ALASKA RETIREMENT MANAGEMENT BOARD

BOARD OF TRUSTEES MEETING

ALASKA STATE MUSEUM
LECTURE HALL
395 WHITTIER STREET
JUNEAU, AK
(907) 465-2901

TELECONFERENCE: 1-800-315-6338
ACCESS CODE: 12762#

SEPTEMBER
19-20, 2019

THURSDAY, SEPTEMBER 19, 2019

I.	**9:00 am**	**Call to Order**
II.		**Roll Call**
III.		**Public Meeting Notice**
IV.		**Approval of Agenda**
V.		**Public/Member Participation, Communications, and Appearances** (Three Minute Limit)
VI.		**Approval of Minutes – June 20-21, 2019**
VII.	**9:10**	**Staff Reports**

1. Retirement & Benefits Division Report
   A. Buck Consulting Invoices (informational)
   B. Membership Statistics
   C. DRB Update / Legislation Summary
   D. Modernization Update
   Ajay Desai, Director, Division of Retirement & Benefits
   Kevin Worley, CFO, Division of Retirement & Benefits

2. Treasury Division Report
   A. ARMB FY21 Budget
      Action: FY21 ARMB Budget Proposal
   Pamela Leary, Director, Treasury Division

3. Calendar/Disclosure
   Stephanie Alexander, ARMB Liaison Officer

4. CIO Report
   Bob Mitchell, Chief Investment Officer

5. Fund Financial Presentation
   Scott Jones, Comptroller
   Kevin Worley, CFO, Division of Retirement & Benefits

VIII.	**9:45**	**Trustee Reports**

6. Chair Report, *Rob Johnson*

7. Committee Reports
   A. Audit Committee, *Rob Johnson, Chair*
   B. Actuarial Committee, *Norm West, Chair*
   C. DC Plan Committee, *Bob Williams, Chair*
   D. Operations Committee, *Tom Brice, Chair*

F. IAC Request for Services Committee, *PEC Member*

E. Alaska Retiree Health Plan Advisory Board, *Gayle Harbo, ARMB Member*

8. Legal Report, *Stuart Goering, ARMB Legal Counsel*

10:15AM – 10 MINUTE BREAK

10:25-11:00 9. Actuarial Resolutions – FY21 Contribution Rate Setting
Norm West, Chair, Actuarial Committee

Information: History of PERS/TRS Employer Contribution Rates
Action: Relating to FY21 PERS Contribution Rate Resolution 2019-07
Action: Relating to FY21 PERS RMMI Contribution Rate Resolution 2019-08
Relating to FY21 PERS ODD Contribution Rate Resolution 2019-09
Action: Relating to FY21 TRS Contribution Rate Resolution 2019-10
Action: Relating to FY21 TRS RMMI Contribution Rate Resolution 2019-11
Relating to FY21 TRS ODD Contribution Rate Resolution 2019-12
Action: Relating to FY21 NGNMRS Contribution Amount Resolution 2019-13
Information: JRS Contribution

11:00-11:30 10. Transition Update
Steve Sikes, Manager of Opportunistic Strategies
Victor Djajalie, Manager of Fixed Income
Casey Colton, State Investment Officer

11:30-12:00 11. Review of International Equity Manager Structure
Shane Carson, Manager of External Equity & Defined Contribution Investments
Bob Mitchell, Chief Investment Officer

LUNCH – 12:00PM - 1:15PM

1:15 – 2:15 12. Consultant Evaluation of Real Assets Plan
Avery Robinson, Callan LLC

2:15 – 3:00 13. Real Assets FY20 Annual Plan
Nick Orr, Manager of Real Assets

Adoption: Real Assets FY20 Plan & Policies Discussion

Action: Real Assets FY20 Annual Plan
Resolution 2019-14
Action: Revised Investment Guideline
Resolution 2019-15 – Infrastructure
Action: FY20 Real Assets Benchmark
Resolution 2019-16 – Real Assets Policy Benchmark

3:00PM – 10 MINUTE BREAK

3:10 14. Investment Actions
Bob Mitchell, Chief Investment Officer

FRIDAY, SEPTEMBER 20, 2019

9:00 - 10:00	15.	Performance Measurement – 2nd Quarter *Paul Erlendson, Callan LLC* *Steve Center, Callan LLC*

10:00AM – 10 MINUTE BREAK

10:10-10:55	16.	Overview of Risk Parity *Doug Kramer,Co-head of Quant, Neuberger Berman* *Hakan Kaya, Risk Parity PM, Neuberger Berman*
10:55-11:45	17.	Executive Session

LUNCH – 11:45AM - 1:00PM

1:00-1:45	18.	Cyber Security Overview *Malcolm King, William Collins, & Tracy Wright* *State Street Global Services*
1:45-1:50	19.	Investment Advisory Council Finalists *Procurement Evaluation Committee Member*
1:50-2:20		A. David Kushner
2:20-2:50		B. Ron Barin
2:50-3:20		C. Ruth Ryerson
3:20-3:40		D. Board Discussion and Appointment

3:40PM – 10 MINUTE BREAK

IX. **Unfinished Business**
X. **New Business**
XI. **Other Matters to Properly Come Before the Board**
XII. **Public/Member Comments**
XIII. **Investment Advisory Council Comments**
XIV. **Trustee Comments**
XV. **Future Agenda Items**
XVI. **Adjournment**

NOTE: Times are approximate and every attempt will be made to stay on schedule; however, adjustments may be made.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
MEETING

Location
Alaska State Museum
Lecture Hall
395 Whittier Street
Juneau, Alaska

MINUTES OF
June 20 - 21, 2019

Thursday, June 20, 2019

CALL TO ORDER

CHAIR ROBERT JOHNSON called the meeting of the Alaska Retirement Management Board (ARMB) to order at 9:00 a.m.

ROLL CALL

Nine ARMB trustees were present at roll call to form a quorum.

Board Members Present
Robert Johnson, *Chair*
Tom Brice, *Vice-Chair*
Gayle Harbo, *Secretary*
Lorne Bretz
Allen Hippler
Commissioner Bruce Tangeman
Commissioner Kelly Tshibaka (arrived late)
Norman West
Bob Williams

Board Members Absent
None

Investment Advisory Council Members Present
Dr. William Jennings
Dr. Jerry Mitchell
Robert Shaw

Department of Revenue Staff Present
Bob Mitchell, Chief Investment Officer
Scott Jones, State Comptroller
Pamela Leary, Director, Treasury Division
Zachary Hanna, Chief Investment Officer
Shane Carson, State Investment Officer
Stephanie Alexander, Board Liaison
Mark Moon
Steve Sikes
Michelle Prebula
Kayla Wisner
Sean Howard
Nick Orr
Ben Garrett
Katelynn Bushnell
Casey Colton
Sam Hobbs
Hunter Romberg
Victor Djajalie
Kekama Tuiofu
Greg Samorajski

Department of Administration Staff Present
Kevin Worley, Chief Financial Officer, DRB

ARMB Legal Counsel
Stuart Goering, Department of Law, Assistant Attorney General

Consultants, Invited Participants, and Others Present
Paul Erlendson, Callan Associates, Inc.
Steve Center, Callan Associates, Inc.
Jay Kloepfer, Callan Associates, Inc.
David Kershner, Buck
Scott Young, Buck
Amanda Montgomery, Allianz Global Investors
Anthony Wong, Allianz Global Investors
Christian McCormick, Allianz Global Investors
Allan Duckett, Schroders
Jack Lee, Schroders
Raymond Maguire, Schroders
Paul Wood, Gabriel Roeder Smith

Members of the Public
Bradley Owens, RPEA

PUBLIC MEETING NOTICE

Board Liaison STEPHANIE ALEXANDER confirmed that public meeting notice requirements had been met.

APPROVAL OF AGENDA

<u>VICE CHAIR BRICE moved to approve the agenda.</u> <u>MR. WEST seconded the motion.</u>

VICE CHAIR BRICE requested to include a section on procurement actions just before Investment Actions, for the purpose of accepting the findings of the Proposal Evaluation Committee for the independent audit of state performance consultants. Also, MR. MITCHELL noted that under Asset Allocation, the resolution numbers needed to be changed from 2018-03 and 2018-04 to 2019-03 and 2019-04.

With those changes, the agenda was adopted.

PUBLIC/MEMBER PARTICIPATION, COMMUNICATIONS AND APPEARANCES

BRADLEY OWENS, executive vice-president of the Retired Public Employees of Alaska, or RPEA, informed the ARM Board of the status of two lawsuits involving changes by DOA in 2014 to the retiree dental plan and to the retiree medical benefits plan. In the first suit, the court recently ruled that the dental plan is a constitutionally protected retirement benefit, the same as medical benefits, and the changes made by DOA in 2014 were a diminishment of the dental benefits prior to 2014. The court is currently determining how to remedy those unlawful changes, which may take four to six months.

Regarding the changes made in 2014 by DOA to the retiree medical benefits plan, RPEA has asked the court to clarify what specific fiduciary duties DOA owes to retirees when it makes such changes. MR. OWENS explained that DOA and RPEA agree that a 2003 case defines the process applicable to changes to the plan, but they disagree on what the specific elements of the process are, when it must be utilized, and who is responsible to initiate and perform the process. This lawsuit is still in its initial phases, but RPEA hopes the court will rule on both cases by the end of the year.

APPROVAL OF MINUTES: April 4 - 5, 2019

<u>MS. HARBO moved to approve the minutes of the April 4 - 5, 2019 meeting of the ARM Board. VICE CHAIR BRICE seconded the motion.</u> MS. HARBO noted a correction on page 25 in the second to last paragraph, from “with” to “without any understanding of their wishes.” Also, she noted that in Trustee Comments, she had thanked Gail Schubert and Kris Erchinger for their years of service and dedication, and that should be included.

With those changes, the minutes were approved.

STAFF REPORTS

1. RETIREMENT & BENEFITS DIVISION REPORT

A. Buck Consulting Invoices

MR. WORLEY directed Board members to the summary of monthly billings for Buck, including quarterly reports with comparisons to the same time frame in the prior year, included at the request of the Board. MS. HARBO questioned whether presentations to Senate Finance were paid for out of pension funds or legislative funds, and MR. WORLEY replied that those come from pension funds.

B. Membership Statistics

MR. WORLEY reported on retirement system membership through the quarter ending March 31. MS. HARBO noted over 1,000 full disbursements or full retirements from DC over the first three quarters of the year. MR. WORLEY said there would be more discussion of that under Fund Financials.

DRB Update/Legislation Summary

MR. WORLEY reminded that Board that DIRECTOR AJAY DESAI has been before the Board and various committees discussing the DRB's modernization project, which will update their combined retirement system with a new platform, with an RFP expected to be issued in July.

MR. WORLEY explained that House Bill 39, Section 34, appropriates the additional state contribution from the legislature, and the numbers are currently $159 million for PERS and $141 million for TRS. The only other item passed this session that affects the Division is SB 44 expanding providers eligible to participate in telemedicine, which shouldn't have much impact.

MS. HARBO commented on SB 102 on the retirement incentive, that several earlier retirement incentive programs had a negative impact on the systems because the actuary at the time didn't take into account healthcare for life, so if it is to be considered again, the two actuaries must take a good look at it.

MR. WILLIAMS questioned why people in Tier 1 and Tier 2 defined benefit programs would fully cash out, and MR. WORLEY replied that typically those would be people who are not fully vested, and there is counseling for those fully vested on the rights they are giving up. However, some people have circumstances like being covered under another plan.

2. TREASURY DIVISION REPORT

DIRECTOR PAM LEARY said that the only thing she had to report was that they are still awaiting a final budget from the governor.

3. CALENDAR/DISCLOSURES

MS. ALEXANDER directed Board members to the disclosure memo and calendar in the meeting packet. On the 2020 calendar, she noted that an Actuarial Committee meeting on January 20 would have to be rescheduled because that is Martin Luther King Jr. Day.

VICE CHAIR BRICE commented that the Operations Committee had been discussing Board travel, and although it was expected that the September meeting would be telephonic, considering the number of issues to be addressed then, it might be better to have the December or March meeting telephonically instead. CHAIR JOHNSON added that he thought the majority of Board Trustees believe that personal attendance is critical, and he asked Commissioner Tangeman what he thought. COMMISSIONER TANGEMAN said that he thought that having the telephonic meeting in March would be acceptable, and he had verified that the State Office Building in Fairbanks does have video capability. MS. ALEXANDER said that she would send out an updated calendar.

4. CHIEF INVESTMENT OFFICER REPORT

Chief Investment Officer BOB MITCHELL wished everyone a happy summer solstice. He directed Board members to the summary of portfolio moves, noting that he had accidentally duplicated No. 9 and No. 36. CIO MITCHELL reminded the Board that Resolution 2017-05 delegated authority to the CIO to make asset allocation moves at his discretion and report those moves to the Board, which is the purpose of this report. He reviewed the sections of the report titled Rebalance Transactions; Futures, Rolls, and Adjustments; and Investment Actions. He added that this is the third year of their resurrected college internship program, and they have hired two interns: Ben Garrett from UAA; and Katelynn Bushnell from UAF, who also interned last year.

MR. MITCHELL noted that a second page of the report details, by request, the amount of assets that are managed internally, which is about $10 billion, including equity portfolios, fixed income portfolios, and investments in alternative asset classes.

MR. MITCHELL told the Board that today's meeting would include part two of Callan's response to an asset liability study of the plan, and a discussion from Callan about the asset allocation plan, which is an annual exercise, but a little different with a new framework they have developed this year. Also, under investment action items, he said he would be recommending that the Board authorize staff to engage Callan to conduct a risk parity search for a portion of the assets that the ARM Board manages.

CHAIR JOHNSON asked how the ARM Board investments compared to the Permanent Fund investments in the same time frame. MR. MITCHELL responded that it depends on the time frame, and the two funds report differently, but they are fairly close to each other, and over relatively long time periods, the ARM Board appears to have pretty decent performance relative to its benchmarks.

MR. WILLIAMS asked if it was easier to compare looking at year-to-year performance, and MR. MITCHELL replied that even annual performance can be misleading, particularly with illiquid asset classes, and time frames of multiple years give a better perspective, which is why they track rolling six-year net-of-fee performance. MR. WILLIAMS asked for a rough estimate of how the ARM Board compares to the Permanent Fund in the percentage of fees they pay, and MR. MITCHELL replied that that is a difficult question. He explained that there are investment manager fees, and another element of compensation which is incentive-based. The incentive-based components are not reported by the ARM Board, but are by the Permanent Fund. MR. MITCHELL said that the ARM Board is taking strides internally to increase the ability to identify those incentive fees, and the Permanent Fund is ahead on that point. He concluded that it's an apples-to-oranges comparison, but he thinks they are probably comparable.

5. FUND FINANCIAL PRESENTATION

COMPTROLLER SCOTT JONES indicated the April fund financials in the meeting packet, and gave some updates for June. He stated that as of June 19, 2019, total nonparticipant-directed plans stood at roughly $26.7 billion.

CFO KEVIN WORLEY highlighted two items from the DRB report. As a result of House Bill 47 from last year which pertained to PERS employers that had a 25 percent decrease in their population from the 2010 census data, salary reductions for five employers resulted in a State of Alaska contribution of $141,000. Also, on page 3 of the DRB report, he said they are considering different ways to present the disbursement schedule to make it more user-friendly. MS. HARBO asked a couple of questions for clarification, then asked if the EGWP subsidy was going to be constant at $3.4 million a month; MR. WORLEY replied that that amount covered a couple of months, and they expect it to be about $1.5 million for PERS and about half that for TRS.

MR. WILLIAMS asked whether the average disbursement or refund under TRS DB of about $217,000 indicates that almost everyone who is cashing out would be vested. MR. WORLEY replied that it depends on the situation, and they don't get into all the details, but retirement managers do contact vested participants who cash out. He said they would check on whether the average participant cashing out is vested or not.

6. CHAIR REPORT

CHAIR JOHNSON said he had nothing specific to report.

7. COMMITTEE REPORTS

A. Audit Committee

CHAIR JOHNSON reported that the Audit Committee had met the previous day and had presentations from KPMG and from MR. JONES and MR. WORLEY. The process on the RFP for an auditor has been completed, and the contract with KPMG has been renewed on a two, three, and five basis which could provide for up to ten years of service. That contract will come into effect on July 1 of this year.

CHAIR JOHNSON said that the Audit Committee reviewed the upcoming audit plan, which is a little compressed as a result of some of the delays earlier in the year in the delivery of actuarial results and adoption of those changes by the Board.

CHAIR JOHNSON reported that also, the schedules relating to GASB 68 and 75 allocating amounts due among employees and employers were delivered by KPMG and the DRB, effective as of June 30, 2018. That report was delivered early, and CHAIR JOHNSON expressed that that was highly appreciated by the municipalities and other employers who depend on that information.

CHAIR JOHNSON said that MR. JONES had reported on SOC 1 standards, or controls of service organizations, and that an independent review of State Street's internal controls and cybersecurity measures show them to be on a good track.

Also, the Audit Committee heard reports from PAM LEARY of the Department of Revenue Treasury Division and MR. WORLEY from the Department of Administration DRB on personnel changes, and reviewed organization charts. Some part-time employees have been converted to full-time, and some roles that employees play have been adjusted, all seemingly positive, CHAIR JOHNSON said.

B. Actuarial Committee

MR. WEST said that since the Actuarial Committee is virtually a committee of the whole, he wouldn't report on every item in detail, but as a result of the delayed experience study, the preparation of the actuarial reports has been delayed, and now they are coming up against a deadline. He explained that the process was started earlier in the year, and the review actuary, GRS, is required to report to the committee any differences that they find in their sampling of Buck's information. A number of issues have come up, and the process is still not complete. They expect to have a conference call on July 31, and they have to get the financial statements out by October 15th. The report has to be adopted by the Board and the information must be included in the fund financials so the auditors can review it, then the financials can be part of the state's comprehensive financial report.

MR HIPPLER asked the cause of the increase in liabilities of $800 million on the pension side in PERS. MR. KERSHNER replied that most of it was due to the assumption changes. VICE CHAIR BRICE added that changes to the inflation assumptions as a result of the experience study decreased the expected rate of return from 8 percent to 7.38 percent.

C. DC Plan Committee

BOB WILLIAMS, chairman of the DC Plan Committee, said that they had an exciting, short meeting. Chief Pension Officer KATHY LEA gave an update on the Retirement and Benefits legislative summary. There was also an Empower presentation with their new concierge service, and a packet is coming out soon highlighting and clarifying healthcare for DC members. Also, DRB had a webinar that reached over 500 people, and they are working on getting information out effectively to participants.

MR. WILLIAMS said that he was excited to hear about a negotiated agreement between the Fairbanks North Star Borough School District and the Fairbanks Education Association to strengthen benefits for Tier III teachers. Also, CIO BOB MITCHELL gave a presentation on the target date fund simulation update, and MR. WILLIAMS asked Trustees who weren't there to get a copy of it. MR. WILLIAMS said that T. Rowe Price had also given a presentation that complemented Mr. Mitchell's, looking at a longer career path but with a similar message.

MR. WILLIAMS reported that the DC Plan Committee also had presentations from staff that led to a couple of action items to be considered under Investment Actions.

MS. HARBO asked whether the DC Committee had ever discussed auto-escalation. She noted that the plans lose a lot of people at the five-year point, which is a loss of about $6 million a month to the DC plans. MS. HARBO speculated that it might require legislation, but she wondered whether it would be possible to have an auto-escalation of the employer contribution at the 4- or 5- year point, and maybe again a couple of years later, to give people more incentive to stay longer. She said that this is done in the private sector, but she doesn't know how much it is done in public pensions. MR. WILLIAMS answered that they have not discussed that topic, but there have been studies showing that automatic enrollment into something like deferred compensation does help hold onto employees.

CHAIR JOHNSON added the observation that the Department of Administration and DRB are perpetually working on ways to make their IT interface with the beneficiaries better, yet there was still a presentation by a manager of a private investment fund commenting that she was hearing anecdotally from her clients that it was difficult to obtain information and data that an investor might want, which shows that there is always room for improvement. MR. WILLIAMS added that it seemed to be something that the person was able to find a few months ago, and DRB staff had said that they could find the information, and maybe something had changed on the website to make it more visible; but also, such problems could be resolved by following up with people.

D. Operations Committee

MR. BRICE said that the Operations Committee met directly after the DC Committee, and they received a legislation update from MR. WORLEY. Also, they had a vigorous discussion about travel and budget changes and how that impacts the Board's decisions and ability to work together for the good of the beneficiaries. They also heard from CIO MITCHELL about Resolutions 2019-05 and 2019-06, which the Board will review in Friday's meeting, and had a brief discussion about upcoming issues and possible directions that the committee will be taking, and a brief conversation on participation in the National Council of Teachers Retirement.

E. Alaska Retiree Health Plan Advisory Board

MS. HARBO reported that the ARHPA Board had met May 8th in Anchorage, and most of the Board members met the day before with the TPA, Aetna, to hear their quarterly report. They were joined by PAULA VRANA as a new deputy commissioner for both days, and it was a very good meeting. MS. HARBO complimented the health team that works in DRB for their excellent work in the smooth rollout of the OptumRx program in January.

MS. HARBO said that the main focus of the rehab committee, as it is called, is a modernization program, with 20 topics that they are working on. In between the four Board meetings, a subcommittee works to make sure there is no diminishment of benefits. Two benefits of special interest to retirees are the wellness benefit and the enhanced travel to Outside to get less expensive healthcare. Also, the Tele-Town Hall, introduced by Commissioner Tshibaka, taking place at the same time as this ARM Board meeting, is very beneficial in answering questions from retirees, with usually 400 to 1,000 participating.

8. LEGAL REPORT

ARM Board legal counsel STUART GOERING noted that the matters brought up during the public member participation section have been previously reported on to the ARM Board. When there is a change in status in those cases, he said he will make a further report.

9. ACTUARY REPORTS: 2018 ACTUARIAL VALUATION DB AND DCR; PERS AND TRS PLANS

MR. DAVID KERSHNER and MR. SCOTT YOUNG from Buck reviewed the presentation in the Board meeting packet, which they had gone through in detail in the Actuarial Committee meeting the day before. The results of the June 30, 2018 actuarial valuations of the retirement systems, including PERS, TRS, the PERS and TRS DCR Plans, and JRS and National Guard, are all final, except for a couple of minor issues on the National Guard valuation, which they don't expect to change the results materially, if at all. MR. KERSHNER explained that the purpose of the valuations is to measure the funded status of each plan, the comparison between the invested assets and the liabilities. Then they review the experience on both assets and liabilities for the most recent year, and compare that to what they expected to happen. That creates what they call actuarial gains or losses, depending on whether the experience was favorable or unfavorable to the plan. MR. KERSHNER said that this is the first valuation that reflects the new assumptions from the four-year experience study, so they measured the effects of those assumptions and methods that the Board adopted in January. Also, for PERS, TRS, and JRS, they are reflecting the effect of the EGWP implementation, which reduced the healthcare liabilities. These results form the basis for the contribution rates that the Board will be adopting in September for FY21.

MR. KERSHNER stated that the market return on assets was 8.2 percent net of expenses, compared to the 8 percent assumption for the Plan year starting July 1, 2017. To smooth out the volatility of market gains and losses on the contribution rates, they use what is called an actuarial value of assets, which recognizes market gains and losses over a five-year period, and the return on the actuarial value of assets was 6.1 percent. The funded ratio, which is the comparison of the actuarial assets to actuarial liabilities, increased slightly for PERS and a little more for TRS, with three contributing factors: the regular experience gains and losses on both assets and liabilities; the effects of the new assumptions; and the effect of the EGWP implementation, which reduced the liabilities. The result is that overall, the plans are better funded as of June 30, 2018 than they were on June 30, 2017.

MR. KERSHNER explained that the funded status of the healthcare liabilities is over 100 percent, so the FY20 additional state contributions would be allocated 100 percent to the pension trust rather than split according to the unfunded liability. He directed Board members to an extra handout that revised the projections to reflect that decision. MR. WILLIAMS thanked MR. KERSHNER for making that update and adjusting a table of projections overnight.

MR. KERSHNER next reported on gains and losses to the plan, showing for both PERS and TRS, pension and healthcare, the main sources of the gains and losses. The two largest sources of gains on the pension side were gains from salary increases and the COLA and PRPA. Under healthcare, the largest source of gains was due to medical claims experience. MR. YOUNG explained how the medical claims experience was affected by the discovery that in the prior year, the data they received included some claims for audio and visual benefits totaling about $10 million, slightly less than 2 percent of the total. Those claims shouldn't have been included, and by excluding them this year they got a lower starting point, which produced an actuarial gain. Other factors were that the actual increase of average costs from the prior to the current year was lower than the assumption, and because they base the assumption on the two prior years, dropping FY 16 and using FY18 was favorable.

MR. KERSHNER stated that the PERS pension liabilities increased by $555 million due to the new assumptions from the experience study, and the healthcare liabilities increased by $760 million, for a total of $1.3 billion.

MR. HIPPLER asked whether that $555 million was broken out, and what assumptions had been wrong to come up with this change; MR. KERSHNER explained that the assumptions weren't wrong, but were reset based on the last four years of experience. Decreasing the investment return assumption means more assets have to be put aside to pay the promised benefits. Also, the salary increase assumption was lowered, and changes were made to almost all of the demographic assumptions, such as mortality and turnover. The combined effects of those changes led to the $555 million. But the largest impact was from lowering the investment return assumption from 8 percent to 7.38 percent.

CHAIR JOHNSON explained that the law obligates the Board to go through an assumption review every four or five years, and this exercise was done primarily over last year, with the results coming out in the fall, but not formally adopted by the Board until January of this year, shortly before the new Trustees took office. MS. HARBO suggested that the new Board members should have a copy of that experience study.

MR. KERSHNER reviewed the summary of changes from the experience study, explaining that besides the changes already discussed, they also changed the cost method to allocate healthcare liabilities between past and future periods from level dollar to level percentage of pay, and added an administrative expense load to the normal cost, which is the cost of current year benefit accruals for PERS, TRS, and JRS. Another significant change was the method that is used to amortize the unfunded liability, from a closed 25-year period to a layered amortization method; that didn't affect the liabilities, but affected the funding of the unfunded liability going forward. After some clarification of how the layered approach works, MR. KERSHNER went on to show graphs of participant counts, actives, retirees, payroll figures, funded ratios, and so on. He pointed out that they are currently just above 35,000 participants, projected to increase to about 37,000 or 38,000 in 2027 or 2028, then to drop off because the DB plans are closed; in 20 years the number of retirees is projected to be about the same as now.

MR. KERSHNER reviewed the projected additional state contributions, noting that the intention to allocate the FY 20 additional state contribution entirely to pension will not affect the overall contribution amount. Discussion followed about how the additional state contribution is set, and how the contribution rates will start to decline as the unfunded liability is funded.

CHAIR JOHNSON recessed the meeting from 10:45 a.m. to 10:59 a.m.

10. PERFORMANCE MEASUREMENT – 1st QUARTER

PAUL ERLENDSON from Callan thanked the ARM Board on behalf of himself and all of his colleagues for renewing their contract with Callan, and he said they look forward to working diligently with the Board to make things work the best they can.

MR. ERLENDSON stated that the Board of Trustees has essentially three levers to control what happens with assets. The least important is which managers run the money. Second is how asset classes are populated, and the most important factor is the asset allocation that is chosen, how much in return-seeking assets, how much in public versus private markets. He said that the ARM Board performance report going back 10 years shows that 100 percent of what has happened has been explained by asset allocation. The 10-year return on the funds is about 10 percent, and almost all of it was because of asset allocation, with very little added by managers. But when the period is shortened to six or five or three years, the returns in total have been lower when the manager effect has been greater. MR. ERLENDSON stated that managers have contributed something in the neighborhood of between 7 and 10 percent of the total return.

MR. ERLENDSON explained that the money invested can only do what the capital markets provide. If the economy is growing, equities will give a share of that growth, but if the economy is not growing, one way to make money is to loan money and get interest payments, as long as those interest payments are higher than the rate of inflation. By mixing those two approaches, returns are blended and risk is mitigated.

MR. ERLENDSON discussed growth in GDP, projections for the future, and the labor market, with low unemployment in the U.S., Mexico, Japan, and China, but high unemployment in the Euro zone, which affects opportunities for investing. He said that inflation has been relatively muted, not only in the U.S. but worldwide, concluding that the inflation that people have been worried about for over 10 years has not transpired. He explained that high employment rates make it hard to fill jobs, and economic growth can be hindered if there aren't people to get the work done. He looked at market patterns over the past couple of decades, and noted that after 10 years of a positive market, one would expect a correction to be coming up.

MR. ERLENDSON reviewed performance of various asset classes, and emphasized that the single most important issue is, once a strategic asset allocation has been developed, not to second-guess it when market conditions change. He noted that a significant portion of assets are invested in real assets, and real estate and private equity have contributed significantly to overall performance results. Not being marked to market every day like stocks and bonds, price changes in real assets happen over longer periods, dampening volatility. Private assets are harder to benchmark and need to be evaluated more carefully.

STEVE CENTER went over the performance of the funds, starting with the PERS DC Plan, which ended the quarter with $1.1 billion under management. About 60 percent of the plan is invested in the target date funds, a proportion that most of the plans have in common. He said that the PERS plan has been cash flow positive for quite some time, with about $26 billion in net inflows during the first quarter. The TRS DC Plan had about $11 million of net inflows in the first quarter.

MR. CENTER noted that the deferred comp plan had a different asset allocation, with only about a quarter invested in target date suites, and the remainder pretty evenly split between the passive allocation and the active investment options; it stood at about a billion dollars at the end of the first quarter, and is cash flow negative, with about $2 million in net outflows each quarter.

MR. CENTER discussed the performance of the various building blocks within the deferred compensation plans. Overall performance for the target date suite has been positive; he noted that the target date suite that Alaska uses does have a slightly higher equity allocation than the peer groups they track at Callan, so there is a higher level of standard deviation, owing to slightly more risk. However, he said that the actual standard deviation for the options has been lower than the stated benchmarks over all of those time periods.

MR. CENTER reviewed the passive and active options, and said that everything has tracked the benchmarks and performed well. In response to a question about the risk quadrant from MR. WILLIAMS, he said that the funds are being compensated well for the risks that they are taking.

MR. CENTER then discussed the defined benefit plans, using the PERS portfolio for illustrative purposes. The underlying building blocks for the different plans are about the same, with JRS and the military plan having slightly different asset allocations. He reviewed the asset allocation of the PERS plan, and said the reason they talk about it every quarter is to remind people how it differs from its peers, such as having a lower allocation to fixed income, and he showed that it has performed fairly well, at or above median, relative to Callan's Public Fund Sponsor Database.

MR. CENTER reviewed the Sharpe ratio, which is a measure of risk-adjusted return. A Sharpe ratio of 1 means a fund is performing well for the amount of risk that it is taking. The 10-year Sharpe Ratio for the PERS plan is 1.2, which is quite strong and in the top quartile of the peer group. As for standard deviation, which is one area where being lower is good, the PERS plan has exhibited a lower than median standard deviation over all time periods.

MR. CENTER explained attribution tables, and said that they want to look at where the plan has differed from an asset allocation basis relative to the targets. He said that the plans are usually kept fairly close to their target allocations, and explained how deviations are measured, so that when a plan is underweight to a strong performing asset class, the asset allocation effect will be negative, and when the plan is overweight to a strong performing asset class, it will be positive. These deviations tend to be fairly low, but the manager effect is where impacts will be seen. When an asset class is overperforming its target, the manager effect will be positive, but if it is underperforming its target, the manager effect will be negative. This quarter, private equity and opportunistic lagged their benchmarks. MR. CENTER pointed out that private equity also is not valued frequently, and it will never have a one-quarter return of 12.75 percent like the public markets; as a result, the benchmark is a bit of a mismatch, so the negative 1.089 percent manager effect is not as concerning. MR. ERLENDSON said that they need to come up with some kind of proxy for private equity, and longer periods should show higher returns than the public market alternative, but over short periods, the information is of negligible value.

CHAIR JOHNSON asked how the benchmark that is set at 350 basis points over public markets was decided by Callan, and MR. CENTER replied that private equity is notoriously difficult to benchmark, but there are options, like benchmarking relative to peers, or using some kind of market-based proxy, which is what PERS does, taking a public market benchmark and adding a liquidity premium. MR. ERLENDSON said that Callan worked with ARMB staff to come up with that benchmark, but he thinks most people would agree that 350 over public markets is pretty high. MR. BOB MITCHELL added that the 350 basis points is established in the investment guidelines in the private equity annual plan, and it would be taken up again in December. He said that the performance has been broadly consistent with that since the inception of the program, and there has been discussion about lowering that premium, which was one of the things that came out of the review of investment guidelines that Callan conducted. MR. BOB MITCHELL said that a return premium should be expected because there should be a benefit to getting the liquidity, but the question is what the minimum threshold is that they would be willing to accept. MR. WILLIAMS asked whether there is a risk in setting too low of a benchmark on private equity. MR. CENTER answered that there is a risk in setting it too low, and that would be seen in a downward-trending equity market; he said that some of their clients remove the noise that comes from a benchmark mismatch by making their private equity always match its benchmark, so then the manager effect is only seen in other asset classes.

MR. CENTER discussed the performance of the PERS and TRS plans relative to peers, and said that while the plans did trail the target benchmark by 2 percent over the last year, both are ahead by about 70 basis points; a full 1 percent over the last two years; and 70 basis points over the last three years. Over five and seven years, PERS and TRS are ahead of peers by about half a percent, and over ten years they approximately match the benchmark. Over the full 27.5 years that Callan has been tracking, both plans are slightly ahead of the benchmark by about 10 basis points.

MR. CENTER reviewed the performance of various asset classes, and noted that large cap domestic equity, which is now about 50 percent passive, lags the benchmark over most time periods, and there would be a proposal later in the meeting to remove more risk and move to more passive in that class. MR. ERLENDSON noted that the ARM Board has a low allocation to fixed income compared to others, having decided to have a low amount to make it a high-quality, short-duration portfolio. It didn't perform as well as peers, but that is because many have significantly more risk in their fixed income portfolios.

MR. WILLIAMS asked at what level manager effect should be a concern; MR. CENTER replied that there will be instances where the asset class should be expected to underperform, so it's not necessarily good to set a certain threshold. MR. ERLENDSON added that manager effect should be viewed by asset class, so for example, in publicly traded equities, the numbers should be positive, or managers aren't doing their job. He said that the ARM Board portfolio has a value bias, and a growth bias instead might result in a return of 5 or 6 percent more, so that is an explainable underperformance; the question then is whether being tilted toward value is the right kind of structure. MR. ERLENDSON said that they should look at asset class manager effect, and it's important to use attribution to figure out why returns are different from their goal.

11. FIDUCIARY/LEGAL EDUCATION

MR. GOERING explained that with a few new Trustees, it's important to give some context to what the Board does. This discussion of fiduciary duty satisfies the requirement in statute for annual training, and MR. GOERING said he also wants to identify some topics for additional Board and individual training.

MR. GOERING explained that fiduciary duty comes from several sources, primarily statutory, some common law; and, although this Board is not subject to ERISA, it is likely that courts would use ERISA principles to help answer questions. He said that having fiduciary duty implies and necessitates a great confidence and trust and a high degree of good faith. The Board needs to work together to meet the responsibility that they have taken on.

MR. GOERING reviewed the two statutes that apply to fiduciary duty, and said that the important thing about having to follow the prudent investor rule is that there is no ideal prudent behavior that fits all situations and all times. The environment, the economy, the plans, demographics, and liabilities are constantly changing, and many different decisions could be considered prudent, but they have to fit the situation. Also, the purpose for investing must be considered, and the statute says that the Board's job is to invest "consistent with standards of prudence in a manner sufficient to meet the liabilities and pension obligations of the systems, plan, program, trusts." MR. GOERING noted that MR. MITCHELL was reluctant to draw comparisons to the Permanent Fund, because they are not really comparable; the purpose of the Permanent Fund and of the pension funds are very different.

MR. GOERING said that there are both objective and subjective components to the prudent investor rule, and the Board will be judged on what it does about things that they know about and would be expected to respond to. Not everyone on the Board has the same knowledge, and it is incumbent upon the people who have expertise to contribute that expertise when appropriate.

MR. GOERING explained that another important component in the statute is the Board's power to delegate. The Board has expert advisors, general consultants, the Investment Advisory Council, managers, and investment officers that they can delegate to and rely on their expertise.

MR. GOERING said that fiduciary duty applies to all of the funds that the Board manages, not just the DB plans but even the DC self-directed plans. The responsibility in the latter context is narrower, to provide a range of options to the DC plan participants so that they can construct a reasonable investment portfolio. The Board decides what options to offer and has a responsibility to manage those options in a responsible way. He emphasized that it is an ongoing process, and Trustees need to consider whether decisions made in the past continue to be prudent. Also, they are required to exercise their fiduciary duty in the sole financial best interest of the fund entrusted to the fiduciary. MR. GOERING explained that sole financial best interest focuses on the financial outcomes; they aren't to engage in social engineering or try to accomplish political policy goals. However, he said that he thinks there has been a change over time in how sole financial best interest has been viewed, with it now being acknowledged that things like ESG factors are important in assessing the long-term financial prospects of companies.

MR. GOERING asked rhetorically, "Isn't it really impossible to carry a fiduciary duty as a part-time board?" He said the answer is clearly yes, it is. However, the legislature has provided a lot of help in the resources named above, and he said the Board has done well in utilizing those resources, and he encourages them to continue to do so, because without them the Board wouldn't be able to do what it does.

