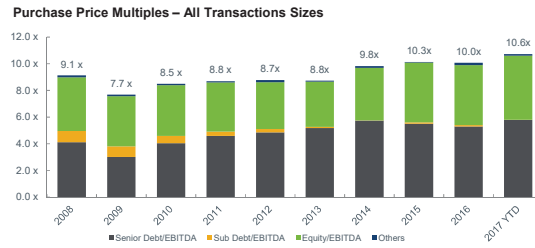
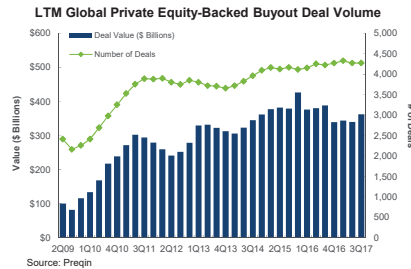
Note: Latest 5 months of HFR data are estimated by HFR and may change in the future.  
Source: HFR

Hedge fund performance was positive across all strategies in the fourth quarter.

The HFRI Fund-Weighted Composite Index and the HFRI Fund of Funds Composite Index produced returns of 2.7% and 2.0%, respectively, during the quarter.

Emerging market hedge funds continued to be the best performer, posting a return of 4.5% during the fourth quarter which brought the one-year return to 20.1%. Global macro strategies ended 2017 in positive fashion, returning 2.4% which brought the 12 month return back into the 'black'.

## Private Equity Market Overview – Third Quarter 2017



**Fundraising:** In 3Q 2017, \$149.2 billion was raised by 274 funds, which was a decline of 12.2% on a capital basis and 18.5% by number of deals from the prior quarter. Dry powder stood at \$1.3 trillion at the end of the quarter, an increase of 0.3% and 28.4% compared to 2Q 2017 and the five year average, respectively.<sup>1</sup>

**Buyout:** Global private equity-backed buyout deals totaled \$118.0 billion in 3Q 2017, which was an increase of 22.3% and 34.2% from the prior quarter and five year average, respectively.<sup>1</sup> At the end of 3Q 2017, the average purchase price multiple for all U.S. LBOs was 10.6x EBITDA, up from 10.3x as of the end of 2Q 2017. Large cap middle-market purchase price multiples stood at 10.5x, up compared to both 2Q 2017 and full year 2016 levels of 10.3x and 10.0x, respectively. The weighted average purchase price multiple across all European transaction sizes averaged 11.0x EBITDA on an LTM basis in 3Q 2017, up slightly from 10.8x in 2Q 2017. Purchase prices for transactions of €1.0 billion or more decreased slightly from 12.1x in 2Q 2017 to 12.0x in the third quarter. Transactions between €250.0 million and €500.0 million were up 0.6x from the end of 2Q 2017, and stood at 10.1x.<sup>2</sup> Globally, exit value totaled \$68.1 billion on 421 deals in 3Q 2017 compared to \$69.2 billion on 443 deals in the prior quarter.<sup>1</sup>

**Venture:** During the third quarter, 1,299 venture backed transactions totaling \$19.2 billion were completed, which was an increase on a capital basis over the prior quarter's total of \$19.0 billion across 1,260 deals. This was 22.5% higher than the five-year quarterly average of \$15.7 billion.<sup>3</sup> Total U.S. venture backed exit activity totaled approximately \$11.2 billion across 144 completed transactions in 2Q 2017, down from \$1.5 billion across 156 exits in 2Q 2017.<sup>4</sup>

**Mezzanine:** Eight funds closed on \$3.6 billion during the quarter. This was an increase from the prior quarter's total of \$3.4 billion raised by nine funds, but represented a decline of 24.8% from the five year quarterly average of \$4.8 billion. Estimated dry powder was \$50.0 billion at the end of 3Q 2017, which was flat compared to 2Q 2017.<sup>1</sup>

**Distressed Debt:** The LTM U.S. high-yield default rate was 1.6% as of September 2017, which was down from March 2017's LTM rate of 2.2%.<sup>5</sup> Distressed debt and bankruptcy restructuring activity totaled \$156.4 billion during the first nine months of 2017, representing a decline of 17.0% from the same period in 2016. U.S. activity accounted for \$70.7 billion through September 2017 and was down 28.0% from the same period of the prior year.<sup>6</sup>

**Secondaries:** Seven funds raised \$11.7 billion during the third quarter, up from \$5.6 billion by 12 funds in 2Q 2017.<sup>1</sup> The average discount rate for all private equity sectors declined 0.1% quarter-over-quarter to 8.0%.<sup>7</sup>

**Infrastructure:** \$11.9 billion of capital was raised by 17 funds in 3Q 2017 compared to \$7.6 billion of capital raised by 14 partnerships in 2Q 2017. At the end of the quarter, dry powder stood at \$154.0 billion, up from the prior quarter's record total of \$150.2 billion. Infrastructure managers completed 344 deals with an estimated aggregate deal value of \$123.2 billion in 3Q 2017 compared to 403 deals totaling \$147.4 billion a quarter ago.<sup>1</sup>

**Natural Resources:** During 3Q 2017, seven funds closed on \$2.6 billion compared to 10 funds totaling \$5.3 billion in 2Q 2017. Energy and utilities industry managers completed approximately 99 deals totaling an estimated \$21.0 billion through 3Q 2017, which represents 93.4% of the full year capital deployment in 2016.<sup>1</sup>

Sources: <sup>1</sup> Preqin <sup>2</sup> Standard & Poor's <sup>3</sup> PWC / CB Insights MoneyTree Report <sup>4</sup> PitchBook/NVCA Venture Monitor <sup>5</sup> Fitch Ratings <sup>6</sup> Thomson Reuters <sup>7</sup> UBS

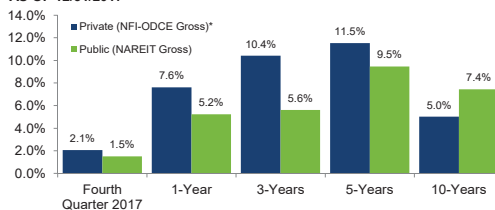
Notes: FY: Fiscal year ended 12/31; YTD: Year to date; LTM: Last twelve months (aka trailing twelve months); PPM: Purchase Price Multiples: Total Purchase Price / EBITDA.

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## U.S. Commercial Real Estate Markets

### PRIVATE VS. PUBLIC REAL ESTATE RETURNS AS OF 12/31/2017



\*Fourth quarter returns are preliminary  
Sources: NCREIF, NAREIT

**US Core returns holding in long run average range.** The trailing one-year return for U.S. core real estate was 7.6%\* in the fourth quarter, holding fairly steady over the year and remaining within the sector's long run average range of 7.0-9.0%. During the quarter, returns climbed slightly to 2.1%\*, up 20 bps over Q3 but 4 bps lower YOY. Income is now, and will continue to be, the larger driver of the sector's total return. Returns are expected to moderate again slightly in 2018 as the real estate cycle is very mature.

**US REITs underperformed US Core,** but total returns for global property stocks (FTSE EPRA/NAREIT Developed Index) ended the year up 11.5%, driven largely by outsized returns in both the Europe (+28.8%) and Asia (+26.8%); US REITs gained a modest 5.2%. Top performing sectors during the year included infrastructure, data centers, manufactured homes and industrial. Retail REIT returns was the only sector not in positive territory for the year. The US REIT market ended the year trading at an approximate 2% premium to NAVs.

**Transaction volume cooled; but prices rose.** 2017 demonstrated a continued modest decline in sales momentum, but sales prices continued to rise slightly—continuing to mark new peaks and establishing a wider divergence from the sales volume trend. The current mature point-in-cycle is making underwriting new purchases more difficult, but a still healthy debt market continues to provide sellers with the opportunity to refinance when there is a lack of interested buyers. While sales volume is now off 15% in the last two years, buyers have largely become more selective as trends by property type and region vary tremendously. Industrial, suburban office and limited service hotels actually marked year over year (YOY) sales growth, while sales in retail as well as office, hotel and apartments in the six major markets fell significantly YOY. Values for high quality assets remained relatively stable throughout the year; however, there is also a wide disparity in relative valuations within the property sectors and regions.

**Sector fundamentals continue to remain on solid footing** as we enter 2018, albeit not as healthy as this time last year. A clear slowing in net absorption across most property types in 2017 was noted. This combined with largely still rising new supply continues to set expectations for more downward pressure on fundamentals as 2018 progresses. More cautious underwriting assumptions should be employed in 2018. That said, the recent Tax Cuts and Jobs Act bill passed in the U.S. should benefit commercial real estate in several areas, and may help prolong the current cycle short term.

**Overall, investors should continue to expect moderating sector returns in 2018 as the cycle is very mature.** Portfolio construction is crucial to help manage risk at this stage in the cycle, as new dollars deployed will likely have to withstand a down cycle before being returned to investors.

Sources: NCREIF, RCA, CBRE-EA, Aon Hewitt, \*Indicates preliminary NFI-ODCE data (gross of fees)



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Total Fund

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## Highlights

### 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 underperformed the Performance Benchmark. The Total Fund outperformed the Performance Benchmark during the trailing one-, three-, five-, and ten-year periods.

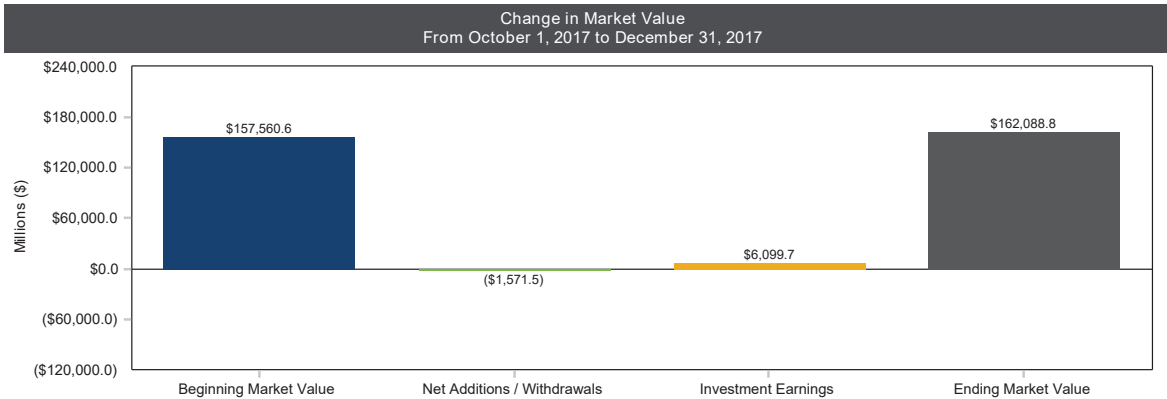
### Asset Allocation

- The Fund assets total \$162.1 billion as of December 31, 2017, which represents a \$4.5 billion increase 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.

## Total Fund

As of December 31, 2017

## Total Plan Asset Summary



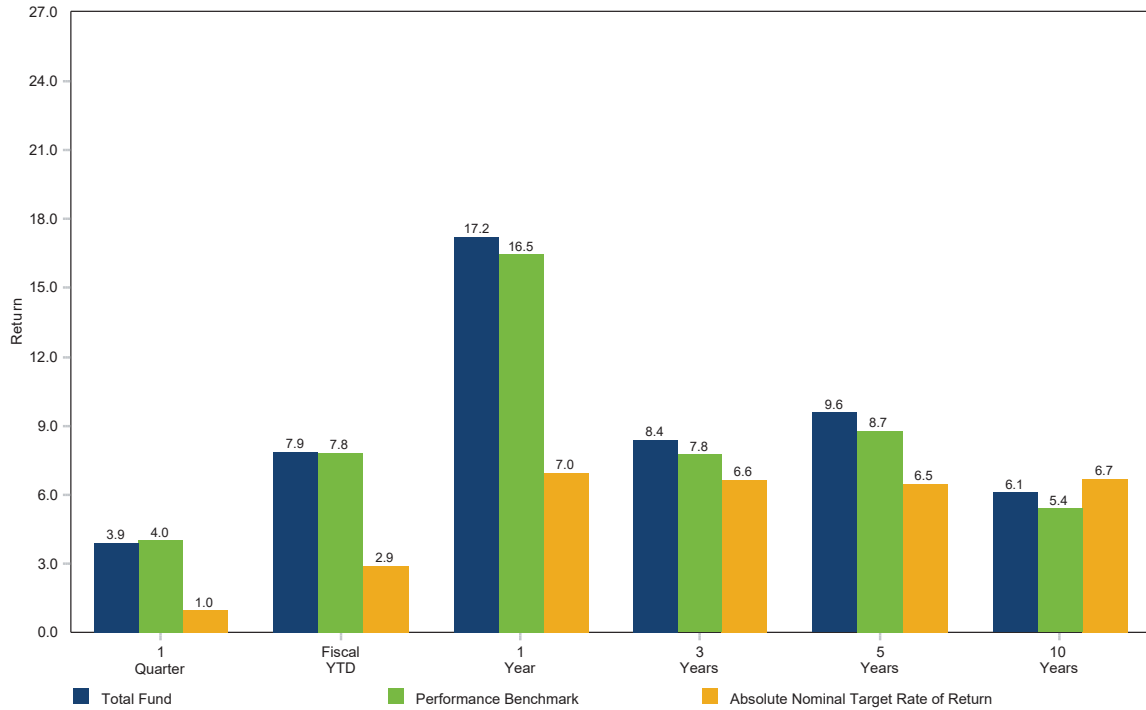
## Summary of Cash Flow

	1 Quarter	Fiscal* YTD
<b>Total Fund</b>		
Beginning Market Value	157,560,572,240	153,573,300,932
+ Additions / Withdrawals	-1,571,530,167	-3,460,855,710
+ Investment Earnings	6,099,712,770	11,976,309,621
= Ending Market Value	162,088,754,843	162,088,754,843