MR. GOERING emphasized that the principal thing the Board has control over is process, and it's important to have processes in place and to follow them, and refine and improve those processes over time. Process starts with the structure of the organization, some of which is statutory, and how they govern themselves, in this case with a committee structure. The Board also has the ability to adopt policies, and they have a Policies and Procedures manual. Staff and auditors make sure those policies and procedures are followed. Also, the Board receives reports, not just from its staff, but also from outside managers, general consultants, and real assets consultants, which are a very important part of the process. MR. GOERING said that the Board needs to think of process as an organism, something which is living, growing, responding to its environment, changing over the course of time.

One important thing that the Board does is delegate, some of which is statutory like the Department of Revenue as staff, and also to others outside of state government. The statute says that the fiduciary duty is breached if the person to whom the Board delegates doesn't meet the applicable standard of prudence, but it says that if the Board prudently delegates, they are protected from liability. It is important to have processes in place to detect and prevent breaches of duty by delegees.

MR. GOERING said that while the Board has the Department of Revenue as staff, the scope of what they delegate to staff is within the Board's control. The CIO and some others have been given the ability to do some things without explicit authority, sometimes based on certain conditions, or within certain limits, or with notification to the Board Chair, but the scope of such delegation is always under the Board's control. He said the Board should consider the scope of delegation on a regular basis, and he discussed examples of what is and is not considered delegating when hiring fund managers.

MR. GOERING said that for the most part, consultants, attorneys, and advisors to the Board have professional responsibilities, but are not fiduciaries as to the Board's work. MR. GOERING said that the fiduciary duty is carried by the Board, and the statute says that each member has a fiduciary duty as well, so the question is how to reconcile one's individual duty as a Trustee to the Board's fiduciary duty as a whole. He said that even though each Trustee fits into a certain area, such as two PERS and two TRS members, they do not represent those constituents; they have a fiduciary responsibility to the plans, not to the component of the plans that they have been appointed from. In most cases, the interests of the constituents and the plans are aligned, but if there is a conflict, Trustees should do what is best for the plans. He said that it is important for Trustees to recognize when they need to rely on the expertise of others or do some research, to know the limitations of their knowledge and work to minimize those limitations. He concluded by urging Board members again to use the resources that have been provided to help them make the best decisions.

CHAIR JOHNSON recessed the meeting from 12:15 p.m. to 1:30 p.m.

12. ASSET ALLOCATION REVIEW AND APPROVAL

CIO BOB MITCHELL said that there have been a number of discussions between staff and the Board over the past year regarding asset allocation, and he gave some tentative suggestions at the April meeting, which have been incorporated into subsequent discussions with Callan. He reviewed recent actions to provide context for the asset allocation discussion to follow.

MR. MITCHELL said that the major decisions that the Board makes are asset allocation, manager structure and implementation, and monitoring results. He quoted from the ARM Board's Policy and Procedures manual that the fund's purpose is to "achieve the expected long-term total return, as determined by the actuarially required rate of return, while minimizing risk as determined by the projected standard deviation of the range of potential future returns." He said that the expected return requirement was changed in January from 8 percent to 7.38 percent, and in looking at asset allocations to achieve that objective, they use Callan's capital market assumptions. There is still a difference in underlying inflation assumptions, so that has to be calibrated.

MR. MITCHELL noted the observation that the portfolio as a whole has become riskier over time, and the reaction of the Board has been gradual. He explained that in the '90s, the fund was 40 or 50 percent fixed income, and now it's down to 10 or 15 percent. He said the capital market assumptions are a function of the time horizon, and although the ARM Board typically looks at a 10-year horizon, Callan has longer-dated capital market assumptions as well. That led to the framework he presented, with steps to follow in deciding on asset allocation: first, identify the time horizon; then the asset classes; then analyze what combination of those give the expectation of achieving the expected return with a minimum amount of risk. He also added the step of identifying the policy portfolio, to have a separate policy benchmark.

MR. MITCHELL explained that as the time horizon is extended, expected returns go up. He said that there are three raw ingredients to capital market assumptions: the expected return of each asset class; the riskiness of each asset class as represented by the standard deviation; and the correlation of the performance of these asset classes. As the time horizon is extended, less risk is necessary, but with a shorter time horizon, if the return objective doesn't change because of the lower underlying assumptions, more risk must be taken to achieve that objective.

MR. MITCHELL said that the ARM Board has a relatively long time horizon, with benefits to be paid for decades into the future, and longer time horizons are less reactive to annual changes in the market, which leads to a more stable asset allocation. He explained how duration of the liabilities interacts with earnings assumptions, and reviewed weighted average time to payment and sequence risk as factors to be considered.

MR. MITCHELL reviewed the existing strategic asset allocation for the majority of the plans, excluding the military plan. About a third of the portfolio is in alternative assets: real assets, private equity, and absolute return. He said that they are about to engage a new real assets consultant, and in September the Board would consider the real assets annual plan, but overall they are happy with it, and it has provided diversification cash flow into the plan.

MR. MITCHELL showed that absolute return is relatively expensive, with high management fees, which raises the bar on why the plan should invest in that asset class. He noted that absolute return has been in the portfolio for 15 years, and has basically delivered performance equivalent to fixed income.

MR. MITCHELL explained that there is no passive option in alternative investments, and the dispersion of outcomes is significantly higher than in public markets, so there is an increased burden on the Board and staff to select the right managers to execute in those asset classes. He showed the range of outcomes in private equity, and said that staff have concluded that they should exit investment in that asset class. There were a total of seven strategies in absolute return, and they terminated one in April. Of the six remaining, they want to keep three, which he said he would characterize as not traditional absolute return because they have other properties. One is a private credit investment that they would move to fixed income, and two are factor-based and they would move them to opportunistic. He said they also believe there is merit in collapsing cash and fixed income into one asset class, since cash is basically fixed income, and the benchmark would be changed to reflect that. They would also reorient opportunistic. He said they would recommend an allocation that has more fixed income than currently, which would give flexibility to make some efforts to improve performance.

MR. BOB MITCHELL concluded by saying that they envision the focus moving to tactical asset allocation, and they are going to propose a risk parity strategy in an action memo. There was some discussion of the proposal to eliminate absolute return, and of the three strategies that they propose to keep and reclassify. MR. HIPPLER asked whether the remaining mandate that is more like fixed income provides hedging value in the sense of performing in a divergent way from equities; MR. MITCHELL replied that that is the goal, and funds of this nature generally have a relatively low correlation to equities, which is the main reason for investing in hedge funds or absolute return.

13. PERS/TRS ASSET LIABILITY STUDY
FY20 ASSET ALLOCATION

JAY KLOEPFER from Callan gave the second part of his presentation from the April meeting. He reminded the Board that they had seen the actuarial liability model, which used 2017 valuation because the actuary was still working on the 2018 valuation with the experience study. Callan received the changes, and now the 2018 valuation is built into the model. He said that with the new actuarial and inflation assumptions, the target is 7.13. He said they modeled all four of the major plans, PERS and TRS, medical and pension. They concluded that it still makes sense to invest those plans the same, even though there are differences between medical and pension, which are different kinds of formulas. He said they actually ran the study seven ways, with those four plans separately, then with just TRS and just PERS separate from each other, and then everything together. They've added uncertainty and engaged in a process called the Monte Carlo simulation, which allows them to build a range of potential results, which will all help inform a recommendation for a final portfolio.

MR. KLOEPFER reviewed the number of participants in the plans, active and retired, and commented that the plans are very mature and have been closed to new participants for over 10 years, so the inactive liabilities are more dominant now. He showed the impact of variability from inflation with all four plans combined, giving a range of results for liabilities. Inflation impacts salaries, which impacts the final calculation and the benefits paid. However, he said the real variability comes from the investment side. He went over cash flow projections and some rules of thumb, saying that a manageable rate is 5 percent of funds going out, but beyond 8 or 9 percent, liquidity needs can dominate what an investment program can do. Net outflow for PERS ranges from 4 to just over 5 percent, and for TRS it is from about 5 to a little more than 6 percent. So even though there is a fair time horizon left, it is becoming more important to consider liquidity, which he said is typical of mature plans.

MR. KLOEPFER reviewed projected funded status, using the assumption of 7.38 percent, and showed that both plans are projected to improve in their funded status over time, with TRS a little better funded after 10 years. MR. HIPPLER asked if this improvement in the funding is predicated on the projected additional state contributions; MR. KLOEPFER replied yes, that this model assumes the state will fulfill the contribution policy that is currently stated.

MR. KLOEPFER explained risks that can affect the liabilities, including inflation risk and its effects on salaries and on healthcare costs, and the capital markets themselves if there is a downdraft or if investments underperform expectations. He reviewed capital market expectations, which the Board went through in April, and stated that the current portfolio has 10 percent in fixed income, 4 percent in opportunistic, 1 percent cash, and roughly 85 percent in growth assets. He described it as a growth-oriented portfolio, and said that it may be wise to reconsider the level of risk. He said that about a third of the portfolio is in alternatives, and that is not unusual among big public funds, but it's also an element of liquidity and risk that is being reevaluated by many. He noted that if expectations keep being lowered without changing the target return, it pushes funds further out on the risk spectrum. Time horizon is one of the best ways to address this problem.

MR. KLOEPFER said that last year there were three corrections, yet the equity market was still only down 5 percent, but it was a wake-up call for many funds.

As for why longer time horizons result in better forecasts, he explained that they believe there is a long-term mean to which the asset class returns can revert, or "long-term annualized equilibrium." If the time horizon is longer and the target is the same, it may not be necessary to take as much risk to get there. However, some funds have tried to use longer-term numbers to justify maintaining a high expected rate of return, and the ARM Board has already lowered theirs. MR. KLOEPFER showed what it would take to achieve 7.13 percent with different time horizons with examples of different asset mixes; he explained how the calculations are done, and went over the simulated results. He said the intention is to consider the financial condition of the plan under the expected case and then simulate what the range of results are to see what might be an appropriate mix to consider going forward. They've used the asset model and the model of liabilities, and then they did the Monte Carlo simulation. He explained the Monte Carlo simulation as a set of expectations for all the parts of the capital market, for inflation, for interest rates, and for each of the different asset classes. With a return and a risk and a correlation, they have distribution results for each, from which they can solve for the financial condition of the plan. He said that they went through that whole process 2,000 times for each plan separately, then added them all together for the range of potential outcomes for market assets and projected liability 10 years out.

MR. HIPPLER asked whether the model projected any risk for the ongoing commitment from the State of Alaska to pay $200 million a year to this fund; MR. KLOEPFER replied that they assume that the funding policy will be followed, and it assumes that in a worst-case outcome, the funding policy will cause a greater contribution to be made. MR. HIPPLER commented that that is significant, that part of the model is pushing some risk onto the state in the form of potentially demanding larger contributions in the future; MR. BOB MITCHELL agreed, emphasizing that the riskier the portfolio, the greater the possibility for large required payments from the state. If risk is dialed back, the magnitude of those potential payments would also decline, and this model is not reflecting that because it assumes that the state stands by as a shock absorber. MR. HIPPLER noted that also, a more conservative investment policy on average will require the state to contribute more.

MR. KLOEPFER reviewed cumulative employer contributions for all the plans over a 10-year period, making the point that the plans are not fully funded and part of the commitment of the current funding policy is to put in the normal cost plus to pay down the unfunded liability, amortized over a certain period of time. The actuary does that valuation every year. Now they are trying to model the plan over the next 10 years and simulate what could happen with capital market uncertainty. He noted that when they did this study 10 years ago, the number was much bigger, and the ARM Board has made substantial contributions to the plans and changes to the plans, trying to reduce the unfunded liability. CHAIR JOHNSON pointed out that it isn't a policy, it's the law.

MR. ERLENDSON explained that the challenge is to decide on what basis to choose one mix over another, and that's where risk/reward tradeoffs come in. A more aggressive mix might mean needing to put in an extra billion dollars over the next 10 years.

MR. KLOEPFER discussed funded status outcomes and how the results varied for the four asset mixes shown. He said there is a meaningful chance that the plan could have a surplus 10 years out, but that is not the expected case; he said that in comparing the mixes, they should look at reward versus risk, or how much is the ultimate cost reduced in the expected case, and how much does it go up in the worst case?

MR. KLOEPFER said that in trying to make a decision, they need to consider how much it will cost the sponsor over the long term, how much risk to take to try to close the gap, and if there is a benefit to be had from making any change. He said one of the first questions is whether they can just keep the current portfolio; he said he expected to recommend lower risk, but the time horizon is still long, and liquidity needs are manageable with the current asset allocation and funding policy. He said that illiquid investments are about a third of the portfolio, and the Board may want to consider reducing that amount, because quick changes aren't possible with those asset classes. He said the current target is well diversified in its exposure to stocks and bonds, to private equity, a collection of real assets, a collection of diversifying strategies and hedge funds; however, through discussion with CIO MITCHELL and his staff, they think some changes may be worthwhile, specifically a little more in risk-mitigating assets, and rearranging the diversification in the portfolio. Fixed income could be an excellent source of liquidity, but it's now at only 10 percent. MR. KLOEPFER emphasized that return alone is not going to achieve funded status, and the funding policy is necessary to make progress toward that goal. There is a lot of sensitivity, both to funded status and contributions to the capital market risk, which is why they suggest reconsidering the current risk posture for the fund. He recommended a target similar to Mix 3, which is a little less risky than the current portfolio but still diversified.

MR. KLOEPFER said that the Board should be congratulated on both sets of funds, because they have made substantial progress since the last study. He acknowledged that contributions have helped a lot, and he knows the numbers can be daunting. He said the riskier portfolio for the past 10 years has achieved return, but they might want to lower the risk now. He then went into more detail on things to consider if they decide to implement the recommended Mix 3. MR. ERLENDSON noted that these assumptions are predicated on getting index benchmark returns, so implementation would be passive except for the private markets, and they would have further recommendations about that. MR. BOB MITCHELL reviewed and explained how the current asset allocation differs from Mix 3 and Mix 4, and how some asset classes might be adjusted in each case. He pointed out that Mix 3 would lower the risk profile considerably compared to a small loss of return, and it's the state and the other employers in the plan who ultimately bear that risk if the expected returns don't occur. MR. KLOEPFER summed up by reviewing the recommended changes, saying that it's going to take some time to implement them if the Board so decides, and there are considerations of cost and how many assets are up in the air at once.

MR. WILLIAMS asked if keeping the 20-year timeline means that next year they are still looking ahead 20 years, and in five years they are still looking out 20 years; MR. KLOEPFER replied yes. MR. WILLIAMS asked then as they get closer to the end of the plan paying out, if the timelines would be shorter, because it would be done, but right now it makes sense to look forward 20 years; MR. KLOEPFER said yes. MR. WILLIAMS commented that if what the Board is doing now is getting close to 7 in their analysis, and the target is 7.13, then the question is, how much more risk to take to try to get that additional .13, and he thinks it would be unwise to take a lot of risk to get marginally more return. He wants to get the best value for the State of Alaska, but doesn't want to take a whole lot of risk to get there.

CIO BOB MITCHELL added that he had checked with Buck, and they said they would be comfortable with the existing 7.38 percent assumption with the mix under consideration. He asked MR. KLOEPFER to talk briefly about the military plan; the difference is that there are not private assets in that plan, and Mix 4 is similar to the current portfolio for that fund.

MR. HIPPLER asked if the plan were more poorly funded or better funded, would that impact what a prudent trustee would seek as a target return; MR. KLOEPFER replied that they do deal with plans that are 40 percent funded, and Callan advises that they aren't comfortable with an 85 or 90 percent growth exposure at 40 percent because the plans are five or six years away from going to zero. But intelligent people can see the same data and make different decisions, so it's a philosophical question of whether to take less risk because the discount rate is lower.

ACTION ITEMS:
Resolution 2019-03
Resolution 2019-04

MR. BOB MITCHELL emphasized that asset allocation is one of the most important decisions that the Board makes, and he reviewed the changes that are proposed for FY20 with Mix 3. He said that the second resolution adopts Mix 4 for the military plan, which has the same expected return as the existing portfolio. CHAIR JOHNSON suggested postponing the vote on Resolution 2019-03 until after the presentation the next day on manager structure and absolute return, but the Board was able to address Resolution 2019-04.

<u>VICE CHAIR BRICE moved to adopt Resolution 2019-04.</u> <u>MS. HARBO seconded the motion.</u> MR. BOB MITCHELL stated that the resolution adopts an asset allocation for the Alaska National Guard and Naval Militia Retirement System which has the same expected return as the existing allocation, adjusted for Callan's most recent capital market assumptions.

A roll call vote was taken, and <u>Resolution 2019-04 passed unanimously.</u>

In response to a question from MR. WILLIAMS, MR. BOB MITCHELL agreed that the Board could vote on the investment action item to eliminate absolute return as an asset class. MR. MITCHELL read the action item entitled "Absolute Return Terminations, PAAMCO Prisma and Zebra Capital Management": "Staff recommends the Alaska Retirement Management Board direct staff to terminate the absolute return investment mandates managed by PAAMCO Prisma and Zebra Capital Management." He noted that he had previously shared staff's view of absolute return, that it is opaque and relatively expensive to invest in, and it has outcomes net of fees that have not been compelling since the inception of the program. MR. MITCHELL said that there are six mandates currently in the program, three of which they want to retain, and those are the subject of another action memo; three others they request to terminate, one with Prisma and two with Zebra.

CHAIR JOHNSON asked whether MR. MITCHELL feels comfortable that he has conveyed in today's meeting to the Board such information as he has to support this proposition; MR. MITCHELL said yes. CHAIR JOHNSON then asked the IAC members if they have any comment; DR. JERRY MITCHELL replied that they have discussed this recommendation with staff, and he thinks it's a good decision. MR. SHAW concurred.

VICE CHAIR BRICE moved the ARM Board direct staff to terminate the absolute return investment mandates manages by PAAMCO Prisma and Zebra Capital Management, to be implemented in FY20, so effective July 1, 2019. MR. WEST seconded the motion.

A roll call vote was taken, and the motion passed unanimously.

After some discussion of Resolution 2019-03, MR. WILLIAMS commented that he thinks waiting until the next day to vote on it is good. MR. WEST explained how the projected contribution rates are computed by the actuary, and if there are losses, they have to be made up, but are smoothed over the period of time.

MR. WEST said that it is actually the Board's responsibility, not CIO Mitchell's, to set the rates. He explained that Mr. Mitchell is the investment manager who gives the Board guidance, and Callan gives the Board results. The 7.38 percent is actually the real rate of return for the prior four-year experience study, which the Board didn't change, and decided to stay with. He pointed out that those assumptions come from a mathematical model from the real world, whereas the actuaries deal in estimations of the future.

RECESS FOR THE DAY

CHAIR JOHNSON recessed the meeting for the day at 3:45 p.m.

Friday, June 21, 2019

CALL BACK TO ORDER

CHAIR JOHNSON reconvened the meeting at 9:00 a.m. on Friday, June 21.
All Board members were present.

ACTION ITEMS: Resolution 2019-03

CHAIR JOHNSON took up the allocation discussion first because he wanted to have all the Callan people available to answer questions. CIO BOB MITCHELL repeated that one of the most important responsibilities of the Board is to adopt the asset allocation, and staff recommends an asset allocation based on their best thinking, which is reflected in Resolution 2019-03.

MR. BOB MITCHELL reviewed the factors that led to this recommendation, and pointed out that in addition to the asset allocation, the resolution lists the expected geometric mean and the standard deviation, which is consistent with the information from MR. KLOEPFER's presentation Thursday. MR. MITCHELL said that he had confirmed with Buck that this asset allocation would be consistent with that return expectation.

<u>VICE CHAIR BRICE moved Resolution 2019-03.</u> <u>MS. HARBO seconded the motion.</u>

VICE CHAIR BRICE briefly summarized that this allocation would increase broad domestic equity from 24 to 26 percent, drop global equity from 22 to 18 percent, raise fixed income aggressively from 10 percent to about 24 percent, drop opportunistic from 10 percent to 8, back off real assets from 17 percent to 13, and increase private equity from 9 to 11, plus completely get rid of absolute return. MR. MITCHELL confirmed that, then VICE CHAIR BRICE asked what the risk number was like last year compared to this number of 13.8; MR. MITCHELL replied that in the existing asset allocation, the risk is 14.79, so the new allocation is roughly 1 percent lower in risk, and about 7 percent lower in absolute returns.

MR. WEST asked over what period of time the transition would be made; MR. MITCHELL replied that they intend to make substantial progress in the first quarter and most of the progress over the first two quarters.

Trustees asked some questions, then a roll call vote was taken. <u>Resolution 2019-03 passed unanimously.</u>

14. MANAGER STRUCTURE

CIO BOB MITCHELL began by saying that though asset allocation is probably the most important decision the Board makes, manager structure is also very important. Manager structure is how the asset allocation is implemented, and includes questions like whether to have passive or active investments in asset classes, how many managers to have, and how to weigh the allocation to the various strategies within each asset class.

MR. MITCHELL said that at the September meeting, in conjunction with the annual real assets plan and with the new real assets consultant, an underwrite of the real assets asset manager structure and international equities is planned, and in December, they will consider the annual plan for private equities. In absolute return, he explained that the intention is to move the Crestline Strategies to fixed income, which does not require an action memo, and the JP Morgan and Man Group strategies will be moved to opportunistic.

MR. MITCHELL explained that the opportunistic asset class was formed starting in FY17; staff has conducted a review of the underlying strategies, and they want to move some of the fixed income components that are broader than Treasuries from opportunistic into the fixed income asset class. Also, they have conducted a review of what he characterized as defensive equity strategies, and reached the conclusion that the combination of passive investments and factor-based or factor-tilted allocations result in higher risk-adjusted returns than defensive equities do. Therefore, they plan to collapse strategies that are somewhat dedicated to equities and fixed income.

MR. MITCHELL reminded the Board of conversations about potentially adding a risk parity strategy; he said that their intent would be to incorporate that within the opportunistic asset class if the action memo later is approved. He showed a table of the changes to be made and explained how various strategies would be moved and reclassified, with some terminations.

MR. MITCHELL said that staff is more favorable to active management in areas of the portfolio where they think the odds are better of outperforming, and explained how they came up with that view. He showed how they used information from Callan to estimate the proportion of active managers that outperform the benchmark by asset class, and he reviewed the percentages, or the odds, for each; he said that staff's view is that the odds are better in international equities for active management than they are in domestic equities. There are two components to considering active management: the odds of success, and the reward for getting it right.

MR. MITCHELL said that 10 years ago his view would have been different, but in recent years, technology has advanced and academic research is starting to influence what they can invest in, particularly in factor-based strategies, which they discussed at the April meeting. He briefly explained that in factor-based strategies, by accepting various risk premia, investors should expect to get additional performance. He explained that after considerable academic study, consensus has coalesced around certain factors, and the performance of these multifactor strategies resembles the performance of some active managers. If a factor-based portfolio can be overlaid on a passive portfolio at lower management fees and achieve outcomes that are similar or maybe better than active in some cases, why have active management? This raises the bar.

MR. MITCHELL showed analyses of a potential 70 percent passive, 30 percent multifactor-based portfolio for domestic equity and for international equity, and it turns out that combination would have performed better than the current mix with active managers in both of those asset classes, gross of fees.

In domestic equities, MR. MITCHELL said that they recommend employing the S&P 1500 index instead of the Russell 3000, and collapsing the number of mandates in domestic equities, both internally and externally managed. He contrasted the S&P 1500 to the Russell 3000 and explained their reasoning, discussing other indexes as well.

MR. MITCHELL showed excerpts from Callan charts on where it makes sense to be active, and discussed the difficulty of implementing active management in an asset class. Investors have to hire the right managers, monitor them, weight them, and decide how reactive to be to changes, so it is preferable to do active management only in areas where the odds are good. He reviewed the structural mix that they are looking to implement in domestic equities, and outlined their recommendations. He said that the head of their internal equity team estimated that the recommended changes would reduce turnover by 5 percent, and it would be easier operationally to have their managers managing fewer portfolios.

VICE CHAIR BRICE commented that he has been on the Board since 2012, and the message from the IAC, staff, and everyone has been in favor of active management, so this is a major paradigm shift, and he asked for feedback from the IAC. DR. JENNINGS said that he thinks this is a good move which simplifies larger allocations, and said he is a bigger advocate for passive than some of his colleagues. He noted that the changes embedded in the move from the Russell 2000 to the S&P 600 is toward higher quality and more liquidity, as well as things that are essentially factors. Moving from the most popular index product to the second or third most popular is a little out of the mainstream, but it's not radical, and DR. JENNINGS said that he endorses it.

DR. JERRY MITCHELL agreed with Dr. Jennings, and said that if he has any reservation, it is just that when the decision is made to do this, they need to stick with it for a while. VICE CHAIR BRICE questioned whether the timing is right for this; DR. JERRY MITCHELL replied that no one can tell what the market is going to do, but he thinks it is a good thing to do now.

MR. SHAW commented that any plan has limited resources as to staffing and where to spend their time and energy, so it's important to get the most bang for the buck. He agrees that active management should be reserved for areas where there is a high probability of outperformance, and passive makes sense for the rest.

MR. WILLIAMS asked whether the S&P 900 has an index fund; MR. BOB MITCHELL replied that it would be managed internally. MR. WILLIAMS asked whether staff could execute these passive benchmarks as well as Vanguard and at a similar fee structure; MR. MITCHELL answered that he estimates the fee load for internal equities at about 3 basis points, and thinks it will go down a little bit, but one could argue that it's a bit higher than what they might get externally. However, one must consider whether it is a commodity, or a source of value added, or if there are other benefits from this investment; the in-house perspective can be valuable at times, but they do need to be competitive with external management. He said they are still building the strategy, and they will continue to evaluate the cost structure and look for ways to rationalize it from a commodity perspective. Also, their implementation has what he characterizes as a relatively tight tracking error. They want to deliver the returns of the underlying benchmarks, and there may be opportunities to marginally improve performance. The internal equity team is also looking at potentially deploying international equity investments, which becomes a scale issue, whether to increase the scale or increase the active risk, and a third option is to look at ways to rationalize expenses relative to external sources. MR. MITCHELL said that it's a journey, and they aren't done yet.

MR. WILLIAMS commented that he had always thought of small cap active managers as completely outperforming small caps to an index, and the S&P 600 chart shows that that is not really the case, which surprises him; he asked whether Mr. Mitchell thought there is a possibility in the future that that could happen in other areas as well. MR. MITCHELL replied that he is not aware of any indices on the international side, but at the top of a research agenda he would ask if there is a way they could prod the S&P or develop a quality-based index in-house that could potentially capture that. He said that would be a lot of work, though, and he'd prefer the S&P do it, but there have been studies showing that the quality tilt seen on the domestic side appears to be robust across the majority of international markets as well.

MR. WEST explained that earlier in the 21st century, the accounting profession in the U.S. expanded its depth, partly with government prodding, and new agencies were created. As a result, now there is a lot of very detailed, similar information from everyone who issues domestic securities under the securities and exchange rules, and the analytics are more automated, so it is hard for any stock picker to have a real advantage over another. He said this is the result of tighter rules, and he pointed out that in some foreign countries, reporting that complies with standards might report the same event quite differently, because the standards aren't as tight. He summarized that the information available on domestic equities has increased, and is tightly controlled, so there is less room for interpretation and it's harder to pick an oddball because everyone knows about it.

CHAIR JOHNSON recessed the meeting from 10:42 a.m. to 10:54 a.m.

15. CHINA STRATEGY MANAGER (ALLIANZ GLOBAL INVESTORS)

CIO MITCHELL said that in June of 2018, staff requested the Board authorize them to engage Callan in a search for a China equity mandate. Callan developed a list of eight semifinalists; staff conducted due diligence and selected two finalists for the Board's consideration, Allianz and Schroders. MR. MITCHELL said that at the end of the meeting there would be an action item requesting that the Board engage one of the two managers for a $100 million mandate.

AMANDA MONTGOMERY from Allianz, who is part of the institutional client service team in San Diego, introduced ANTHONY WONG, a portfolio manager for the strategy being discussed, who works out of Hong Kong. She also introduced CHRISTIAN McCORMICK, a senior product specialist who is based in the U.S. but works closely with the China equity team.

MR. WONG explained that the China A-Share market had never been relevant to offshore or global investors until recently, but there have been positive developments over the past year, starting with how big it has gotten; the total market cap of just the Onshore China A market is now at a similar level with the total Euro area, and the Onshore market alone accounts for 70 percent of the overall China equity space. Also, the China A market has become much more accessible to foreign investors, and last year the MSCI decided to include China A-shares in their emerging market index, which has changed the mentality of global investors. MR. WONG said that the China economy accounts for 15 percent of global GDP, but is still underrepresented in the global investors portfolio.

MR. McCORMICK explained the market cap breakdown in the China Onshore market, with A-shares available to foreign investors and listed in the Shenzhen and Shanghai stock exchanges. China stocks that are listed in Hong Kong or U.S. ADR are referred to as Offshore. There are about 3,600 stocks that are only available on the Shenzen or Shanghai stock exchanges and can only be accessed via the quota systems or through Stock Connect. Of those, about 1,300 are currently available through Stock Connect, and the main obstacle for eligibility is the market cap minimum, which equates to about $870 or $880 million in U.S. market cap. Those 1,300 represent a pool that Allianz would invest in, and the MSCI inclusion and other upcoming inclusions open up the Chinese capital markets and enhance the institutional investor participation. MR. McCORMICK said that over the long term, that should decrease some of the risk and professionalize the market.

MR. McCORMICK said they often are asked, if there are stocks listed in Hong Kong and in U.S. ADRs and some of the broader indices, why a stand-alone China A allocation is a good idea. He explained that the Offshore stocks are dominated by communications, energy, and utilities, and not investing directly in China A stocks means missing out on a wide variety of sectors, especially pro-growth ones like industrials and healthcare.

MR. McCORMICK showed 10 years of correlation using the underlying benchmarks to represent the China A-Share market and others such as world equities and European equities, stating that China A-Shares has a very low correlation, about .4 to Global Emerging Markets and about .6 to the Hong Kong-listed China stocks. This indicates that China A-Shares are affected by domestic factors in China, while the others are much bigger and more exposed to international influences, which makes China A-Shares a good diversification opportunity.

MR. BOB MITCHELL asked about the investment vehicle under consideration and where the assets would be custodied if they invest in this strategy; MR. McCORMICK replied that last year, they developed a U.S. LLC with Ohio State University, which is domiciled in the U.S. and custodied with State Street. There is an internal contract for Anthony Wong and his team to manage those assets, which are traded through Stock Connect.

MR. HIPPLER asked whether the correlation between U.S. equities and China A-Shares, currently about .3, has declined over the last couple of years due to the performance of the Chinese stock market, and what it would have looked like in 2016 or 2017. MR. WONG replied that they would expect the correlation between the China A-Share market and the rest of the world to go up, but very gradually, as participation by global institutional investors rises. He said that currently, about 4 percent of the daily turnover in the China A market is coming from foreign institutional investors, very different from the offshore stock markets, including Hong Kong, in which 80 percent of the turnover is from global institutional investors; it will probably take quite some time for the two to converge.

CHAIR JOHNSON asked how the Board should explain to its beneficiaries that they are going to invest in a China-only strategy at a time when there are significant trade war issues and friction in the region; MR. WONG replied that it should be a long-term investment, as it is an emerging market, and as growth in China becomes more sustainable, the risk of investing in China should be lower. Also, he said that there are a lot of economy companies available, so investments are supporting the long-term growth of China. He said that in the near term, those policy headwinds or trade disputes between the U.S. and China may have a negative impact on investment sentiment, but the fundamental impact on the Chinese economy would be quite limited. He also stated that the Chinese government this year is more ready to deploy its monitoring of fiscal policy to protect the downside risk of the Chinese economy; the government has already injected liquidity, and the interbank interest rate has come down a lot. Other initiatives like tax cuts and infrastructure adjustment also help cushion the downside risk.

MR. WILLIAMS asked how much of an issue things like suspensions of trading are, and whether they think it will improve, stay the same, or get worse; MR. McCORMICK replied that it has improved tremendously, with trade suspensions systematically coming down. Also, the Chinese government has imposed much tighter restrictions on when a company can suspend its shares, and such actions are almost nonexistent in the 1,300 stocks in Stock Connect.

MS. MONTGOMERY emphasized that their strategy is designed to deliver consistent performance driven by stock selection, not sector allocation or rotation. Risk management is at the heart of what they do, and can be seen in the disciplined portfolio construction. MS. MONTGOMERY said that they believe their edge is in risk management and mitigating the nonfundamental noise of the very volatile Onshore China A market.

MS. MONTGOMERY said that Allianz Global Investors manages $600 billion in 25 offices around the globe, investing in nearly all asset classes. They are owned by one of the world's largest insurance companies, Allianz SE, which has been in the asset management business for 125 years, with a culture of risk management from the top down. In the Asia Pacific region, they have over $25 billion invested, with 117 investment professionals among five offices. She also highlighted their "Grassroots Research," a unique external network research capability that they have used successfully in the region for over 20 years.

MS. MONTGOMERY showed five China equity strategies going back to 1985, but focused on the China A-Share market that they are presenting today, which is 100 percent China Onshore. The strategy was launched in 2009, and the assets under managements are currently about $970 billion, with more expected soon from another institutional investor.

VICE CHAIR BRICE brought up an article in BuzzFeed recently that featured the ARM Board as an investor in industries that were engaged in the surveillance activities of the Chinese government, and he asked what they are doing to mitigate such "headline risks" for investors. MR. WONG replied that the company in question is Hikvision, the Chinese global leader in producing surveillance cameras, and they held an engagement meeting with Hikvision to share with them the global investor concern about their ESG positioning. The initial feedback from management was that they would reduce their business cooperation with local governments, and do business through wholesalers or project solution providers, which will help avoid social responsibility concerns.

MR. McCORMICK discussed the Grassroots Research tool, a proprietary expert network internal to Allianz. This group does not have portfolio management responsibilities; it is a network of industry contacts, academics, and reporters from which their portfolio managers or analysts can commission reports to verify what executive management of a company is telling them. He said that the lack of significant institutional presence within the China market means fewer resources by which to vet what company management tells them, and historically company management in the China A area has tended to be overly optimistic with financial projections and so on. Grassroots provides an invaluable, unbiased resource.

MR. WONG went over how they manage their China A-Share strategy, saying that they try to adopt an institutional investment approach in a retail investment-driven emerging market. Over 80 percent of the daily turnover comes from retail individuals, who are relatively unsophisticated, usually short-term focused and following price momentum, and paying very little attention to company fundamentals and risk management. This results in frequent sector rotations and drastic share price movements, creating a lot of opportunities for active disciplined investors. MR. WONG said that for the China A-Share fund, the style is growth at reasonable price, with a primary focus on picking stocks with sustainable and superior growth, but they don't want to overpay, so they emphasize the valuation and quality of companies.

MR. WONG said that they believe risk management is very important, so they keep cash at a minimum level and do not do market timing. They focus purely on bottom-up stock selection, aiming to minimize uncertainty at the market and the industry level and to deliver a much more consistent and repeatable outperformance against the market. He said that their sector deviation against the benchmark is usually plus or minus 5 percent, and most of their alpha has come from stock selection only.

MR. ERLENDSON asked what currency risk is in this strategy and whether they do anything to manage that risk; MR. WONG replied that they do not do any currency hedging, but in conducting stock analysis, RMB is a major consideration.

MR. WONG described their four-step investment process, and emphasized a few points about their implementation: they do in-depth due diligence; they commission a Grassroots Research study when they need deeper understanding; they collaborate and communicate all the time with all the investment professionals under one roof; and they have monthly risk management meetings, analyzing down to the single-stock level.

MR. BOB MITCHELL asked about the quality of financial statements in mainland China companies relative to developed markets and how Allianz addresses that; MR. WONG replied that China's companies are up to the global accounting standards in reporting, but there is always a question about the transparency or the corporate governance issue, because management teams have some discretion regarding how much revenue to recognize on the books. He said they pay particular attention to the management incentive to try to minimize the risk of corporate governance.

MR. WONG reviewed their stock selection criteria, the three most important being growth, quality, and valuation, and discussed how they structure their portfolio.

MS. MONTGOMERY showed their performance, and said that the investment vehicle that the ARM Board would be considering is priced at 75 basis points, but they have agreed to discount that to 64 basis points. VICE CHAIR BRICE asked about the size of the fund and number of participants; MS. MONTGOMERY stated that the fund was seeded by Ohio State last year, which is still the only participant, and is at around $50 million today.

16. CHINA STRATEGY MANAGER (SCHRODERS)

Schroders is the second finalist for the China strategy. ALLAN DUCKETT, director of institutional sales for Schroders, introduced colleagues JACK LEE, the lead portfolio manager for the China A-Share strategy that they are presenting, and RAYMOND MAGUIRE, the head of research for Asian equities strategies.

MR. DUCKETT said that Schroders has one of the most experienced China A teams in the industry, and their research platform differentiates them from competitors. He said that they have 20 investment professionals focused on this strategy, with an average industry experience of 16 years, and he emphasized the consistency of Schroders' returns.

MR. LEE said that they have just one weighted China approach when researching China stocks, because regardless of whether a stock is listed in Hong Kong or the U.S. or China A-Shares, they share the same fundamentals. He highlighted the experience of their analysts and said that most of them stay with the firm for a long time. MR. LEE gave some background on himself, then addressed the question of why invest in China A-Shares right now. He said that China A is more representative of the entire China economy, compared to the Offshore China space which is focused on technology and financials. He said that in the China A-Share market, investors should focus on finding consumption proxy, or investing in companies that will share some of the consumption power of the China economy as it develops, like home appliance companies and consumer stocks. He said that now is a good time because the market is reasonably valued, and with the MSCI inclusion, there will be more capital inflows and a lot of opportunities for active managers to add alpha.

CHAIR JOHNSON asked how to present the idea of investing in a China-only strategy to the beneficiaries at a time when there is a trade war and regional unrest; MR. LEE answered that China is willing to negotiate in trade disputes and to cooperate regarding protection of intellectual properties. MR. MAGUIRE added that political risk will always have to be managed, but the exciting thing about the China A-Share market is that many of the drivers are domestically oriented, and exports to the U.S. are only about 5 percent of China GDP.

MR. LEE said that what contrasts Schroders from other players is their strong investment philosophy of not investing in the entire economy, but being a bottom-up stock picker, using research and a robust process to support their decisions. As in most emerging markets, there may be pitfalls if investors don't do their research, but well-chosen stocks can add a lot of alpha, which is why they have significant exposure to the mid cap space and look carefully at company governance.

CIO MITCHELL asked for comment on the quality of financial statements of mainland China companies and how they manage that quality when looking at a company; he also asked about the investment vehicle that is being contemplated and where the assets would be custodied. MR. LEE replied that he understands concerns that there could be a potential seizure of assets in China, but he thinks the chances are slim. However, he said that the funds would be custodied at J.P. Morgan in Hong Kong under the QV scheme. MR. DUCKETT explained that the vehicle would be a U.S. publicly traded mutual fund. They would first access China A securities through Hong Kong Connect and P-notes, and later QV access would be set up. MR. MAGUIRE said that the rating agencies of corporate governance in Asia and emerging markets don't work because of a lack of good data, so that a lot of the so-called best performing companies are ones they won't touch. He showed a forensic accounting model called "Red Flags," which can analyze 15,000 companies globally across 90 different financial metrics which they triangulate, and they benchmark across local industry peers and global peers. MR. MAGUIRE said he has not come across any company in the world that has beat this system, and it is a crucial part of their research process.

MR. BRICE asked about precautions they use to protect investors from "headline risk"; MR. MAGUIRE replied that having a team with lots of experience who understand management and these businesses is important, and besides the forensic accounting they have qualitative framework looking at how the companies interact with their stakeholders, regulators, customers, suppliers, employees, and communities. Regarding Hikvision, he said they invested in it early, and did due diligence, but with the recent developments a U.S. firm has been hired to investigate, and Schroders is also waiting for that information. Both MR. MAGUIRE and MR. LEE said that technology and surveillance are everywhere, and information goes to governments as well as to corporations that may be involved in malpractice.

MR. BOB MITCHELL asked about assertions that the Hikvision technology is being used to target minorities within China, and how they weigh the benefits against potential human rights issues. Again, MR. LEE said the reality is that surveillance is everywhere. He said that they spoke to the company and learned that Hikvision is aware of the risk of bad publicity since the media has reported about their equipment being used at an "education camp," and they are going to try to avoid that kind of business, but when they are just the provider of technology or a contractual party, they don't necessarily know how their equipment is being used.

MR. ERLENDSON said that over the last several years, the Chinese government has arguably managed its currency for import/export purposes; he asked whether, in managing the portfolio, they look at currency implications for a U.S. investor at the company level, or if they look at it at the portfolio level as a factor to be managed. MR. LEE replied that they don't try to predict the currency on the portfolio level unless the companies that they invest in have a certain implication toward the currency, such as Chinese airlines with significant exposure to foreign borrowing. In such cases, they will consider the currency implication, and in other cases, if a company has significant export exposure to the U.S. or other parts of the world, then they are being exposed to currency risk and Schroders would assess that risk; however, he said that domestic exposure has more effect than export exposure because a lot of revenues are driven internally in China's large economy.

MR. MAGUIRE emphasized that their philosophy and process has a quality bias. He said that as to the question of whether companies have U.S. dollar debts and therefore a currency risk, he thinks the bigger question is about the risk of currency devaluation because of being a U.S. dollar investor. He said it is a risk, but the government has a pretty good track record of managing it, and the debt within the system is very much internal, Chinese banks lending to Chinese companies.

VICE CHAIR BRICE asked how old this strategy is, how many participants there are, and how large it is. MR. DUCKETT answered that total assets are $1.847 billion, with three institutional investors having $653 billion and the rest in a mutual fund; the strategy has existed since 2013.

MR. MITCHELL asked about the number and concentration of investors in the investment vehicle that the ARM Board is contemplating; MR. DUCKETT said it would be a new investment vehicle that would take about four months to launch. VICE CHAIR BRICE asked how large they expect it to get; MR. DUCKETT said that it is constrained by capacity and the limit across all of the strategies would be about $5 billion. MR. LEE pointed out that that number could change as more investment opportunities open up.

MR. SHAW asked about state-owned enterprises, or SOEs, being 80 percent of the A-Share market, and asked whether those would be excluded because of government intervention; MR. MAGUIRE said that most of them do get excluded due to Schroders' process, and there is not a great alpha opportunity there anyway.

MR. DUCKETT discussed performance, showing that they outperform 5 percent of the time in normal markets and hold up well in down markets; he showed an average performance of 11.96 percent over a three-year time period, the best being 17.6 percent and the worst 7 percent since the strategy's inception. He said that the vehicle would be open only to institutional clients, and there will be a $10 million minimum, and he offered the ARM Board a 10 percent discount to the existing mandate.

CHAIR JOHNSON recessed the meeting from 12:31 p.m. until 1:52 p.m.

17. IAC PRESENTATION

DR. WILLIAM JENNINGS explained that he would like to have a facilitated discussion about investment governance and deciding who gets to decide. He described a book and an article that he had read about these issues, and said the message is that addressing governance issues may be hard, but it needs to be faced head-on. There are many players who could be making decisions, including the Board, staff, or outsiders that the Board has delegated to. There may be parameters set so someone else can execute decisions, then the Board monitors that, or the Board may be centrally involved in making very specific decisions. This is framed as the separation of governing and managing. He quoted from the book, *Fortune and Folly*: "Policy issues are inescapably the court of governing fiduciaries. Executing day-to-day investment decisions and hiring the people to do it, not so much."

DR. JENNINGS explained to Board members that in New Zealand, rather than being called trustees, they would be called guardians of the pension trust. And in Australia, they use the word "superintend," which implies more than just passive oversight.

DR. JENNINGS explained that this discussion is a result of a report from Callan on policies and procedures in which they concluded with a few paragraphs on taking a look at other governance models. He explained that governance may range from cases in which the CIO is given more and more delegated responsibility, even to asset allocation, to those in which the Board does nothing but asset allocation and everything else is the purview of staff, to be reported to the Board. He said that the ARM Board needs to decide where the dividing line is between Board responsibility and staff responsibility. He said that the legislature sets the various positions, and may set policies to prohibit investing in certain companies for various reasons, like being involved in surveillance.

DR. JENNINGS said that historically, the Board is responsible for manager selection, and they also have some parameters around certain actions or thresholds in which authority has been delegated to staff. He said the Board needs to decide where in the spectrum is an appropriate level for their focus. He reviewed some factors that would affect that decision, such as how much time they have, how much time they spend together as a Board, and how comfortable they are with staff and their competence. Quoting himself from the CFA analyst curriculum, DR. JENNINGS said, "Effective investment governance ensures that decisions are made by the folks with the necessary skills and capacity." He said the governing mindset doesn't mean the Board can't ask tough questions, and he would encourage discussion. He asked whether there are decisions that are small enough dollar amounts that they are comfortable with delegating; MR. WILLIAMS said yes, because if every little thing had to come before the Board, they would have to meet every day, and they have worked with this staff for a long time and he thinks there are high levels of trust. MR. WEST commented that if something is within the policy and within the mandates and within the asset allocation set in policy, then it's fine; he commented that they are seldom presented with managers that do exactly the same thing, and once the Board decides to hire one, it's Mr. Mitchell's job to carry that out, so they are delegating to him every time.

DR. JENNINGS encouraged the Board to think about delegating more of the decisions to staff, saying that they have a history of conservatism in delegation, and reminding them that in MR. GOERING's presentation yesterday, he explained that there were multiple provisions for delegation. CHAIR JOHNSON commented that the statute says the Board shall do certain things, but also carries the provision that they may delegate; he said he thinks they have struck a reasonable balance of having resolutions in place that have an upward dollar amount, and a sense that when something is really new and different, it should come before the Board. He said that making too much of a bright line could lead to arguments about jurisdiction instead of dealing with material things.

MR. WEST described an experience when he constructed a hedge fund in derivatives for his financial institution, and the market blew up, and the board of directors had a private meeting with regulators that he wasn't even aware of, but because he had thoroughly explained it to the board beforehand and they had agreed to it, they accepted their responsibility in what happened and didn't blame him. He said that there is some comfort in knowing that the Board knows what is happening, regardless of whether it is in their realm of responsibility or is delegated.

MR. BOB MITCHELL added that more eyeballs are always good, but there is a limit to the amount of time the Board can spend on things. However, he thinks overcommunication by staff will reduce the likelihood of surprises and probably deepen the Board's understanding, with a marginal impact on the amount of time that is spent. VICE CHAIR BRICE commented that the Operations Committee can help define those lines and develop this conversation. DR. JENNINGS said that the fact of having an Operations Committee could be seen as having a governance area of responsibility, which is an improvement. He suggested that some committee should take on assessing the governance of the Board as a whole. He suggested a survey of the nine members, and the Chair talking with them about leadership and whether they are spending time on the things they ought to spend time on.

MR. GOERING added that this is not the only board or agency that he deals with, and he often uses the governance of the ARM Board as an example of how to do it. He said that this board has committee charters that are reviewed annually and include self-evaluations, and that is exemplary.

18. PROCUREMENT ACTIONS

<u>VICE CHAIR BRICE moved that the RFP Evaluation Committee recommends to the Board that staff publish a Notice of Intent to award the ARM Board performance consultant audit contract to Antos Advisors LLC. And on expiration of the 10-day notice period, if there are no protests, that a contract be entered into with Antos Advisors LLC to perform our audit of the performance consultants.</u>

VICE CHAIR BRICE explained that the RFP was published, and though there were several inquiries, only one proposal was received within the deadline, which did meet the minimum qualifications for the position. Staff provided each committee member with the RFP, a copy of the proposal, and the scoring evaluation sheet for the purpose of independently reviewing and scoring this proposal consistently and fairly. Staff provided the cost proposal to the committee after the scores were finalized. The committee met June 12 and found Antos Advisors qualified for this contract.

A roll call vote was taken, and the motion passed unanimously.

19. INVESTMENT ACTIONS

CIO BOB MITCHELL went through the investment action items.

A. Alaska Target Retirement 2065 Trust

The first action item related to establishing a new target date fund trust, which is done every five years. The DC Committee evaluated the proposal and is recommending the fund be established.

CIO MITCHELL said that staff recommends the Alaska Retirement Management Board direct staff to add the Alaska Target Retirement 2065 Trust to the current suite of available participant-directed investment options.

MR. WILLIAMS so moved on behalf of the DC Committee. A roll call vote was taken, and the motion passed unanimously.

B. T. Rowe Price U.S. Bond Trust Benchmark Change

MR. MITCHELL said that the second action item is also a recommendation from the DC Committee. He explained that currently the majority of the investments in the buying component of the target date fund are benchmarked against an index called the intermediate aggregate index, which are primarily 1- to 10-year maturity investments. The proposal is to broaden the benchmark to include all investment-grade bonds, U.S. dollar-denominated bonds, including those that extend beyond the intermediate 10-year horizon. He explained that the decision to use the intermediate aggregate index was made in 2013, but as part of the process of evaluating the target date glide path, they had an opportunity to reexamine that, and with T. Rowe Price they collectively came to this recommendation.

MR. WILLIAMS, on behalf of the DC Committee, moved to have the Alaska Retirement Management Board direct staff to change the U.S. Bond Trust benchmark to the Bloomberg Barclays U.S. Aggregate Bond Index.

A roll call vote was taken, and the motion passed unanimously.

C. Resolution 2019-05: Modify Intermediate U.S. Treasury Fixed Income Investment Guidelines

MR. MITCHELL said that the third action memo related to modifying the investment guidelines for the Intermediate Treasury Fixed Income mandate, which is housed within the fixed income asset class for the DB plans. He reminded the Board of engaging Callan to conduct a review of investment guidelines, and said he would characterize most of the recommendations as clarifications, updates, or minor edits. The Operations Committee has reviewed this item and recommended that the Board adopt the new investment guidelines. CHAIR JOHNSON pointed out that the actual revisions are in an attachment to Draft Resolution 2019-05.

On behalf of the Operations Committee, VICE CHAIR BRICE moved that the Board approve Resolution 2019-05 modifying the Intermediate U.S. Treasury Fixed Income Investment Guidelines.

A roll call vote was taken, and the motion passed unanimously.

D. Resolution 2019-06: Adopt Domestic Fixed Income Investment Guidelines and Authorize Investment

MR. MITCHELL said that the next action memo related to the adoption of Domestic Fixed Income Investment Guidelines and authorizing investment in that strategy. He explained that this would be a mandate within the fixed income asset class that would be managed against the Bloomberg Barclays Aggregate Index. The motivation for this request was the anticipation of increased fixed income within the portfolio and the desire to broaden the mandate. These guidelines were modeled on the intermediate Treasury benchmark with some changes; the Operations Committee has reviewed those changes and is recommending that the Board consider adoption of the resolution to adopt these investment guidelines.

VICE CHAIR BRICE moved that the Board approve Resolution 2019-06, adopting the Domestic Fixed Income Investment Guidelines and authorize staff to create an account and investment portfolio subject to these investment guidelines.

A roll call vote was taken, and the motion passed unanimously.

E. China Equity Manager Hire

MR. MITCHELL's fifth action item related to the hiring of a China manager. He reminded Board members that staff intends to review the international equity asset class manager structure at the next meeting, and in light of that, staff requested to withdraw this action memo. With no objection, the discussion was tabled, and CHAIR JOHNSON thanked Mr. Mitchell for arranging the presentations from managers in this strategy.

F. Risk Parity Search

The next action item related to a risk parity search, which hadn't been discussed at the committee level or in any of the prior presentations, so MR. MITCHELL explained the background. In October of 2018, the Board heard a presentation from Keith Haydon at Man called "How would a hedge fund guy invest a public pension portfolio?" The conclusion looked a lot like risk parity, which is an investment strategy that attempts to allocate risk across asset classes, and to apply leverage to that portfolio to improve the total return. The expectation is that it would have improved risk-adjusted returns and less reliance on the performance of the equity market to generate those returns. Trustees expressed an interest in receiving more information on this topic, so they had educational presentations at the December and the April meetings.

MR. MITCHELL explained that staff believes that an investment in a risk parity strategy would help broaden diversification within active strategies, and would be appropriately housed within the opportunistic asset class. For that reason, staff recommends the Alaska Retirement Management Board direct staff to engage Callan to conduct a search for a risk parity manager.

<u>MS. HARBO so moved.</u> <u>MR. WEST seconded the motion.</u>

MR. WILLIAMS asked about the time and effort involved in engaging Callan to do a search; MR. MITCHELL replied that it is a significant commitment, with a fair amount of due diligence and staff participation. MR. WILLIAMS asked the amount that is under consideration; MR. MITCHELL answered that they are considering putting $500 million in, which represents about 2 percent of the entire portfolio.

MR. HIPPLER said that he thinks the Board needs more education on this concept before engaging a manager; MR. MITCHELL stated that there have been three presentations on risk parity. CHAIR JOHNSON noted that regrettably, Mr. Hippler wasn't a participant in those discussions, but said that he wasn't sure he himself could explain what a risk parity manager does. CHAIR JOHNSON pointed out that engaging new managers over time has led to a situation where they have a large number of equity managers, some of which they are considering terminating because there are so many and it makes more sense to keep it in-house, and he asked whether this concept isn't contrary to that.

MR. MITCHELL agreed that more managers result in splintering the pie, but said that 2 percent is arguably not big enough to matter, and they are considering this as an opportunity to get exposure and see what the performance is like before deciding whether to increase that exposure, and he thinks risk parity has potential to be a good diversifier.

MS. HARBO suggested that the previous discussions of risk parity should be in the meeting minutes from December and April, so Trustees could read about them.

MR. WEST commented that he likes the risk parity approach because he understands the theory, but he still wants to see details of how a manager would do it. He pointed out that this is not Callan's area of expertise, and to make a decision on whether or not to invest, he would have to see a presentation from an investment manager.

A roll call vote was taken, and <u>the motion to direct staff to engage Callan to conduct a search for a risk parity manager was approved by a vote of 6 to 3.</u>

CHAIR JOHNSON asked Mr. Mitchell to arrange a brief refresher on risk parity at the September meeting.

G. Public Infrastructure and MLP Termination

MR. MITCHELL said that the next item, "Public Infrastructure and MLP Termination," was motivated by the fact that public strategies within the real assets class are attempting to replicate the performance of private assets; also, the strategic asset allocation work with Callan suggests that the optimal allocation to real assets would be 8 percent, whereas the ARM Board has a target of 17 percent for FY19 and 13 percent for FY20. MR. MITCHELL said that terminating these strategies would be an efficient way to lower the allocation, so staff recommends that the Alaska Retirement Management Board liquidate its investments in public infrastructure and MLPs, terminating the public infrastructure mandates managed by Lazard Asset Management and Brookfield Investment Management as well as the MLP mandates managed by Advisory Research and Tortoise Capital Advisors.

VICE CHAIR BRICE so moved. MR. HIPPLER seconded the motion.

MR. WEST asked about the time it would take to terminate these and obtain the proper value; MR. MITCHELL replied that it would probably take multiple months, maybe two quarters or longer, as they would monitor market conditions and adjust the speed of the liquidations accordingly.

MR. WILLIAMS asked, since this investment was only started in 2012, if it has had enough time to play out, and how much of this decision is related to high fees and diversification. MR. MITCHELL replied that he hesitates to characterize the expectations at inception, but MLPs have turned out to be more energy sensitive than they appreciated at first, and the performance has been more volatile than anticipated. Also, the correlation to the equity markets, the fees, and the desire to lower the overall real asset allocation are all factors in this decision.

A roll call vote was taken, and the motion passed unanimously.

H. Absolute Return Terminations: PAAMCO Prisma and Zebra Capital Management

MR. MITCHELL noted that this action item, "Absolute Return Terminations: PAAMCO Prisma and Zebra Capital Management," was acted upon by the Board on Thursday.

I. Opportunistic Asset Class Restructuring

MR. MITCHELL said that the next two action items follow directly from the manager structure presentation this morning, and the first relates to opportunistic asset class restructuring. MR. MITCHELL explained that opportunistic currently includes strategies that he characterizes as defensive equities as well as a variety of fixed income strategies, and it is staff's view that they would be better off owning a combination of passive and factor-based strategies. Also, as part of the downsizing that they anticipate, they have lowered the allocation to opportunistic overall from 10 percent to 8 percent. They also want to terminate three fixed income mandates that overlap with others, so managers can be consolidated to reduce the number of mandates that are doing similar things. MR. MITCHELL said that staff has concluded that they should terminate MacKay Shields, Mondrian, and Western Asset Management Company, and transfer the two remaining fixed income strategies, the real estate high income and tactical bond strategies, to the fixed income asset class.

MR. MITCHELL said that staff is recommending the Alaska Retirement Management Board adopt the proposed changes as detailed in the table attached to the action memo.

VICE CHAIR BRICE so moved. MR. WEST seconded the motion.

A roll call vote was taken, and the motion passed unanimously.

J. Domestic Equity Asset Class Restructuring

MR. MITCHELL's last action memo, entitled "Domestic Equity Asset Class Restructuring," was covered in detail in his manager structure presentation, so he skipped to the recommended actions on the last page. He said that staff is proposing to consolidate the number of mandates in large and mid cap to the S&P 900, which would be internally managed, and to two factor-based portfolios. Also, there are a number of small cap strategies that staff recommends terminating and moving the assets to the S&P small cap index that is also managed internally. The names of the managers to be terminated are ArrowMark Small Cap Growth, BMO Global Asset Management, DePrince, Race & Zollo, Frontier Capital Management, Jennison Associates, Lord Abbot Micro Cap, T. Rowe Small Cap Growth, Victory Capital Management, and Zebra Capital Management.

MR. WILLIAMS commented that when they are moving to things that are pretty common and there are external index funds that match, he would be interested in hearing back periodically about how the Board's costs and performance compare to those. He would like to know if there is any added value, or if it helps staff learn or increase their capacity to do things. MR. ERLENDSON said he supports this proposed action.

VICE CHAIR BRICE moved to approve the recommended actions. MR. WEST seconded the motion.

A roll call vote was taken, and the motion passed unanimously.

UNFINISHED BUSINESS

None.

NEW BUSINESS

None.

OTHER MATTERS TO PROPERLY COME BEFORE THE BOARD

None.

PUBLIC/MEMBER COMMENTS

None.

INVESTMENT ADVISORY COUNCIL COMMENTS

CHAIR JOHNSON noted that this is MR. SHAW's last meeting as a member of the Investment Advisory Council, and said on behalf of the Board that they appreciate his tenure and efforts. MR. SHAW commented that it has been unbelievably enjoyable serving on the IAC for the last six years, and he will miss the trips to Juneau, which is always an opportunity to have dinner with his father. He said that in his interview six years ago, he had said that he figured he would get as much out of being on the Advisory Council as he hoped the Board would get out of it, and from his perspective, that has definitely been the case. He said he appreciates everything over the last six years, and he thanked the Board very much.

TRUSTEE COMMENTS

MR. BRICE said that it was a good meeting, and he thanked staff for all they've done. He thanked Mr. Shaw for his service to the Trust, and wished him good luck in his future endeavors.

MS. HARBO also thanked MR. Shaw for his service, and said he has been great, and has made some nice comments about how this Board works that she appreciated.

MS. HARBO also thanked staff from the Department of Revenue and the Department of Administration for all the work they do to make these meetings successful and smooth.

COMMISSIONER TANGEMAN thanked the Board, and said that these meetings are entertaining and interesting, and he loves the participation and all the questions. It's a very engaged Board that is fun to be part of. Also, he thanked the staff for the great work that they do.

MR. WILLIAMS thanked staff as well, saying that he had a couple of meetings prior to this, with Bob Mitchell and with Ajay Desai and Kathy Lea; he said staff does a very good job, and he is impressed with the quality. He commented that he learned a lot from the presentations in this meeting, and suggested that a future meeting might discuss strategies to head off price gouging in high-frequency trading, which he has heard about in Michael Lewis's podcast and book *The Flash Boys.*

MR. WILLIAMS also thanked Mr. Shaw for his service. He said that it is an honor to be part of this Board, and Bob Shaw had been very helpful to him at times when he struggled to understand something or to decide his position. He thanked Mr. Shaw for the times he has tutored him and given advice, plus a lot of additional perspective and context.

MR. WEST seconded all that was said thanking staff and each other, and said he has especially appreciated his conversations with Bob Shaw and appreciates his service to the Board.

FUTURE AGENDA ITEMS

MR. HIPPLER said he would like a discussion of guidance the Board can provide to participants to step up their contributions, suggesting mechanisms to automatically ramp it up to increase the percentage and likelihood of success in retirement. MR. WILLIAMS said he would welcome that item with enthusiasm on the next agenda of the DC Plan Committee. MS. HARBO reminded them of her suggestion of auto-escalation on the part of employers also.

CHAIR JOHNSON suggested that they ought to do a review of their proxy policy, an idea stimulated in part by ESG considerations that have been brought up, and they should have a discussion soon explaining risk parity to help the new members of the Board to feel comfortable with that topic. MR. MITCHELL responded that the proxy policy request has been received by staff within the Operations Committee, so they would intend to present to that committee; CHAIR JOHNSON replied that that makes sense, but probably at some point they will have to take Board action on it.

MR. MITCHELL said he plans to have an educational presentation in September about the risk parity search and hold back execution of engaging Callan pending that presentation. MR. WILLIAMS requested that the presentations that have been recently received on risk parity would be recirculated to all Trustees so they could review them before the next meeting.

ADJOURNMENT

There being no objection and no further business to come before the board, the meeting was adjourned at 3:30 p.m. on June 21, 2019, on a motion made by MS. HARBO and seconded by VICE CHAIR BRICE.

Chair of the Board of Trustees
Alaska Retirement Management Board

ATTEST:

Corporate Secretary

Note: An outside contractor recorded and transcribed the meeting and prepared the summary minutes. For in-depth discussion and more presentation details, please refer to the transcript or recording of the meeting and presentation materials on file at the ARMB office.

ALASKA RETIREMENT MANAGEMENT BOARD
STAFF REPORT
Division of Retirement & Benefits Report
September 19, 2019

Summary of Monthly Billings / Buck –

Attached for your information are the quarterly payments related to actuarial services provided by the Division's consulting actuary, Buck.

Items listed represent regular and non-regular costs incurred under our current contract.

The listed costs are charged to the System or Plan noted on the column headings.

Summary through the twelve months ended June 30, 2019

New for this quarter is the JRS alternate contribution pattern.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	Summary of Monthly Billings - Buck	ACTION:	
DATE:	September 19, 2019	INFORMATION:	X

BACKGROUND:

AS 37.10.220(a)(8) prescribes that the Alaska Retirement Management Board (Board) "coordinate with the retirement system administrator to have an annual actuarial valuation of each retirement system prepared to determine system assets, accrued liabilities, and funding ratios…."

As part of the oversight process, the Board has requested that the Division of Retirement & Benefits provide quarterly summary updates to review billings and services provided for actuarial valuations and other systems' request.

STATUS:

Attached are the summary totals for the twelve months ended June 30, 2019.

Buck
Billing Summary
For the Three Months Ended September 30, 2018

	PERS	TRS	JRS	NGNMRS	EPORS	AHF	RHF	SBS	DCP	TOTAL
Actuarial valuations	$ 77,700	31,546	4,481	11,495	-	-	-	-	-	$ 125,222
KPMG audit information request	5,125	2,091	36	174	-	-	-	-	-	7,426
ARMB presentations and meeting attendance	100,265	40,915	715	3,413	-	-	-	-	-	145,308
FY20 final PERS/TRS contribution rates	9,693	3,956	-	-	-	-	-	-	-	13,649
GASB 67 valuation reports as of 6/30/17 (PERS/TRS/JRS/NGNMRS)	19,527	8,632	197	1,005	-	-	-	-	-	29,361
GASB 68 valuation reports as of 6/30/17 (PERS/TRS/JRS/NGNMRS)	9,505	4,201	96	490	-	-	-	-	-	14,292
GASB 74 valuation reports as of 6/30/17 (PERS/TRS/JRS)	18,682	6,937	62	-	-	-	-	-	-	25,681
GASB 75 valuation reports as of 6/30/17 (PERS/TRS/JRS)	1,852	689	6	-	-	-	-	-	-	2,547
TOTAL	$ 242,349	98,967	5,593	16,577	-	-	-	-	-	$ 363,486
For the Three Months Ended September 30, 2017	$ 84,243	33,373	1,865	599	-	-	23	745	185	$ 121,033

For the Three Months Ended December 31, 2018

	PERS	TRS	JRS	NGNMRS	EPORS	AHF	RHF	SBS	DCP	TOTAL
Actuarial Valuations	$ 45,115	39,150	2,005	19,477	-	-	-	-	-	$ 105,747
KPMG audit information request	10,052	4,101	73	342	-	-	-	-	-	14,568
ARMB presentations and meeting attendance	36,368	14,840	260	1,238	-	-	-	-	-	52,706
Attendance and preparation for October NYC ARMB Investment Education Conference	782	319	5	26	-	-	-	-	-	1,132
GASB 67 valuation reports as of 6/30/17 (PERS/TRS/JRS/NGNMRS)	28,234	12,482	285	1,454	-	-	-	-	-	42,455
GASB 68 valuation reports as of 6/30/17 (PERS/TRS/JRS/NGNMRS)	29,652	13,108	298	1,527	-	-	-	-	-	44,585
GASB 74 valuation reports as of 6/30/17 (PERS/TRS/JRS)	44,491	16,522	147	-	-	-	-	-	-	61,160
GASB 75 valuation reports as of 6/30/17 (PERS/TRS/JRS)	33,443	12,421	110	-	-	-	-	-	-	45,974
TOTAL	$ 228,137	112,943	3,183	24,064	-	-	-	-	-	$ 368,327
For the Three Months Ended December 31, 2017	$ 288,798	166,622	596	2,005	-	-	7	510	126	$ 458,664

For the Three Months Ended March 31, 2019

	PERS	TRS	JRS	NGNMRS	EPORS	AHF	RHF	SBS	DCP	TOTAL
Actuarial valuations	$ 68,477	37,164	7,619	10,260	-	-	-	-	-	$ 123,520
ARMB presentations and meeting attendance	29,168	11,903	208	993	-	-	-	-	-	42,272
ARMB meeting follow-up request	3,277	1,336	23	112	-	-	-	-	-	4,748
GASB 67 valuation reports as of 6/30/17 (PERS/TRS/JRS/NGNMRS)	11,576	5,118	117	596	-	-	-	-	-	17,407
GASB 68 valuation reports as of 6/30/18 (PERS/TRS/JRS/NGNMRS)	8,206	3,628	83	423	-	-	-	-	-	12,340
GASB 75 valuation reports as of 6/30/18 (PERS/TRS/JRS)	6,621	2,459	22	-	-	-	-	-	-	9,102
EGWP cost analysis	7,682	2,826	19	-	-	-	24	-	-	10,551
Asset/liability modeling - Callan	15,240	6,225	-	-	-	-	-	-	-	21,465
Aleutian Region School District ligation	2,824	-	-	-	-	-	-	-	-	2,824
NGNMRS data issues regarding prior cash outs	-	-	-	15,962	-	-	-	-	-	15,962
Senate Finance Committee attendance and preparation	2,010	820	-	-	-	-	-	-	-	2,830
TOTAL	$ 155,081	71,479	8,091	28,346	-	-	24	-	-	$ 263,021
For the Three Months Ended March 31, 2018	$ 235,261	163,585	1,074	2,281	912	-	5	-	-	$ 403,118

For the Three Months Ended June 30, 2019

	PERS	TRS	JRS	NGNMRS	EPORS	AHF	RHF	SBS	DCP	TOTAL
Actuarial valuations	$ 38,424	43,047	6,459	7,597	-	-	-	-	-	$ 95,527
ARMB presentations and meeting attendance	16,569	6,762	118	564	-	-	-	-	-	24,013
ARMB meeting follow-up request	3,064	1,251	11	53	-	-	-	-	-	4,379
GASB 68 valuation reports as of 6/30/18 (PERS/TRS/JRS/NGNMRS)	6,627	2,930	67	341	-	-	-	-	-	9,965
GASB 75 valuation reports as of 6/30/18 (PERS/TRS/JRS)	6,523	2,423	21	-	-	-	-	-	-	8,967
Asset/liability modeling - Callan	6,595	2,693	-	-	-	-	-	-	-	9,288
JRS alternate contribution pattern	-	-	1,132	-	-	-	-	-	-	1,132
Senate Finance Committee attendance and preparation	3,371	1,377	-	-	-	-	-	-	-	4,748
TOTAL	$ 81,173	60,483	7,808	8,555	-	-	-	-	-	$ 158,019
For the Three Months Ended June 30, 2018	$ 92,575	37,353	3,646	3,353	-	-	-	-	-	$ 136,927

Summary for the Twelve Months Ended June 30, 2019

	PERS	TRS	JRS	NGNMRS	EPORS	AHF	RHF	SBS	DCP	TOTAL
Actuarial valuations	$ 229,716	150,907	20,564	48,829	-	-	-	-	-	$ 450,016
KPMG audit information request	15,177	6,192	109	516	-	-	-	-	-	21,994
ARMB presentations and meeting attendance	182,370	74,420	1,301	6,208	-	-	-	-	-	264,299
ARMB meeting follow-up request	6,341	2,587	34	165	-	-	-	-	-	9,127
Attendance and preparation for October NYC ARMB Investment Education Conference	782	319	5	26	-	-	-	-	-	1,132
FY20 final PERS/TRS contribution rates	9,693	3,956	-	-	-	-	-	-	-	13,649
GASB 67 valuation reports as of 6/30/17 (PERS/TRS/JRS/NGNMRS)	59,337	26,232	599	3,055	-	-	-	-	-	89,223
GASB 68 valuation reports as of 6/30/17 and 6/30/18 (PERS/TRS/JRS/NGNMRS)	53,990	23,867	544	2,781	-	-	-	-	-	81,182
GASB 74 valuation reports as of 6/30/17 (PERS/TRS/JRS)	63,173	23,459	209	-	-	-	-	-	-	86,841
GASB 75 valuation reports as of 6/30/17 and 6/30/18 (PERS/TRS/JRS)	48,439	17,992	159	-	-	-	-	-	-	66,590
EGWP cost analysis	7,682	2,826	19	-	-	-	24	-	-	10,551
Asset/liability modeling - Callan	21,835	8,918	-	-	-	-	-	-	-	30,753
Aleutian Region School District ligation	2,824	-	-	-	-	-	-	-	-	2,824
NGNMRS data issues regarding prior cash outs	-	-	-	15,962	-	-	-	-	-	15,962
JRS alternate contribution pattern	-	-	1,132	-	-	-	-	-	-	1,132
Senate Finance Committee attendance and preparation	5,381	2,197	-	-	-	-	-	-	-	7,578
TOTAL	$ 706,740	343,872	24,675	77,542	-	-	24	-	-	1,152,853
Summary for the Twelve Months Ended June 30, 2018	$ 700,877	400,933	7,181	8,238	912	-	35	1,255	311	1,119,742

ALASKA RETIREMENT MANAGEMENT BOARD

STAFF REPORT

Division of Retirement & Benefits Report
September 19, 2019

Retirement System Membership Activity as of June 30, 2019 –

Attached for your information are the membership statistics for the quarter ending

- June 30, 2019

We see net increases in active members from last quarter, primarily in PERS DCR and TRS DCR members:

- PERS Tier 1-3 active members decreased from 12,948 to 12,316 or a decrease of 632.
- PERS DCR active members decreased from 22,569 to 22,311 or a decrease of 258.
- PERS active members had a net decrease of 890.

- TRS Tier 1-2 active members decreased from 4,487 to 4,087 or a decrease of 400.
- TRS DCR active members decreased from 5,961 to 5,218 or a decrease of 743.
- TRS active members had a net decrease of 1,143.

Retiree counts have changed in the following manner:

- PERS retirees increased from 35,787 to 36,146 or an increase of 359 (all tiers).
- TRS retirees decreased from 13,269 to 13,262 or a decrease of 7 (all tiers).

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: Retirement System Membership Activity as of June 30, 2019

ACTION: ________

DATE: September 19, 2019

INFORMATION: X

BACKGROUND:

Information related to PERS, TRS, JRS, NGNMRS, SBS, and DCP membership activity as requested by the Board.

STATUS:

Membership information as of June 30, 2019.