\*Period July 2017 - December 2017

**Total Plan Performance Summary**

**Return Summary**



**Asset Allocation & Performance**

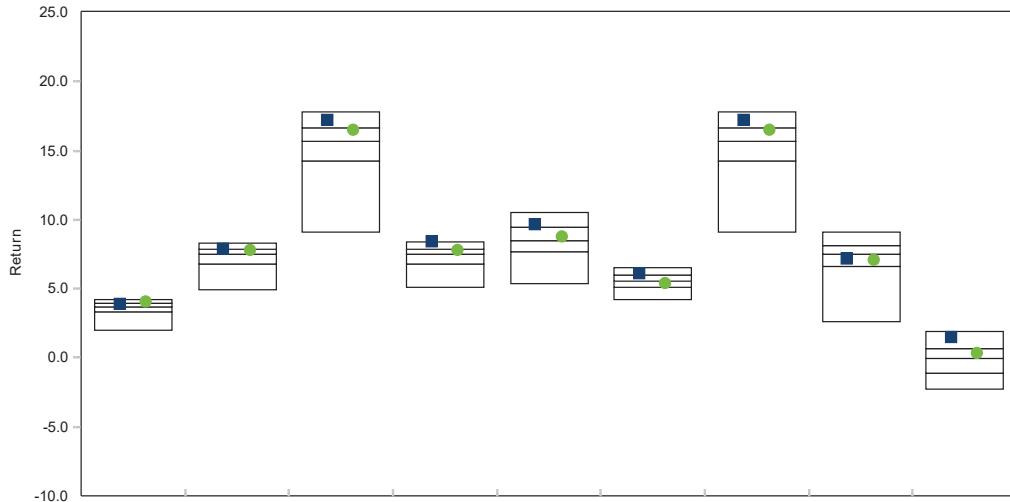
	Allocation			Performance(%)					
	Market Value (\$)	%	Policy(%)	1 Quarter	Fiscal YTD	1 Year	3 Years	5 Years	10 Years
<b>Total Fund</b>	162,088,754,843	100.0	100.0	3.9 (30)	7.9 (25)	17.2 (14)	8.4 (5)	9.6 (19)	6.1 (19)
Performance Benchmark				4.0 (17)	7.8 (30)	16.5 (28)	7.8 (32)	8.7 (39)	5.4 (60)
Absolute Nominal Target Rate of Return				1.0 (97)	2.9 (98)	7.0 (97)	6.6 (82)	6.5 (91)	6.7 (4)
<b>Global Equity*</b>	93,515,331,992	57.7	56.1	5.7	11.6	25.2	10.2	11.9	6.0
Asset Class Target				5.7	11.3	24.0	9.5	11.1	5.2
<b>Domestic Equities</b>	42,625,093,312	26.3		6.5 (11)	11.5 (20)	21.2 (25)	10.9 (24)	15.5 (17)	8.7 (19)
Asset Class Target				6.3 (21)	11.2 (30)	21.1 (29)	11.1 (13)	15.6 (15)	8.6 (23)
<b>Foreign Equities</b>	40,847,098,569	25.2		5.1 (39)	12.0 (27)	30.2 (19)	9.4 (30)	8.3 (37)	3.5 (12)
Asset Class Target				5.2 (29)	11.8 (29)	27.9 (58)	8.4 (60)	7.3 (67)	2.2 (63)
<b>Global Equities Benchmark</b>	9,451,753,950	5.8		5.1	10.3	23.0	9.4	11.6	4.9
Benchmark				5.5	10.7	22.7	9.3	11.4	5.0
<b>Fixed Income</b>	28,519,599,431	17.6	19.6	0.0 (95)	0.7 (96)	2.4 (95)	2.0 (85)	1.7 (83)	4.1 (68)
Asset Class Target				-0.1 (99)	0.7 (96)	2.3 (95)	1.8 (89)	1.5 (88)	3.7 (82)
<b>Private Equity</b>	10,541,594,539	6.5	6.5	3.3	7.7	18.1	13.4	14.9	9.3
Asset Class Target				7.6	11.9	27.0	12.6	16.0	10.8
<b>Real Estate</b>	13,935,977,876	8.6	8.6	2.7 (25)	3.8 (49)	8.7 (41)	10.1 (49)	12.2 (27)	6.4
Asset Class Target				1.9 (66)	3.5 (66)	7.3 (76)	9.6 (69)	10.3 (72)	4.8
<b>Strategic Investments</b>	13,278,538,655	8.2	8.1	2.1	4.3	9.3	6.2	8.9	4.5
Short-Term Target				2.2	4.0	7.2	4.5	6.1	2.4
<b>Cash</b>	2,297,712,349	1.4	1.0	0.3	0.6	1.0	0.5	0.4	-0.1
MoneyNet First Tier Institutional Money Market Funds Net Index				0.3	0.5	0.9	0.4	0.3	0.5

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.



Plan Sponsor Peer Group Analysis

All Public Plans > \$1B-Total Fund



	1 Quarter	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	2017	2016	2015
■ Total Fund	3.9 (30)	7.9 (25)	17.2 (14)	8.4 (5)	9.6 (19)	6.1 (19)	17.2 (14)	7.1 (61)	1.4 (11)
● Performance Benchmark	4.0 (17)	7.8 (30)	16.5 (28)	7.8 (32)	8.7 (39)	5.4 (60)	16.5 (28)	7.1 (63)	0.3 (36)
5th Percentile	4.2	8.3	17.8	8.4	10.5	6.6	17.8	9.1	1.9
1st Quartile	3.9	7.9	16.6	7.9	9.5	6.0	16.6	8.1	0.7
Median	3.7	7.5	15.6	7.5	8.5	5.5	15.6	7.5	0.0
3rd Quartile	3.4	6.8	14.3	6.8	7.6	5.1	14.3	6.6	-1.1
95th Percentile	2.0	4.9	9.1	5.1	5.4	4.2	9.1	2.6	-2.2
Population	92	92	90	86	86	78	90	108	94

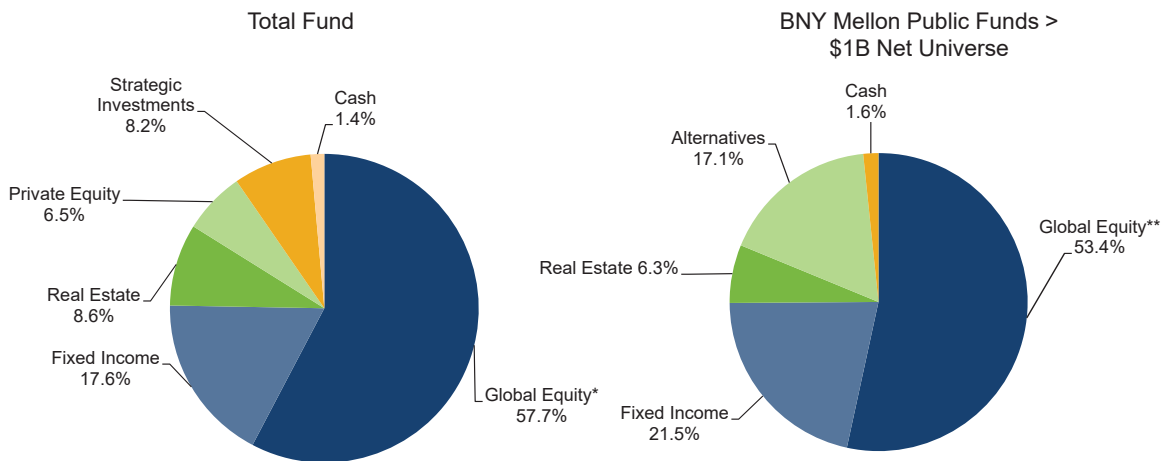
Parentheses contain percentile rankings.



Total Fund

As of December 31, 2017

Universe Asset Allocation Comparison

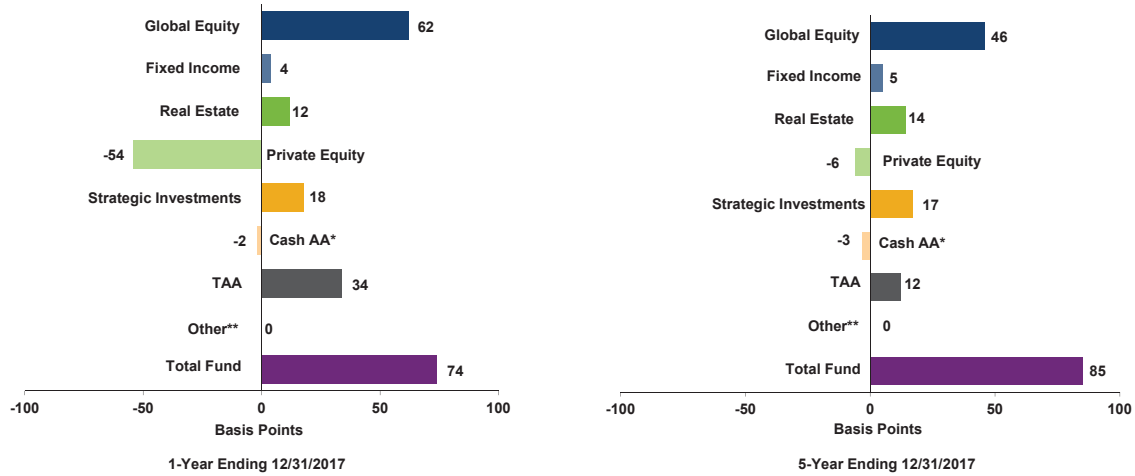


\*Global Equity Allocation: 26.3% Domestic Equities; 25.2% Foreign Equities; 5.8% Global Equities; 0.4% Global Equity Liquidity Account. Percentages are of the Total FRS Fund.

\*\*Global Equity Allocation: 29.9% Domestic Equities; 23.5% Foreign Equities.



Attribution

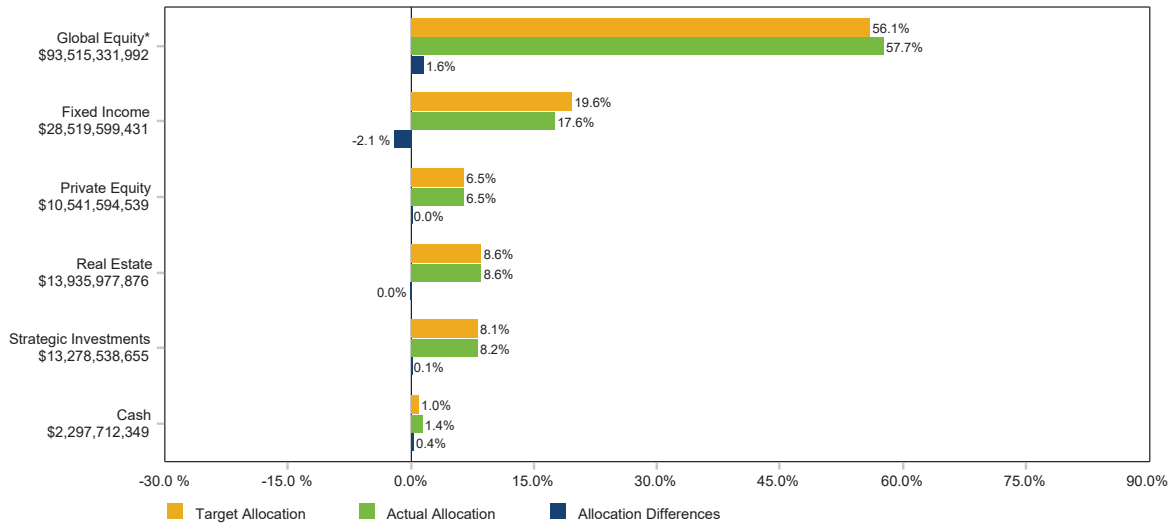


\*Cash AA includes Cash and Central Custody, Securities Lending Account income from 12/2009 to 3/2013 and unrealized gains and losses on securities lending collateral beginning June 2013, TF STIPFRS NAV Adjustment Account, and the Cash Expense Account.  
 \*\*Other includes legacy accounts and unexplained differences due to methodology.



Asset Allocation Compliance

	Market Value (\$)	Current Allocation (%)	Target Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)
Total Fund	162,088,754,843	100.0	100.0		
Global Equity*	93,515,331,992	57.7	56.1	45.0	70.0
Fixed Income	28,519,599,431	17.6	19.6	10.0	26.0
Private Equity	10,541,594,539	6.5	6.5	2.0	9.0
Real Estate	13,935,977,876	8.6	8.6	4.0	16.0
Strategic Investments	13,278,538,655	8.2	8.1	0.0	16.0
Cash	2,297,712,349	1.4	1.0	0.3	5.0



\* 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.



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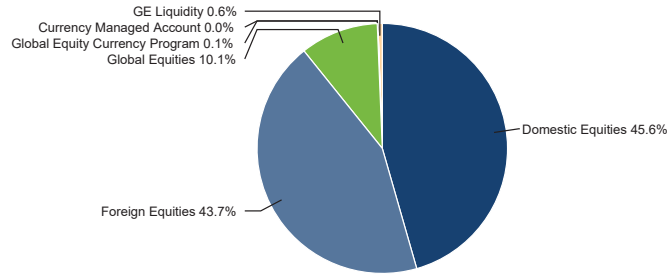
## Global Equity

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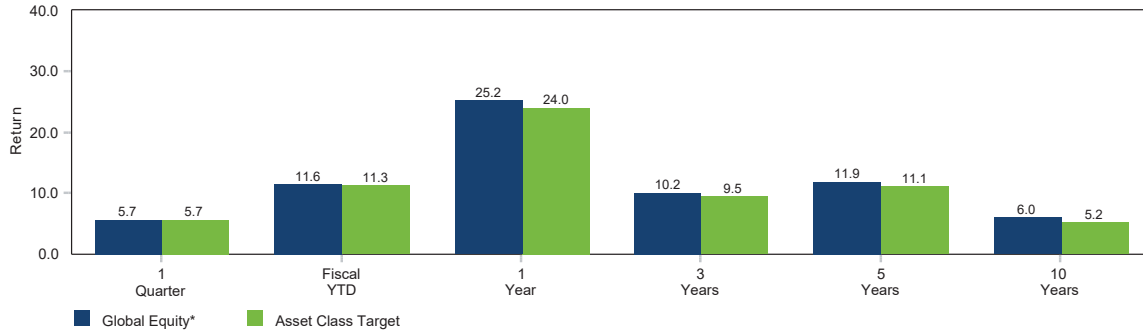
Global Equity\* Portfolio Overview

Current Allocation

December 31, 2017 : \$93,515M



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.