MEMBERSHIP STATISTICS AS OF SEPTEMBER 30, 2018

	PERS						TRS					JRS	NGNMRS	SBS	DCP
	DB				DCR	SYSTEM	DB			DCR	SYSTEM				
	Tier I	Tier II	Tier III	Total	Tier IV	TOTAL	Tier I	Tier II	Total	Tier III	TOTAL				
Active Members	1,180	3,390	8,730	13,300	21,406	34,706	338	4,169	4,507	5,933	10,440	70	n/a	20,967	6,139
Terminated Members															
Entitled to Future Benefits	354	2,069	3,105	5,528	1,212	6,740	39	647	686	528	1,214	2	n/a	25,106	5,121
Other Terminated Members	1,090	2,163	7,753	11,006	12,277	23,283	264	1,591	1,855	2,199	4,054	-	n/a	n/a	n/a
Total Terminated Members	1,444	4,232	10,858	16,534	13,489	30,023	303	2,238	2,541	2,727	5,268	2	n/a	25,106	5,121
Retirees & Beneficiaries	23,674	7,891	3,887	35,452	66	35,518	10,648	2,630	13,278	19	13,297	132	706	n/a	n/a
Managed Accounts	n/a	n/a	n/a	n/a	5,608	5,608	n/a	n/a	n/a	1,501	1,501	n/a	n/a	1,824	1,987
Retirements - 1st QTR FY19	93	169	131	393	18	411	61	137	198	3	201	9	25	n/a	n/a
Full Disbursements - 1st QTR FY19	37	62	103	202	468	670	5	22	27	102	129	-	n/a	526	170
Partial Disbursements - 1st QTR FY19	n/a	n/a	n/a	n/a	73	73	n/a	n/a	n/a	19	19	n/a	n/a	1,099	568

MEMBERSHIP STATISTICS AS OF DECEMBER 31, 2018

	PERS						TRS					JRS	NGNMRS	SBS	DCP
	DB				DCR	SYSTEM	DB			DCR	SYSTEM				
	Tier I	Tier II	Tier III	Total	Tier IV	TOTAL	Tier I	Tier II	Total	Tier III	TOTAL				
Active Members	1,144	3,338	8,656	13,138	21,986	35,124	337	4,166	4,503	5,947	10,450	72	n/a	20,612	6,122
Terminated Members															
Entitled to Future Benefits	347	2,049	3,105	5,501	1,254	6,755	37	640	677	514	1,191	2	n/a	25,932	5,251
Other Terminated Members	1,088	2,148	7,720	10,956	12,440	23,396	262	1,582	1,844	2,214	4,058	-	n/a	n/a	n/a
Total Terminated Members	1,435	4,197	10,825	16,457	13,694	30,151	299	2,222	2,521	2,728	5,249	2	n/a	25,932	5,251
Retirees & Beneficiaries	23,616	8,007	3,972	35,595	73	35,668	10,611	2,647	13,258	20	13,278	135	710	n/a	n/a
Managed Accounts	n/a	n/a	n/a	n/a	5,643	5,643	n/a	n/a	n/a	1,511	1,511	n/a	n/a	1,931	2,131
Retirements - 2nd QTR FY19	57	129	102	288	7	295	7	17	24	1	25	3	24	n/a	n/a
Full Disbursements - 2nd QTR FY19	16	57	91	164	395	559	4	15	19	68	87	-	n/a	526	136
Partial Disbursements - 2nd QTR FY19	n/a	n/a	n/a	n/a	81	81	n/a	n/a	n/a	16	16	n/a	n/a	1,299	660

MEMBERSHIP STATISTICS AS OF MARCH 31, 2019

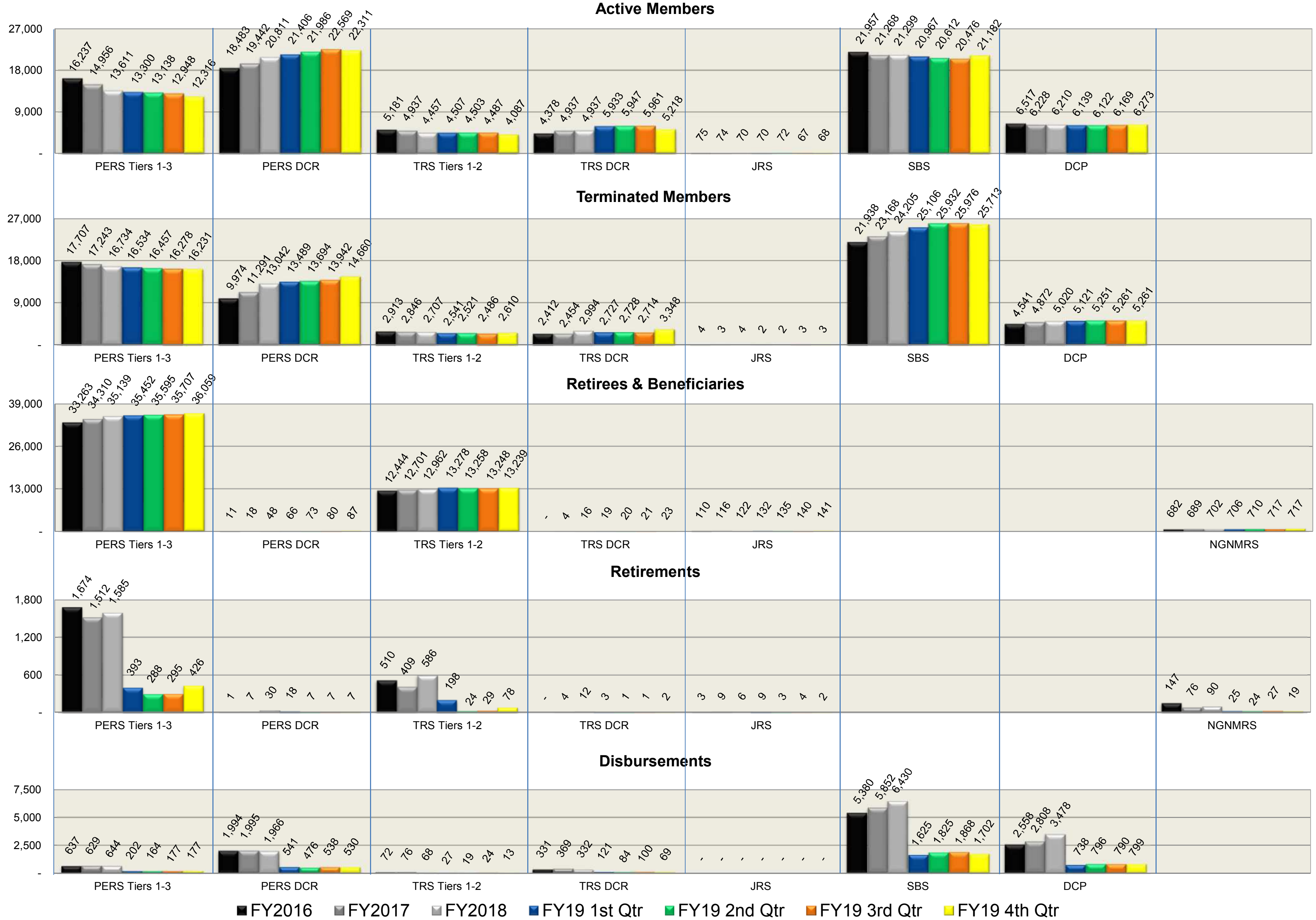
	PERS						**TRS**					**JRS**	**NGNMRS**	**SBS**	**DCP**
	DB				DCR	SYSTEM	DB			DCR	SYSTEM				
	Tier I	Tier II	Tier III	Total	Tier IV	TOTAL	Tier I	Tier II	Total	Tier III	TOTAL				
Active Members	1,117	3,263	8,568	12,948	22,569	35,517	336	4,151	4,487	5,961	10,448	67	n/a	20,476	6,169
Terminated Members															
Entitled to Future Benefits	326	1,986	3,085	5,397	1,266	6,663	31	637	668	512	1,180	2	n/a	25,976	5,261
Other Terminated Members	1,079	2,131	7,671	10,881	12,676	23,557	256	1,562	1,818	2,202	4,020	1	n/a	n/a	n/a
Total Terminated Members	1,405	4,117	10,756	16,278	13,942	30,220	287	2,199	2,486	2,714	5,200	3	n/a	25,976	5,261
Retirees & Beneficiaries	23,505	8,128	4,074	35,707	80	35,787	10,581	2,667	13,248	21	13,269	140	717	n/a	n/a
Managed Accounts	n/a	n/a	n/a	n/a	5,658	5,658	n/a	n/a	n/a	1,521	1,521	n/a	n/a	2,026	2,258
Retirements - 3rd QTR FY19	60	125	110	295	7	302	11	18	29	1	30	4	27	n/a	n/a
Full Disbursements - 3rd QTR FY19	13	69	95	177	439	616	3	21	24	66	90	-	n/a	596	168
Partial Disbursements - 3rd QTR FY19	n/a	n/a	n/a	n/a	99	99	n/a	n/a	n/a	34	34	n/a	n/a	1,272	622

MEMBERSHIP STATISTICS AS OF JUNE 30, 2019

	PERS						**TRS**					**JRS**	**NGNMRS**	**SBS**	**DCP**
	DB				DCR	SYSTEM	DB			DCR	SYSTEM				
	Tier I	Tier II	Tier III	Total	Tier IV	TOTAL	Tier I	Tier II	Total	Tier III	TOTAL				
Active Members	1,003	3,059	8,254	12,316	22,311	34,627	265	3,822	4,087	5,218	9,305	68	n/a	21,182	6,273
Terminated Members															
Entitled to Future Benefits	331	1,938	3,154	7,361	1,412	6,835	47	752	799	706	1,505	2	n/a	25,713	5,261
Other Terminated Members	1,063	2,117	7,628	10,808	13,248	24,056	249	1,562	1,811	2,642	4,453	1	n/a	n/a	n/a
Total Terminated Members	1,394	4,055	10,782	16,231	14,660	30,891	296	2,314	2,610	3,348	5,958	3	n/a	25,713	5,261
Retirees & Beneficiaries	23,481	8,319	4,259	36,059	87	36,146	10,546	2,693	13,239	23	13,262	141	717	n/a	n/a
Managed Accounts	n/a	n/a	n/a	n/a	5,708	5,708	n/a	n/a	n/a	1,524	1,524	n/a	n/a	2,211	2,423
Retirements - 4th QTR FY19	85	178	163	426	7	433	12	66	78	2	80	2	19	n/a	n/a
Full Disbursements - 4th QTR FY19	19	63	95	177	440	617	4	9	13	53	66	-	n/a	496	177
Partial Disbursements - 4th QTR FY19	n/a	n/a	n/a	n/a	90	90	n/a	n/a	n/a	16	16	n/a	n/a	1,206	622

FY 2019 QUARTERLY REPORT OF MEMBERSHIP STATISTICS

Annual & Quarterly Trends as of June 30, 2019



LEGEND

Active Members - All active members at the time of the data pull,
except SBS & DCP, which are counts of contributors during the final quarter of each period.

Terminated Members - All members who have terminated without refunding their account,
except SBS & DCP, which are counts of members with balances at the end of the period less active members.

Retirees & Beneficiaries - All members who have retired from the plans, including beneficiaries eligible for benefits.

Managed Accounts - Individuals who have elected to participate in the managed accounts option with Empower.

Retirements - The number of retirement applications processed.

Full Disbursements - All types of disbursements that leave the member balance at zero.

Partial Disbursements - All types of disbursements that leave the member balance above zero. If more than one partial disbursement is completed during the quarter for a member, they are counted only once for statistical purposes.

FY19 ARMB Actual Manager Fees

Fund	Manager Name	Asset Class	FY19 Actual Fees	FY19 Avg Asset Value	Fees in Basis Points	
AY4E	Deprince, Race & Zollo Inc	Broad Domestic Equity	$ 985,946	$ 98,770,205	99.82	
AYGF	Frontier Capital Management Company	Broad Domestic Equity	1,304,694	153,568,257	84.96	
AYGP	Arrowmark	Broad Domestic Equity	704,558	86,457,113	81.49	
AY4Z	Lord, Abbett & Co - Micro Cap	Broad Domestic Equity	765,841	97,372,068	78.65	
AYGB	Jennison Associates	Broad Domestic Equity	879,845	114,843,595	76.61	
AYGJ	Victory Capital Management	Broad Domestic Equity	1,150,022	190,937,786	60.23	
AYGN	BMO DSCC	Broad Domestic Equity	479,910	82,782,076	57.97	
AYKW	Zebra Capital Management, LLC	Broad Domestic Equity	542,243	94,442,835	57.41	
AYGQ	T. Rowe Small Cap Growth	Broad Domestic Equity	424,343	77,264,752	54.92	
AY47	Lazard Asset Management	Broad Domestic Equity	793,970	340,234,177	23.34	
AYLM	ARMB Scientific Beta	Broad Domestic Equity	221,519	379,655,049	5.83	
AY4R	ARMB Russell Top 200	Broad Domestic Equity	16,667	297,028,452	0.56	
AYG1	Portable Alpha AYG1	Broad Domestic Equity	20,703	404,815,283	0.51	
AYGA	ARMB S&P 600	Broad Domestic Equity	12,734	254,895,651	0.50	
AYLN	ARMB S&P500 Equal Weight	Broad Domestic Equity	18,633	373,123,932	0.50	
AY6B	Ssga Futures Large Cap.	Broad Domestic Equity	177	3,578,267	0.49	
AYG2	Portable Alpha	Broad Domestic Equity	21,731	440,636,048	0.49	
AY6A	Ssga Futures Small Cap.	Broad Domestic Equity	111	2,794,541	0.40	
AY5E	ARMB Equity Yield	Broad Domestic Equity	10,815	377,546,518	0.29	
AY4M	ARMB Russell 1000 Value	Broad Domestic Equity	16,667	1,386,967,882	0.12	
AY4L	ARMB Russell 1000 Growth	Broad Domestic Equity	16,667	1,589,390,531	0.10	
AY1N	BlackRock US Debt Index Non-Lending Fund	Broad Fixed Income	1,386	7,701,920	1.80	
AY6Q	Eaton Vance (Emerging Markets)	Global Equity Ex-US	149,391	12,186,664	122.59	
AY6P	Lazard Asset Management (Emerging Markets)	Global Equity Ex-US	3,807,079	381,965,601	99.67	
AY5D	Schroder Investment Management	Global Equity Ex-US	1,481,474	190,996,269	77.57	
AY5B	Mondrian Inv Partners, Ltd	Global Equity Ex-US	1,308,979	182,302,360	71.80	
AY69	McKinley Capital (International Large Cap)	Global Equity Ex-US	1,671,894	339,135,254	49.30	
AYLQ	Arrowstreet Capital, Limited Partnership	Global Equity Ex-US	1,716,892	373,410,328	45.98	
AYLR	Baillie Gifford Overseas Limited	Global Equity Ex-US	1,523,117	362,528,690	42.01	
AY67	Capital Guardian Trust	Global Equity Ex-US	2,190,240	555,569,359	39.42	
AY65	Brandes Investment Partners	Global Equity Ex-US	2,742,144	841,325,282	32.59	
AYLG	DePrince, Race, and Zollo - Emerging Markets	Global Equity Ex-US	832,437	276,379,484	30.12	
AY58	Lazard Asset Management (International Large Cap)	Global Equity Ex-US	372,090	321,016,610	11.59	
AY68	State Street Global Advisors	Global Equity Ex-US	425,255	719,629,194	5.91	
AY6U	Blackrock ACWI Ex-US IMI	Global Equity Ex-US	270,396	541,554,907	4.99	
AYLB	State State Global Advisors (MSCI Emerging Markets)	Global Equity Ex-US	24,147	98,763,605	2.44	
AYL7	State State Global Advisors (MSCI World ex-US IMI)	Global Equity Ex-US	56,475	631,731,811	0.89	
AY4X	Analytic Buy Write Account	Opportunistic	682,455	12,530,951	544.62	
AY1J	Project Pearl	Opportunistic	236,986	9,805,627	241.68	
AY5M	Lazard Emerging Income	Opportunistic	606,145	69,138,976	87.67	
AYRP	Fidelity Institutional Asset Management High Yield	Opportunistic	888,310	110,044,957	80.72	
AY1H	Schroders Insurance Linked Securities	Opportunistic	2,159,669	286,707,944	75.33	
AY63	Mondrian Investment Partners	Opportunistic	396,723	99,261,486	39.97	
AY9P	MacKay Shields	Opportunistic	367,289	97,328,903	37.74	
AY1F	Fidelity Institutional Asset Management	Opportunistic	707,656	222,375,285	31.82	
AY1W	Fidelity Signals	Opportunistic	449,626	151,922,033	29.60	
AY5N	McKinley Global Health	Opportunistic	356,671	124,512,323	28.65	
AY1D	Western Asset Management Company	Opportunistic	152,633	60,874,299	25.07	
AY1X	PineBridge	Opportunistic	303,455	150,978,504	20.10	
AY4W	Analytic SSgA Index Account - Index Fund	Opportunistic	199,550	595,083,121	3.35	
AYKY	ARMB STOXX Min Var	Opportunistic	126,613	633,791,060	2.00	
AYLW	Allianz Global Investors (Absolute Return)	Absolute Return	6,531,188	303,884,171	214.92	
AYLY	KKR Apex Equity Fund	Absolute Return	617,045	41,083,754	150.19	
AYLX	Crestline Specialty Fund	Absolute Return	425,391	32,958,161	129.07	
AY9F	Crestline (Blue Glacier)	Absolute Return	5,276,886	487,174,308	108.32	
AYLZ	Crestline Specialty II	Absolute Return	169,165	18,137,241	93.27	
AYLV	Zebra Global Equity Advantage Fund	Absolute Return	357,590	39,233,832	91.14	
AYLU	Zebra Global Equity Fund	Absolute Return	715,545	78,519,214	91.13	
AYL2	Man Group Alternative Risk Premia	Absolute Return	1,852,116	209,750,560	88.30	
AY8N	Prisma Capital (Polar Bear)	Absolute Return	3,189,310	431,449,281	73.92	
AYL3	JPM Systematic Alpha	Absolute Return	1,294,585	175,848,080	73.62	
AYRD	Dyal Capital Partners IV	Private Equity	789,041	1,578,251	4,999.46	New
AYRJ	Warburg Pincus Global Growth	Private Equity	90,521	247,116	3,663.10	New
AYRH	Resolute Fund IV	Private Equity	362,152	3,611,808	1,002.69	New
AYRL	NGP XII	Private Equity	1,001,096	11,947,443	837.92	
AYKR	Neuberger Berman Secondary Opportunities Fund IV	Private Equity	625,000	9,387,333	665.79	
AYRN	New Mountain Partners V	Private Equity	631,448	14,761,294	427.77	
AYKL	Dyal Capital Partners III	Private Equity	687,051	25,497,480	269.46	
AYKJ	Advent International GPE Fund VIII-B	Private Equity	375,000	18,373,493	204.10	
AYKE	Glendon Opportunities	Private Equity	749,802	39,382,160	190.39	
AYKM	Warburg Pincus XII	Private Equity	867,010	48,339,022	179.36	
AYKF	KKR Lending Partners II	Private Equity	800,632	46,561,015	171.95	
AYKG	NGP XI	Private Equity	689,741	50,184,162	137.44	
AYKA	Neuberger Berman Secondary Opportunities Fund III	Private Equity	374,753	29,675,568	126.28	
AY8P	Lexington Capital Partners VII	Private Equity	281,495	22,627,911	124.40	
AYKH	Lexington Capital Partners VIII	Private Equity	411,690	34,381,455	119.74	
AY8Q	Onex Partners III LP	Private Equity	87,192	12,193,240	71.51	
AY7Z	Merit Capital Partners	Private Equity	96,265	13,898,496	69.26	
AY7Y	Warburg Pincus XI	Private Equity	158,583	27,782,257	57.08	
AY8W	Warburg Pincus X	Private Equity	57,292	13,007,454	44.05	
AY98	Pathway Capital Management	Private Equity	2,879,212	1,126,334,466	25.56	
AY85	Abbott Capital Management	Private Equity	2,312,902	999,227,531	23.15	
AYKD	New Mountain Partners IV	Private Equity	38,891	23,945,236	16.24	
AYKB	Resolute Fund III	Private Equity	(16,758)	20,019,538	(8.37)	

AYK6	Almanac Realty Securities VIII L.P.	Real Assets	316,781	392,886	8,062.93	New
AY7X	Tishman Speyer Fund VII	Real Assets	57,287	943,997	606.86	
AYRM	KKR Real Estate Partners America II	Real Assets	223,117	6,056,886	368.37	
AY7P	Silverpeak Real Estate Partners II (Lehman)	Real Assets	169,452	4,790,592	353.72	
AY7L	KKR Real Estate Partners Americas	Real Assets	437,338	22,150,845	197.44	
AY7S	Almanac Realty Securities V L.P.	Real Assets	26,396	1,557,352	169.49	
AY9Z	EIG Energy Fund XIV-A	Real Assets	181,016	12,653,054	143.06	
AY5Y	EIG Energy Fund XV	Real Assets	336,611	25,519,020	131.91	
AY7W	Silverpeak Real Estate Partners III (Lehman)	Real Assets	57,050	4,507,331	126.57	
AYKQ	Almanac Realty Securities VII L.P.	Real Assets	409,733	35,049,869	116.90	
AY7B	UBS Realty - Trumbull Property Fund	Real Assets	885,589	90,204,185	98.18	
AY5J	EIG Energy Fund XVI	Real Assets	550,268	57,602,643	95.53	
AYRB	JP Morgan Infrasturcture Fund	Real Assets	1,046,267	117,668,451	88.92	
AYKP	ING Clarion Ventures 4 L.P.	Real Assets	232,372	26,275,259	88.44	
AY7A	JP Morgan	Real Assets	2,263,693	258,662,993	87.52	
AY9Q	Timberland	Real Assets	2,191,839	264,886,952	82.75	
AY9G	Hancock	Real Assets	2,233,236	272,811,905	81.86	
AY9B	UBS Agrivest	Real Assets	4,656,747	581,584,762	80.07	
AY9S	Hancock Natural Resource Group	Real Assets	688,143	96,603,900	71.23	
AYRE	Brookfield Investment Management	Real Assets	649,890	94,423,598	68.83	
AYRF	Lazard Asset Management Infrastructure Fund	Real Assets	762,966	117,235,387	65.08	
AYRA	IFM Global Infrastructure Fund	Real Assets	2,641,501	429,065,590	61.56	
AY7R	Tishman Speyer Fund VI	Real Assets	132,099	21,699,554	60.88	
AY7E	LaSalle Investment Management	Real Assets	1,042,222	187,527,932	55.58	
AY1Q	Tortoise MLP	Real Assets	2,236,955	427,084,379	52.38	
AY7F	Sentinel Separate Account	Real Assets	966,452	193,669,389	49.90	
AY7G	UBS Realty Separate Account	Real Assets	2,565,439	516,566,128	49.66	
AY1P	Advisory Research MLP	Real Assets	1,596,488	336,505,154	47.44	
AYK7	BlackRock US Core Property Fund	Real Assets	508,992	205,985,364	24.71	
AY9H	ARMB REIT	Real Assets	18,025	222,121,266	0.81	
	Total Manager Fees		**$ 99,457,766**	**$ 24,350,466,780**		

Manager Fees by Asset Class	
Broad Domestic Equity	$ 8,387,794
Broad Fixed Income	1,386
Global Equity Ex-US	18,572,009
Opportunistic	7,633,781
Absolute Return	20,428,820
Private Equity	14,350,011
Real Assets	30,083,965
	$ 99,457,766
Custody Fees	1,454,178
Total FY2019 Custody and Management Fees	**$ 100,911,944.23**

	Historic Manager Fees Paid, FY 11 to FY 20									
	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20 (Projected)*
Broad Domestic Equity	$7,548,569	$10,043,289	$11,559,501	$13,243,266	$12,654,891	$11,730,056	$14,459,724	$12,319,726	8,387,794	1,168,472
Global Equity Ex-US	$15,888,702	$15,814,643	$14,688,634	$17,142,130	$21,381,074	$20,815,819	$22,460,312	$23,094,420	18,572,009	11,606,012
Alternative Equity/Opportunistic	$4,002,936	$3,796,483	$3,454,480	$1,512,333	$3,012,605	$2,055,605	$2,162,504	$9,094,818	7,633,781	8,480,795
Private Equity	$5,864,047	$7,666,847	$6,653,443	$7,453,571	$7,793,757	$9,328,973	$11,765,183	$12,260,133	14,350,011	19,599,755
Real Assets	$19,493,765	$19,100,864	$23,608,330	$24,670,853	$25,175,085	$27,820,023	$28,648,117	$29,761,682	30,083,965	25,187,381
Absolute Return	$5,896,206	$6,056,485	$5,176,521	$5,985,676	$11,487,059	$23,558,243	$21,731,258	$18,287,912	20,428,820	-
Fixed Income	$2,493,906	$3,335,470	$3,685,272	$4,143,522	$5,010,475	$5,928,825	$7,390,994	$0	1,386	11,419,081
Total Fees	$61,188,130	$65,814,081	$68,826,182	$74,151,352	$86,514,945	$101,237,544	$108,618,092	$104,818,690	$99,457,766	$ 77,461,497
Year End Total Assets	$16,394,848,162	$16,242,119,030	$18,075,627,711	$21,171,071,086	$23,989,926,930	$23,068,284,972	$25,122,989,358	$26,161,838,719	$26,719,147,591	$26,443,071,017
Total Fees as a % of Assets	0.37%	0.41%	0.38%	0.35%	0.36%	0.44%	0.43%	0.40%	0.37%	0.29%
Public	$29,934,112	$32,989,885	$33,387,887	$36,041,251	$42,059,044	$40,530,306	$46,473,534	$44,508,963	$34,594,970	$32,674,361
Private	$31,254,017	$32,824,196	$35,438,294	$38,110,101	$44,455,900	$60,707,238	$62,144,558	$60,309,727	$64,862,796	$44,787,136

*Reflects actuals through August 2019 and that asset size remains flat subsequently.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	FY2021 ARMB Budget Proposal	ACTION:	X
DATE:	September 20, 2019	INFORMATION:	

BACKGROUND:

Pursuant to its charter, the Alaska Retirement Management Board (ARMB) Operations Committee meets at least annually to review the actual expenditures in the immediately preceding fiscal year budget; consider and review the current fiscal year budget as approved by the legislature; and develop a proposed budget for the next fiscal year and make appropriate recommendations for action to the Board.

The ARMB budget is presented in the Alaska Budget System in two budget components: the Alaska Retirement Management Board component, which includes operations costs and the Alaska Retirement Management Board – Custody and Management component. For presentation purposes, the attached schedule combines these into one schedule for FY2017 through FY2019 actuals and FY2020 and FY2021 projected and proposed amounts.

STATUS:

Personal Services Costs
The ARMB purchases personal services from the Treasury division each year. The FY2020 budget includes $6.5 million for personal services. Increases for new positions and/or salary increases for FY2021 will be included in the budget proposal during discussions with the OMB and Legislature.

Investment Management Fees
Total appropriated public management fees decreased from $44.5 million in FY2018 to $34.6 million in FY2019. This decrease of nearly $10 million is a direct result of moving assets managed by external firms to internally managed mandates. Total unappropriated private investment fees (netted from investments and historically not included in budget appropriations) increased from $60.3 million in FY2018 to $64.8 million in FY2019 primarily due to an increase in direct private investments. These fees are expected to drop significantly in FY2020 due to the divestment of the Absolute Return asset class.

Other Budgeted Costs
Other costs reflected in the attached working budget are based on prior year amounts and expected increases or decreases that are currently known. Sufficient budget authority exists for these costs.

Staff Recommendation
The Budget Committee met September 18, 2019 with Department of Revenue staff and reviewed the budget schedules and worksheets attached. Staff makes the following recommendation.

RECOMMENDATION:

That the ARMB adopt the FY2021 Proposed Budget as attached, with the understanding that components will be subject to appropriation by OMB and the Legislature.

Attachments: ARMB Working Budget and Management Fee Spreadsheets.

FY20 ARMB Working Budget

THE STATE of ALASKA
TREASURY DIVISION

		FY16 Actuals	FY17 Actuals	FY18 Actuals	FY19 Actuals	FY19 Budget	FY20 Projected	FY21 Proposed	$ Change from FY20
Personal Services	Board	56,763	46,050	56,019	74058.92	75,000	75,000	75,000	
	Staff	3,766,935	4,779,823	5,031,087	6,049,367	6,507,800	6,534,100	6,664,782	
		3,823,697	**4,825,873**	**5,087,106**	**6,123,426**	**6,582,800**	**6,609,100**	**6,739,782**	**130,682**
Travel	Employee Travel	109,000	118,869	168,651	100,809	165,000	27,500	100,000	
	Non Employee Travel	45,936	27,710	18,654	34,714	40,000	22,000	35,000	
	Travel Agent Fees	773	432	647	523	650	500	500	
		155,709	**147,012**	**187,952**	**136,046**	**205,650**	**50,000**	**135,500**	**85,500**
Management, Consulting & Custody Fees	Custody Fees	1,381,228	1,446,493	1,388,486	1,454,178	1,497,000	1,497,000	1,497,000	
	Unappropriated Private Investment Fees	60,707,238	62,144,558	60,309,727	65,099,788	65,134,505	60,000,000	50,000,000	
	Investment/Performance Consultant	698,610	874,904	807,158	871,301	900,000	830,000	850,000	
	Other Consultants	0	187,400	0	0	0	600,000	600,000	
	External Public Investment Fees	40,530,306	46,645,967	44,508,963	34,357,984	48,503,000	47,073,000	42,053,000	
		103,317,382	**111,299,323**	**107,014,334**	**101,783,251**	**116,034,505**	**110,000,000**	**95,000,000**	**-15,000,000**
Investment Information Systems	Barclays Risk Analytics	5,604	0	0	0	0	0	0	
	Bloomberg	379,991	457,660	498,964	506,871	500,000	500,000	500,000	
	CreditSights	2,939	3,829	5,804	6,990	5,800	7,000	7,000	
	FactSet	345,340	366,951	354,858	29,567	60,000	0	0	
	Frank Russell/FTSE International	18,805	1,860	44,580	20,303	19,000	21,000	21,000	
	Miscellaneous Investment costs	110	119	99	168	100	0	0	
	ISS Proxy Voting	14,040	48,080	51,595	48,110	51,000	51,000	51,000	
	Moodys	18,886	25,209	38,029	40,397	40,000	41,000	41,000	
	MSCI	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
	New York Stock Exchange	2,804	2,762	3,757	6,567	4,000	7,000	7,000	
	OMGEO	0	6,503	15,063	14,096	15,000	0	0	
	Scientific Beta EDHEC Index	0	57,400	0	0	0	0	0	
	Standard and Poors Financial Services	170,129	165,391	164,643	402,067	450,000	450,000	450,000	
	State Street Risk Management	0	75,000	87,050	95,018	87,000	96,000	96,000	
	Trade Web	5,187	7,096	10,613	10,401	11,000	11,000	11,000	
	Yieldbook	23,147	31,720	46,640	38,633	46,000	46,000	46,000	
	Zacks Investments Research	51,250	51,250	11,250	0	0	0	0	
		1,039,232	**1,301,829**	**1,333,944**	**1,220,188**	**1,289,900**	**1,231,000**	**1,231,000**	**0**
Other Professional Services	Actuarial Services	244,578	226,249	246,634	221,085	250,000	250,000	250,000	
	Investment Advisory Council	103,816	103,134	98,909	108,673	130,000	130,000	130,000	
	DOA Finance (IRIS, ALDER, ADA, Insurance)	40,072	95,080	33,161	33,888	50,000	50,000	50,000	
	DOA Human Resources	16,259	17,593	20,400	22,275	21,000	21,000	21,000	
	Financial Audit	93,778	77,895	91,670	95,832	95,000	96,000	100,000	
	International Tax Preparation	10,195	10,195	9,695	13,000	10,500	10,500	10,500	
	IT Support	38,795	37,797	39,296	125,019	40,000	126,000	126,000	
	Legal	81,211	62,692	83,687	132,370	100,000	200,000	200,000	
	Performance Consultant Audit	0	0	0	0	65,900	70,000	0	
	Recruitment and Compensation Studies	3,050	69,512	4,625	5,135	4,500	5,200	5,200	
	DOR ASD Support Services	119,604	237,201	524,338	207,474	550,000	250,000	250,000	
	DOR OOC Support Services	39,770	40,725	38,421	37,425	40,000	40,000	40,000	
	Translation Services	0	0	841	0	1,000	1,000	1,000	
		791,127	**978,074**	**1,191,678**	**1,002,177**	**1,357,900**	**1,249,700**	**1,183,700**	**-66,000**
Subscriptions and Training	Books and Educational Supplies	3,227	8,172	7,645	3,484	10,000	10,000	10,000	
	Memberships	18,116	18,000	15,790	12,402	18,000	18,000	18,000	
	News and Magazine Subscriptions	4,052	5,230	10,322	6,406	10,000	10,000	10,000	
	Training and Conferences	17,719	3,603	12,952	9,467	18,000	10,000	10,000	
Subscriptions and Training		**43,114**	**35,004**	**46,708**	**31,760**	**56,000**	**48,000**	**48,000**	**0**
General Office Expenses	Building Related Expenses	123,143	139,717	148,212	161,207	125,000	165,000	165,000	
	Business Supplies	5,507	5,001	7,355	3,648	7,000	7,000	7,000	
	Equipment and Machinery	4,256	10,115	9,544	5,971	10,000	10,000	10,000	
	Information Technology Equipment	9,337	784	18,003	11,976	15,000	35,000	20,000	
	Mail/Courier Services	9,137	7,400	4,676	5,028	7,500	7,500	7,500	
	Public Notices	8,618	4,051	1,652	2,775	7,500	7,500	7,500	
	Software	12,204	12,233	68,576	21,173	20,000	30,000	30,000	
	Telecommunications	69,110	67,386	72,439	43,674	70,000	50,000	50,000	
		241,312	**246,687**	**330,458**	**255,451**	**262,000**	**312,000**	**297,000**	**-15,000**
Board Meeting Expenses	Board Meeting Expenses	72,323	54,772	75,074	58,509	75,000	75,000	75,000	
Board Meeting Expenses		**72,323**	**54,772**	**75,074**	**58,509**	**75,000**	**75,000**	**75,000**	**0**
Total all Expenses		**109,483,895**	**118,888,574**	**115,267,253**	**110,610,808**	**125,863,755**	**119,574,800**	**104,709,982**	**-14,864,818**
Investment fees and custody		103,317,382	111,299,323	107,014,334	101,783,251	116,034,505	110,000,000	95,000,000	**-15,000,000**
Operations		6,166,513	7,589,251	8,252,919	8,827,557	9,829,250	9,574,800	9,709,982	**135,182**
Total all Expenses		**109,483,895**	**118,888,574**	**115,267,253**	**110,610,808**	**125,863,755**	**119,574,800**	**104,709,982**	**-14,864,818**

ALASKA RETIREMENT MANAGEMENT BOARD

STAFF REPORT

Disclosure - Calendar Update
September 19, 2019

The Disclosure Memorandum is included in the packet; no transactions require additional review or discussion.

The 2019 ARMB calendar-to-date and the 2020 ARMB calendar are also attached.

Nothing further to report.

ALASKA RETIREMENT MANAGEMENT BOARD
M E M O R A N D U M

To: ARMB Trustees
From: Stephanie Alexander
Date: September 6, 2019
Subject: Financial Disclosures

As required by AS 37.10.230 and Alaska Retirement Management Board policy relating to investment conduct and reporting, trustees and staff must disclose certain financial interests. We are hereby submitting to you a list of disclosures for individual transactions made by trustees and staff.

2nd Quarter – April 1, 2019 to June 30, 2019

Name	Position Title	Disclosure Type	Disclosure Date
Greg Samorajski	State Investment Officer	Equities, Fixed Income	07/02/2019
Michelle Prebula	State Investment Officer	Equities	07/19/2019
Scott Jones	State Comptroller	Equities	07/10/2019
Tina Martin	Treasury Accounting Staff	Equities	08/06/2019

ALASKA RETIREMENT MANAGEMENT BOARD
2019 Meeting Calendar

DATE	LOCATION	DESCRIPTION
October 10 Thursday	Telephonic	Audit Committee
December 11 Wednesday	Juneau, AK	Actuarial Committee Audit Committee Defined Contribution Plan Committee Operations Committee
December 12-13 Thursday-Friday	**Juneau, AK**	**Board of Trustees Meeting:** **Audit Report - (TBD)* **Performance Measurement – 3rd Quarter* **Manager Review (Questionnaire)* **Private Equity Review* **Manager Presentations*

ALASKA RETIREMENT MANAGEMENT BOARD
2020 Meeting Calendar

DATE	LOCATION	DESCRIPTION
January 22 Wednesday	Telephonic	Actuarial Committee - Preliminary FY19 Results
March 18 Wednesday	Telephonic (Video)	Actuarial Committee Audit Committee Operations Committee Defined Contribution Plan Committee
March 19-20 Thursday-Friday	**Telephonic (Video)**	**Board of Trustees Meeting:** **Performance Measurement – 4th Quarter* **Absolute Return Annual Plan* **Buck Draft Actuarial Report/GRS Draft Actuary Certification* **Capital Markets – Asset Allocation* **Manager Presentations*
April 30 Thursday	Telephonic	Actuarial Committee **As necessary: follow-up/additional discussion/questions on valuations*
May 1 Friday	**Telephonic**	**Board of Trustees Meeting** **As necessary*
June 17 Wednesday	Juneau, AK	Actuarial Committee Audit Committee Operations Committee Defined Contribution Plan Committee
June 18-19 Thursday - Friday	**Juneau, AK**	**Board of Trustees Meeting:** **Final Actuary Reports/Adopt Valuation* **Adopt Asset Allocation* **Review Private Equity Annual Plan* **Performance Measurement - 1st Quarter* **Manager Presentations*
September 16 Wednesday	Juneau, AK	Actuarial Committee Audit Committee Operations Committee Defined Contribution Plan Committee Budget Committee
September 17-18 Thursday - Friday	**Juneau, AK**	**Board of Trustees Meeting:** **Set Contribution Rates* **Audit Results/Assets – Auditor* **Approve Budget* **Performance Measurement – 2nd Quarter* **Real Estate Annual Plan* **Real Assets Evaluation – Callan LLC* **Manager Presentations*
October 16 Friday (placeholder)	Telephonic	Audit Committee
December 2 Wednesday	Juneau, AK	Actuarial Committee Audit Committee Operations Committee Defined Contribution Plan Committee
December 3-4 Thursday-Friday	**Juneau, AK**	**Board of Trustees Meeting:** **Audit Report - DRB Auditor* **Performance Measurement – 3rd Quarter* **Manager Review (Questionnaire)* **Private Equity Review* **Manager Presentations*

CIO Report

Bob Mitchell, CFA
Chief Investment Officer
September 19-20, 2019

Key Board Decisions

Determine Investment Objective

- Fund's Purpose
- Governance – who makes which decisions?

Determine Asset Allocation

- Strategic
- Tactical

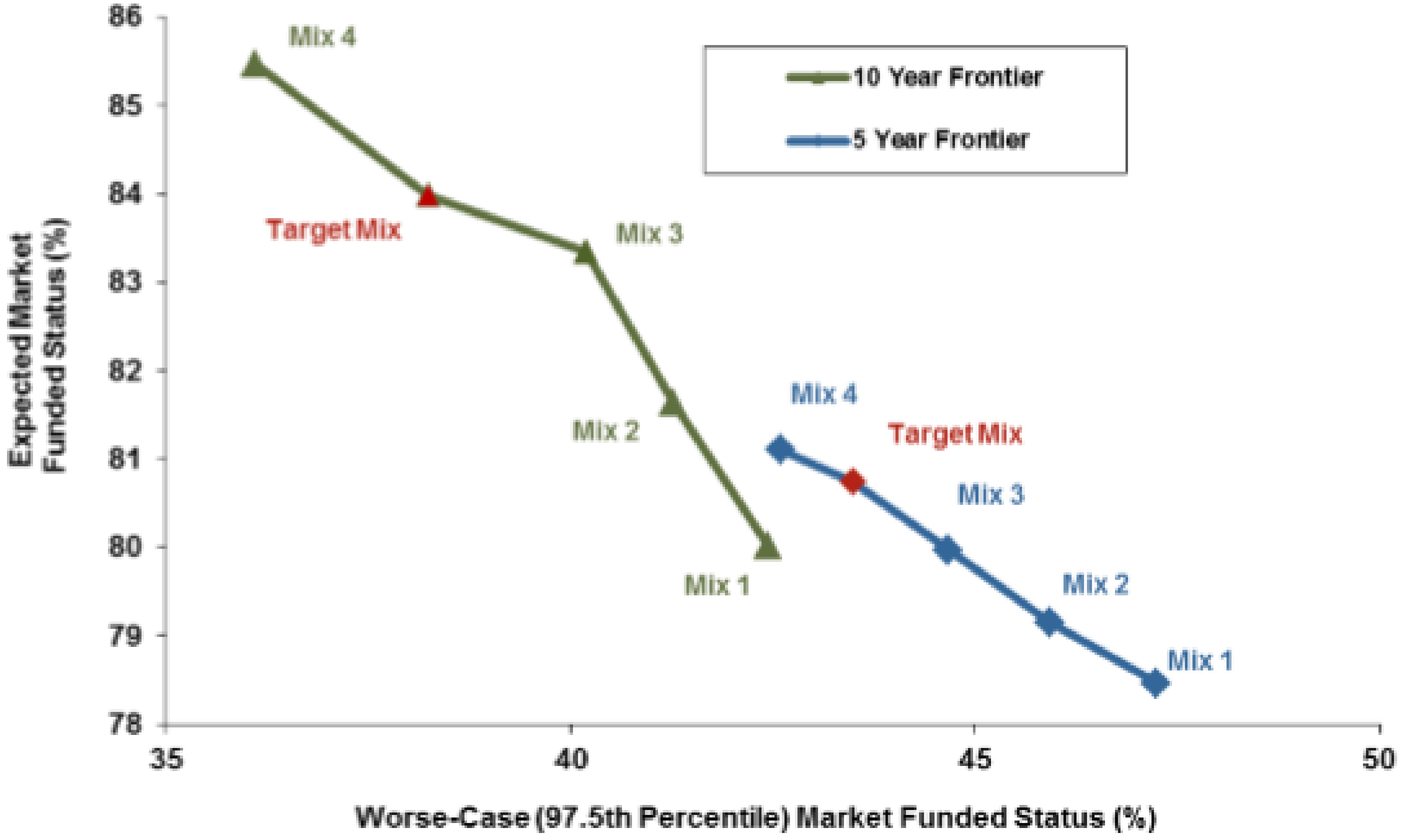
Oversee Implementation

- Manager Structure – number and types of manager allocations.
- Manager Selection

Monitor Results

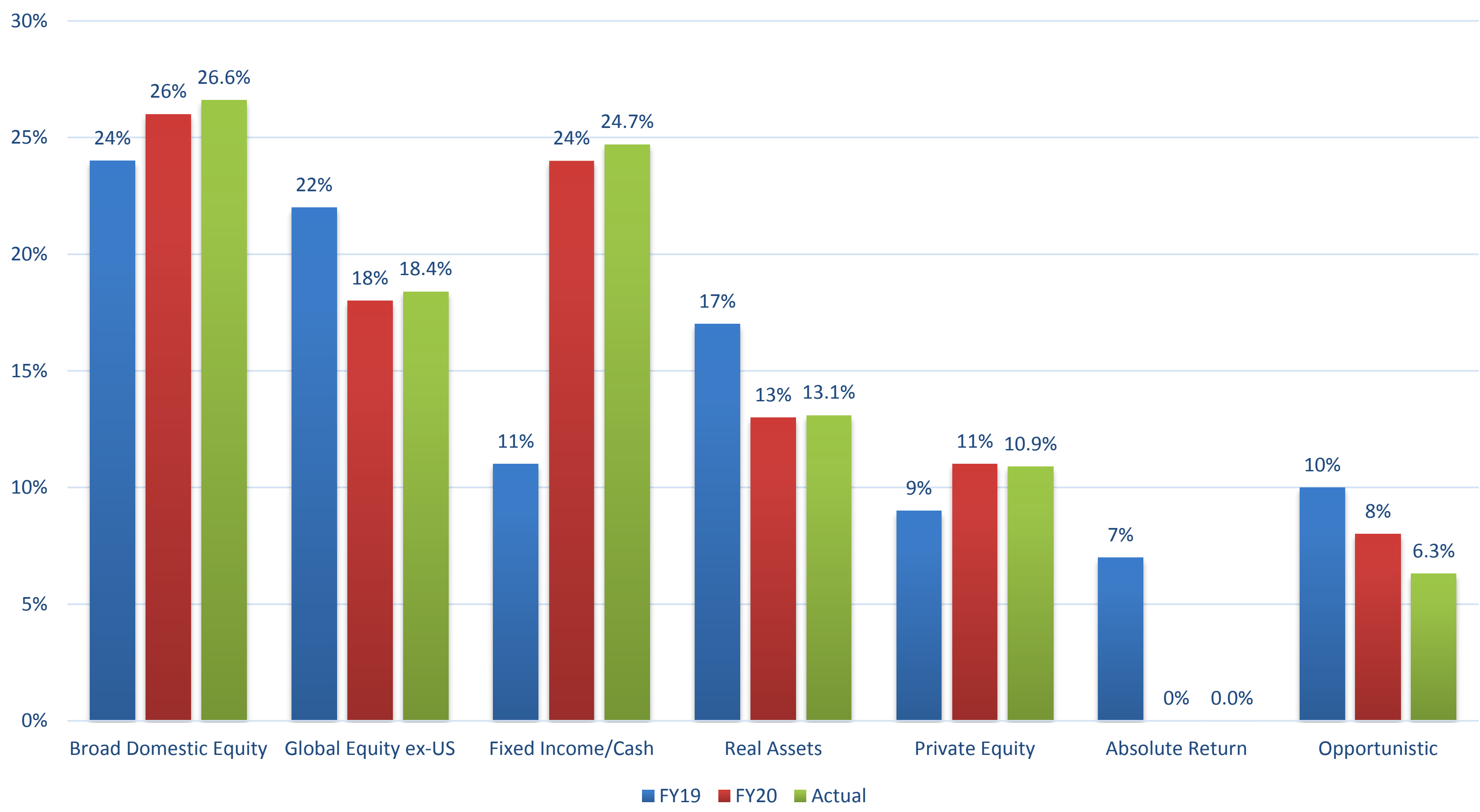
- Are the fund, asset classes and mandates performing as expected?
- Are they achieving objectives?

Assessing Tradeoff between Expected/Worst Case



Callan LLC

Change in Asset Allocation for Most Plans



Does not include Alaska National Guard and Naval Militia Retirement Trust Fund (Military Retirement System).

Transaction Summary: June -August

Net Change in Asset Classes from Portfolio Transition			
($ millions)	**Total**	**External**	**Internal**
Broad Domestic Equity	1,026	1,047	(21)
Global Equity Ex-US	(676)	(675)	(1)
Fixed Income	3,369	1,270	2,099
Real Assets	(928)	(927)	(2)
Private Equity	-	-	-
Absolute Return	(1,788)	-	(1,788)
Opportunistic	(1,002)	(715)	(287)
Total	**-**	**-**	**-**

Transaction Summary: June

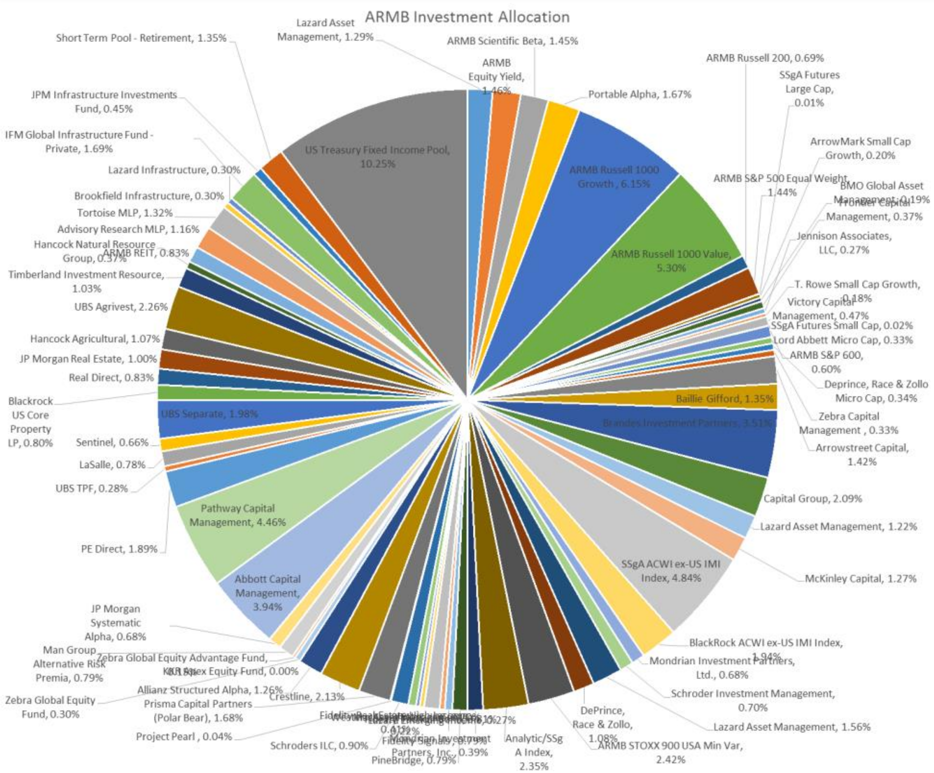
Net Change in Asset Classes from Portfolio Transition			
($ millions)	**Total**	**External**	**Internal**
Broad Domestic Equity	4	-	4
Global Equity Ex-US	-	-	-
Fixed Income	300	-	300
Real Assets	-	-	-
Private Equity	-	-	-
Absolute Return	(250)	-	(250)
Opportunistic	(54)	-	(54)
Total	**-**	**-**	**-**

Notifications

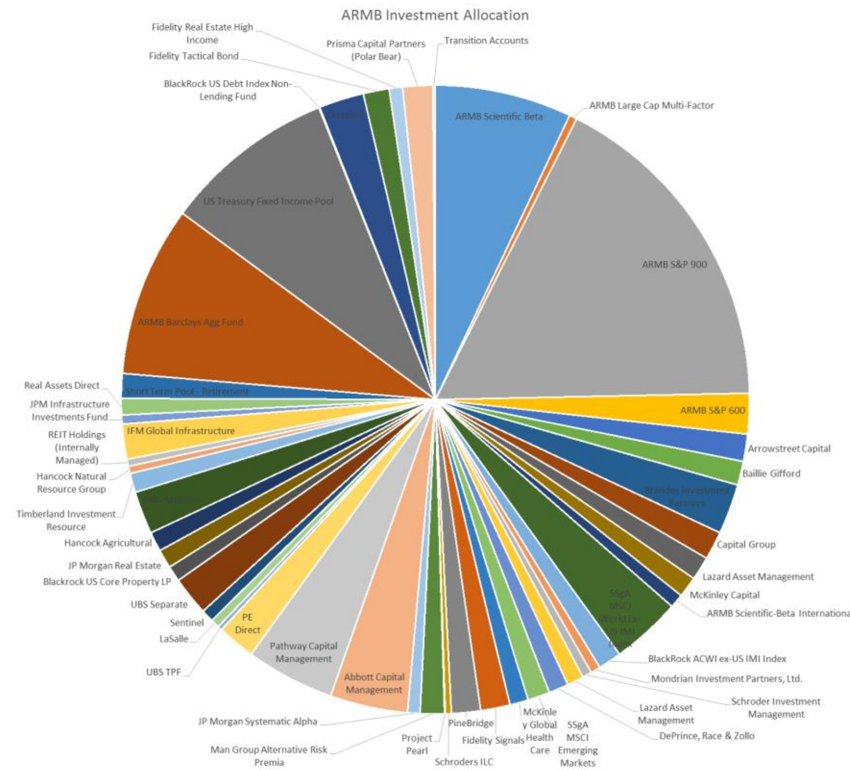
- Internal Transfers
  - June 19, 2019
  - June 28, 2019
  - July 10, 2019

- Capital Commitment
  - $225 million to Crestline Blue Glacier Fund Class D

Manager Mandate Pie Chart



February



August

Manager Structure Review Schedule

June

- Absolute Return
- Opportunistic
- Fixed Income/Cash
- Domestic Equities

September

- Real Assets
- International Equities

December

- Private Equity

Meeting Highlights

- FY21 Contribution Rate Setting
- Transition Update
- Review of International Equity Manager Structure
- Real Assets Evaluation and Annual Plan
- Risk Parity
- Cyber Security
- IAC Finalist Interviews

Manager		Total		Internal		External
Advisory Research MLP	$	(265,344,615)	$	(344,615)	$	(265,000,000)
Analytic/SSgA Index	$	(389,956,985)	$	(476,416)	$	(389,480,570)
ARMB Barclays Agg Fund	$	2,331,685,361	$	1,246,685,361	$	1,085,000,000
ARMB Equity Yield	$	(398,237,452)	$	(397,699,811)	$	(537,641)
ARMB Russell 1000 Value	$	(1,460,754,728)	$	(1,459,959,608)	$	(795,119)
ARMB Russell 200	$	(192,772,207)	$	(192,678,265)	$	(93,942)
ARMB S&P 500 Equal Weight	$	(395,269,648)	$	(395,031,801)	$	(237,847)
ARMB S&P 600	$	316,736,713	$	-	$	316,736,713
ARMB S&P 900	$	3,012,330,780	$	2,231,301,044	$	781,029,736
ARMB Scientific Beta	$	1,488,889,443	$	-	$	1,488,889,443
ARMB Scientific-Beta International	$	200,000,000	$	-	$	200,000,000
ARMB STOXX 900 USA Min Var	$	(694,858,240)	$	(296,893)	$	(694,561,347)
ArrowMark Small Cap Growth	$	(86,184,655)	$	(86,184,655)	$	-
Baillie Gifford	$	(50,000,000)	$	-	$	(50,000,000)
BlackRock ACWI ex-US IMI Index	$	(200,000,000)	$	-	$	(200,000,000)
BMO Asset Management	$	(81,289,090)	$	(81,289,090)	$	-
Brandes Investment Partners	$	(175,000,000)	$	-	$	(175,000,000)
Brookfield Infrastructure	$	(86,284,212)	$	(300,768)	$	(85,983,444)
Capital Group	$	(200,000,000)	$	-	$	(200,000,000)
Deprince, Race & Zollo Micro Cap	$	(86,918,517)	$	-	$	(86,918,517)
Fidelity Signals	$	190,000,000	$	-	$	190,000,000
Frontier Capital Management	$	(111,297,480)	$	(111,297,480)	$	-
Jennison Associates, LLC	$	(119,141,398)	$	(119,141,398)	$	-
Large Cap Transition Account	$	(7,998,770)	$	587,274,764	$	(595,273,534)
Lazard Asset Management - Domestic Equity	$	(374,676,429)	$	(374,676,429)	$	-
Lazard Asset Management - International Equity	$	-	$	-	$	-
Lazard Asset Management - EM Equity	$	(100,000,000)	$	-	$	(100,000,000)
Lazard Infrastructure	$	(83,222,746)	$	(686,928)	$	(82,535,817)
Lord Abbett Micro Cap	$	(94,558,583)	$	-	$	(94,558,583)
MacKay Shields, LLC	$	(47,877,841)	$	-	$	(47,877,841)
Man Group Alternative Risk Premia	$	115,000,000	$	-	$	115,000,000
McKinley Capital	$	(50,000,000)	$	-	$	(50,000,000)
Mondrian Investment Partners, Inc. - Int'l Fixed Income	$	(107,253,697)	$	(426,000)	$	(106,827,697)
Mondrian Investment Partners, Ltd. - Int'l Small Cap	$	(50,000,000)	$	-	$	(50,000,000)
PineBridge	$	200,000,000	$	-	$	200,000,000
Portable Alpha - Large Cap	$	(52,344,638)	$	28,493,505	$	(80,838,142)
Portable Alpha - Small Cap	$	(37,493,505)	$	(37,493,505)	$	-
REIT Holdings (Internally Managed)	$	(211,128,420)	$	-	$	(211,128,420)
REIT Transition Account	$	(30,524)	$	(30,524)	$	-
Schroder Investment Management	$	(50,000,000)	$	-	$	(50,000,000)
Schroders ILC	$	(24,000,000)	$	-	$	(24,000,000)
Short Term Pool - Retirement	$	(7,936,465)	$	28,600,492	$	(36,536,957)
Small Cap Transition Account	$	(254,838)	$	49,123,462	$	(49,378,299)
SSgA ACWI ex-US IMI Index	$	(1,028,611)	$	(1,028,611)	$	-
SSgA Futures Large Cap	$	(4,048,708)	$	(4,048,708)	$	-
SSgA Futures Small Cap	$	(4,012,975)	$	(4,012,975)	$	-
SSgA Russell 2000 Growth	$	(1,135)	$	(1,135)	$	-
SSgA Russell 2000 Value	$	(1,263)	$	(1,263)	$	-
T. Rowe Small Cap Growth	$	(83,953,570)	$	(83,953,570)	$	-
Tortoise MLP	$	(282,295,096)	$	(295,096)	$	(282,000,000)
US Treasury Fixed Income Pool	$	(806,992,610)	$	(1,246,685,361)	$	439,692,751
Victory Capital Management/Transition Fund	$	(118,534,398)	$	426,562,278	$	(545,096,677)
Western Asset Management Co	$	(63,815,010)	$	-	$	(63,815,010)
Zebra Capital Management, LLC - Microcap	$	(85,881,314)	$	-	$	(85,881,314)
Zebra Global Equity Advantage Fund	$	(37,828,224)	$	-	$	(37,828,224)
Zebra Global Equity Fund	$	(74,163,702)	$	-	$	(74,163,702)

ALASKA RETIREMENT MANAGEMENT BOARD

STAFF REPORT

Fund Financials – Cash Flow Report
September 19, 2019

Scott Jones, State Comptroller, Department of Revenue

As of July month-end, total plan assets were as follows: PERS - $19.2 billion, TRS - $9.3 billion, JRS - $222 million, NGNMRS - $42 million, SBS - $4.1 billion, DCP - $990 million. Total non-participant directed plans totaled $27.0 billion, and participant directed plans totaled $6.9 billion. Total assets were $33.9 billion.

Year-to-date income was $102 million, and the plans experienced a net contribution of $199 million. Total assets were up 0.9% year-to-date.

Internally managed assets totaled $13.1 billion

As of month-end, all plans were within the bands of their asset allocations.

ALASKA RETIREMENT MANAGEMENT BOARD

STAFF REPORT

Fund Financials – Cash Flow Report
September 19, 2019

<u>Kevin Worley, Chief Financial Officer, Department of Administration, Division of Retirement & Benefits</u>

Presented is the Division of Retirement & Benefits (DRB) Supplement to the Treasury Division's Financial Report as of:

- June 30, 2019

DRB's supplement report expands on the ARMB Financial Report column "Net Contributions (Withdrawals)" located on pages 1 and 2. DRB reports the summary totals of actual contributions received from employees and employers, non-employer contributions from the State of Alaska, and other non-investment income, as well as benefit payments, refunds / distributions, and combined administrative / investment expenditures. DRB's report presents cash inflows / outflows for the 12 months ended June 30, 2019 (page 1) and the month of June 2019 (page 2).

Also presented are participant-directed distributions by plan and by type for the 12-month period on page 3.

"Notes for the DRB Supplement to the Treasury Report" includes information for the pension and healthcare plans. Additional information regarding other income is also presented on pages 4, 5 and 6.

ALASKA RETIREMENT MANAGEMENT BOARD

STAFF REPORT

Fund Financials – Cash Flow Report
September 19, 2019

Kevin Worley, Chief Financial Officer, Department of Administration, Division of Retirement & Benefits

Presented is the Division of Retirement & Benefits (DRB) Supplement to the Treasury Division's Financial Report as of:

- July 31, 2019

DRB's supplement report expands on the ARMB Financial Report column "Net Contributions (Withdrawals)" located on pages 1 and 2. DRB reports the summary totals of actual contributions received from employees and employers, non-employer contributions from the State of Alaska, and other non-investment income, as well as benefit payments, refunds / distributions, and combined administrative / investment expenditures. DRB's report presents cash inflows / outflows for the 1 month ended July 31, 2019 (page 1) and the month of July 2019 (page 2).

Also presented are participant-directed distributions by plan and by type for the 1-month period on page 3.

"Notes for the DRB Supplement to the Treasury Report" includes information for the pension and healthcare plans. Additional information regarding other income is also presented on pages 4 and 5.

ALASKA RETIREMENT MANAGEMENT BOARD
FINANCIAL REPORT

As of July 31, 2019

ALASKA RETIREMENT MANAGEMENT BOARD
Schedule of Investment Income and Changes in Invested Assets by Fund
Fiscal Year-to-Date through July 31, 2019

	Beginning Invested Assets	Investment Income [1]	Net Contributions (Withdrawals)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income [2]
Public Employees' Retirement System (PERS)						
Defined Benefit Plans:						
Retirement Trust	$ 9,465,719,458	$ 23,643,243	$ 112,702,800	$ 9,602,065,501	1.44%	0.25%
Retirement Health Care Trust	7,807,287,545	19,425,990	(27,898,377)	7,798,815,158	-0.11%	0.25%
Total Defined Benefit Plans	17,273,007,003	43,069,233	84,804,423	17,400,880,659	0.74%	0.25%
Defined Contribution Plans:						
Participant Directed Retirement	1,218,753,974	5,512,616	7,109,879	1,231,376,469	1.04%	0.45%
Health Reimbursement Arrangement	419,023,779	1,035,037	2,851,262	422,910,078	0.93%	0.25%
Retiree Medical Plan	117,399,406	289,946	1,024,807	118,714,159	1.12%	0.25%
Defined Benefit Occupational Death and Disability:						
Public Employees	24,859,446	61,345	221,216	25,142,007	1.14%	0.25%
Police and Firefighters	11,367,334	28,024	96,604	11,491,962	1.10%	0.25%
Total Defined Contribution Plans	1,791,403,939	6,926,968	11,303,768	1,809,634,675	1.02%	0.39%
Total PERS	**19,064,410,942**	**49,996,201**	**96,108,191**	**19,210,515,334**	0.77%	0.26%
Teachers' Retirement System (TRS)						
Defined Benefit Plans:						
Retirement Trust	5,505,314,103	13,793,591	108,145,749	5,627,253,443	2.21%	0.25%
Retirement Health Care Trust	2,940,744,859	7,315,925	(9,166,824)	2,938,893,960	-0.06%	0.25%
Total Defined Benefit Plans	8,446,058,962	21,109,516	98,978,925	8,566,147,403	1.42%	0.25%
Defined Contribution Plans:						
Participant Directed Retirement	516,072,656	2,268,624	3,419,702	521,760,982	1.10%	0.44%
Health Reimbursement Arrangement	124,841,136	308,366	1,517,020	126,666,522	1.46%	0.25%
Retiree Medical Plan	41,730,124	103,090	358,387	42,191,601	1.11%	0.25%
Defined Benefit Occupational Death and Disability	4,293,954	10,609	34,806	4,339,369	1.06%	0.25%
Total Defined Contribution Plans	686,937,870	2,690,689	5,329,915	694,958,474	1.17%	0.39%
Total TRS	**9,132,996,832**	**23,800,205**	**104,308,840**	**9,261,105,877**	1.40%	0.26%
Judicial Retirement System (JRS)						
Defined Benefit Plan Retirement Trust	183,941,036	460,625	4,304,832	188,706,493	2.59%	0.25%
Defined Benefit Retirement Health Care Trust	33,156,612	82,375	(22,189)	33,216,798	0.18%	0.25%
Total JRS	**217,097,648**	**543,000**	**4,282,643**	**221,923,291**	2.22%	0.25%
National Guard/Naval Militia Retirement System (MRS)						
Defined Benefit Plan Retirement Trust	40,994,203	98,383	717,219	41,809,805	1.99%	0.24%
Other Participant Directed Plans						
Supplemental Annuity Plan	4,111,631,106	20,000,475	(5,412,577)	4,126,219,004	0.35%	0.49%
Deferred Compensation Plan	983,593,517	7,421,505	(1,228,446)	989,786,576	0.63%	0.76%
Total All Funds	**33,550,724,248**	**101,859,769**	**198,775,870**	**33,851,359,887**		
Total Non-Participant Directed	26,720,672,995	66,656,549	194,887,312	26,982,216,856	0.98%	0.25%
Total Participant Directed	6,830,051,253	35,203,220	3,888,558	6,869,143,031	0.57%	0.52%
Total All Funds	**$ 33,550,724,248**	**$ 101,859,769**	**$ 198,775,870**	**$ 33,851,359,887**	**0.90%**	**0.30%**

Notes:

(1) Includes interest, dividends, securities lending, expenses, realized and unrealized gains/losses

(2) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates and can be found at: http://www.revenue.state.ak.us/treasury/programs/programs/other/armb/investmentresults.aspx

ALASKA RETIREMENT MANAGEMENT BOARD
Schedule of Investment Income and Changes in Invested Assets by Fund
For the Month Ended July 31, 2019

	Beginning Invested Assets	Investment Income (1)	Net Contributions (Withdrawals)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income (2)
Public Employees' Retirement System (PERS)						
Defined Benefit Plans:						
Retirement Trust	$ 9,465,719,458	$ 23,643,243	$ 112,702,800	$ 9,602,065,501	1.44%	0.25%
Retirement Health Care Trust	7,807,287,545	19,425,990	(27,898,377)	7,798,815,158	-0.11%	0.25%
Total Defined Benefit Plans	17,273,007,003	43,069,233	84,804,423	17,400,880,659	0.74%	0.25%
Defined Contribution Plans:						
Participant Directed Retirement	1,218,753,974	5,512,616	7,109,879	1,231,376,469	1.04%	0.45%
Health Reimbursement Arrangement	419,023,779	1,035,037	2,851,262	422,910,078	0.93%	0.25%
Retiree Medical Plan	117,399,406	289,946	1,024,807	118,714,159	1.12%	0.25%
Defined Benefit Occupational Death and Disability:						
Public Employees	24,859,446	61,345	221,216	25,142,007	1.14%	0.25%
Police and Firefighters	11,367,334	28,024	96,604	11,491,962	1.10%	0.25%
Total Defined Contribution Plans	1,791,403,939	6,926,968	11,303,768	1,809,634,675	1.02%	0.39%
Total PERS	**19,064,410,942**	**49,996,201**	**96,108,191**	**19,210,515,334**	0.77%	0.26%
Teachers' Retirement System (TRS)						
Defined Benefit Plans:						
Retirement Trust	5,505,314,103	13,793,591	108,145,749	5,627,253,443	2.21%	0.25%
Retirement Health Care Trust	2,940,744,859	7,315,925	(9,166,824)	2,938,893,960	-0.06%	0.25%
Total Defined Benefit Plans	8,446,058,962	21,109,516	98,978,925	8,566,147,403	1.42%	0.25%
Defined Contribution Plans:						
Participant Directed Retirement	516,072,656	2,268,624	3,419,702	521,760,982	1.10%	0.44%
Health Reimbursement Arrangement	124,841,136	308,366	1,517,020	126,666,522	1.46%	0.25%
Retiree Medical Plan	41,730,124	103,090	358,387	42,191,601	1.11%	0.25%
Defined Benefit Occupational Death and Disability	4,293,954	10,609	34,806	4,339,369	1.06%	0.25%
Total Defined Contribution Plans	686,937,870	2,690,689	5,329,915	694,958,474	1.17%	0.39%
Total TRS	**9,132,996,832**	**23,800,205**	**104,308,840**	**9,261,105,877**	1.40%	0.26%
Judicial Retirement System (JRS)						
Defined Benefit Plan Retirement Trust	183,941,036	460,625	4,304,832	188,706,493	2.59%	0.25%
Defined Benefit Retirement Health Care Trust	33,156,612	82,375	(22,189)	33,216,798	0.18%	0.25%
Total JRS	**217,097,648**	**543,000**	**4,282,643**	**221,923,291**	2.22%	0.25%
National Guard/Naval Militia Retirement System (MRS)						
Defined Benefit Plan Retirement Trust	40,994,203	98,383	717,219	41,809,805	1.99%	0.24%
Other Participant Directed Plans						
Supplemental Annuity Plan	4,111,631,106	20,000,475	(5,412,577)	4,126,219,004	0.35%	0.49%
Deferred Compensation Plan	983,593,517	7,421,505	(1,228,446)	989,786,576	0.63%	0.76%
Total All Funds	**33,550,724,248**	**101,859,769**	**198,775,870**	**33,851,359,887**		
Total Non-Participant Directed	26,720,672,995	66,656,549	194,887,312	26,982,216,856	0.98%	0.25%
Total Participant Directed	6,830,051,253	35,203,220	3,888,558	6,869,143,031	0.57%	0.52%
Total All Funds	**$ 33,550,724,248**	**$ 101,859,769**	**$ 198,775,870**	**$ 33,851,359,887**	**0.90%**	**0.30%**

Notes:

(1) Includes interest, dividends, securities lending, expenses, realized and unrealized gains/losses

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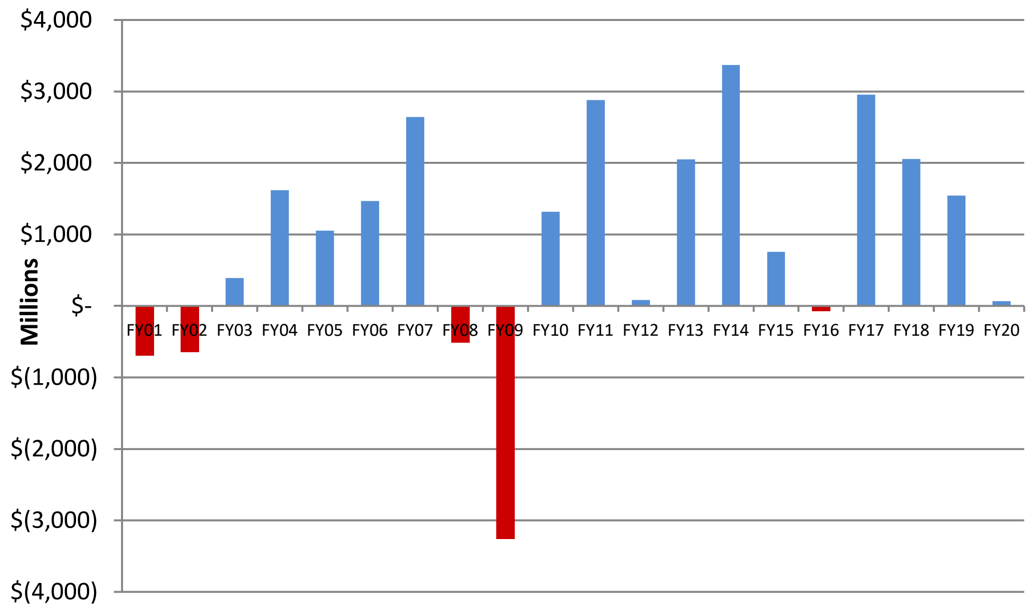
Total Non Participant Directed Assets