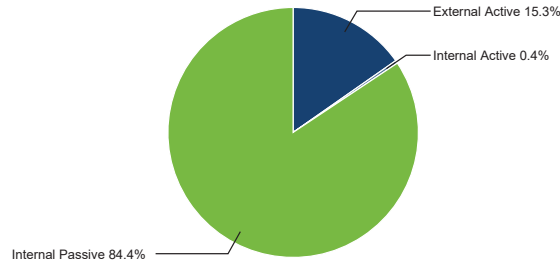


Domestic Equities

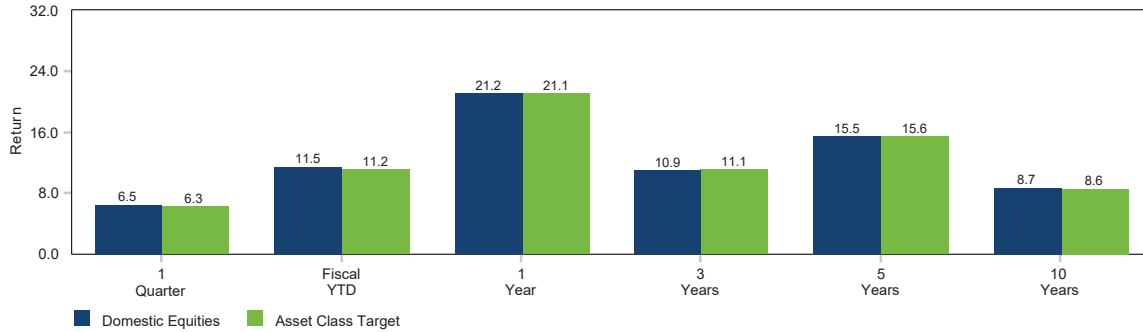
Domestic Equities Portfolio Overview

Current Allocation

December 31, 2017 : \$42,625M

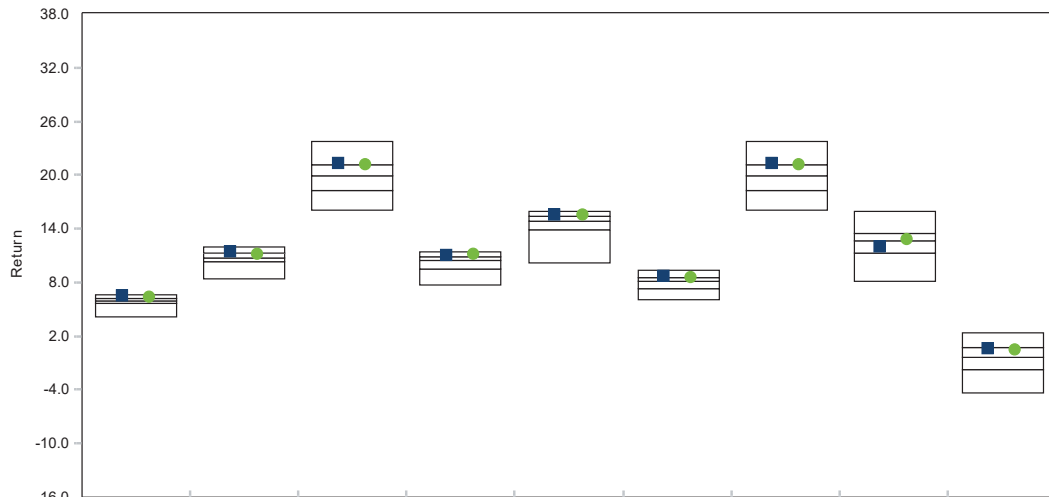


Return Summary



Plan Sponsor Peer Group Analysis

All Public Plans > \$1B-US Equity Segment



	1 Quarter	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	2017	2016	2015
■ Domestic Equities	6.5 (11)	11.5 (20)	21.2 (25)	10.9 (24)	15.5 (17)	8.7 (19)	21.2 (25)	11.9 (64)	0.6 (27)
● Asset Class Target	6.3 (21)	11.2 (30)	21.1 (29)	11.1 (13)	15.6 (15)	8.6 (23)	21.1 (29)	12.7 (47)	0.5 (30)
5th Percentile	6.6	11.9	23.8	11.4	15.9	9.3	23.8	15.9	2.4
1st Quartile	6.3	11.3	21.2	10.9	15.4	8.5	21.2	13.4	0.7
Median	5.9	10.7	20.0	10.5	14.9	8.1	20.0	12.6	-0.4
3rd Quartile	5.6	10.3	18.3	9.5	13.8	7.3	18.3	11.3	-1.7
95th Percentile	4.2	8.4	16.0	7.7	10.1	6.1	16.0	8.1	-4.3
Population	65	65	62	60	53	32	62	63	56

Parentheses contain percentile rankings.

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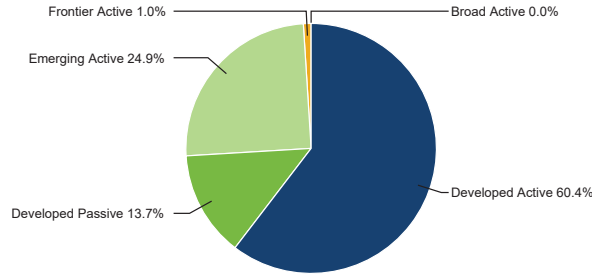
## Foreign Equities

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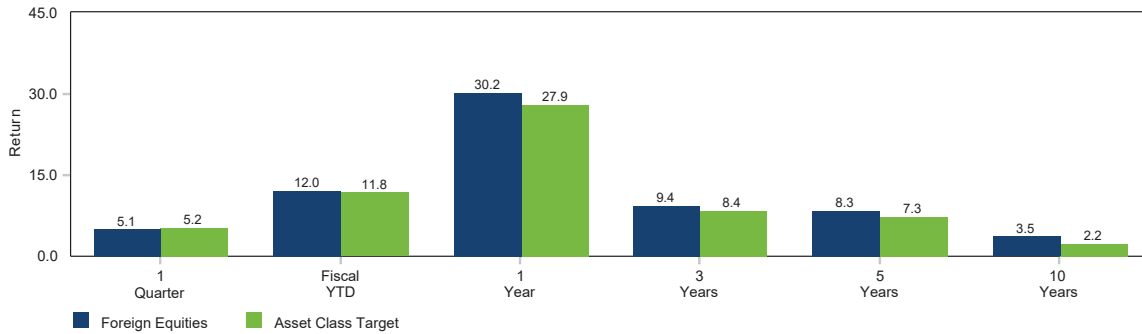
Foreign Equities Portfolio Overview

Current Allocation

December 31, 2017 : \$40,847M

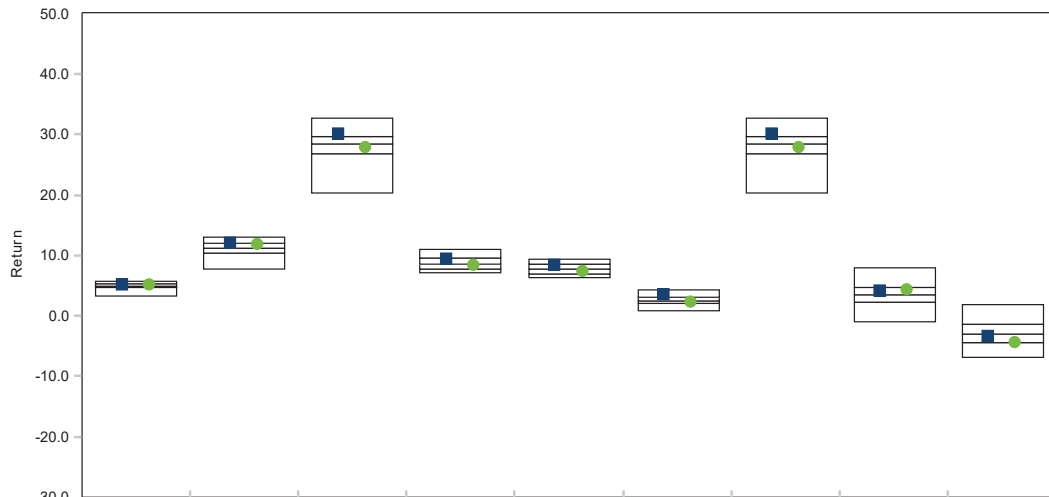


Return Summary



Plan Sponsor Peer Group Analysis

All Public Plans > \$1B-Intl. Equity Segment



	1 Quarter	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	2017	2016	2015
■ Foreign Equities	5.1 (39)	12.0 (27)	30.2 (19)	9.4 (30)	8.3 (37)	3.5 (12)	30.2 (19)	4.1 (38)	-3.4 (54)
● Asset Class Target	5.2 (29)	11.8 (29)	27.9 (58)	8.4 (60)	7.3 (67)	2.2 (63)	27.9 (58)	4.3 (34)	-4.5 (77)
5th Percentile	5.8	13.1	32.8	10.9	9.5	4.3	32.8	7.9	1.9
1st Quartile	5.3	12.0	29.8	9.6	8.6	3.0	29.8	4.7	-1.4
Median	4.9	11.3	28.5	8.7	7.8	2.5	28.5	3.4	-3.0
3rd Quartile	4.7	10.5	26.8	7.8	7.0	2.0	26.8	2.3	-4.4
95th Percentile	3.4	7.7	20.3	7.1	6.4	0.9	20.3	-0.9	-6.8
Population	67	67	65	60	52	31	65	63	53

Parentheses contain percentile rankings.

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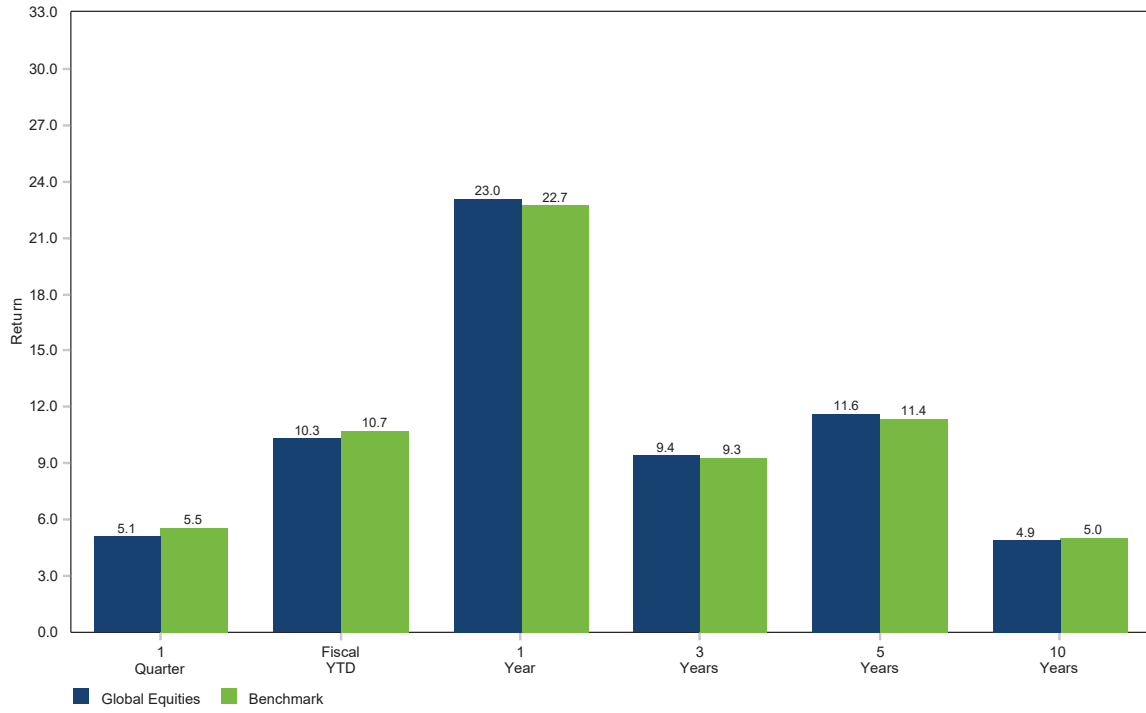


## Global Equities

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Global Equities Performance Summary