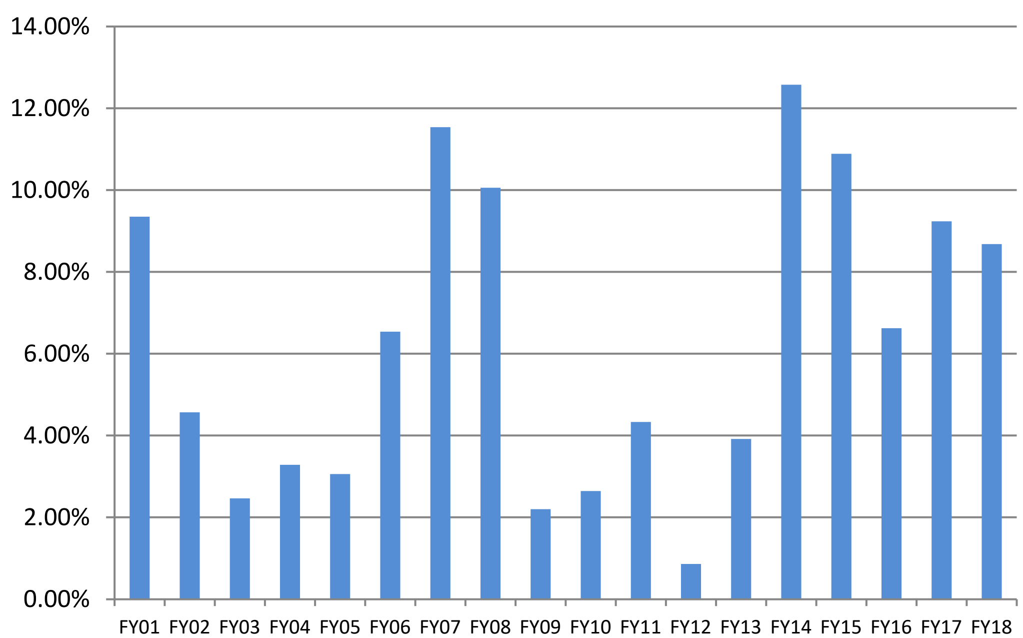
As of July 31, 2019

Total Assets History

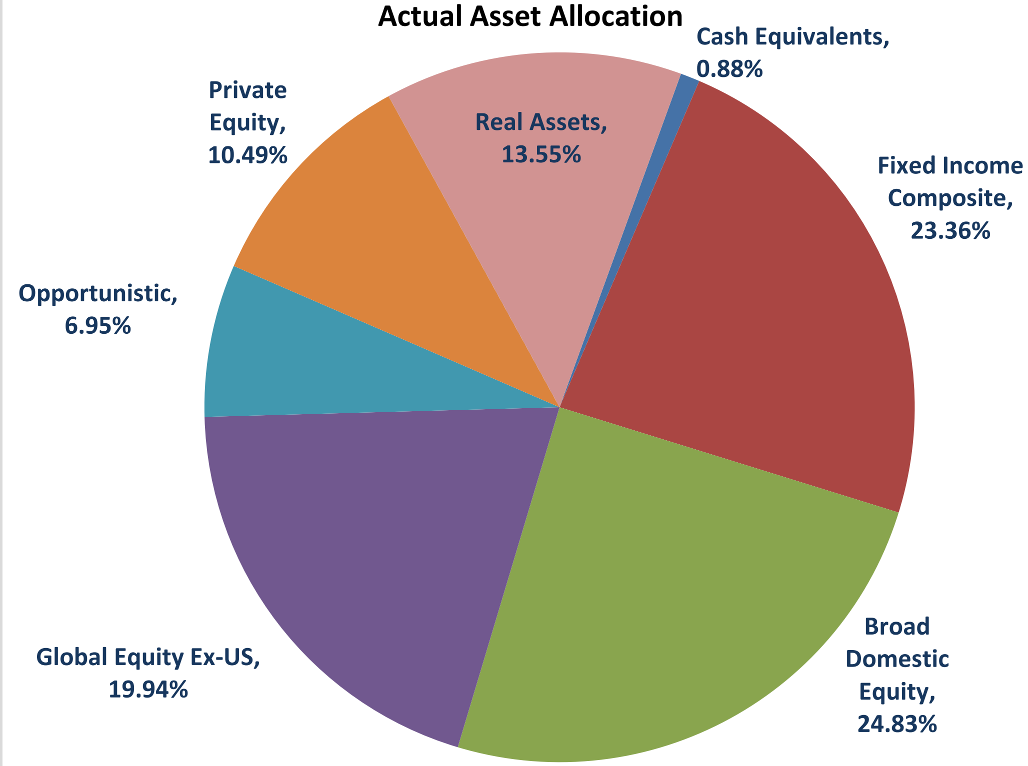
Income by Fiscal Year



5-year Annualized Returns as of Fiscal Year End

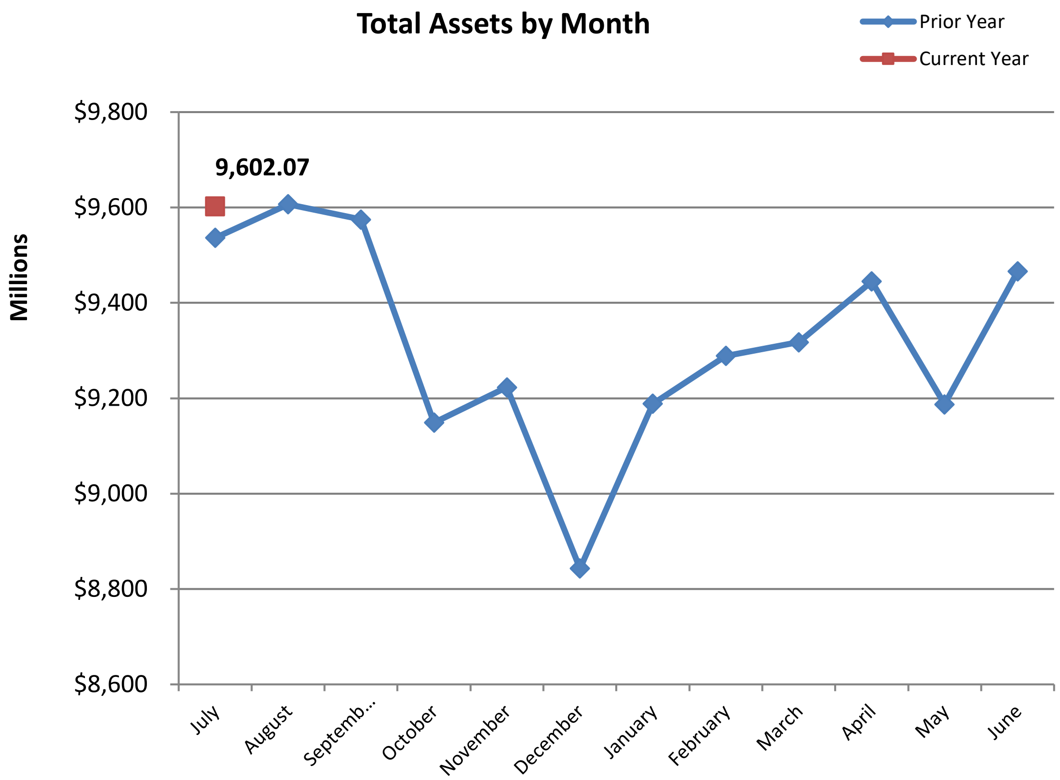


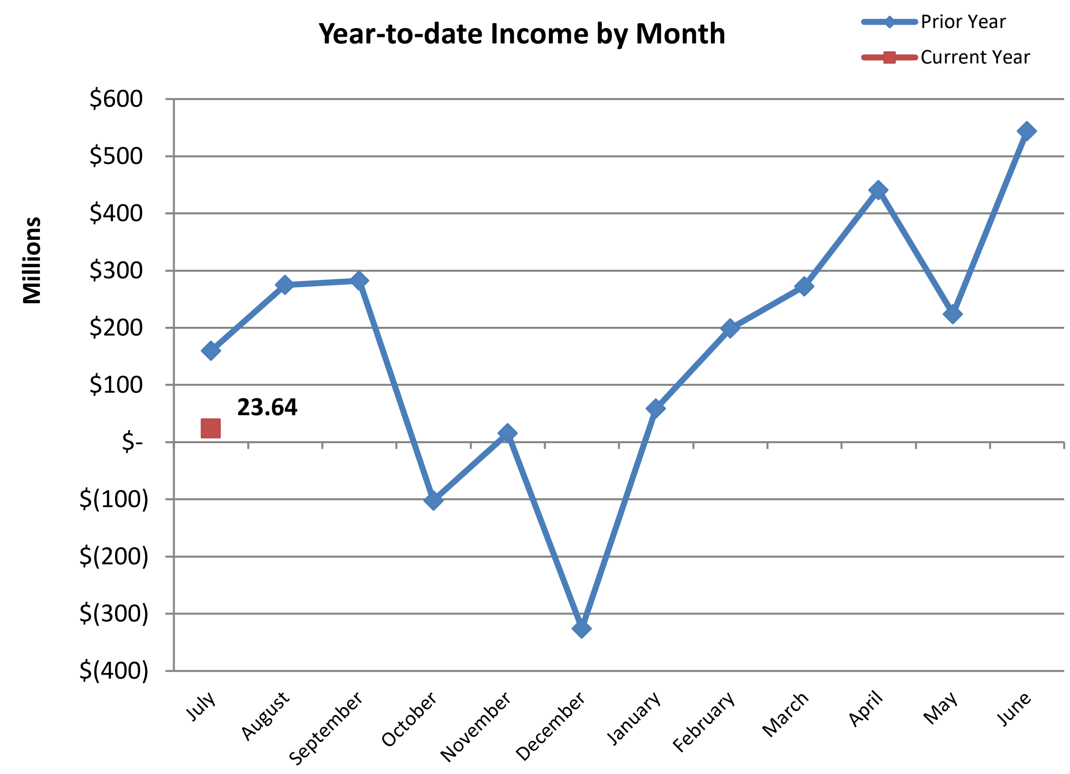
Actual Asset Allocation

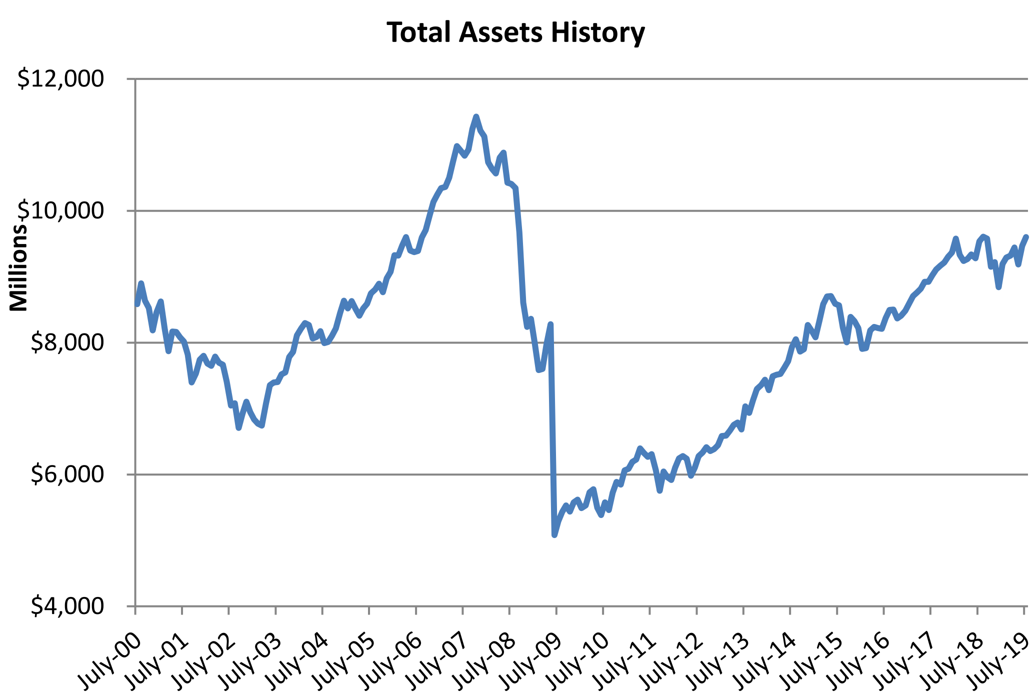


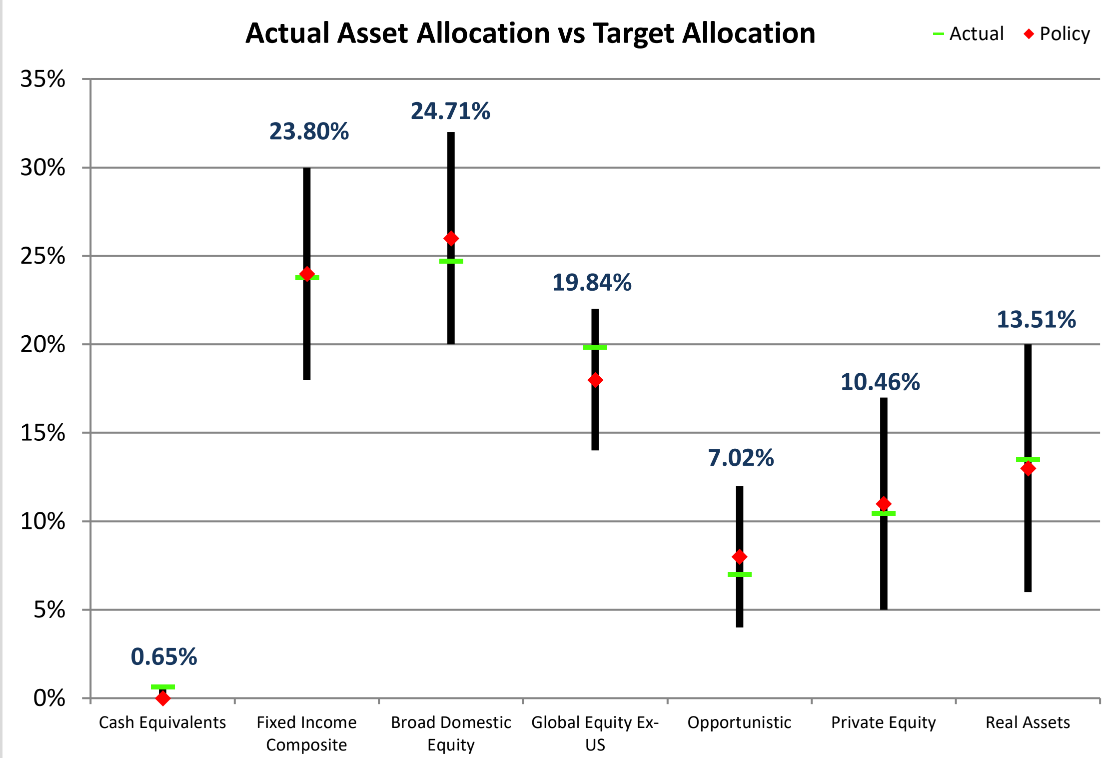
Public Employees' Retirement Pension Trust Fund

Fiscal Year-to-Date through July 31, 2019



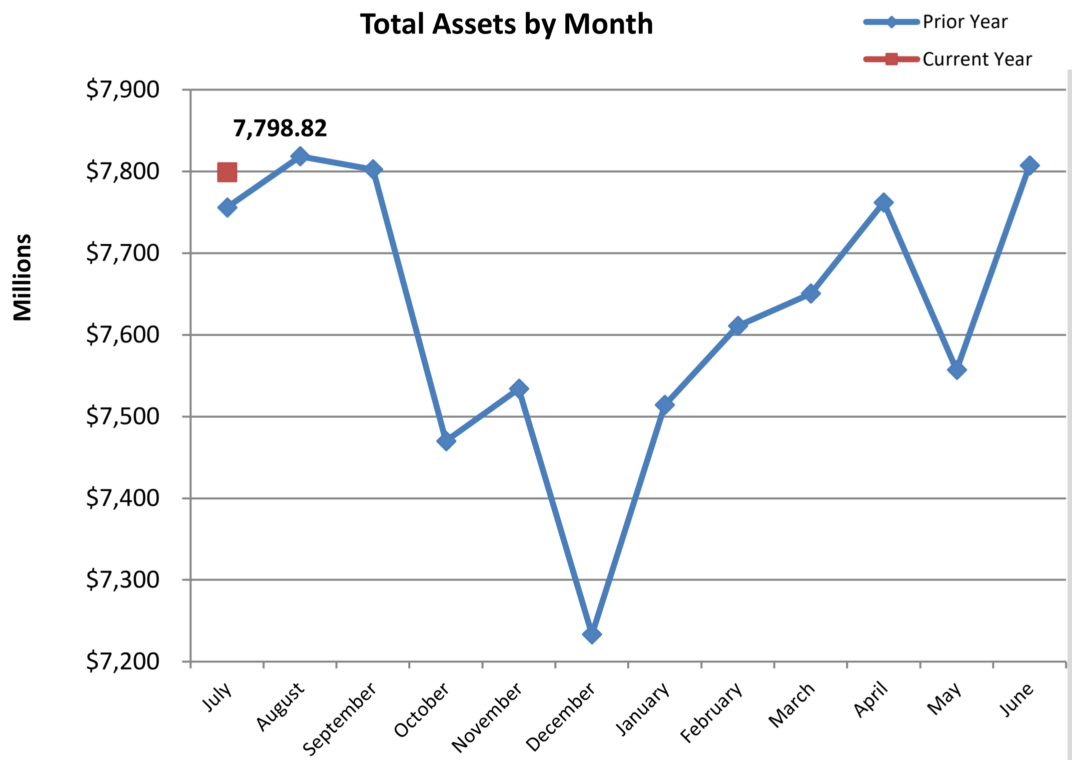


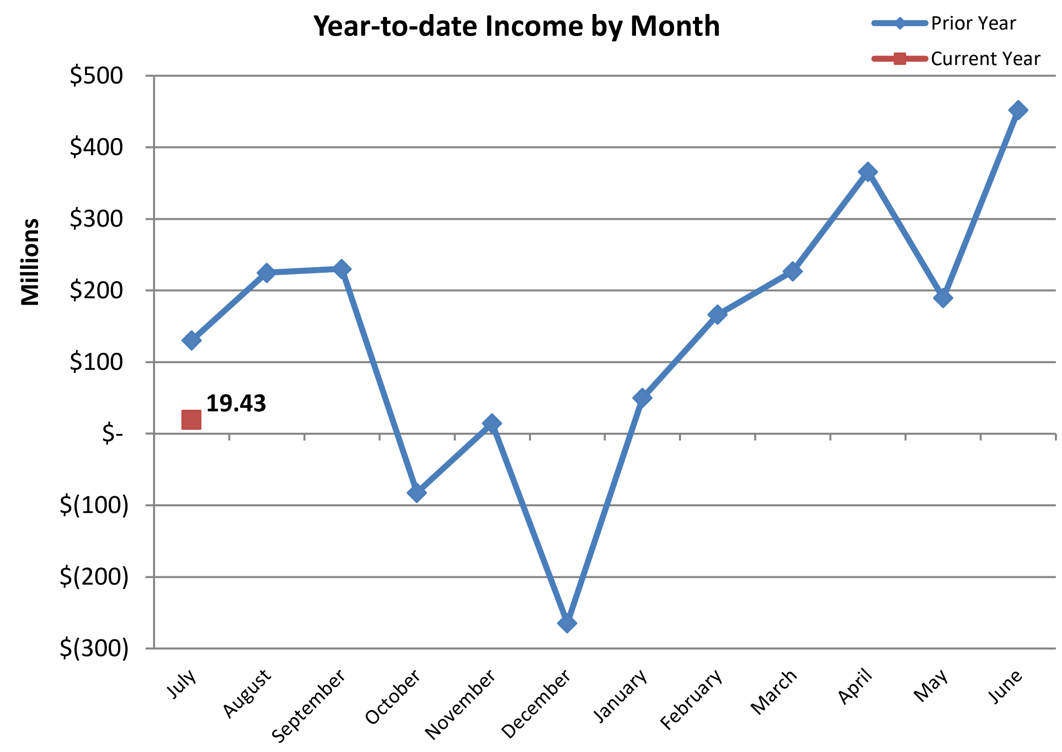


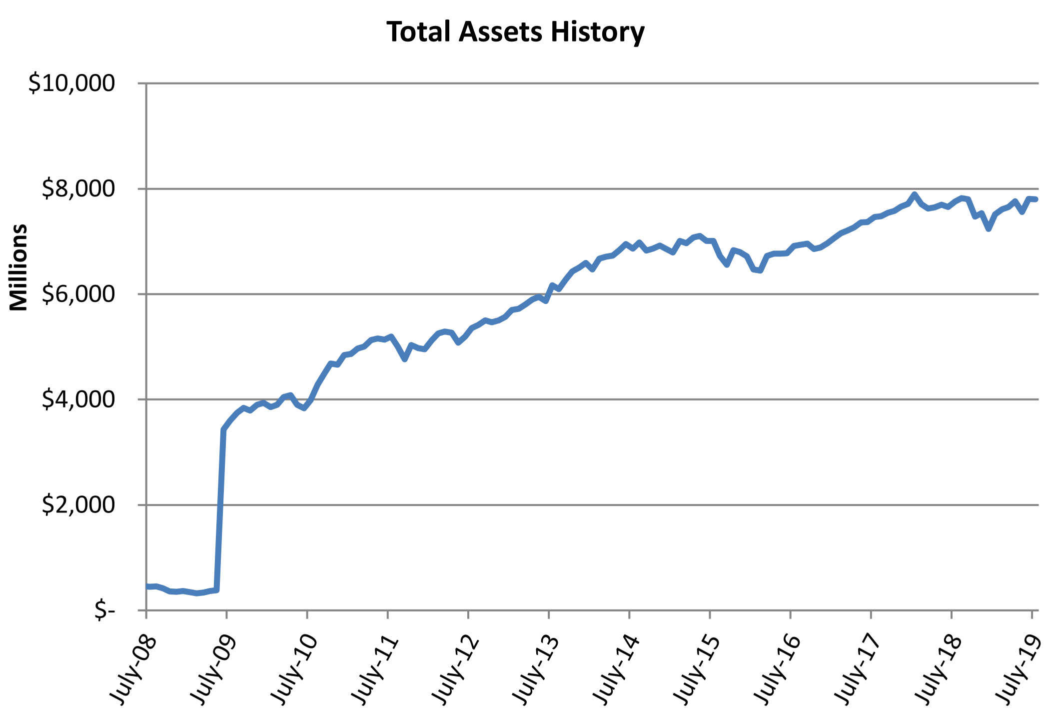


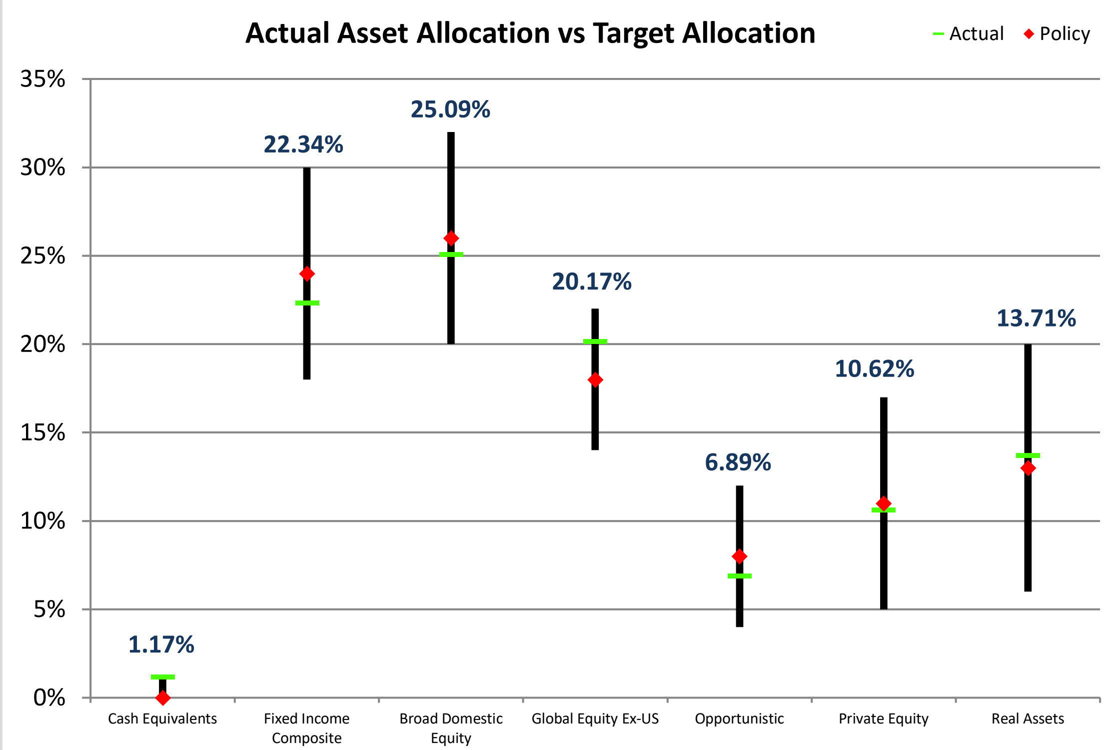
Public Employees' Retirement Health Care Trust Fund

Fiscal Year-to-Date through July 31, 2019



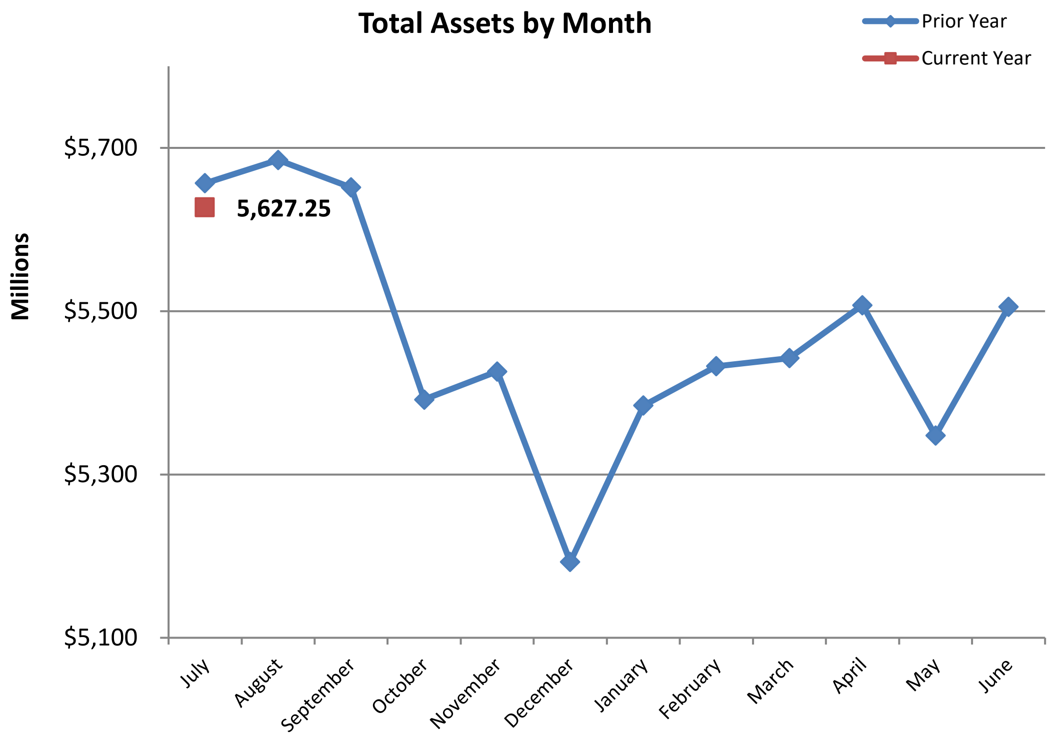


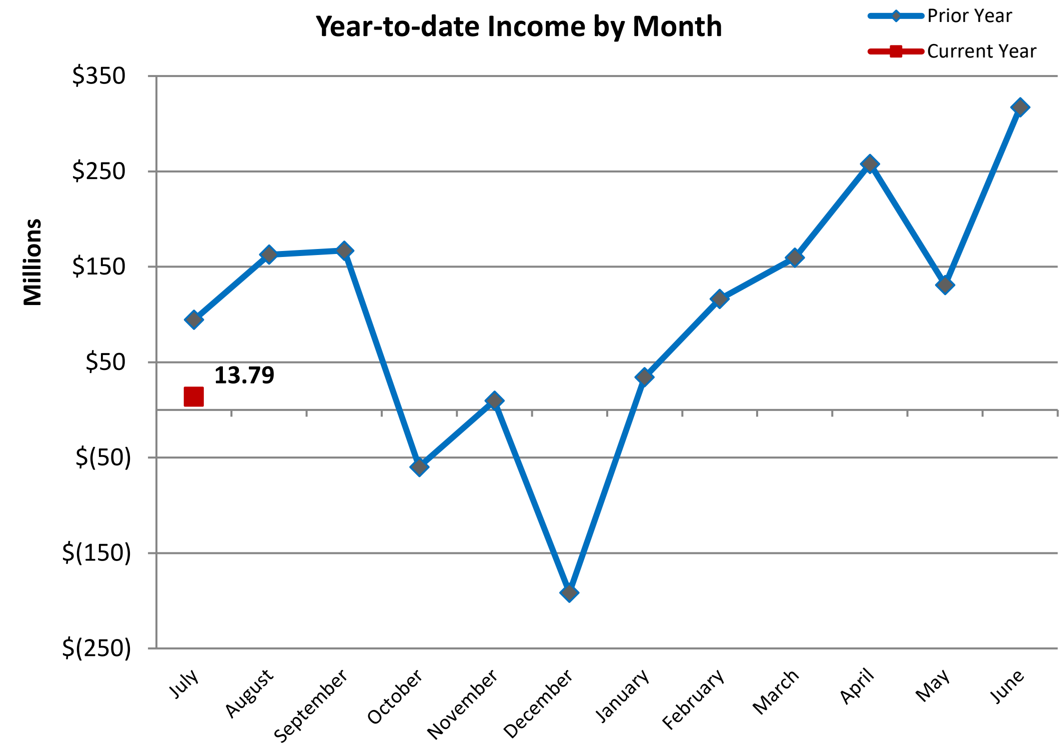


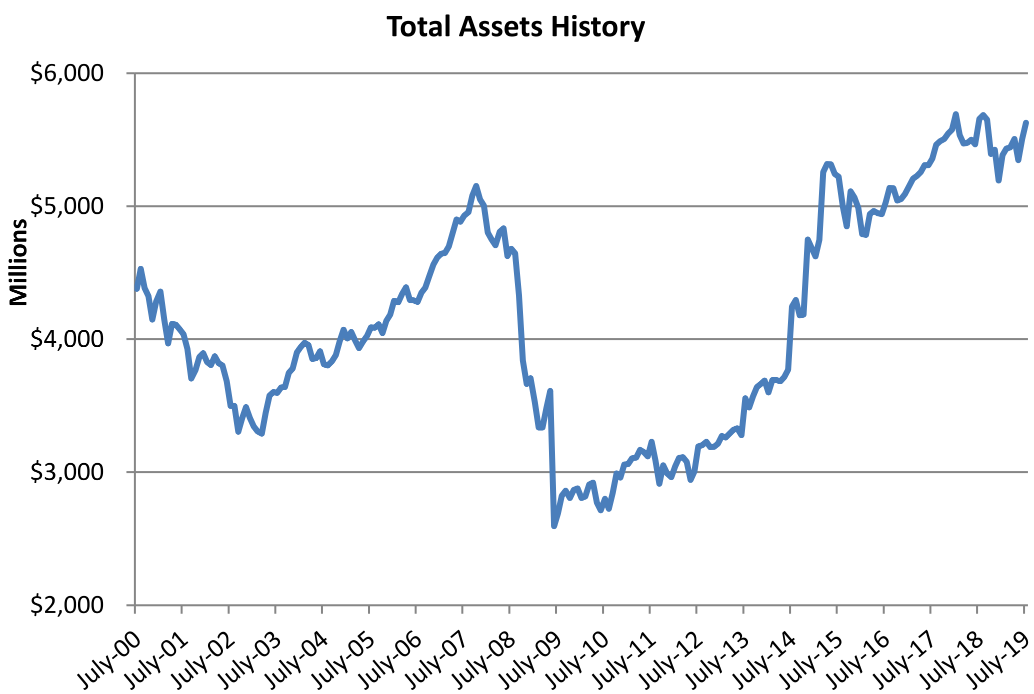


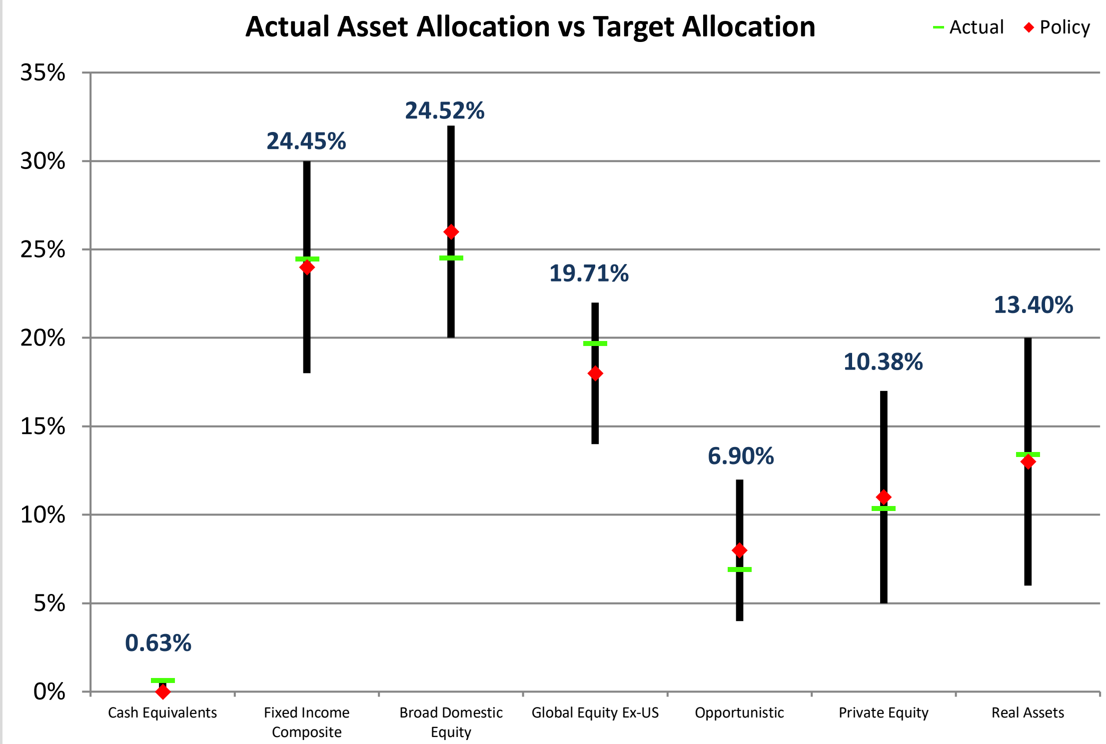
Teachers' Retirement Pension Trust Fund

Fiscal Year-to-Date through July 31, 2019



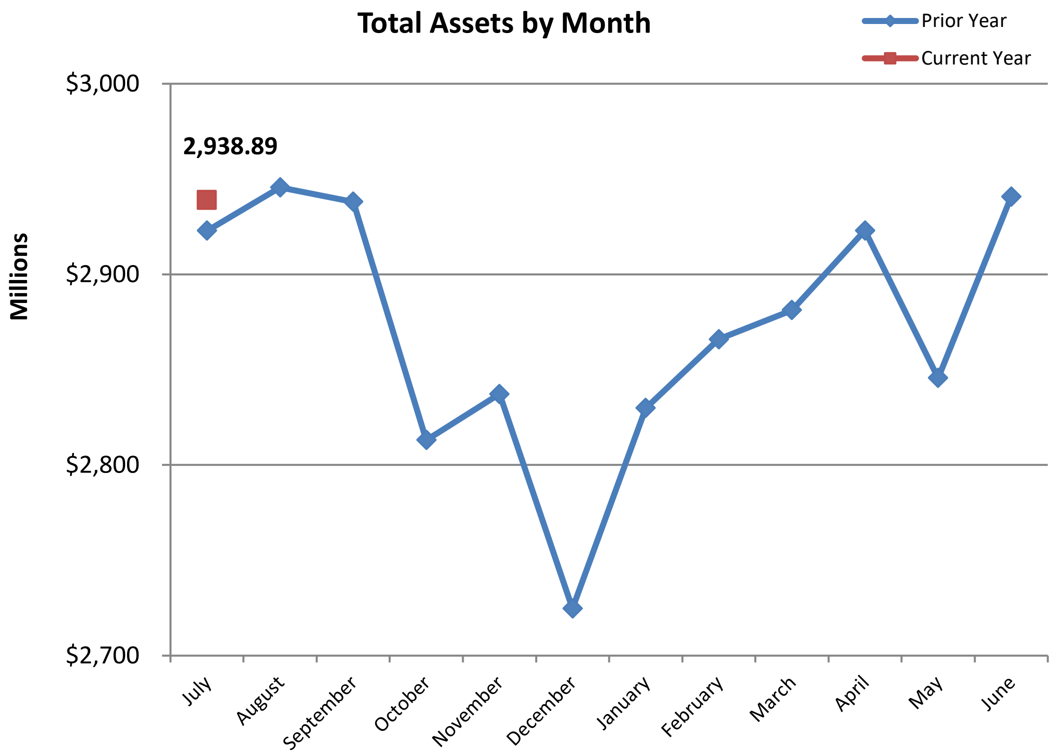


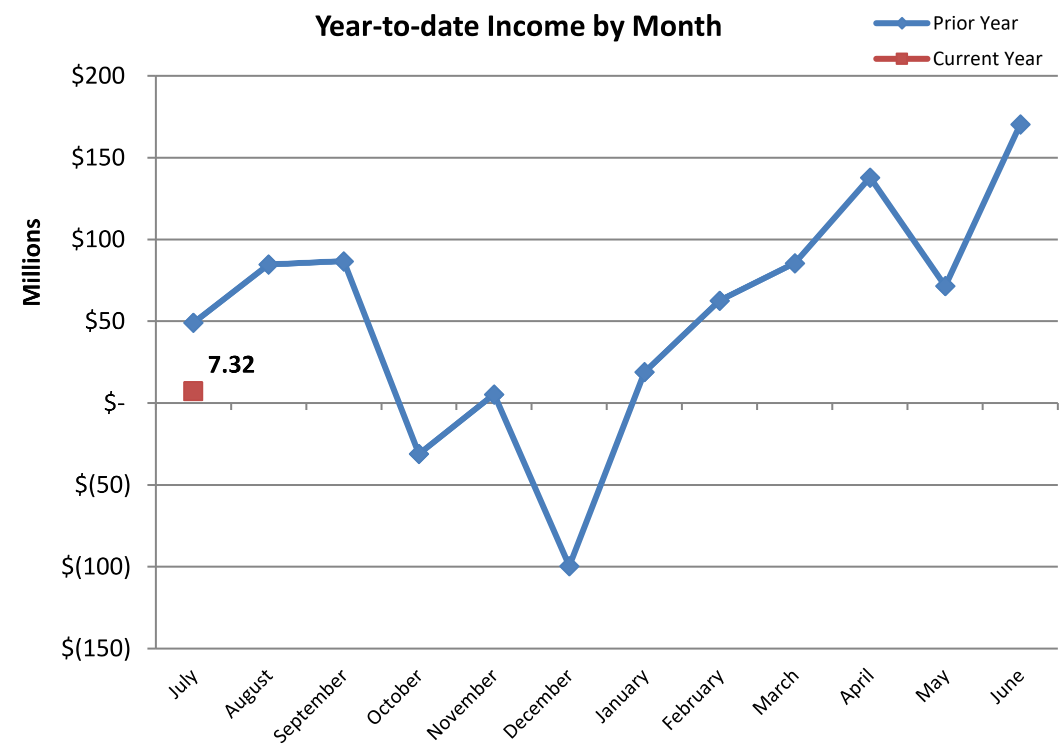


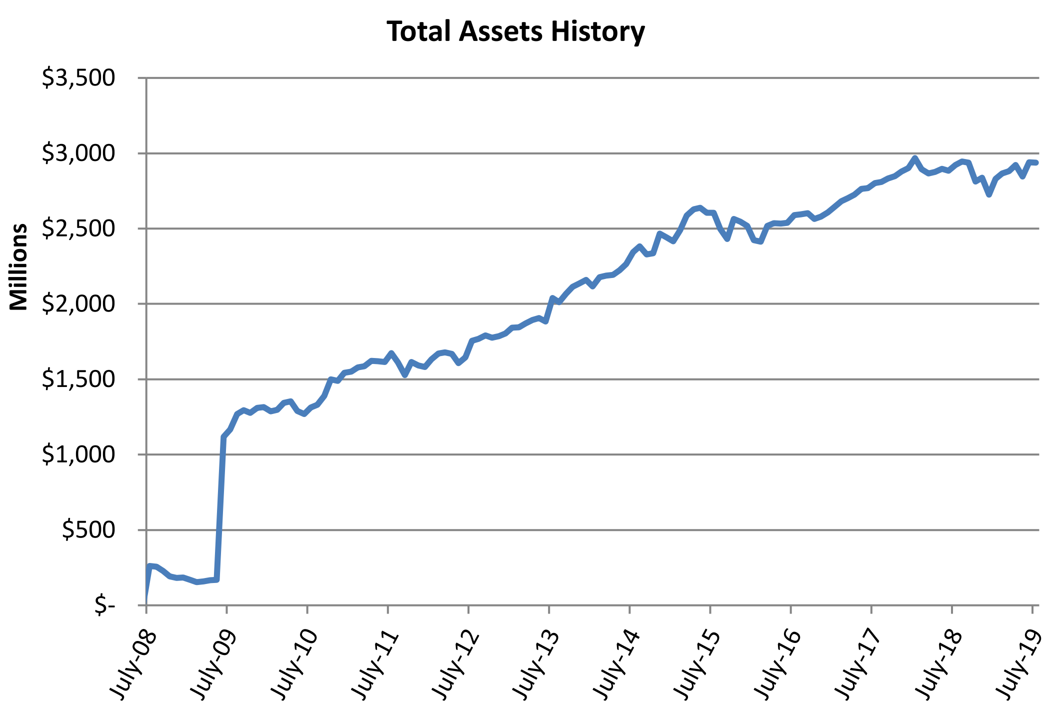


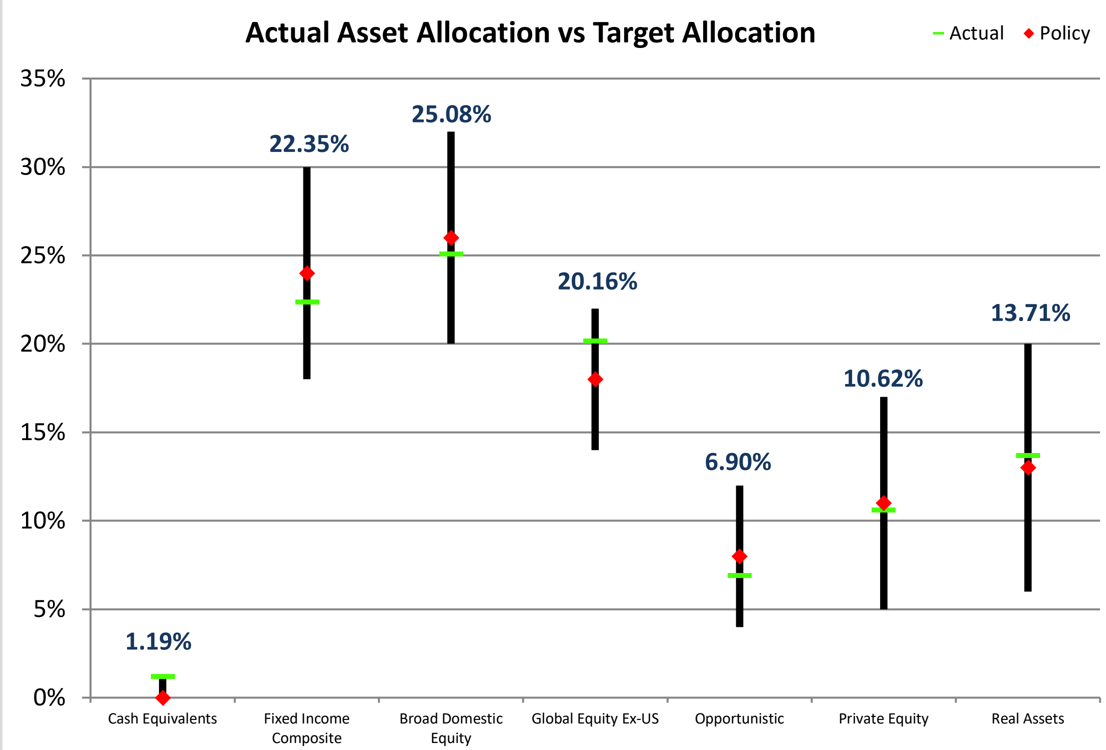
Teachers' Retirement Health Care Trust Fund