Return Summary

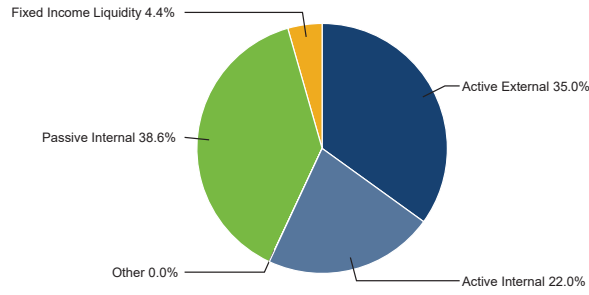


Fixed Income

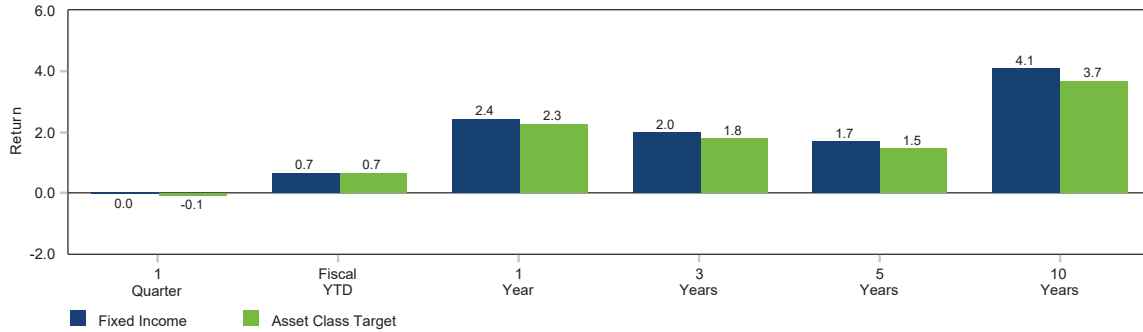
Fixed Income Portfolio Overview

Current Allocation

December 31, 2017 : \$28,520M

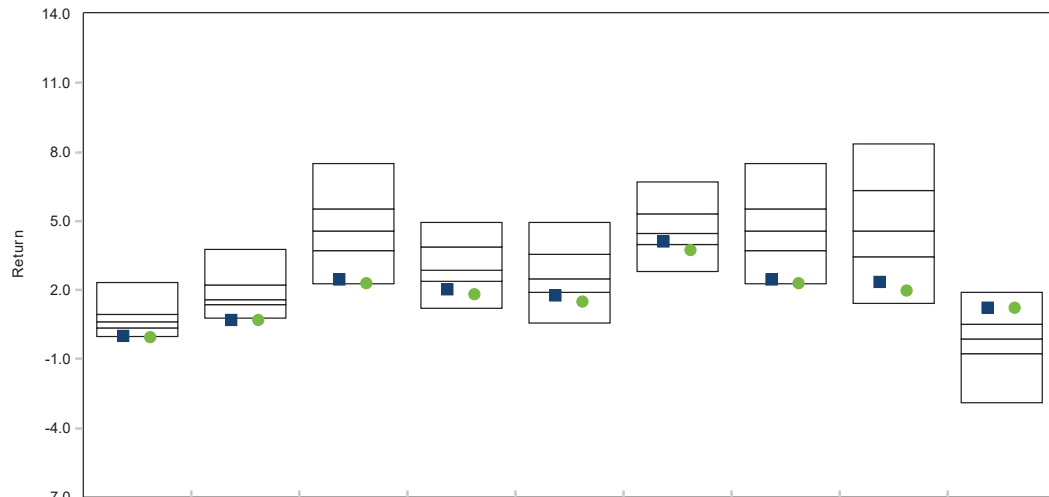


Return Summary



Plan Sponsor Peer Group Analysis

All Public Plans > \$1B-US Fixed Income Segment



	1 Quarter	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	2017	2016	2015
■ Fixed Income	0.0 (95)	0.7 (96)	2.4 (95)	2.0 (85)	1.7 (83)	4.1 (68)	2.4 (95)	2.3 (89)	1.2 (9)
● Asset Class Target	-0.1 (99)	0.7 (96)	2.3 (95)	1.8 (89)	1.5 (88)	3.7 (82)	2.3 (95)	2.0 (93)	1.2 (9)
5th Percentile	2.3	3.7	7.5	4.9	4.9	6.7	7.5	8.3	1.9
1st Quartile	0.9	2.2	5.5	3.8	3.5	5.3	5.5	6.3	0.5
Median	0.6	1.6	4.5	2.9	2.5	4.5	4.5	4.6	-0.1
3rd Quartile	0.4	1.4	3.7	2.4	1.9	4.0	3.7	3.5	-0.7
95th Percentile	0.0	0.8	2.3	1.2	0.6	2.8	2.3	1.4	-2.9
Population	68	65	63	62	58	37	63	63	53

Parentheses contain percentile rankings.

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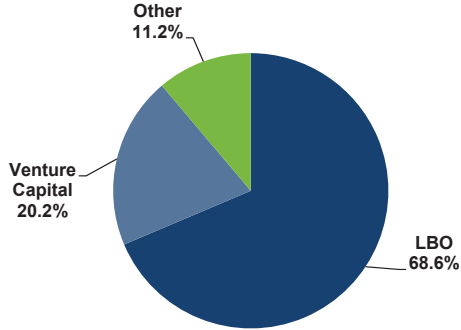


## Private Equity

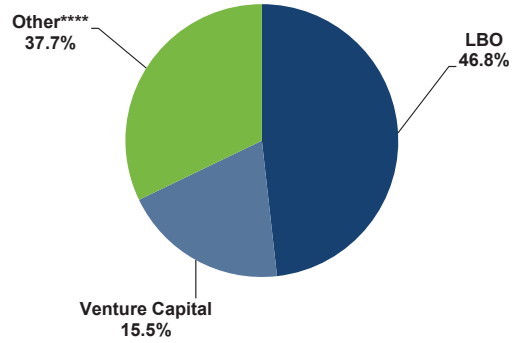
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Overview

FRS Private Equity by Market Value\*



Preqin Private Equity Strategies by Market Value\*\*



\*Allocation data is as of December 31, 2017.

\*\*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.

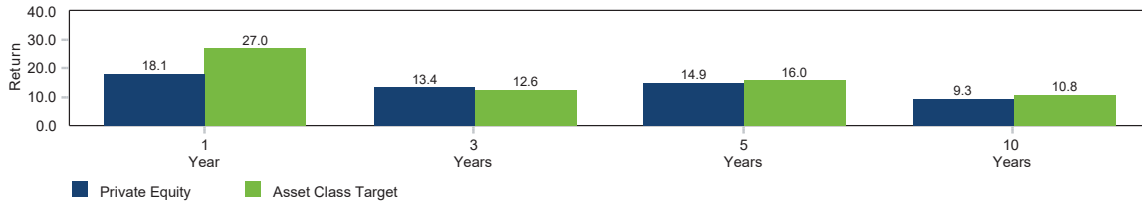
\*\*\*\*Other for the Preqin data consists of Distressed PE, Growth, Mezzanine, and other Private Equity/Special Situations.

Preqin universe is comprised of 10,000 private equity funds representing \$3.8 trillion.

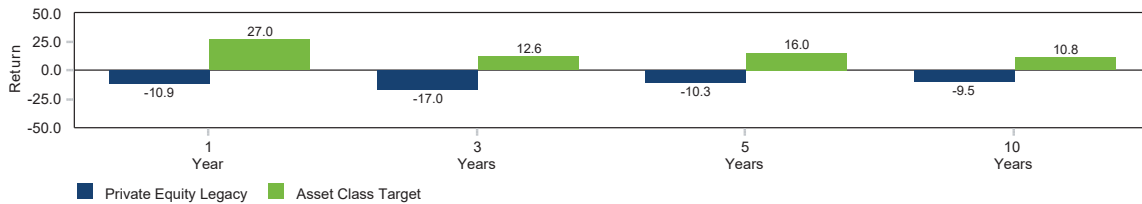


Time-Weighted Investment Results

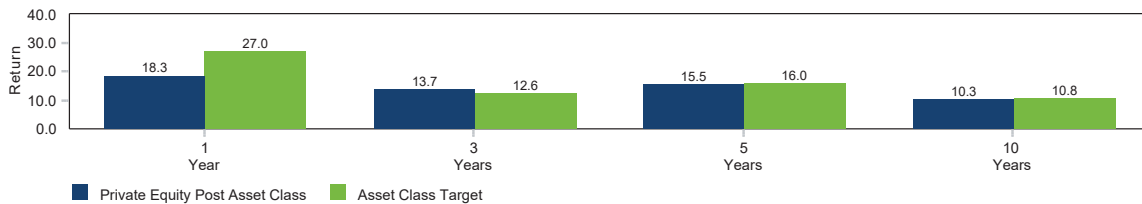
Private Equity Return Summary as of December 31, 2017



Private Equity Legacy Return Summary as of December 31, 2017



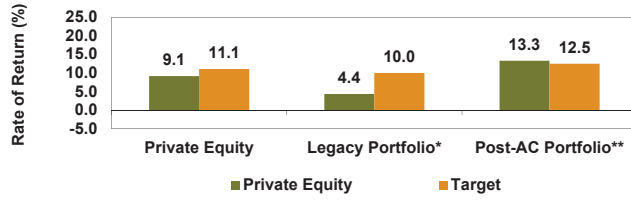
Private Equity Post Asset Class Return Summary as of December 31, 2017



Dollar-Weighted Investment Results

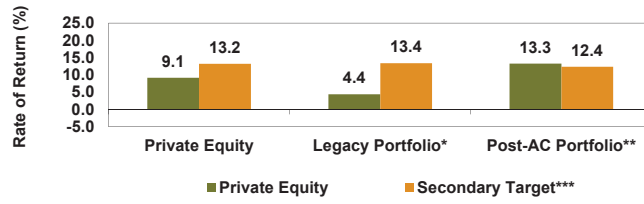
As of December 31, 2017

Since Inception



As of December 31, 2017

Since Inception



\*The Inception Date for the Legacy Portfolio is January 1989.

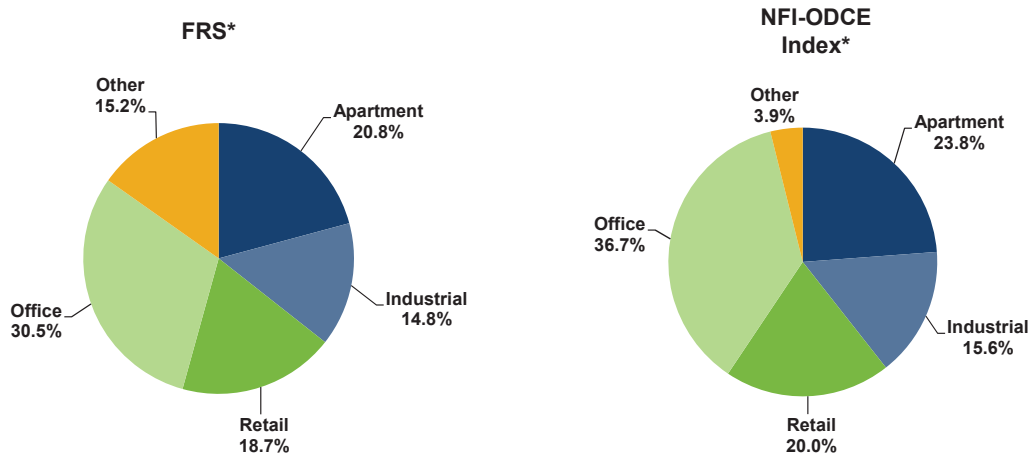
\*\*The Inception Date for the Post-AC Portfolio is September 2000.

\*\*\*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



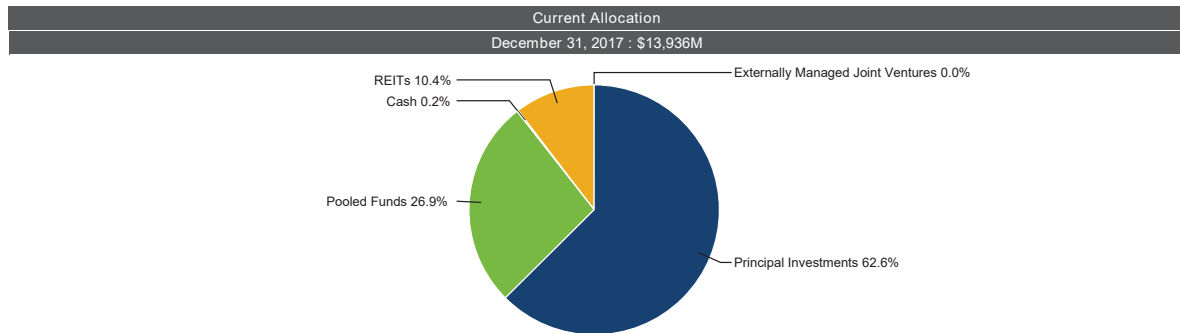
Overview



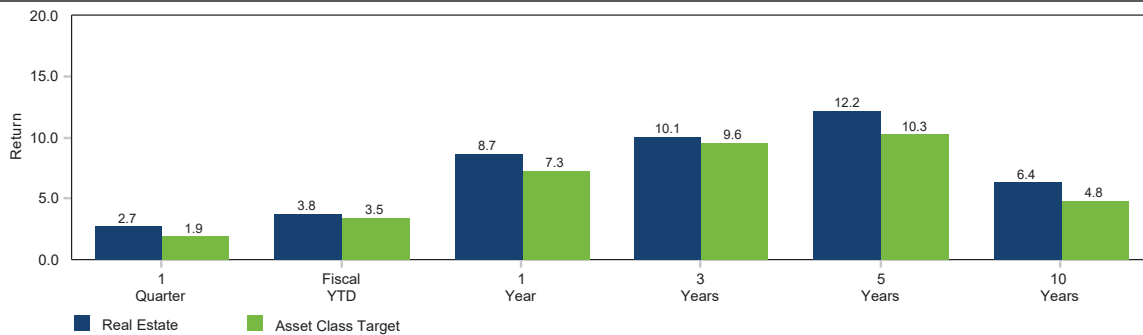
\*Property Allocation data is as of September 31, 2017. The FRS chart includes only the FRS private real estate assets. Property type information for the REIT portfolios is not included.  
 \*\*Other for the FRS consists of Hotel, Land, Preferred Equity, Agriculture, Self-Storage and Senior Housing.  
 \*\*\*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

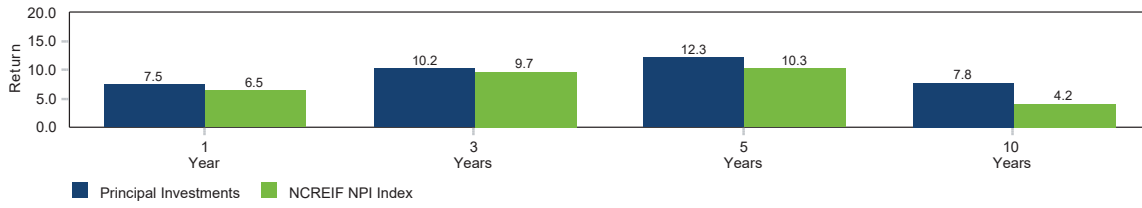


Return Summary

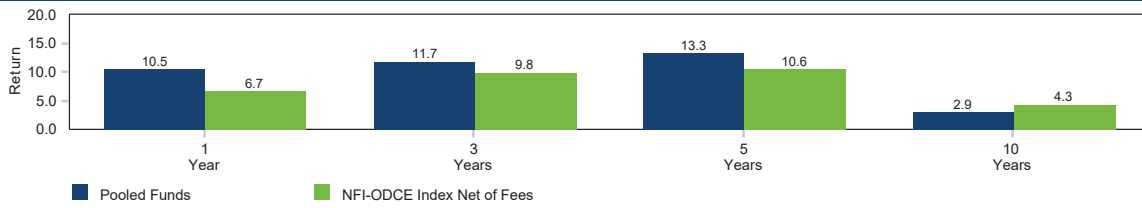


## Real Estate

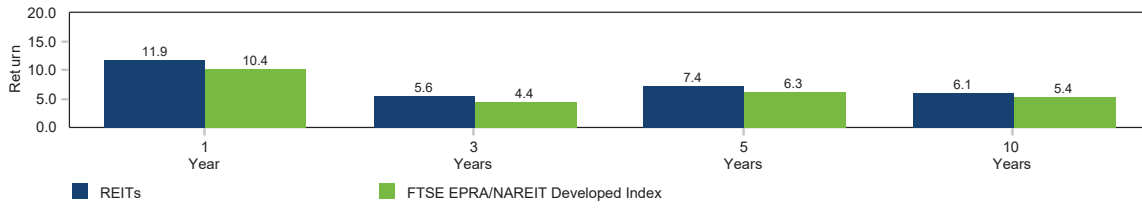
Principal Investments Return Summary as of December 31, 2017



Pooled Funds Return Summary as of December 31, 2017



REITs Return Summary as of December 31, 2017

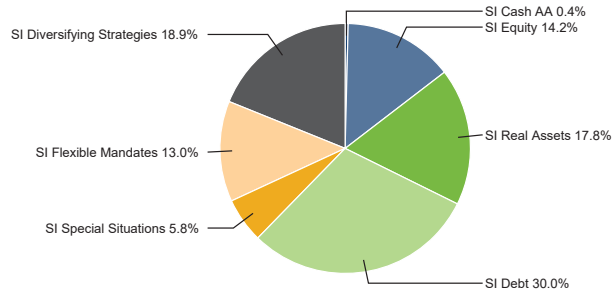


## Strategic Investments

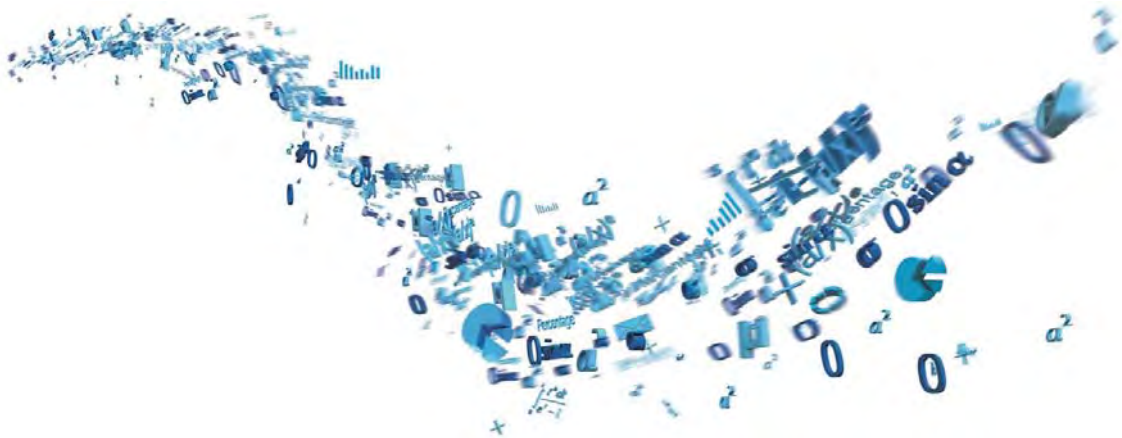
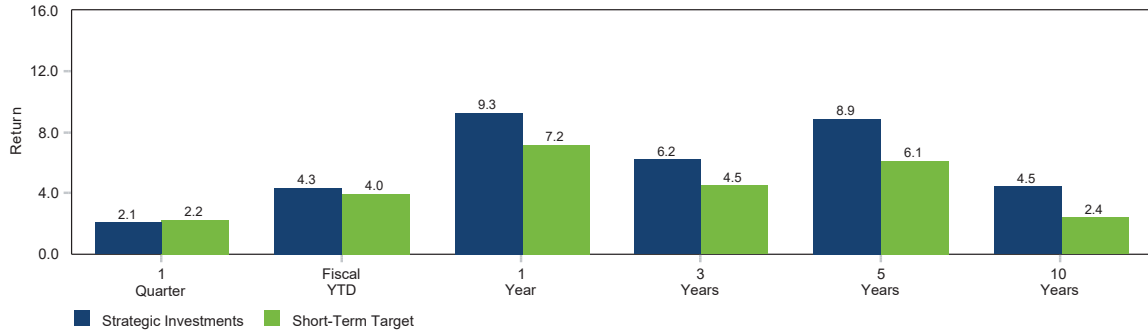
Strategic Investments Portfolio Overview

Current Allocation

December 31, 2017 : \$13,279M



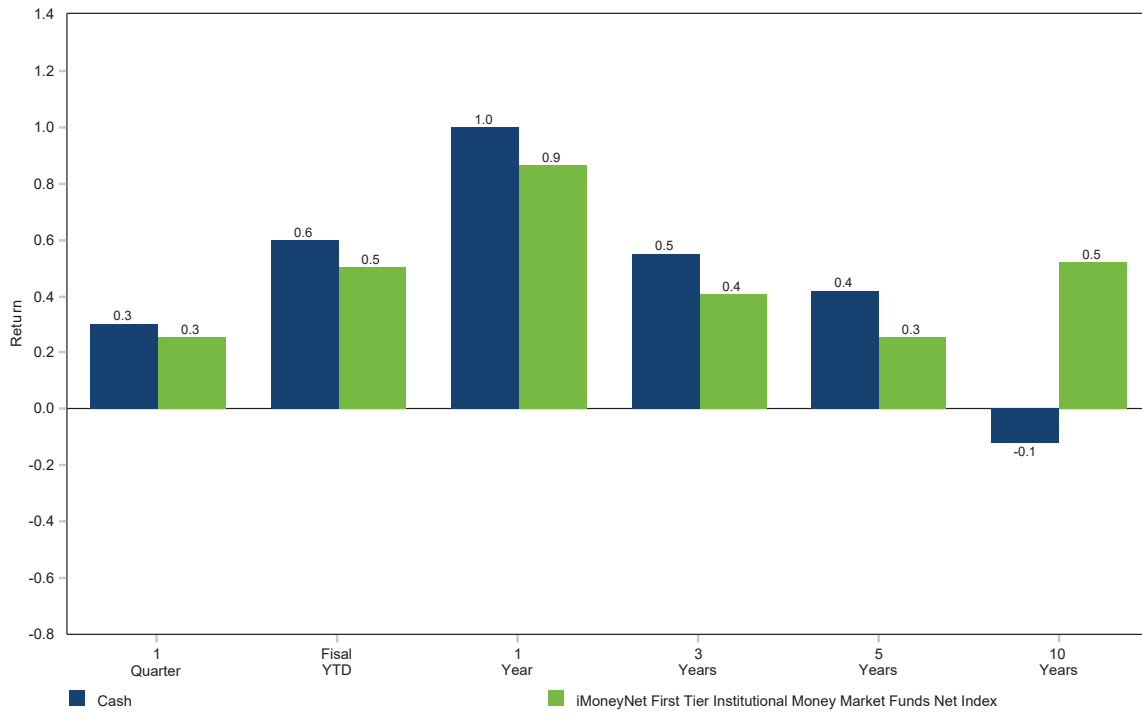
Return Summary



Cash

Cash Performance Summary

Return Summary



Appendix

## 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

## Total Fixed Income

**Performance Benchmark** - The Barclays Capital U.S. Intermediate Aggregate 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.

## Total Private Equity

**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 300 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.

## Total Real Estate

**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.

## Total Strategic Investments

**Performance Benchmark** - Long-term, 5% plus the contemporaneous rate of inflation or CPI. Short-term, a weighted aggregation of individual portfolio level benchmarks.

## Total Cash

**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.

## Appendix

## 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 infinite-life vehicles consisting of 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.

## Appendix

## 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

### 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.

## 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.

## Disclaimers

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FRS Investment Plan | Fourth Quarter 2017

## Quarterly Investment Review

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## FRS Investment Plan

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As of December 31, 2017

## Asset Allocation &amp; Performance

	Allocation		Performance(%)				
	Market Value (\$)	%	1 Quarter	1 Year	3 Years	5 Years	10 Years
FRS Investment Plan	10,671,346,089	100.0	4.1	16.4	7.6	8.5	5.4
Total Plan Aggregate Benchmark			4.1	15.5	7.3	8.2	5.0
<b>Retirement Date</b>	<b>4,735,393,699</b>	<b>44.4</b>					
FRS Retirement Fund	394,628,036	3.7	2.6 (36)	10.8 (49)	4.7 (63)	4.4 (90)	-
Retirement Custom Index			2.6 (33)	10.4 (54)	4.8 (61)	4.3 (91)	-
FRS 2015 Retirement Date Fund	339,747,974	3.2	2.8 (30)	12.0 (39)	5.2 (72)	5.1 (87)	-
2015 Retirement Custom Index			2.8 (31)	11.2 (60)	5.2 (72)	5.0 (90)	-
FRS 2020 Retirement Date Fund	615,793,877	5.8	3.2 (37)	14.0 (23)	6.2 (47)	6.5 (64)	-
2020 Retirement Custom Index			3.2 (42)	13.3 (46)	6.1 (54)	6.4 (65)	-
FRS 2025 Retirement Date Fund	708,268,744	6.6	3.7 (20)	16.1 (23)	7.2 (30)	7.9 (61)	-
2025 Retirement Custom Index			3.6 (34)	15.5 (39)	7.0 (42)	7.7 (63)	-
FRS 2030 Retirement Date Fund	643,794,792	6.0	4.2 (27)	18.0 (30)	8.1 (21)	9.3 (54)	-
2030 Retirement Custom Index			4.1 (52)	17.3 (48)	7.7 (38)	9.0 (58)	-
FRS 2035 Retirement Date Fund	598,994,807	5.6	4.6 (30)	19.8 (26)	8.8 (17)	10.4 (39)	-
2035 Retirement Custom Index			4.4 (49)	18.9 (54)	8.2 (48)	10.0 (57)	-
FRS 2040 Retirement Date Fund	521,414,416	4.9	4.9 (43)	20.9 (28)	9.2 (20)	10.7 (55)	-
2040 Retirement Custom Index			4.8 (51)	20.4 (45)	8.7 (45)	10.4 (61)	-
FRS 2045 Retirement Date Fund	509,238,953	4.8	5.1 (40)	21.5 (26)	9.4 (13)	10.8 (57)	-
2045 Retirement Custom Index			5.0 (41)	21.2 (39)	9.1 (42)	10.6 (64)	-
FRS 2050 Retirement Date Fund	281,208,159	2.6	5.1 (38)	21.6 (32)	9.4 (15)	10.9 (64)	-
2050 Retirement Custom Index			5.1 (49)	21.3 (52)	9.1 (50)	10.6 (71)	-
FRS 2055 Retirement Date Fund	118,244,244	1.1	5.1 (53)	21.5 (52)	9.4 (26)	10.8 (67)	-
2055 Retirement Custom Index			5.1 (54)	21.3 (61)	9.1 (63)	10.6 (85)	-
FRS 2060 Retirement Date Fund	4,059,696	0.0	5.0 (55)	-	-	-	-
2060 Retirement Custom Index			5.1 (54)	-	-	-	-