Fiscal Year-to-Date through July 31, 2019

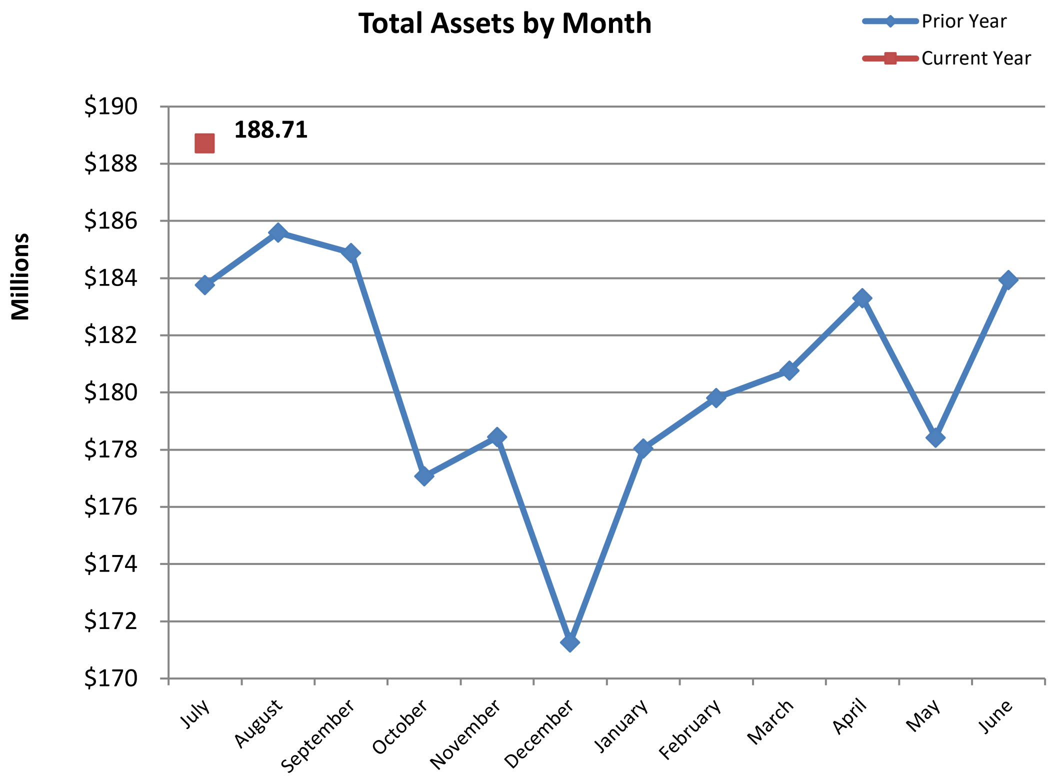


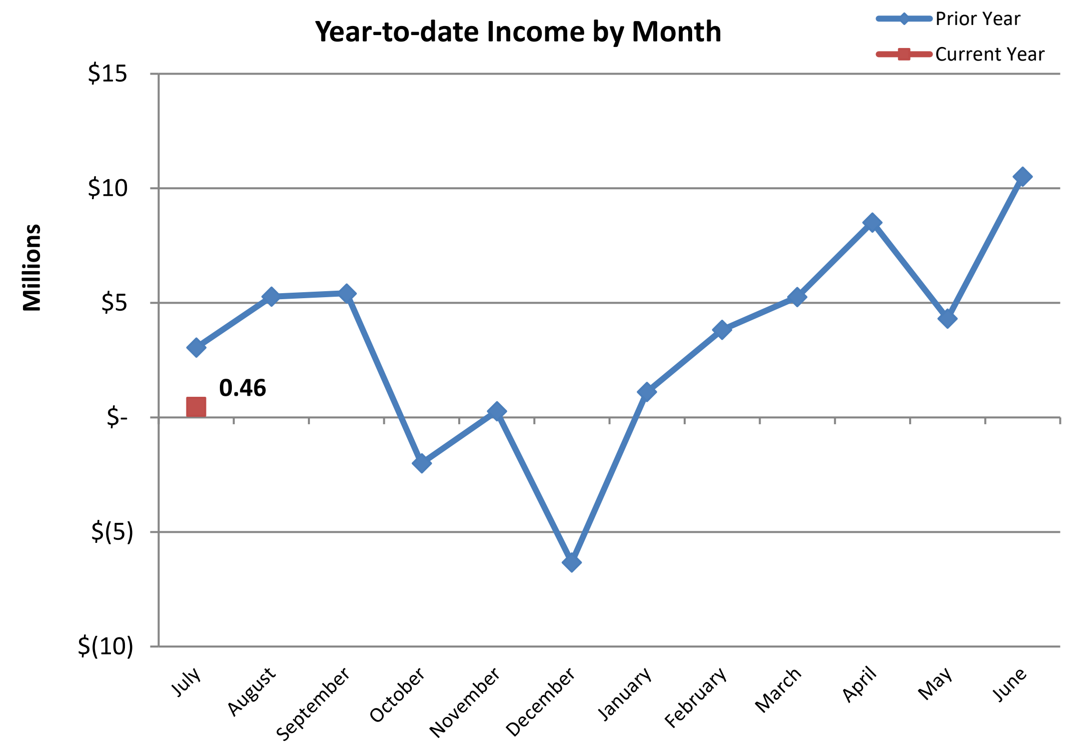


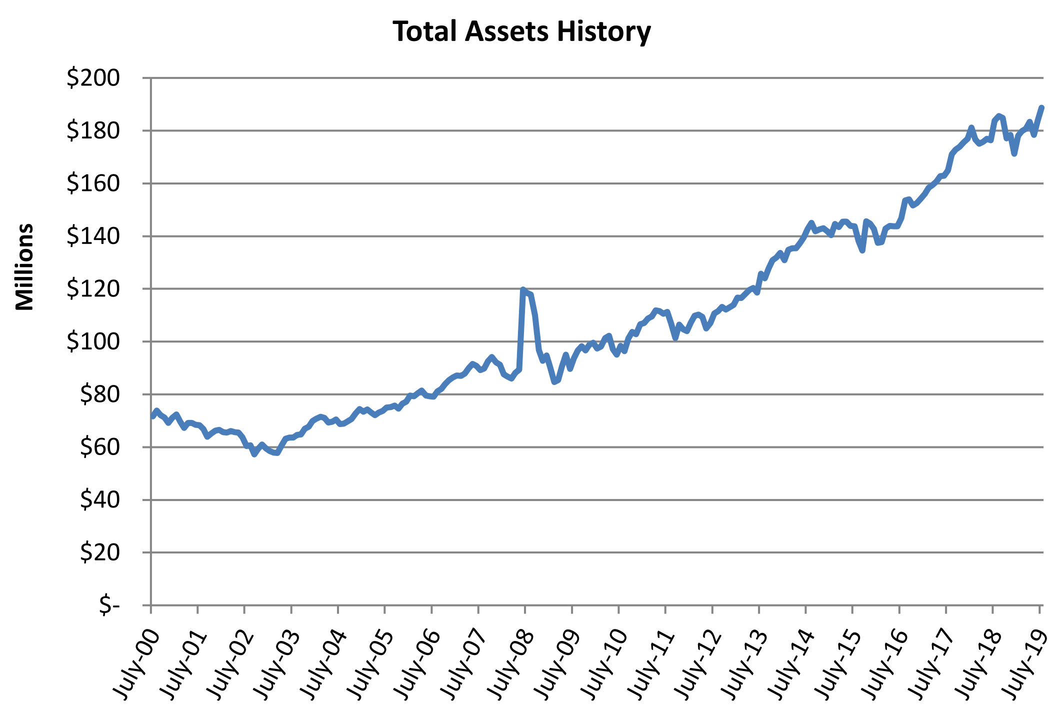


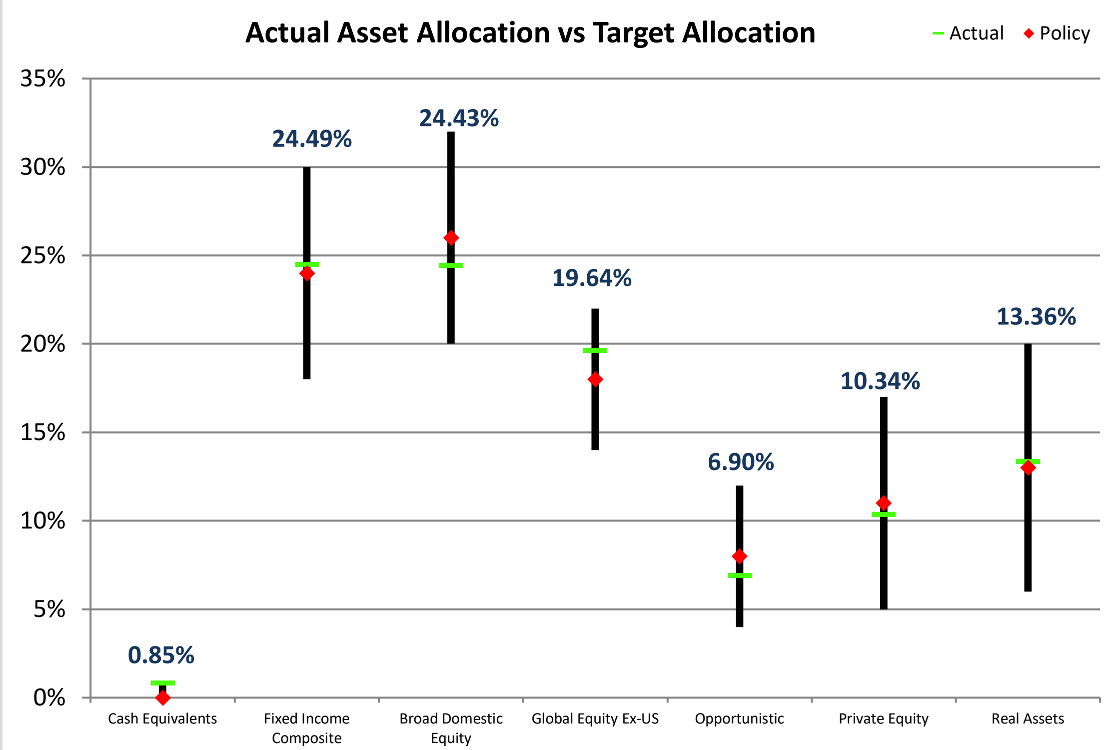


Judicial Retirement Pension Trust Fund
Fiscal Year-to-Date through July 31, 2019



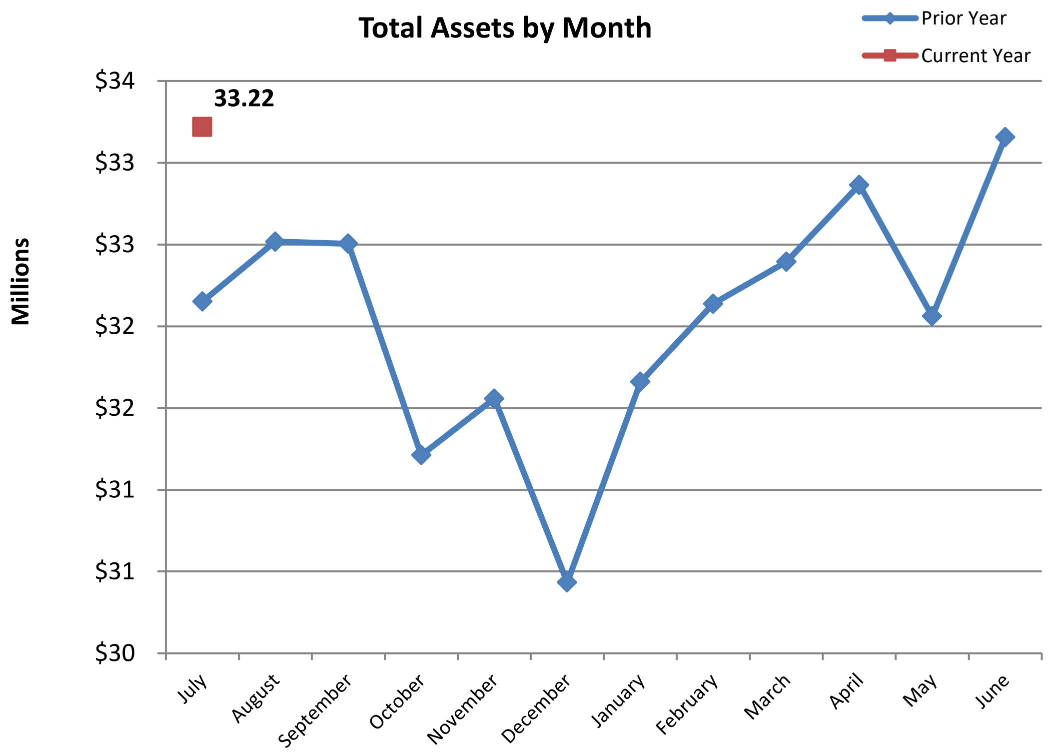


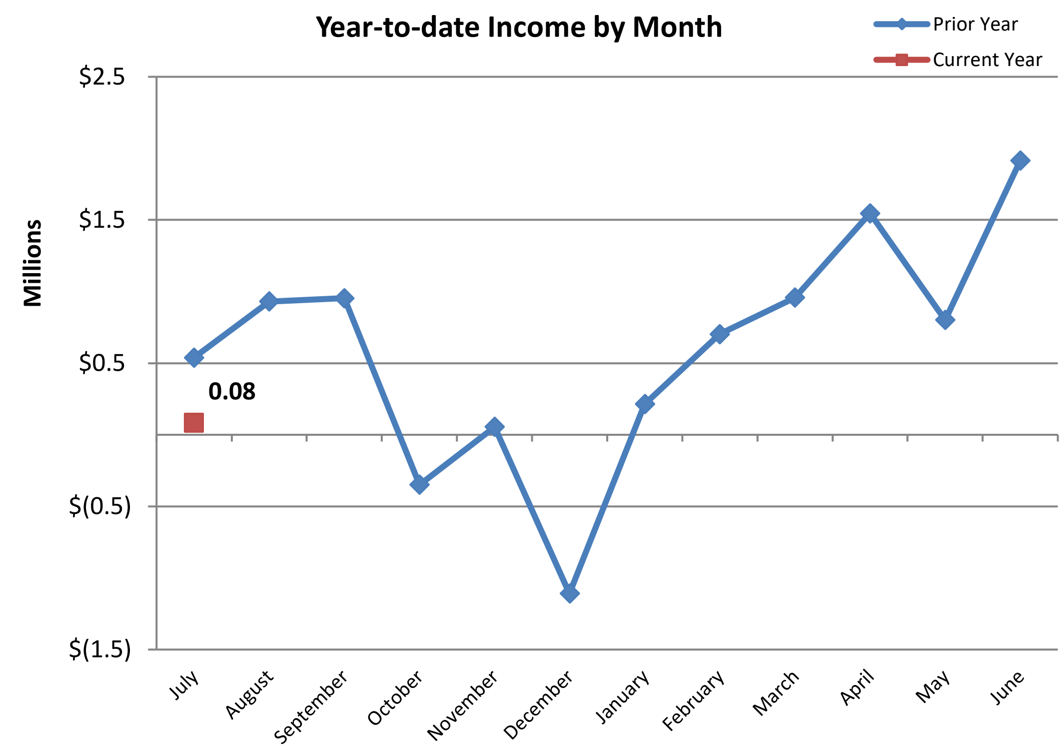


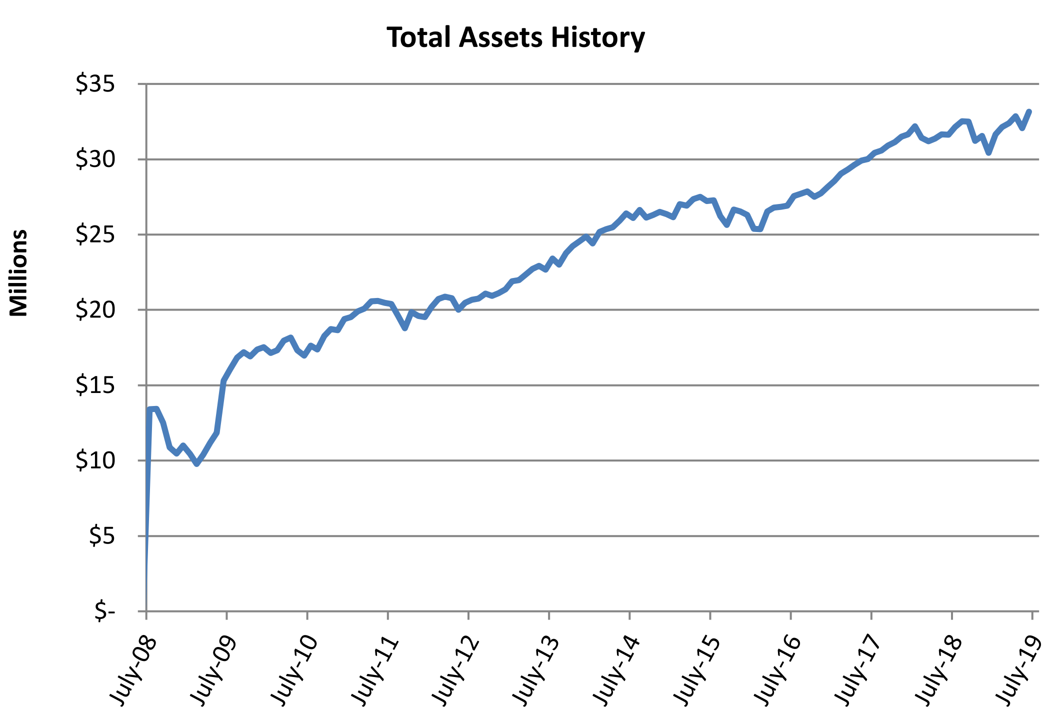


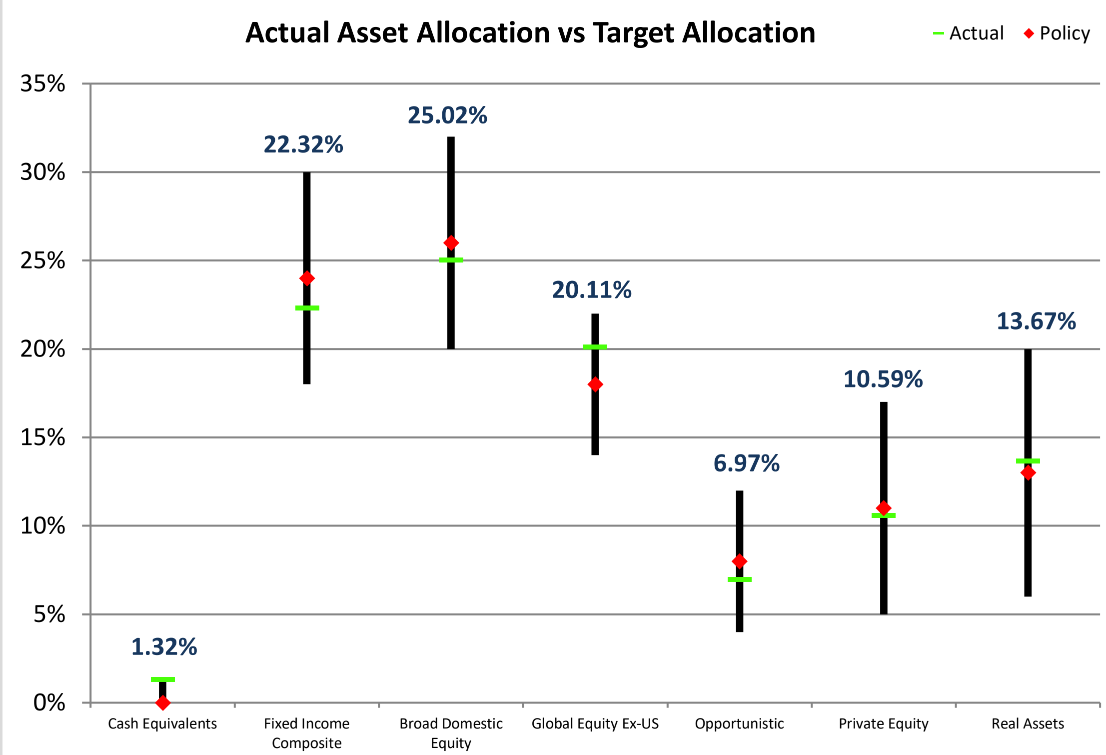
Judicial Retirement Health Care Trust Fund

Fiscal Year-to-Date through July 31, 2019



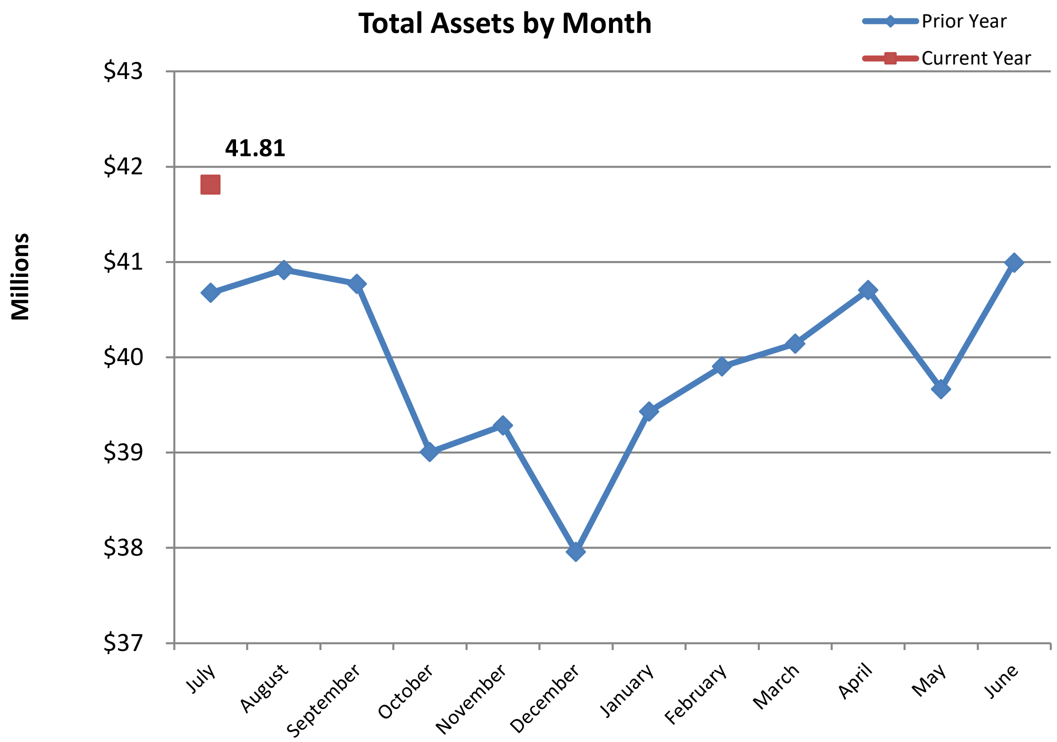


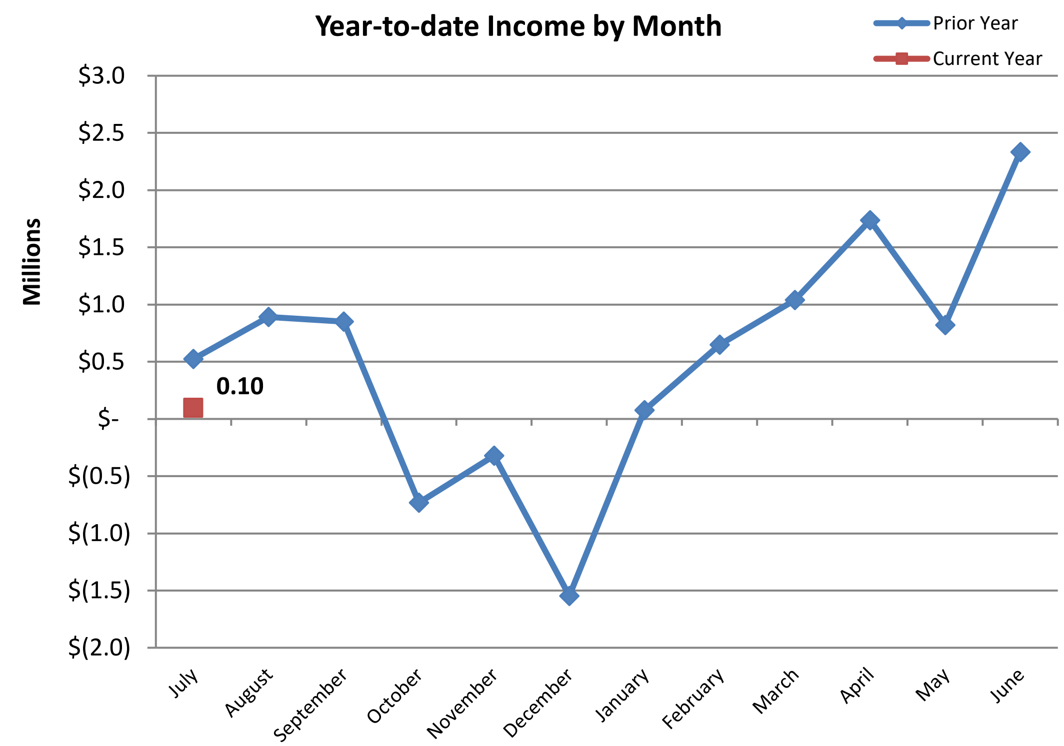


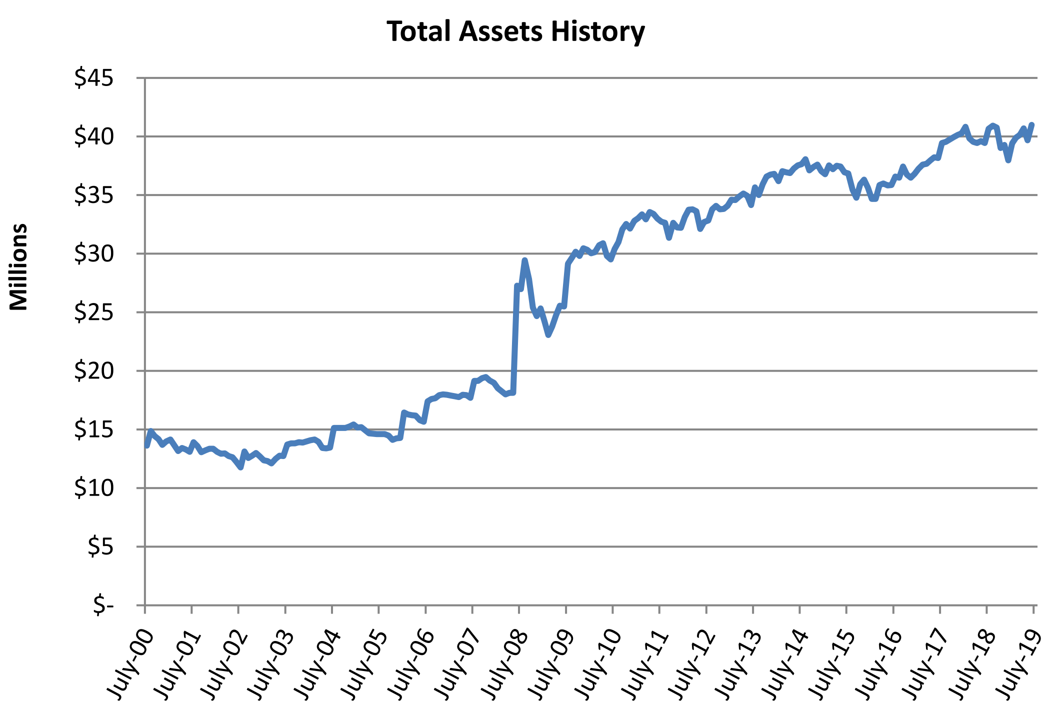


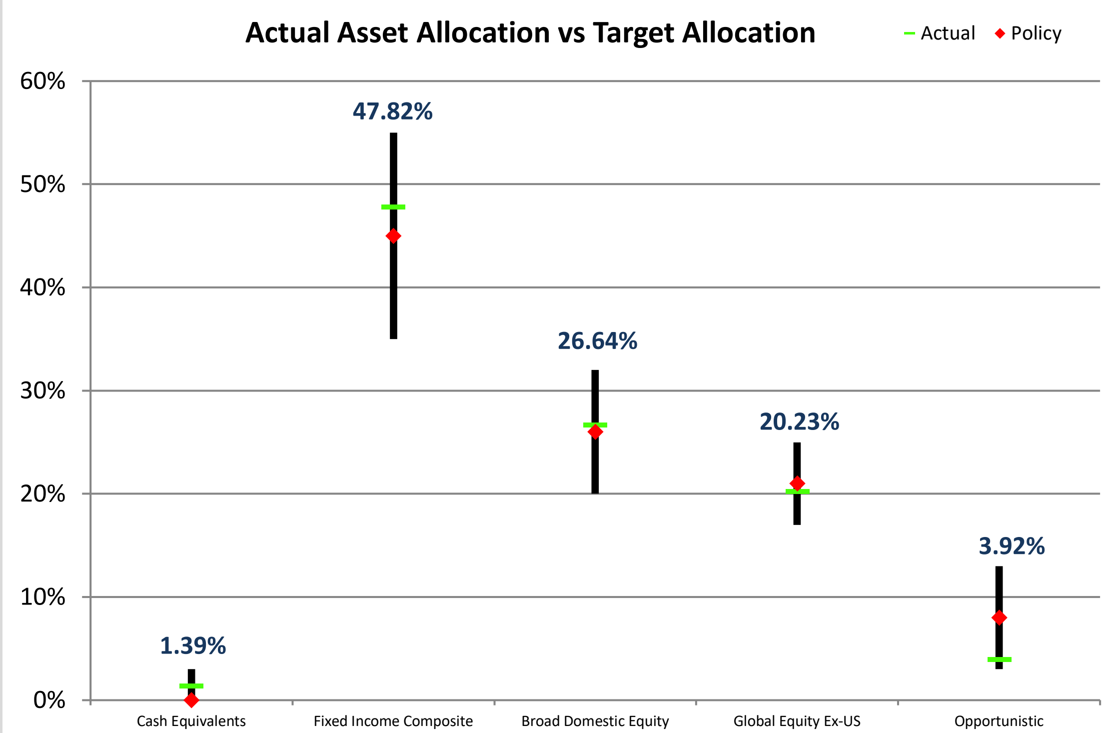
Military Retirement Trust Fund

Fiscal Year-to-Date through July 31, 2019









ALASKA RETIREMENT MANAGEMENT BOARD

Reporting of Funds by Manager

All Non-Participant Directed Plans

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended July 31, 2019

	Beginning Invested Assets	Investment Income	Net Contributions and (Withdrawals)	Ending Invested Assets	% increase (decrease)	% Change due to Investment Income
Cash						
Short-Term Fixed Income Pool	$ 499,768,479	$ 924,409	$ (261,952,466)	$ 238,740,422	-52.23%	0.25%
Securities Lending Income Pool	181,991	157,529	(182,311)	157,209	-13.62%	173.42%
Total Cash	499,950,470	1,081,938	(262,134,777)	238,897,631	-52.22%	0.29%
Fixed Income						
Alternative Fixed Income						
Crestline Investors, Inc.	545,690,984	(137,025)	17,133,103	562,687,062	3.11%	-0.02%
Prisma Capital Partners	444,160,144	(3,292,228)	-	440,867,916	-0.74%	-0.74%
Crestline Specialty Fund	30,379,233	-	(984,930)	29,394,303	-3.24%	-
Crestline Specialty Lending Fund II	25,484,663	-	(577,580)	24,907,083	-2.27%	-
Total Alternative Fixed Income	1,045,715,024	(3,429,253)	15,570,593	1,057,856,364	1.16%	-0.33%
Opportunistic Fixed Income						
Fidelity Inst. Asset Mgmt. High Yield CMBS	152,094,422	665,695	15,000,000	167,760,117	10.30%	0.42%
Fidelity Institutional Asset Management	349,439,945	2,761,079	-	352,201,024	0.79%	0.79%
MacKay Shields, LLC	53,427,704	129,659	(47,877,841)	5,679,522	-89.37%	0.44%
Mondrian Investment Partners	106,480,077	283,086	(106,289,595)	473,568	-99.56%	0.53%
Western Asset Management	63,932,448	(161,953)	(63,771,805)	(1,310)	-100.00%	-0.51%
Total Opportunistic Fixed Income	725,374,596	3,677,566	(202,939,241)	526,112,921	-27.47%	0.59%
US Aggregate Bond Index						
Blackrock US Debt Index Non-Lending Fund	13,205,103	27,667	-	13,232,770	0.21%	0.21%
ARMB US Treasury Pool						
ARMB US Treasury Fixed Income	2,805,599,788	(2,396,802)	1,902,325,404	4,705,528,390	67.72%	-0.06%
Total Fixed Income	4,589,894,511	(2,120,822)	1,714,956,756	6,302,730,445	37.32%	-0.04%
Domestic Equities						
Small Cap						
Passively Managed						
ARMB Futures Small Cap	4,074,039	(61,052)	-	4,012,987	-1.50%	-1.50%
ARMB S&P 600	154,667,363	7,530,657	397,703,181	559,901,201	262.00%	2.13%
SSgA Russell 2000 Growth	5,630	1,003	-	6,633	17.82%	17.82%
SSgA Russell 2000 Value	7,328	907	-	8,235	12.38%	12.38%
Total Passive	158,754,360	7,471,515	397,703,181	563,929,056	255.22%	2.09%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended July 31, 2019

Actively Managed						
Arrowmark	52,623,434	-	(52,623,434)	-	-100.00%	-
BMO Global Asset Management	49,939,200	(295,088)	(49,644,112)	-	-100.00%	-1.17%
DePrince, Race & Zollo Inc.- Micro Cap	88,234,466	(1,576,531)	(85,780,919)	877,016	-99.01%	-3.48%
Frontier Capital Mgmt. Co.	48,755,801	-	(48,755,801)	-	-100.00%	-
Jennison Associates, LLC	72,135,702	-	(72,135,702)	-	-100.00%	-
Lord Abbett & Co.- Micro Cap	96,307,863	(1,984,186)	(94,500,000)	(176,323)	-100.18%	-4.04%
T. Rowe Small Cap Growth	50,735,401	-	(50,735,401)	-	-100.00%	-
Transition Account	-	88,569	98,761	187,330	100.00%	179.36%
Victory Capital Management	51,027,185	-	(51,027,185)	-	-100.00%	-
Zebra Capital Management	86,942,865	(1,209,559)	(70,377,511)	15,355,795	-82.34%	-2.34%
Total Active	596,701,917	(4,976,795)	(575,481,304)	16,243,818	-97.28%	-1.61%
Total Small Cap	755,456,277	2,494,720	(177,778,123)	580,172,874	-23.20%	0.37%
Large Cap						
Passively Managed						
ARMB Futures Large Cap	4,085,873	(37,136)	-	4,048,737	-0.91%	-0.91%
ARMB S&P 900	1,633,073,748	51,249,177	2,515,623,578	4,199,946,503	157.18%	1.77%
ARMB Russell 1000 Value	1,462,238,354	30,264	(1,461,248,265)	1,020,353	-99.93%	0.00%
ARMB Russell Top 200	192,773,199	(938)	(192,734,850)	37,411	-99.98%	0.00%
Total Passive	3,292,171,174	51,241,367	861,640,463	4,205,053,004	27.73%	1.38%
Actively Managed						
Allianz Global Investors	-	9,836	-	9,836	100.00%	100.00%
ARMB Equity Yield	397,822,504	(289)	(397,703,740)	118,475	-99.97%	0.00%
ARMB Large Cap Multi-Factor	105,329,468	1,143,953	-	106,473,421	1.09%	1.09%
ARMB S&P 500 Equal Weight	396,071,709	(3,813)	(395,839,717)	228,179	-99.94%	0.00%
ARMB Scientific Beta	403,976,761	3,839,922	1,046,604,977	1,454,421,660	260.03%	0.41%
Barrow, Hanley, Mewhinney & Strauss	-	16,907	-	16,907	100.00%	100.00%
Lazard Freres	363,483,509	762	(363,619,225)	(134,954)	-100.04%	0.00%
Portable Alpha	465,552,018	9,717,583	(123,173,688)	352,095,913	-24.37%	2.41%
Transition Account	6,558	7,273,666	(6,984,133)	296,091	4414.96%	208.68%
Total Active	2,132,242,527	21,998,527	(240,715,526)	1,913,525,528	-10.26%	1.09%
Total Large Cap	5,424,413,701	73,239,894	620,924,937	6,118,578,532	12.80%	1.28%
Total Domestic Equity	6,179,869,978	75,734,614	443,146,814	6,698,751,406	8.40%	1.18%
Global Equities Ex US						
Small Cap						
Mondrian Investment Partners	190,086,661	(1,329,072)	(24,667,090)	164,090,499	-13.68%	-0.75%
Schroder Investment Management	188,744,662	(2,520,253)	(25,000,000)	161,224,409	-14.58%	-1.43%
Total Small Cap	378,831,323	(3,849,325)	(49,667,090)	325,314,908	-14.13%	-1.09%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended July 31, 2019