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As of December 31, 2017

## Asset Allocation &amp; Performance

	Allocation		Performance(%)				
	Market Value (\$)	%	1 Quarter	1 Year	3 Years	5 Years	10 Years
Cash	851,531,036	8.0	0.4 (1)	1.2 (1)	0.7 (1)	0.5 (1)	0.6 (3)
FRS Money Market Fund	851,531,036	8.0	0.4 (1)	1.2 (1)	0.7 (1)	0.5 (1)	0.6 (3)
iMoneyNet 1st Tier Institutional Net Index			0.3 (28)	0.9 (16)	0.4 (18)	0.3 (18)	0.5 (12)
<b>Real Assets</b>	<b>92,093,086</b>	<b>0.9</b>					
FRS Inflation Adjusted Multi-Assets Fund	92,093,086	0.9	2.1	8.1	1.8	-0.2	-
FRS Custom Real Assets Index			2.8	8.1	2.9	0.2	-
<b>Fixed Income</b>	<b>657,351,247</b>	<b>6.2</b>	<b>0.3 (6)</b>	<b>4.4 (1)</b>	<b>3.1 (3)</b>	<b>2.6 (3)</b>	<b>4.6 (5)</b>
Total Bond Index			0.3 (7)	3.9 (3)	2.8 (4)	2.4 (7)	4.2 (15)
FRS U.S. Bond Enhanced Index Fund	243,815,976	2.3	0.4 (27)	3.6 (29)	2.3 (18)	2.2 (22)	4.2 (38)
Blmbg. Barc. U.S. Aggregate			0.4 (27)	3.5 (29)	2.2 (21)	2.1 (26)	4.0 (41)
FRS Intermediate Bond Fund	102,690,228	1.0	-0.1 (66)	2.4 (20)	2.1 (22)	1.9 (26)	3.7 (27)
Blmbg. Barc. U.S. Intermediate Aggregate			-0.1 (49)	2.3 (32)	1.8 (41)	1.7 (34)	3.5 (37)
FRS Core Plus Bond Fund	310,845,044	2.9	0.6 (46)	5.3 (24)	3.7 (20)	3.3 (23)	-
FRS Custom Core-Plus Fixed Income Index			0.4 (74)	4.2 (64)	3.1 (40)	3.0 (33)	-
<b>Domestic Equity</b>	<b>2,928,079,072</b>	<b>27.4</b>	<b>6.1 (50)</b>	<b>20.8 (49)</b>	<b>11.4 (20)</b>	<b>15.8 (23)</b>	<b>9.4 (14)</b>
Total U.S. Equities Index			5.9 (55)	19.6 (56)	11.0 (26)	15.3 (34)	8.7 (26)
FRS U.S. Stock Market Index Fund	1,004,147,425	9.4	6.4 (54)	21.2 (54)	11.2 (35)	15.7 (34)	8.7 (29)
Russell 3000 Index			6.3 (55)	21.1 (54)	11.1 (37)	15.6 (37)	8.6 (31)
FRS U.S. Large Cap Stock Fund	1,015,935,720	9.5	7.4 (22)	25.5 (24)	12.1 (20)	16.7 (14)	-
Russell 1000 Index			6.6 (46)	21.7 (43)	11.2 (29)	15.7 (33)	-
FRS U.S. Small/Mid Cap Stock Fund	907,995,927	8.5	4.5 (72)	16.3 (54)	11.3 (27)	15.5 (21)	-
FRS Custom Small/Mid Cap Index			5.2 (53)	16.8 (49)	10.2 (38)	12.0 (83)	-

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As of December 31, 2017

**Asset Allocation & Performance**

	Allocation		Performance(%)				
	Market Value (\$)	%	1 Quarter	1 Year	3 Years	5 Years	10 Years
<b>International/Global Equity</b>	<b>821,177,371</b>	<b>7.7</b>	<b>5.1 (45)</b>	<b>28.6 (50)</b>	<b>9.4 (38)</b>	<b>9.0 (27)</b>	<b>3.6 (29)</b>
Total Foreign and Global Equities Index			5.3 (43)	27.3 (59)	8.5 (52)	8.4 (35)	2.6 (44)
FRS Foreign Stock Index Fund	336,853,404	3.2	5.3 (43)	28.3 (53)	8.9 (44)	8.3 (36)	2.5 (46)
MSCI All Country World ex-U.S. IMI Index			5.2 (43)	27.8 (56)	8.4 (54)	8.1 (39)	2.2 (53)
FRS Global Stock Fund	287,112,036	2.7	4.7 (54)	29.3 (17)	11.7 (16)	12.9 (24)	7.2 (17)
MSCI All Country World Index Net			5.7 (35)	24.0 (39)	9.3 (39)	10.8 (53)	4.7 (53)
FRS Foreign Stock Fund	197,211,932	1.8	4.2 (33)	31.2 (4)	9.7 (4)	9.2 (4)	4.0 (4)
MSCI All Country World ex-U.S. Index			5.0 (20)	27.2 (21)	8.2 (30)	7.2 (40)	1.9 (36)
<b>FRS Self-Dir Brokerage Acct</b>	<b>585,720,579</b>	<b>5.5</b>					

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.



As of December 31, 2017

**Asset Allocation & Performance**

	Performance(%)								
	2017	2016	2015	2014	2013	2012	2011	2010	2009
<b>FRS Investment Plan</b>	<b>16.4</b>	<b>8.0</b>	<b>-0.9</b>	<b>4.9</b>	<b>15.2</b>	<b>10.5</b>	<b>0.7</b>	<b>10.6</b>	<b>18.4</b>
Total Plan Aggregate Benchmark	15.5	8.5	-1.3	4.9	14.6	9.7	0.9	10.2	16.8
<b>Retirement Date</b>									
FRS Retirement Fund	10.8 (49)	6.2 (48)	-2.6 (100)	4.4 (83)	3.5 (96)	10.7 (56)	3.4 (9)	11.5 (52)	20.0 (82)
Retirement Custom Index	10.4 (54)	6.2 (48)	-1.8 (95)	3.6 (90)	3.4 (96)	8.5 (74)	5.0 (1)	9.9 (80)	19.1 (84)
FRS 2015 Retirement Date Fund	12.0 (39)	6.7 (43)	-2.5 (98)	4.4 (78)	5.5 (89)	11.3 (43)	2.1 (20)	11.5 (62)	21.8 (67)
2015 Retirement Custom Index	11.2 (60)	6.5 (50)	-1.8 (92)	3.7 (92)	5.7 (88)	9.6 (88)	3.2 (1)	10.4 (85)	22.2 (65)
FRS 2020 Retirement Date Fund	14.0 (23)	7.4 (19)	-2.1 (92)	4.4 (79)	9.6 (75)	12.4 (38)	0.6 (38)	12.2 (64)	24.5 (55)
2020 Retirement Custom Index	13.3 (46)	7.1 (31)	-1.6 (82)	3.9 (88)	9.7 (75)	11.0 (74)	1.5 (21)	11.2 (86)	24.2 (58)
FRS 2025 Retirement Date Fund	16.1 (23)	8.0 (14)	-1.7 (80)	4.5 (86)	13.7 (74)	13.5 (43)	-0.7 (35)	12.5 (88)	26.4 (64)
2025 Retirement Custom Index	15.5 (39)	7.6 (19)	-1.5 (75)	4.2 (91)	13.8 (74)	12.4 (73)	-0.3 (26)	11.8 (93)	26.3 (65)
FRS 2030 Retirement Date Fund	18.0 (30)	8.5 (17)	-1.3 (60)	4.5 (83)	18.1 (54)	14.6 (34)	-2.1 (50)	13.0 (86)	29.0 (48)
2030 Retirement Custom Index	17.3 (48)	8.0 (36)	-1.5 (63)	4.4 (83)	18.2 (52)	13.8 (53)	-2.0 (49)	12.5 (91)	29.2 (47)
FRS 2035 Retirement Date Fund	19.8 (26)	9.1 (18)	-1.4 (46)	4.4 (84)	22.0 (38)	15.8 (23)	-3.0 (46)	13.7 (80)	29.8 (58)
2035 Retirement Custom Index	18.9 (54)	8.3 (46)	-1.7 (63)	4.3 (85)	22.0 (38)	15.2 (46)	-3.1 (47)	13.3 (89)	30.1 (57)
FRS 2040 Retirement Date Fund	20.9 (28)	9.2 (19)	-1.4 (52)	4.4 (83)	22.3 (48)	15.8 (36)	-3.0 (38)	13.7 (79)	29.8 (54)
2040 Retirement Custom Index	20.4 (45)	8.6 (45)	-1.7 (66)	4.3 (84)	22.4 (48)	15.2 (50)	-3.1 (38)	13.3 (85)	30.1 (53)
FRS 2045 Retirement Date Fund	21.5 (26)	9.4 (20)	-1.5 (48)	4.4 (82)	22.3 (60)	15.8 (38)	-3.0 (26)	13.7 (86)	29.8 (65)
2045 Retirement Custom Index	21.2 (39)	8.9 (37)	-1.7 (59)	4.3 (83)	22.4 (60)	15.2 (68)	-3.1 (26)	13.3 (89)	30.1 (63)
FRS 2050 Retirement Date Fund	21.6 (32)	9.5 (21)	-1.5 (55)	4.4 (82)	22.3 (53)	15.8 (36)	-3.0 (20)	13.7 (84)	29.8 (73)
2050 Retirement Custom Index	21.3 (52)	8.9 (37)	-1.7 (62)	4.3 (82)	22.4 (53)	15.2 (58)	-3.1 (20)	13.3 (87)	30.1 (70)
FRS 2055 Retirement Date Fund	21.5 (52)	9.3 (27)	-1.4 (54)	4.4 (80)	22.3 (73)	15.8 (45)	-	-	-
2055 Retirement Custom Index	21.3 (61)	8.9 (33)	-1.7 (68)	4.3 (80)	22.4 (72)	15.2 (75)	-	-	-
FRS 2060 Retirement Date Fund	-	-	-	-	-	-	-	-	-
2060 Retirement Custom Index	-	-	-	-	-	-	-	-	-



As of December 31, 2017

**Asset Allocation & Performance**

	Performance(%)								
	2017	2016	2015	2014	2013	2012	2011	2010	2009
Cash	1.2 (1)	0.6 (1)	0.2 (4)	0.1 (1)	0.2 (1)	0.3 (1)	0.2 (1)	0.3 (2)	0.3 (34)
FRS Money Market Fund	1.2 (1)	0.6 (1)	0.2 (4)	0.1 (1)	0.2 (1)	0.3 (1)	0.2 (1)	0.3 (2)	0.3 (34)
iMoneyNet 1st Tier Institutional Net Index	0.9 (16)	0.3 (24)	0.0 (26)	0.0 (23)	0.0 (23)	0.1 (23)	0.1 (23)	0.2 (7)	0.7 (3)
<b>Real Assets</b>									
FRS Inflation Adjusted Multi-Assets Fund	8.1	6.0	-7.9	3.2	-9.1	9.1	7.4	11.7	16.0
FRS Custom Real Assets Index	8.1	6.2	-5.0	1.8	-8.9	6.6	4.6	13.0	17.2
<b>Fixed Income</b>									
Total Bond Index	3.9 (3)	4.3 (11)	0.1 (84)	4.9 (2)	-1.2 (88)	4.8 (62)	7.4 (1)	7.0 (35)	8.9 (78)
FRS U.S. Bond Enhanced Index Fund	3.6 (29)	2.7 (3)	0.7 (33)	6.2 (35)	-2.0 (16)	4.4 (14)	7.9 (67)	6.7 (48)	6.5 (6)
Blmbg. Barc. U.S. Aggregate	3.5 (29)	2.6 (3)	0.5 (43)	6.0 (36)	-2.0 (17)	4.2 (15)	7.8 (67)	6.5 (49)	5.9 (7)
FRS Intermediate Bond Fund	2.4 (20)	3.1 (31)	0.9 (30)	3.4 (20)	-0.5 (63)	4.9 (59)	5.9 (12)	7.0 (35)	11.9 (54)
Blmbg. Barc. U.S. Intermediate Aggregate	2.3 (32)	2.0 (69)	1.2 (16)	4.1 (6)	-1.0 (83)	3.6 (79)	6.0 (11)	6.1 (48)	6.5 (86)
FRS Core Plus Bond Fund	5.3 (24)	5.7 (28)	0.1 (46)	4.6 (88)	0.8 (21)	11.1 (16)	4.6 (89)	10.1 (28)	21.6 (20)
FRS Custom Core-Plus Fixed Income Index	4.2 (64)	4.9 (41)	0.2 (41)	5.1 (79)	0.8 (20)	7.8 (51)	7.6 (31)	9.1 (42)	18.7 (31)
<b>Domestic Equity</b>									
Total U.S. Equities Index	19.6 (56)	14.9 (22)	-0.5 (44)	11.1 (47)	34.0 (54)	16.5 (37)	-0.1 (40)	19.3 (28)	28.4 (62)
FRS U.S. Stock Market Index Fund	21.2 (54)	12.9 (26)	0.6 (51)	12.6 (34)	33.6 (40)	16.5 (40)	1.0 (39)	17.1 (18)	28.6 (52)
Russell 3000 Index	21.1 (54)	12.7 (27)	0.5 (52)	12.6 (34)	33.6 (40)	16.4 (40)	1.0 (39)	16.9 (20)	28.3 (53)
FRS U.S. Large Cap Stock Fund	25.5 (24)	9.3 (58)	2.7 (30)	12.8 (42)	36.4 (22)	17.2 (24)	1.2 (45)	17.8 (19)	30.5 (36)
Russell 1000 Index	21.7 (43)	12.1 (33)	0.9 (43)	13.2 (33)	33.1 (47)	16.4 (31)	1.5 (41)	16.1 (31)	28.4 (43)
FRS U.S. Small/Mid Cap Stock Fund	16.3 (54)	19.9 (25)	-1.1 (36)	8.6 (28)	37.1 (46)	18.7 (26)	-0.9 (37)	29.6 (25)	37.0 (41)
FRS Custom Small/Mid Cap Index	16.8 (49)	19.6 (26)	-4.2 (71)	7.7 (34)	22.0 (98)	15.3 (53)	1.1 (22)	21.3 (85)	26.4 (86)



As of December 31, 2017

**Asset Allocation & Performance**

	Performance(%)								
	2017	2016	2015	2014	2013	2012	2011	2010	2009
International/Global Equity	28.6 (50)	4.5 (42)	-2.6 (48)	-3.2 (42)	21.6 (33)	18.6 (53)	-11.3 (23)	10.1 (73)	34.8 (62)
Total Foreign and Global Equities Index	27.3 (59)	4.9 (38)	-4.4 (55)	-3.0 (40)	20.6 (39)	16.6 (72)	-11.3 (23)	10.1 (73)	32.4 (69)
FRS Foreign Stock Index Fund	28.3 (53)	5.3 (37)	-4.4 (55)	-4.5 (54)	20.5 (39)	17.6 (63)	-11.8 (27)	9.2 (77)	32.3 (69)
MSCI All Country World ex-U.S. IMI Index	27.8 (56)	4.4 (42)	-4.6 (55)	-4.2 (51)	21.0 (36)	16.4 (72)	-12.2 (30)	8.9 (78)	33.7 (66)
FRS Global Stock Fund	29.3 (17)	2.2 (80)	5.6 (13)	3.7 (44)	27.1 (41)	21.0 (15)	-7.4 (46)	13.0 (56)	37.7 (43)
MSCI All Country World Index Net	24.0 (39)	7.9 (45)	-2.4 (55)	4.2 (39)	22.8 (61)	16.3 (38)	-5.5 (35)	11.8 (61)	30.0 (65)
FRS Foreign Stock Fund	31.2 (4)	1.0 (64)	-0.5 (20)	-2.3 (15)	20.6 (53)	19.6 (38)	-13.3 (58)	9.8 (25)	39.6 (8)
MSCI All Country World ex-U.S. Index	27.2 (21)	5.0 (8)	-5.3 (79)	-3.4 (17)	15.8 (75)	17.4 (71)	-13.3 (59)	11.6 (13)	32.5 (51)
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

As of December 31, 2017

## Asset Allocation

Asset Allocation as of 12/31/2017								
	U.S. Equity	Non-U.S. Equity	U.S. Fixed Income	Real Assets	Cash	Brokerage	Total	% of Total
FRS Retirement Fund	61,956,602	57,221,065	142,855,349	132,595,020			394,628,036	3.7%
FRS 2015 Retirement Date Fund	59,455,896	54,699,424	117,552,799	108,039,856			339,747,974	3.2%
FRS 2020 Retirement Date Fund	140,401,004	129,932,508	200,748,804	144,711,561			615,793,877	5.8%
FRS 2025 Retirement Date Fund	204,689,667	189,107,755	209,647,548	104,823,774			708,268,744	6.6%
FRS 2030 Retirement Date Fund	218,246,435	201,507,770	166,099,056	57,941,531			643,794,792	6.0%
FRS 2035 Retirement Date Fund	228,816,016	211,445,167	128,184,889	30,548,735			598,994,807	5.6%
FRS 2040 Retirement Date Fund	218,994,055	202,308,793	86,554,793	13,556,775			521,414,416	4.9%
FRS 2045 Retirement Date Fund	226,611,334	208,787,971	62,127,152	11,712,496			509,238,953	4.8%
FRS 2050 Retirement Date Fund	125,418,839	115,576,553	33,744,979	6,467,788			281,208,159	2.6%
FRS 2055 Retirement Date Fund	52,736,933	48,598,384	14,189,309	2,719,618			118,244,244	1.1%
FRS 2060 Retirement Date Fund	1,810,624	1,668,535	487,164	93,373			4,059,696	0.0%
<b>Total Retirement Date Funds</b>	<b>\$ 1,537,326,780</b>	<b>\$ 1,419,185,390</b>	<b>\$ 1,161,704,679</b>	<b>\$ 613,117,154</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 4,735,393,699</b>	<b>44.4%</b>
FRS Money Market Fund					851,531,036		851,531,036	8.0%
<b>Total Cash</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 851,531,036</b>	<b>\$ -</b>	<b>\$ 851,531,036</b>	<b>8.0%</b>
FRS Inflation Adjusted Multi-Assets Fund				92,093,086			92,093,086	0.9%
<b>Total Real Assets</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 92,093,086</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 92,093,086</b>	<b>0.9%</b>
FRS U.S. Bond Enhanced Index Fund			243,815,976				243,815,976	2.3%
FRS Intermediate Bond Fund			102,690,228				102,690,228	1.0%
FRS Core Plus Bond Fund			310,845,044				310,845,044	2.9%
<b>Total Fixed Income</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 657,351,247</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 657,351,247</b>	<b>6.2%</b>
FRS U.S. Stock Market Index Fund	1,004,147,425						1,004,147,425	9.4%
FRS U.S. Large Cap Stock Fund	1,015,935,720						1,015,935,720	9.5%
FRS U.S. Small/Mid Cap Stock Fund	907,995,927						907,995,927	8.5%
<b>Total Domestic Equity</b>	<b>\$ 2,928,079,071</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 2,928,079,071</b>	<b>27.4%</b>
FRS Foreign Stock Index Fund		336,853,404					336,853,404	3.2%
FRS Global Stock Fund		287,112,035					287,112,035	2.7%
FRS Foreign Stock Fund		197,211,932					197,211,932	1.8%
<b>Total International/Global Equity</b>	<b>\$ -</b>	<b>\$ 821,177,371</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 821,177,371</b>	<b>7.7%</b>
FRS Self-Dir Brokerage Acct						585,720,579	585,720,579	5.5%
<b>Total Self-Dir Brokerage Acct</b>						<b>\$ 585,720,579</b>	<b>\$ 585,720,579</b>	<b>5.5%</b>
<b>Total Portfolio</b>	<b>\$ 4,465,405,851</b>	<b>\$ 2,240,362,762</b>	<b>\$ 1,819,055,926</b>	<b>\$ 705,210,240</b>	<b>\$ 851,531,036</b>	<b>\$ 585,720,579</b>	<b>\$ 10,671,346,090</b>	<b>100.0%</b>
<b>Percent of Total</b>	<b>41.84%</b>	<b>20.99%</b>	<b>17.05%</b>	<b>6.61%</b>	<b>7.98%</b>	<b>5.49%</b>	<b>100.0%</b>	

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.



As of December 31, 2017

## Multi Timeperiod Statistics

	3 Years Return	3 Years Standard Deviation	3 Years Sharpe Ratio	3 Years Tracking Error	3 Years Information Ratio	3 Years Up Market Capture	3 Years Down Market Capture
FRS Investment Plan	7.59	6.80	1.06	0.48	0.59	101.85	99.16
FRS Retirement Fund	4.66	4.54	0.94	0.50	-0.30	100.13	104.09
FRS 2015 Retirement Date Fund	5.21	4.98	0.97	0.50	0.05	101.26	102.27
FRS 2020 Retirement Date Fund	6.22	5.80	1.01	0.44	0.26	101.87	101.79
FRS 2025 Retirement Date Fund	7.25	6.57	1.04	0.45	0.56	100.83	97.11
FRS 2030 Retirement Date Fund	8.07	7.38	1.04	0.45	0.77	101.61	97.93
FRS 2035 Retirement Date Fund	8.82	8.30	1.02	0.50	1.14	103.08	98.50
FRS 2040 Retirement Date Fund	9.16	8.68	1.01	0.52	0.77	101.31	97.49
FRS 2045 Retirement Date Fund	9.40	8.81	1.02	0.62	0.47	99.91	95.99
FRS 2050 Retirement Date Fund	9.45	8.84	1.02	0.60	0.54	100.24	96.28
FRS 2055 Retirement Date Fund	9.41	8.82	1.02	0.59	0.49	100.02	96.20
FRS 2060 Retirement Date Fund	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FRS Money Market Fund	0.68	0.13	5.43	0.03	9.43	167.53	N/A
FRS Inflation Adjusted Multi-Assets Fund	1.82	5.64	0.28	1.77	-0.59	102.49	122.32
FRS U.S. Bond Enhanced Index Fund	2.34	2.82	0.69	0.08	1.18	101.61	99.10
FRS Intermediate Bond Fund	2.13	2.19	0.79	0.58	0.53	114.18	110.97
FRS Core Plus Bond Fund	3.66	2.85	1.14	0.63	0.90	114.71	109.13
FRS U.S. Stock Market Index Fund	11.24	10.24	1.06	0.05	2.29	100.43	99.67
FRS U.S. Large Cap Stock Fund	12.07	11.29	1.04	2.42	0.37	110.93	115.10
FRS U.S. Small/Mid Cap Stock Fund	11.31	11.99	0.92	1.56	0.64	100.28	91.44
FRS Foreign Stock Index Fund	8.90	11.57	0.76	1.36	0.32	98.95	94.61
FRS Global Stock Fund	11.73	10.46	1.08	3.21	0.69	104.45	85.08
FRS Foreign Stock Fund	9.66	10.81	0.87	3.98	0.31	92.12	76.54

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.



As of December 31, 2017

Multi Timeperiod Statistics

	5 Years Return	5 Years Standard Deviation	5 Years Sharpe Ratio	5 Years Tracking Error	5 Years Information Ratio	5 Years Up Market Capture	5 Years Down Market Capture
FRS Investment Plan	8.53	6.42	1.27	0.42	0.67	101.56	98.58
FRS Retirement Fund	4.37	4.78	0.87	1.28	0.07	106.70	111.43
FRS 2015 Retirement Date Fund	5.11	5.09	0.96	1.08	0.12	105.29	108.45
FRS 2020 Retirement Date Fund	6.53	5.76	1.09	0.80	0.22	104.33	106.47
FRS 2025 Retirement Date Fund	7.94	6.44	1.18	0.55	0.37	102.09	101.23
FRS 2030 Retirement Date Fund	9.28	7.19	1.24	0.41	0.54	101.40	99.77
FRS 2035 Retirement Date Fund	10.42	8.10	1.24	0.47	0.75	101.92	99.58
FRS 2040 Retirement Date Fund	10.68	8.38	1.23	0.47	0.52	100.97	98.91
FRS 2045 Retirement Date Fund	10.83	8.46	1.23	0.54	0.33	100.18	97.93
FRS 2050 Retirement Date Fund	10.85	8.47	1.23	0.53	0.38	100.36	98.11
FRS 2055 Retirement Date Fund	10.83	8.46	1.23	0.52	0.34	100.23	98.06
FRS 2060 Retirement Date Fund	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FRS Money Market Fund	0.49	0.12	4.93	0.03	7.93	190.91	N/A
FRS Inflation Adjusted Multi-Assets Fund	-0.20	6.11	-0.05	1.68	-0.23	108.01	113.81
FRS U.S. Bond Enhanced Index Fund	2.21	2.87	0.68	0.10	1.05	101.90	99.44
FRS Intermediate Bond Fund	1.86	2.21	0.72	0.55	0.29	107.36	105.55
FRS Core Plus Bond Fund	3.26	3.21	0.94	0.73	0.34	112.53	117.70
FRS U.S. Stock Market Index Fund	15.67	9.75	1.52	0.05	1.72	100.28	99.71
FRS U.S. Large Cap Stock Fund	16.71	10.59	1.50	2.59	0.38	106.28	105.91
FRS U.S. Small/Mid Cap Stock Fund	15.49	11.95	1.25	2.46	1.30	111.85	94.62
FRS Foreign Stock Index Fund	8.25	11.31	0.74	1.27	0.09	98.49	96.41
FRS Global Stock Fund	12.93	10.11	1.23	3.02	0.64	104.08	86.80
FRS Foreign Stock Fund	9.21	10.53	0.87	3.68	0.48	96.15	79.09

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 December 31, 2017

## 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 December 31, 2017

## 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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Lawton Chiles Endowment Fund | Fourth Quarter 2017

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## Quarterly Investment Review

Visit the Aon Hewitt Retirement and Investment Blog (<http://retirementandinvestmentblog.aon.com>); sharing our best thinking.



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## LCEF Total Fund

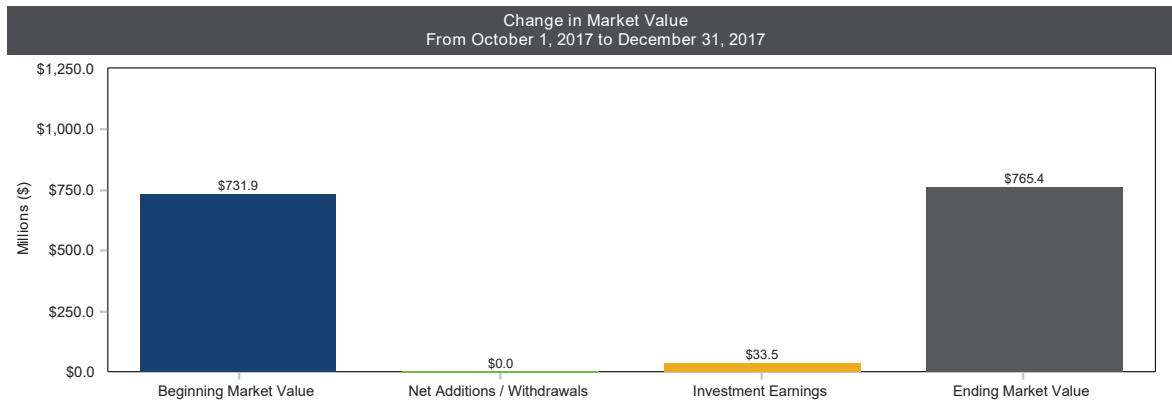
1



LCEF Total Fund

As of December 31, 2017

### Total Plan Asset Summary



### Summary of Cash Flow

	1 Quarter	Fiscal YTD
LCEF Total Fund		
Beginning Market Value	731,882,839	699,743,916
+ Additions / Withdrawals	-	-
+ Investment Earnings	33,492,704	65,631,627
= Ending Market Value	765,375,543	765,375,543

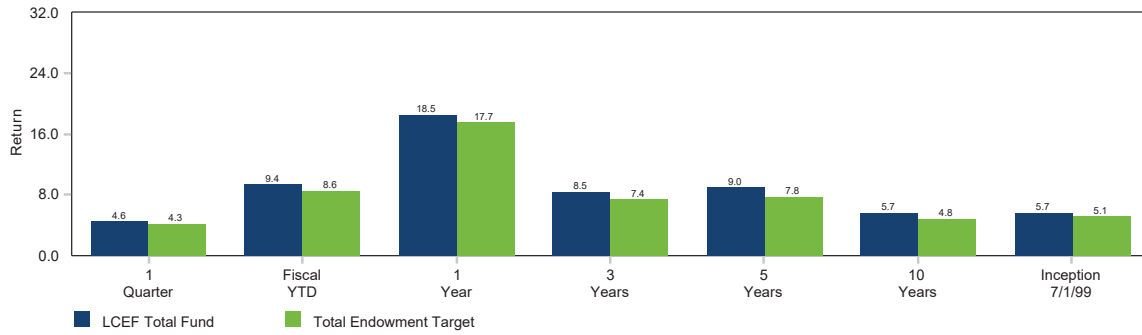
\*Period July 2017 - December 2017

2

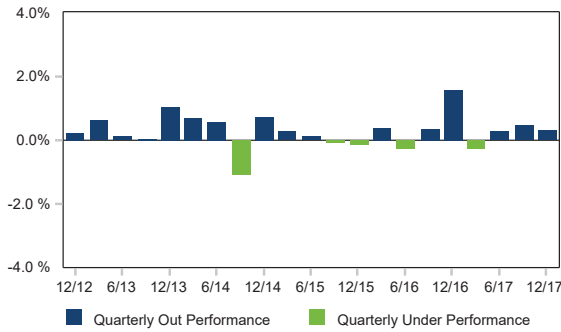


Total Plan Performance Summary

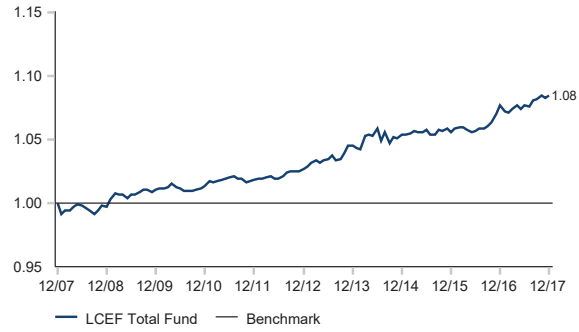
Return Summary



Quarterly Excess Performance



Ratio of Cumulative Wealth - 10 Years



Asset Allocation & Performance

	Allocation			Performance(%)					
	Market Value (\$)	%	Policy(%)	1 Quarter	Fiscal YTD	1 Year	3 Years	5 Years	10 Years
LCEF Total Fund	765,375,543	100.0	100.0	4.6 (4)	9.4 (2)	18.5 (3)	8.5 (2)	9.0 (14)	5.7 (18)
Total Endowment Target				4.3 (7)	8.6 (5)	17.7 (8)	7.4 (12)	7.8 (46)	4.8 (48)
Global Equity*	562,316,360	73.5	71.0	6.0	12.3	24.5	10.8	12.8	7.2
Global Equity Target				5.7	11.5	24.1	9.5	11.1	6.2
Fixed Income	114,840,678	15.0	17.0	0.4 (48)	1.3 (45)	3.7 (33)	2.3 (43)	2.2 (37)	4.0 (56)
Bimbg. Barc. U.S. Aggregate				0.4 (54)	1.2 (49)	3.5 (39)	2.2 (48)	2.1 (43)	4.0 (56)
TIPS	73,560,499	9.6	11.0	1.3	2.2	3.2	2.2	0.2	3.8
Barclays U.S. TIPS				1.3	2.1	3.0	2.1	0.1	3.5
Cash Equivalents	14,658,005	1.9	1.0	0.3	0.7	1.2	0.8	0.6	0.9
S&P US AAA & AA Rated GIP 30D Net Yield Index				0.3	0.5	0.9	0.5	0.3	0.5

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.



As of December 31, 2017

Calendar Year Performance

	Performance(%)									
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
<b>LCEF Total Fund</b>	18.5 (3)	9.2 (5)	-1.4 (47)	5.2 (43)	14.7 (53)	13.2 (22)	1.9 (15)	14.0 (14)	21.2 (47)	-29.2 (76)
Total Endowment Target	17.7 (8)	7.0 (27)	-1.6 (49)	4.3 (55)	12.8 (77)	12.2 (46)	1.5 (17)	13.7 (17)	19.6 (58)	-28.9 (74)
<b>Global Equity*</b>	24.5	11.4	-1.9	5.3	27.1	20.4	-1.1	17.0	30.8	-39.6
Global Equity Target	24.1	8.4	-2.4	3.9	24.1	19.4	-2.2	16.1	30.5	-39.2
<b>Fixed Income</b>	3.7 (33)	2.7 (60)	0.6 (32)	6.0 (20)	-1.8 (74)	4.6 (86)	7.6 (43)	7.0 (78)	4.6 (96)	5.8 (5)
Bimbg. Barc. U.S. Aggregate	3.5 (39)	2.6 (60)	0.5 (33)	6.0 (21)	-2.0 (76)	4.2 (89)	7.8 (40)	6.5 (82)	5.9 (87)	5.2 (15)
<b>TIPS</b>	3.2	4.8	-1.2	3.5	-8.7	7.2	13.6	6.1	13.3	-2.0
Barclays U.S. TIPS	3.0	4.7	-1.4	3.6	-8.6	7.0	13.6	6.3	11.4	-2.4
<b>Cash Equivalents</b>	1.2	0.7	0.5	0.2	0.2	1.3	0.1	2.0	2.6	0.5
S&P US AAA & AA Rated GIP 30D Net Yield Index	0.9	0.4	0.1	0.0	0.1	0.1	0.2	0.3	0.7	2.3

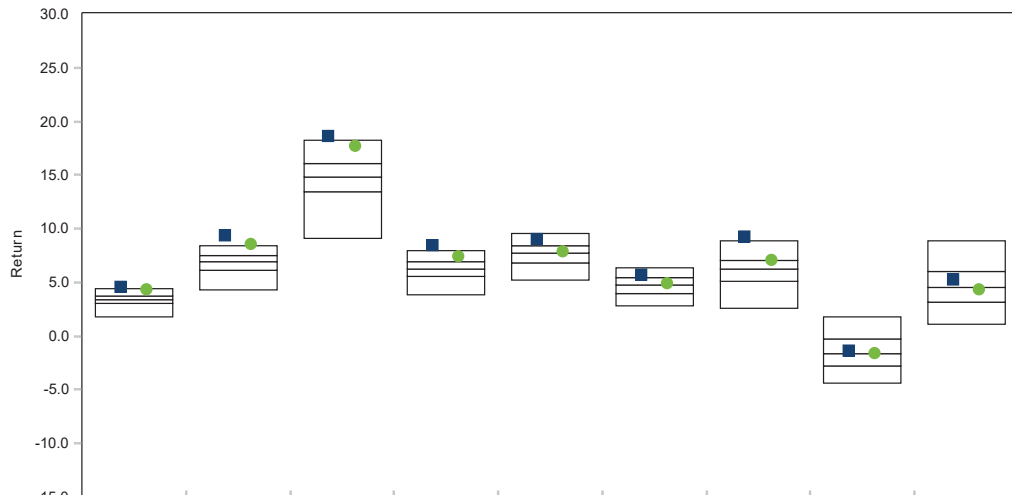
\*Global Equity became an asset class in September 2012 by merging the Domestic Equities and Foreign Equities asset classes. The return series prior to September 2012 is a weighted average of Domestic Equities' and Foreign Equities' historical performance.



As of December 31, 2017

Plan Sponsor Peer Group Analysis

All Endowments-Total Fund

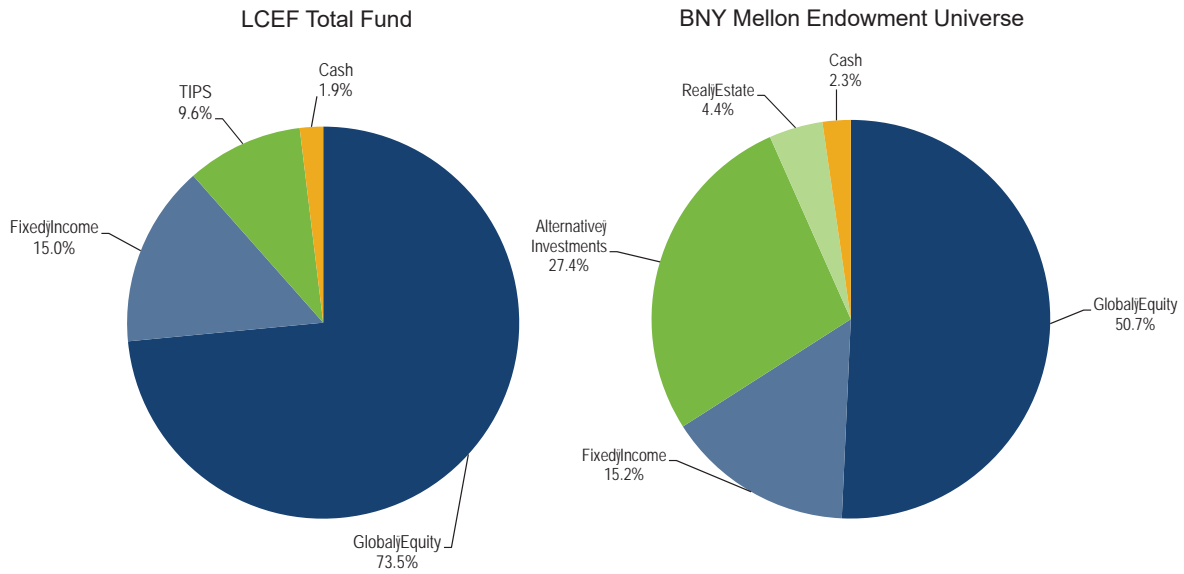


	1 Quarter	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	2016	2015	2014
■ LCEF Total Fund	4.6 (4)	9.4 (2)	18.5 (3)	8.5 (2)	9.0 (14)	5.7 (18)	9.2 (5)	-1.4 (47)	5.2 (43)
● Total Endowment Target	4.3 (7)	8.6 (5)	17.7 (8)	7.4 (12)	7.8 (46)	4.8 (48)	7.0 (27)	-1.6 (49)	4.3 (55)
5th Percentile	4.4	8.4	18.2	8.0	9.5	6.4	8.9	1.8	8.9
1st Quartile	3.7	7.5	16.1	6.9	8.5	5.5	7.1	-0.2	6.0
Median	3.4	6.9	14.8	6.2	7.7	4.8	6.2	-1.6	4.5
3rd Quartile	3.0	6.1	13.4	5.6	6.8	4.0	5.1	-2.7	3.1
95th Percentile	1.8	4.4	9.0	3.9	5.2	2.8	2.5	-4.3	1.1
Population	299	299	291	275	261	197	337	323	311

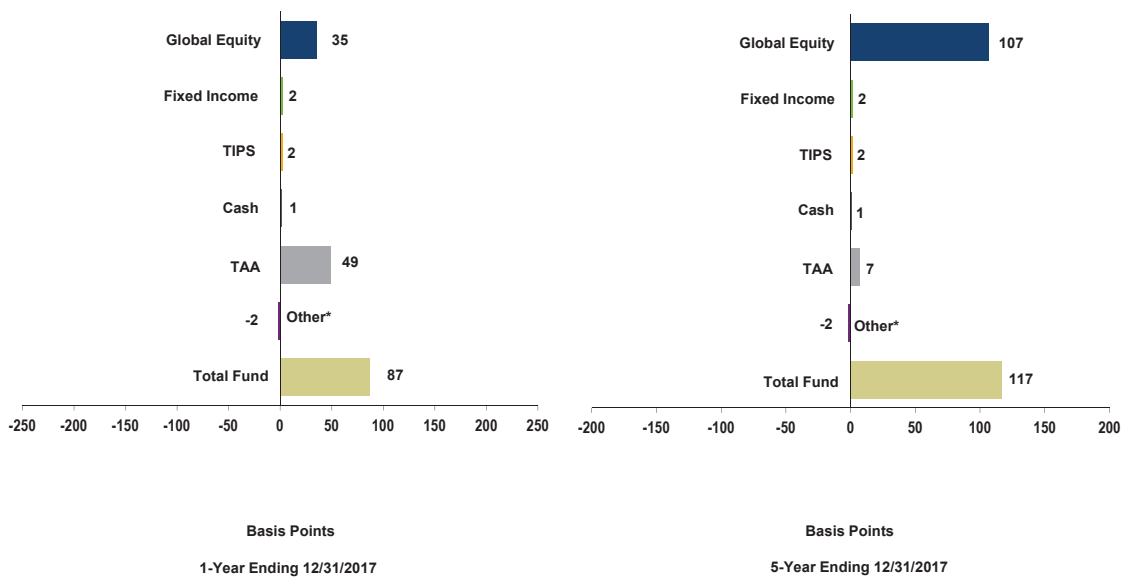
Parentheses contain percentile rankings.



Universe Asset Allocation Comparison



Attribution



\*Other includes differences between official performance value added due to methodology and extraordinary payouts.



## Appendix

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As of December 31, 2017

### Benchmark Descriptions

#### LCEF Total Fund

Total Endowment Target - 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 December 31, 2017

## Universe Descriptions

### LCEF Total Fund

A universe comprised of 307 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 \$282.6 billion as of quarter-end and the average market value was \$920.5 million.

### Total Fixed Income

A universe comprised of 273 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 \$20.8 billion as of quarter-end and the average market value was \$70.6 million.

As of December 31, 2017

## 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.

## 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

# 2018

January						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

April						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

July						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

October						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

February						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

May						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

August						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

November						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

March						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

June						
S	M	T	W	T	F	S
				1	2	
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

September						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

December						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Aqua is Proposed PLGAC Meeting  
Purple is Proposed Joint PLGAC/IAC Meeting  
Yellow is Proposed IAC Meeting  
Orange is Proposed Cabinet Meeting