Large Cap						
Allianz Global Investors	133,599	(2,577)	-	131,022	-1.93%	-1.93%
Arrow Street Capital	391,924,215	(6,081,494)	-	385,842,721	-1.55%	-1.55%
Baillie Gifford Overseas Limited	387,825,423	2,526,867	-	390,352,290	0.65%	0.65%
Blackrock ACWI Ex-US IMI	533,157,891	(1,780,461)	(200,000,000)	331,377,430	-37.85%	-0.41%
Brandes Investment Partners	911,869,305	(13,866,955)	(174,266,648)	723,735,702	-20.63%	-1.68%
Cap Guardian Trust Co	598,834,053	(2,078,768)	(100,000,000)	496,755,285	-17.05%	-0.38%
Lazard Freres	339,794,019	(4,343,764)	-	335,450,255	-1.28%	-1.28%
Legal & General	-	(3,153,704)	200,000,000	196,846,296	100.00%	-3.15%
McKinley Capital Management	350,214,826	(4,299,604)	419,029	346,334,251	-1.11%	-1.23%
SSgA MSCI World Ex-US IMI Index Fund	1,003,938,538	(11,063,006)	-	992,875,532	-1.10%	-1.10%
State Street Global Advisors	3,324,751	(15,575)	-	3,309,176	-0.47%	-0.47%
Total Large Cap	4,521,016,620	(44,159,041)	(273,847,619)	4,203,009,960	-7.03%	-1.01%
Emerging Markets Equity						
MSCI Emerging Markets Index Fund	325,288,608	(3,914,844)	-	321,373,764	-1.20%	-1.20%
DePrince, Race, and Zollo Emerging Markets	290,154,806	(2,429,313)	-	287,725,493	-0.84%	-0.84%
Lazard Asset Management	348,855,404	(5,138,067)	(100,000,000)	243,717,337	-30.14%	-1.72%
Total Emerging Markets	964,298,818	(11,482,224)	(100,000,000)	852,816,594	-11.56%	-1.26%
Total Global Equities	5,864,146,761	(59,490,590)	(423,514,709)	5,381,141,462	-8.24%	-1.05%
Opportunistic						
Alternative Equity Strategy						
Alternative Equity Strategies Transition Account	-	-	-	-	-	-
Analytic Buy Write Account	384,939,042	4,785,530	(389,480,570)	244,002	-99.94%	2.52%
ARMB STOXX Minimum Variance	681,608,237	12,862,031	(600,000,000)	94,470,268	-86.14%	3.37%
SSgA Managed Volatility-Russell 1000	-	1,560	-	1,560	100.00%	100.00%
McKinley Global Health Care	258,972,671	(1,866,703)	297,643	257,403,611	-0.61%	-0.72%
Total Alternative Equity Strategy	1,325,519,950	15,782,418	(989,182,927)	352,119,441	-73.44%	1.90%
Alternative Beta						
JPM Systemic Alpha	165,720,314	3,788,591	-	169,508,905	2.29%	2.29%
Man Group Alternative Risk Premia	212,106,451	2,217,800	115,000,000	329,324,251	55.26%	0.82%
Zebra Global Equity Advantage Fund	38,047,678	-	-	38,047,678	-	-
Zebra Global Equity Fund	76,604,629	-	-	76,604,629	-	-
Total Alternative Beta	492,479,072	6,006,391	115,000,000	613,485,463	24.57%	1.09%
Other Opportunities						
Project Pearl	10,290,795	-	-	10,290,795	-	-
Schroders Insurance Linked Securities	109,511,490	(2,151,820)	(24,000,000)	83,359,670	-23.88%	-2.21%
Total Other Opportunities	119,802,285	(2,151,820)	(24,000,000)	93,650,465	-21.83%	-2.00%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended July 31, 2019

Tactical Allocation Strategies						
Eaton Vance High Yield	25,156	(25,156)	-	-	-100.00%	-100.00%
Fidelity Signals	218,549,428	(1,094,553)	190,000,000	407,454,875	86.44%	-0.35%
PineBridge	210,724,430	(2,566,166)	200,000,000	408,158,264	93.69%	-0.83%
Total Tactical Allocation Strategies	429,299,014	(3,685,875)	390,000,000	815,613,139	89.99%	-0.59%
Total Opportunistic	2,367,100,321	15,951,114	(508,182,927)	1,874,868,508	-20.79%	0.75%
Private Equity						
Abbott Capital	1,081,466,877	6,994,515	244,744	1,088,706,136	0.67%	0.65%
Advent International GPE Fund VIII-B	24,390,673	-	687,500	25,078,173	2.82%	-
Angelo, Gordon & Co.	3,653	-	-	3,653	-	-
Dyal Capital Partners III	27,643,369	590,790	35,851	28,270,010	2.27%	2.14%
Dyal Capital Partners IV	1,222,068	-	(698)	1,221,370	-0.06%	-
Glendon Opportunities	41,212,363	-	-	41,212,363	-	-
KKR Lending Partners II	33,604,522	(212,046)	-	33,392,476	-0.63%	-0.63%
Lexington Capital Partners VIII	36,221,514	-	-	36,221,514	-	-
Lexington Partners VII	19,166,463	-	(615,276)	18,551,187	-3.21%	-
Merit Capital Partners	14,161,379	-	(302,767)	13,858,612	-2.14%	-
NB SOF III	27,308,129	-	-	27,308,129	-	-
NB SOF IV	17,218,344	-	(882,499)	16,335,845	-5.13%	-
New Mountain Partners IV	25,968,656	-	(9,803,800)	16,164,856	-37.75%	-
New Mountain Partners V	18,330,077	-	3,698,945	22,029,022	20.18%	-
NGP XI	48,063,096	-	-	48,063,096	-	-
NGP XII	11,387,885	-	1,136,537	12,524,422	9.98%	-
Onex Partnership III	9,476,684	-	-	9,476,684	-	-
Pathway Capital Management LLC	1,218,407,664	54,905	7,530,166	1,225,992,735	0.62%	0.00%
Resolute Fund III	20,376,116	-	-	20,376,116	-	-
Resolute Fund IV	8,173,064	-	3,940,933	12,113,997	48.22%	-
Summit Partners GE IX	31,363,525	-	2,880,000	34,243,525	9.18%	-
Warburg Pincus Global Growth Fund	351,329	-	1,940,000	2,291,329	552.19%	-
Warburg Pincus X	11,393,877	-	-	11,393,877	-	-
Warburg Pincus XI	27,210,120	70,424	(1,393,547)	25,886,997	-4.86%	0.27%
Warburg Pincus XII	56,574,450	-	3,250,000	59,824,450	5.74%	-
Total Private Equity	2,810,695,897	7,498,588	12,346,089	2,830,540,574	0.71%	0.27%
Real Assets						
Farmland						
Hancock Agricultural Investment Group	269,792,674	-	-	269,792,674	-	-
UBS Agrivest, LLC	586,634,062	-	-	586,634,062	-	-
Total Farmland	856,426,736	-	-	856,426,736	-	-

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended July 31, 2019

Timber						
Hancock Natural Resource Group	99,365,884	-	-	99,365,884	-	-
Timberland Invt Resource LLC	265,570,883	-	(2,000,000)	263,570,883	-0.75%	-
Total Timber	364,936,767	-	(2,000,000)	362,936,767	-0.55%	-
Energy						
EIG Energy Fund XIV-A	10,738,986	(654,092)	-	10,084,894	-6.09%	-6.09%
EIG Energy Fund XV	23,408,725	(995,559)	(297,568)	22,115,598	-5.52%	-4.28%
EIG Energy Fund XVI	55,858,425	833,839	-	56,692,264	1.49%	1.49%
Total Energy	90,006,136	(815,812)	(297,568)	88,892,756	-1.24%	-0.91%
REIT						
REIT Transition Account	-	(2,349,997)	2,370,991	20,994	-	-198.23%
ARMB REIT	299,780,541	8,676,381	(213,499,410)	94,957,512	-68.32%	4.49%
Total REIT	299,780,541	6,326,384	(211,128,419)	94,978,506	-68.32%	3.26%
Master Limited Partnerships						
Advisory Research MLP	267,672,943	1,138,816	(187,655,872)	81,155,887	-69.68%	0.66%
Tortoise Capital Advisors	280,869,351	1,182,022	(212,538,172)	69,513,201	-75.25%	0.68%
Total Master Limited Partnerships	548,542,294	2,320,838	(400,194,044)	150,669,088	-72.53%	0.67%
Infrastructure Private						
IFM Global Infrastructure Fund-Private	449,729,410	17,617,231	13,197,320	480,543,961	6.85%	3.86%
JP Morgan Infrastructure Fund-Private	120,492,718	-	-	120,492,718	-	-
Total Infrastructure Private	570,222,128	17,617,231	13,197,320	601,036,679	5.40%	3.05%
Infrastructure Public						
Brookfield Investment Mgmt.-Public	86,612,087	(473,076)	(85,983,444)	155,567	-99.82%	-1.08%
Lazard Asset Mgmt.-Public	83,578,395	(465,649)	(82,535,817)	576,929	-99.31%	-1.10%
Total Infrastructure Public	170,190,482	(938,725)	(168,519,261)	732,496	-99.57%	-1.09%
Real Estate						
Core Commingled Accounts						
BlackRock US Core Property Fund	213,266,734	5,158,266	-	218,425,000	2.42%	2.42%
JP Morgan	260,569,094	686,308	(1,880,615)	259,374,787	-0.46%	0.26%
UBS Trumbull Property Fund	67,854,587	(2,645,730)	(6,758,815)	58,450,042	-13.86%	-4.10%
Total Core Commingled	541,690,415	3,198,844	(8,639,430)	536,249,829	-1.00%	0.60%
Core Separate Accounts						
LaSalle Investment Management	127,983,479	-	(622,387)	127,361,092	-0.49%	-
Sentinel Separate Account	171,469,039	-	(501,488)	170,967,551	-0.29%	-
UBS Realty	534,059,715	(1)	(1,059,299)	533,000,415	-0.20%	0.00%
Total Core Separate	833,512,233	(1)	(2,183,174)	831,329,058	-0.26%	0.00%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended July 31, 2019

Non-Core Commingled Accounts						
Almanac Realty Securities V	1,087,610	-	-	1,087,610	-	-
Almanac Realty Securities VII	38,632,317	-	(576,694)	38,055,623	-1.49%	-
Almanac Realty Securities VIII	2,167,723	-	-	2,167,723	-	-
Clarion Ventures 4	30,151,501	-	1,612,984	31,764,485	5.35%	-
Colony Investors VIII, L.P.	1,483,767	-	-	1,483,767	-	-
Coventry	241,737	-	-	241,737	-	-
ING Clarion Development Ventures III	2,342,966	-	-	2,342,966	-	-
KKR Real Estate Partners Americas II	8,480,544	-	1,004,229	9,484,773	11.84%	-
KKR Real Estate Partners Americas L.P.	18,730,836	292,948	(4,005,877)	15,017,907	-19.82%	1.75%
Silverpeak Legacy Pension Partners II, L.P.	3,244,233	-	-	3,244,233	-	-
Silverpeak Legacy Pension Partners III, L.P.	4,260,286	-	-	4,260,286	-	-
Tishman Speyer Real Estate Venture VI	22,336,658	-	-	22,336,658	-	-
Tishman Speyer Real Estate Venture VII	547,147	-	-	547,147	-	-
Total Non-Core Commingled	133,707,325	292,948	(1,965,358)	132,034,915	-1.25%	0.22%
Total Real Estate	1,508,909,973	3,491,791	(12,787,962)	1,499,613,802	-0.62%	0.23%
Total Real Assets	4,409,015,057	28,001,707	(781,729,934)	3,655,286,830	-17.10%	0.70%
Total Assets	$ 26,720,672,995	$ 66,656,549	$ 194,887,312	$ 26,982,216,856	0.98%	0.25%

ALASKA RETIREMENT MANAGEMENT BOARD

Reporting of Funds by Manager

Participant Directed Plans

Supplemental Annuity Plan
Schedule of Investment Income and Changes in Invested Assets
for the Month Ended
July 31, 2019

Participant Options	Beginning Invested Assets	Investment Income	Net Contributions (Withdrawals)	Transfers In (Out)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income (1)
T. Rowe Price							
Stable Value Fund	$ 392,369,514	$ 833,524	$ (4,365,213)	$ 2,092,376	$ 390,930,201	-0.37%	0.21%
Small Cap Stock Fund	194,793,591	3,627,303	(83,362)	2,308,140	200,645,672	3.00%	1.85%
Alaska Balanced Trust	1,141,247,376	2,676,221	(3,898,560)	(3,912,058)	1,136,112,979	-0.45%	0.24%
Long Term Balanced Fund	685,771,667	1,878,306	234,713	(3,101,260)	684,783,426	-0.14%	0.27%
AK Target Date 2010 Trust	10,212,399	26,049	(19,570)	(29,404)	10,189,474	-0.22%	0.26%
AK Target Date 2015 Trust	83,245,319	234,041	(158,701)	(130,179)	83,190,480	-0.07%	0.28%
AK Target Date 2020 Trust	99,276,890	304,227	(979,902)	(696,357)	97,904,858	-1.38%	0.31%
AK Target Date 2025 Trust	85,540,608	275,634	(25,922)	(1,143,205)	84,647,115	-1.04%	0.32%
AK Target Date 2030 Trust	65,116,517	214,515	432,442	602,788	66,366,262	1.92%	0.33%
AK Target Date 2035 Trust	61,565,331	216,346	682,098	(650,905)	61,812,870	0.40%	0.35%
AK Target Date 2040 Trust	61,841,167	225,799	712,853	(350,952)	62,428,867	0.95%	0.36%
AK Target Date 2045 Trust	70,139,429	257,759	766,285	(198,546)	70,964,927	1.18%	0.37%
AK Target Date 2050 Trust	79,036,714	289,476	873,477	(126,742)	80,072,925	1.31%	0.36%
AK Target Date 2055 Trust	70,223,061	253,353	1,949,632	(172,891)	72,253,155	2.89%	0.36%
AK Target Date 2060 Trust	4,140,031	15,029	13,624	2,264	4,170,948	0.75%	0.36%
Total Investments with T. Rowe Price	3,104,519,614	11,327,582	(3,866,106)	(5,506,931)	3,106,474,159		
State Street Global Advisors							
Money Market	48,255,567	87,623	(773,307)	1,012,686	48,582,569	0.68%	0.18%
S&P 500 Stock Index Fund Series A	479,030,501	6,897,854	(398,075)	325,297	485,855,577	1.42%	1.44%
Russell 3000 Index	76,068,537	1,153,170	62,029	(165,928)	77,117,808	1.38%	1.52%
US Real Estate Investment Trust Index	40,491,477	647,448	97,418	(1,896,002)	39,340,341	-2.84%	1.64%
World Equity Ex-US Index	69,654,654	(1,120,892)	148,580	1,486,019	70,168,361	0.74%	-1.59%
US Treasury Inflation Protected Securities Index	47,838,558	177,067	(157,125)	1,017,192	48,875,692	2.17%	0.37%
Total Investments with SSgA	761,339,294	7,842,270	(1,020,480)	1,779,264	769,940,348		
BlackRock							
Passive U.S. Bond Index Fund	123,323,564	277,965	(254,236)	3,230,224	126,577,517	2.64%	0.22%
Brandes/Baillie Gifford (2)							
AK International Equity Fund	63,624,463	(547,693)	(84,816)	(67,962)	62,923,992	-1.10%	-0.86%
Northern Trust							
Environmental, Social, and Governance Fund	58,824,171	1,100,351	(186,939)	565,405	60,302,988	2.51%	1.86%
Total All Funds	$ 4,111,631,106	$ 20,000,475	$ (5,412,577)	$ -	$ 4,126,219,004	0.35%	0.49%

Notes: Source data provided by the record keeper, Empower Retirement.

(1) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates.

(2) This investment is comprised of two funds, Brandes International Equity Fund and Baillie Gifford International Equity Fund.

Supplemental Annuity Plan
Schedule of Invested Assets with
Schedule of Investment Income and Changes in Invested Assets
By Month Through the Month Ended
July 31, 2019
$ (Thousands)

Invested Assets (at fair value)		**July**
Investments with T. Rowe Price		
Stable Value Fund	$	390,930
Small Cap Stock Fund		200,646
Alaska Balanced Trust		1,136,113
Long Term Balanced Fund		684,783
AK Target Date 2010 Trust		10,189
AK Target Date 2015 Trust		83,190
AK Target Date 2020 Trust		97,905
AK Target Date 2025 Trust		84,647
AK Target Date 2030 Trust		66,366
AK Target Date 2035 Trust		61,813
AK Target Date 2040 Trust		62,429
AK Target Date 2045 Trust		70,965
AK Target Date 2050 Trust		80,073
AK Target Date 2055 Trust		72,253
AK Target Date 2060 Trust		4,171
State Street Global Advisors		
Money Market		48,583
S&P 500 Stock Index Fund Series A		485,856
Russell 3000 Index		77,118
US Real Estate Investment Trust Index		39,340
World Equity Ex-US Index		70,168
US Treasury Inflation Protected Securities Index		48,876
Investments with BlackRock		
Passive U.S. Bond Index Fund		126,578
Investments with Brandes/Baillie Gifford		
AK International Equity Fund		62,924
Investments with Northern Trust		
Environmental, Social, and Governance Fund		60,303
Total Invested Assets	$	**4,126,219**

Change in Invested Assets		
Beginning Assets	$	4,111,631
Investment Earnings		20,000
Net Contributions (Withdrawals)		(5,413)
Ending Invested Assets	$	**4,126,219**

Source data provided by the record keeper, Empower Retirement.

Deferred Compensation Plan
Schedule of Invested Assets and Changes in Invested Assets
for the Month Ended
July 31, 2019

Participant Options	Beginning Invested Assets	Investment Income	Net Contributions (Withdrawals)	Transfers In (Out)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income (1)
T. Rowe Price							
Stable Value Fund	$ 183,173,978	$ 390,879	$ (819,428)	$ 728,520	$ 183,473,949	0.16%	0.21%
Small Cap Stock Fund	118,755,948	2,198,054	(244,152)	(303,832)	120,406,018	1.39%	1.86%
Alaska Balanced Trust	31,145,707	72,709	(66,825)	354,876	31,506,467	1.16%	0.23%
Long Term Balanced Fund	87,189,212	242,854	(416,830)	(816,773)	86,198,463	-1.14%	0.28%
AK Target Date 2010 Trust	4,053,497	10,273	3,816	(90,308)	3,977,278	-1.88%	0.26%
AK Target Date 2015 Trust	9,405,120	27,125	3,513	(25,227)	9,410,531	0.06%	0.29%
AK Target Date 2020 Trust	24,998,273	76,661	(392,210)	118,207	24,800,931	-0.79%	0.31%
AK Target Date 2025 Trust	20,772,017	66,862	163,292	(160,780)	20,841,391	0.33%	0.32%
AK Target Date 2030 Trust	13,225,691	42,808	164,672	146,774	13,579,945	2.68%	0.32%
AK Target Date 2035 Trust	8,144,272	30,005	115,588	(396,721)	7,893,144	-3.08%	0.37%
AK Target Date 2040 Trust	8,866,446	32,325	128,005	(41,593)	8,985,183	1.34%	0.36%
AK Target Date 2045 Trust	6,452,280	23,369	109,204	(27,756)	6,557,097	1.62%	0.36%
AK Target Date 2050 Trust	4,648,080	16,937	121,206	(24,664)	4,761,559	2.44%	0.36%
AK Target Date 2055 Trust	4,476,700	16,347	62,860	(16,956)	4,538,951	1.39%	0.36%
AK Target Date 2060 Trust	930,289	3,752	19,001	(60,701)	892,341	-4.08%	0.41%
Total Investments with T. Rowe Price	526,237,510	3,250,960	(1,048,288)	(616,934)	527,823,248		
State Street Global Advisors							
Money Market	14,788,672	27,233	(29,392)	652,321	15,438,834	4.40%	0.18%
Russell 3000 Index	48,391,583	728,418	300,803	389,229	49,810,033	2.93%	1.49%
US Real Estate Investment Trust Index	14,949,223	236,820	49,326	(849,401)	14,385,968	-3.77%	1.63%
World Equity Ex-US Index	21,965,428	(352,372)	144,063	186,101	21,943,220	-0.10%	-1.59%
US Treasury Inflation Protected Securities Index	18,932,257	70,463	40,835	117,067	19,160,622	1.21%	0.37%
Total Investments with SSgA	119,027,163	710,562	505,635	495,317	120,738,677		
BlackRock							
S&P 500 Index Fund	218,773,306	3,174,026	(130,484)	(680,064)	221,136,784	1.08%	1.45%
Passive U.S. Bond Index Fund	61,916,203	136,284	(417,770)	821,208	62,455,925	0.87%	0.22%
Total Investments with BlackRock	280,689,509	3,310,310	(548,254)	141,144	283,592,709		
Brandes/Baillie Gifford (2)							
AK International Equity Fund	34,125,509	(292,336)	(73,532)	(180,196)	33,579,445	-1.60%	-0.86%
Northern Trust							
Environmental, Social, and Governance Fund	23,513,826	442,009	(64,007)	160,669	24,052,497	2.29%	1.88%
Total All Funds	$ 983,593,517	$ 7,421,505	$ (1,228,446)	$ -	$ 989,786,576	0.63%	0.76%

Notes: Source data provided by the record keeper, Empower Retirement.

(1) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates.

(2) This investment is comprised of two funds, Brandes International Equity Fund and Baillie Gifford International Equity Fund.

Deferred Compensation Plan
Schedule of Invested Assets with
Schedule of Investment Income and Changes in Invested Assets
By Month Through the Month Ended
July 31, 2019
$ (Thousands)

Invested Assets (at fair value)		**July**
Investments with T. Rowe Price		
Stable Value Fund	$	183,474
Small Cap Stock Fund		120,406
Alaska Balanced Trust		31,506
Long Term Balanced Fund		86,198
AK Target Date 2010 Trust		3,977
AK Target Date 2015 Trust		9,411
AK Target Date 2020 Trust		24,801
AK Target Date 2025 Trust		20,841
AK Target Date 2030 Trust		13,580
AK Target Date 2035 Trust		7,893
AK Target Date 2040 Trust		8,985
AK Target Date 2045 Trust		6,557
AK Target Date 2050 Trust		4,762
AK Target Date 2055 Trust		4,539
AK Target Date 2060 Trust		892
State Street Global Advisors		
Money Market		15,439
Russell 3000 Index		49,810
US Real Estate Investment Trust Index		14,386
World Equity Ex-US Index		21,943
US Treasury Inflation Protected Securities Index		19,161
Investments with BlackRock		
S&P 500 Index Fund		221,137
Passive U.S. Bond Index Fund		62,456
Investments with Brandes/Baillie Gifford		
AK International Equity Fund		33,579
Investments with Northern Trust		
Environmental, Social, and Governance Fund		24,052
Total Invested Assets	**$**	**989,787**

Change in Invested Assets		
Beginning Assets	$	983,594
Investment Earnings		7,422
Net Contributions (Withdrawals)		(1,228)
Ending Invested Assets	**$**	**989,787**

Source data provided by the record keeper, Empower Retirement.

Defined Contribution Retirement - Participant Directed PERS
Schedule of Investment Income and Changes in Invested Assets
for the Month Ended
July 31, 2019

Participant Options	Beginning Invested Assets	Investment Income	Net Contributions (Withdrawals)	Transfers In (Out)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income (1)
T. Rowe Price							
Stable Value Fund	$ 48,809,381	$ 104,808	$ (163,367)	$ 799,263	$ 49,550,085	1.52%	0.21%
Small Cap Stock Fund	83,318,573	1,550,417	199,074	519,624	85,587,688	2.72%	1.85%
Alaska Balanced Trust	25,502,564	59,973	57,913	(361,491)	25,258,959	-0.96%	0.24%
Long Term Balanced Fund	16,029,446	45,871	42,236	(547,816)	15,569,737	-2.87%	0.29%
AK Target Date 2010 Trust	2,525,377	6,844	(135,580)	(33,058)	2,363,583	-6.41%	0.28%
AK Target Date 2015 Trust	12,369,352	34,517	51,719	(8,463)	12,447,125	0.63%	0.28%
AK Target Date 2020 Trust	36,052,290	107,643	298,450	(145,871)	36,312,512	0.72%	0.30%
AK Target Date 2025 Trust	58,488,766	183,599	485,640	(160,607)	58,997,398	0.87%	0.31%
AK Target Date 2030 Trust	60,963,455	203,494	505,602	(3,212)	61,669,339	1.16%	0.33%
AK Target Date 2035 Trust	74,039,109	258,613	375,714	(218,141)	74,455,295	0.56%	0.35%
AK Target Date 2040 Trust	87,614,285	317,130	653,977	(336,054)	88,249,338	0.72%	0.36%
AK Target Date 2045 Trust	112,887,002	411,207	828,796	(417,365)	113,709,640	0.73%	0.36%
AK Target Date 2050 Trust	134,021,633	487,813	935,909	(253,849)	135,191,506	0.87%	0.36%
AK Target Date 2055 Trust	121,433,639	434,920	2,038,535	(361,602)	123,545,492	1.74%	0.36%
AK Target Date 2060 Trust	1,356,670	4,351	24,404	51,688	1,437,113	5.93%	0.31%
Total Investments with T. Rowe Price	875,411,542	4,211,200	6,199,022	(1,476,954)	884,344,810		
State Street Global Advisors							
Money Market	11,522,974	20,710	(11,722)	(177,016)	11,354,946	-1.46%	0.18%
S&P 500 Stock Index Fund Series A	110,222,202	1,581,586	412,392	598,395	112,814,575	2.35%	1.43%
Russell 3000 Index	12,780,416	193,318	73,113	117,919	13,164,766	3.01%	1.50%
US Real Estate Investment Trust Index	17,339,485	275,293	(6,594)	(371,715)	17,236,469	-0.59%	1.61%
World Equity Ex-US Index	60,145,431	(967,156)	201,273	1,030,678	60,410,226	0.44%	-1.59%
US Treasury Inflation Protected Securities Index	20,312,433	74,043	(25,750)	(309,391)	20,051,335	-1.29%	0.37%
Total Investments with SSgA	232,322,941	1,177,794	642,712	888,870	235,032,317		
BlackRock							
Passive U.S. Bond Index Fund	51,722,138	115,429	52,326	856,066	52,745,959	1.98%	0.22%
Brandes/Baillie Gifford (2)							
AK International Equity Fund	40,463,051	(345,890)	173,221	(486,175)	39,804,207	-1.63%	-0.86%
Northern Trust							
Environmental, Social, and Governance Fund	18,834,302	354,083	42,598	218,193	19,449,176	3.26%	1.87%
Total All Funds	$ 1,218,753,974	$ 5,512,616	$ 7,109,879	$ -	$ 1,231,376,469	1.04%	0.45%

Notes: Source data provided by the record keeper, Empower Retirement.
(1) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates.
(2) This investment is comprised of two funds, Brandes International Equity Fund and Baillie Gifford International Equity Fund.

Defined Contribution Retirement - Participant Directed PERS
Schedule of Invested Assets with
Schedule of Investment Income and Changes in Invested Assets
By Month Through the Month Ended
July 31, 2019
$ (Thousands)

Invested Assets (at fair value)		**July**
Investments with T. Rowe Price		
Stable Value Fund	$	49,550
Small Cap Stock Fund		85,588
Alaska Balanced Trust		25,259
Long Term Balanced Fund		15,570
AK Target Date 2010 Trust		2,364
AK Target Date 2015 Trust		12,447
AK Target Date 2020 Trust		36,313
AK Target Date 2025 Trust		58,997
AK Target Date 2030 Trust		61,669
AK Target Date 2035 Trust		74,455
AK Target Date 2040 Trust		88,249
AK Target Date 2045 Trust		113,710
AK Target Date 2050 Trust		135,192
AK Target Date 2055 Trust		123,545
AK Target Date 2060 Trust		1,437
State Street Global Advisors		
Money Market		11,355
S&P 500 Stock Index Fund Series A		112,815
Russell 3000 Index		13,165
US Real Estate Investment Trust Index		17,236
World Equity Ex-US Index		60,410
US Treasury Inflation Protected Securities Index		20,051
Investments with BlackRock		
Passive U.S. Bond Index Fund		52,746
Investments with Brandes/Baillie Gifford		
AK International Equity Fund		39,804
Investments with Northern Trust		
Environmental, Social, and Governance Fund		19,449
Total Invested Assets	$	**1,231,376**

Change in Invested Assets		
Beginning Assets	$	1,218,754
Investment Earnings		5,513
Net Contributions (Withdrawals)		7,110
Ending Invested Assets	$	**1,231,376**

Source data provided by the record keeper, Empower Retirement.

Defined Contribution Retirement - Participant Directed TRS
Schedule of Investment Income and Changes in Invested Assets
for the Month Ended
July 31, 2019

Participant Options	Beginning Invested Assets	Investment Income	Net Contributions (Withdrawals)	Transfers In (Out)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income (1)
T. Rowe Price							
Stable Value Fund	$ 20,332,872	$ 43,624	$ (18,670)	$ 181,765	$ 20,539,591	1.02%	0.21%
Small Cap Stock Fund	35,581,342	661,871	67,674	57,257	36,368,144	2.21%	1.86%
Alaska Balanced Trust	10,952,781	26,047	7,095	(294,263)	10,691,660	-2.38%	0.24%
Long Term Balanced Fund	6,888,023	20,125	(10,210)	(324,069)	6,573,869	-4.56%	0.30%
AK Target Date 2010 Trust	837,957	2,022	(13,939)	34,061	860,101	2.64%	0.24%
AK Target Date 2015 Trust	3,755,368	10,841	(47,881)	-	3,718,328	-0.99%	0.29%
AK Target Date 2020 Trust	10,742,505	32,816	(125,495)	(25,088)	10,624,738	-1.10%	0.31%
AK Target Date 2025 Trust	19,624,352	62,987	121,009	(124,488)	19,683,860	0.30%	0.32%
AK Target Date 2030 Trust	22,790,182	75,964	257,933	(43,537)	23,080,542	1.27%	0.33%
AK Target Date 2035 Trust	33,815,150	116,669	320,403	(60,483)	34,191,739	1.11%	0.34%
AK Target Date 2040 Trust	36,786,282	134,526	473,982	(258,892)	37,135,898	0.95%	0.36%
AK Target Date 2045 Trust	54,914,607	201,879	279,283	(95,728)	55,300,041	0.70%	0.37%
AK Target Date 2050 Trust	76,786,999	278,026	842,063	(107,939)	77,799,149	1.32%	0.36%
AK Target Date 2055 Trust	41,323,313	144,105	1,137,822	(26,019)	42,579,221	3.04%	0.34%
AK Target Date 2060 Trust	516,376	1,840	5,709	-	523,925	1.46%	0.35%
Total Investments with T. Rowe Price	375,648,109	1,813,342	3,296,778	(1,087,423)	379,670,806		
State Street Global Advisors							
Money Market	3,202,484	5,826	(79,640)	15,076	3,143,746	-1.83%	0.18%
S&P 500 Stock Index Fund Series A	44,701,735	642,726	98,552	116,078	45,559,091	1.92%	1.43%
Russell 3000 Index	4,241,979	61,579	44,403	220,552	4,568,513	7.70%	1.41%
US Real Estate Investment Trust Index	6,976,394	109,710	10,367	(24,272)	7,072,199	1.37%	1.57%
World Equity Ex-US Index	27,091,750	(436,495)	50,157	497,307	27,202,719	0.41%	-1.60%
US Treasury Inflation Protected Securities Index	7,445,383	26,925	(23,013)	(537)	7,448,758	0.05%	0.36%
Total Investments with SSgA	93,659,725	410,271	100,826	824,204	94,995,026		
BlackRock							
Passive U.S. Bond Index Fund	21,005,019	47,017	(8,804)	407,516	21,450,748	2.12%	0.22%
Brandes/Baillie Gifford (2)							
AK International Equity Fund	17,855,044	(150,379)	33,130.00	(369,641)	17,368,154	-2.73%	-0.85%
Northern Trust							
Environmental, Social, and Governance Fund	7,904,759	148,373	(2,228.00)	225,344	8,276,248	4.70%	1.85%
Total All Funds	$ 516,072,656	$ 2,268,624	$ 3,419,702	$ -	$ 521,760,982	1.10%	0.44%

Notes: Source data provided by the record keeper, Empower Retirement.
(1) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates.
(2) This investment is comprised of two funds, Brandes International Equity Fund and Baillie Gifford International Equity Fund.

Defined Contribution Retirement - Participant Directed TRS
Schedule of Invested Assets with
Schedule of Investment Income and Changes in Invested Assets
By Month Through the Month Ended
July 31, 2019
$ (Thousands)

Invested Assets (at fair value)		**July**
Investments with T. Rowe Price		
Stable Value Fund	$	20,540
Small Cap Stock Fund		36,368
Alaska Balanced Trust		10,692
Long Term Balanced Fund		6,574
AK Target Date 2010 Trust		860
AK Target Date 2015 Trust		3,718
AK Target Date 2020 Trust		10,625
AK Target Date 2025 Trust		19,684
AK Target Date 2030 Trust		23,081
AK Target Date 2035 Trust		34,192
AK Target Date 2040 Trust		37,136
AK Target Date 2045 Trust		55,300
AK Target Date 2050 Trust		77,799
AK Target Date 2055 Trust		42,579
AK Target Date 2060 Trust		524
State Street Global Advisors		
Money Market		3,144
S&P 500 Stock Index Fund Series A		45,559
Russell 3000 Index		4,569
US Real Estate Investment Trust Index		7,072
World Equity Ex-US Index		27,203
US Treasury Inflation Protected Securities Index		7,449
Investments with BlackRock		
Passive U.S. Bond Index Fund		21,451
Investments with Brandes/Baillie Gifford		
AK International Equity Fund		17,368
Investments with Northern Trust		
Environmental, Social, and Governance Fund		8,276
Total Invested Assets	$	**521,761**
Change in Invested Assets		
Beginning Assets	$	516,073
Investment Earnings		2,269
Net Contributions (Withdrawals)		3,420
Ending Invested Assets	$	**521,761**

Source data provided by the record keeper, Empower Retirement.

ALASKA RETIREMENT MANAGEMENT BOARD

FINANCIAL REPORT
(Supplement to the Treasury Division Report)

As of June 30, 2019

Prepared by the Division of Retirement & Benefits

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the Twelve Months Ending June 30, 2019

	Contributions				**Expenditures**				**Net**
	Contributions EE and ER	State of Alaska	Other	Total Contributions	Benefits	Refunds & Disbursements	Administrative & Investment	Total Expenditures	**Contributions/ (Withdrawals)**
Public Employees' Retirement System (PERS)									
Defined Benefit Plans:									
Retirement Trust	$ 368,540,431	$ 135,508,000	$ 22,811	$ 504,071,242	$ (844,924,044)	$ (10,543,749)	$ (6,943,310)	$ (862,411,103)	$ (358,339,861)
Retirement Health Care Trust	102,631,443	-	60,473,173	163,104,616	(443,728,945)	-	(18,297,192)	(462,026,137)	(298,921,521)
Total Defined Benefit Plans	471,171,874	135,508,000	60,495,984	667,175,858	(1,288,652,989)	(10,543,749)	(25,240,502)	(1,324,437,240)	(657,261,382)
Defined Contribution Plans:									
Participant Directed Retirement	161,482,189	-	-	161,482,189	-	(55,184,430)	(3,922,768)	(59,107,198)	102,374,991
Health Reimbursement Arrangement [(a)]	39,450,645	-	-	39,450,645	(100,739)	-	(154,864)	(255,603)	39,195,042
Retiree Medical Plan [(a)]	11,933,150	-	35,862	11,969,012	(314,796)	-	(56,703)	(371,499)	11,597,513
Occupational Death and Disability: [(a)]									
All Others	2,714,817	-	-	2,714,817	(121,884)	-	(9,182)	(131,066)	2,583,751
Peace Officers and Firefighters	1,244,444	-	-	1,244,444	(293,709)	-	(4,519)	(298,228)	946,216
Total Defined Contribution Plans	216,825,245	-	35,862	216,861,107	(831,128)	(55,184,430)	(4,148,036)	(60,163,594)	156,697,513
Total PERS	**687,997,119**	**135,508,000**	**60,531,846**	**884,036,965**	**(1,289,484,117)**	**(65,728,179)**	**(29,388,538)**	**(1,384,600,834)**	**(500,563,869)**
Teachers' Retirement System (TRS)									
Defined Benefit Plans:									
Retirement Trust	72,024,653	128,174,000	32,645	200,231,298	(472,396,836)	(2,270,125)	(3,594,224)	(478,261,185)	(278,029,887)
Retirement Health Care Trust	18,359,913	-	19,752,951	38,112,864	(144,785,116)	-	(6,779,646)	(151,564,762)	(113,451,898)
Total Defined Benefit Plans	90,384,566	128,174,000	19,785,596	238,344,162	(617,181,952)	(2,270,125)	(10,373,870)	(629,825,947)	(391,481,785)
Defined Contribution Plans:									
Participant Directed Retirement	57,406,501	-	-	57,406,501	-	(13,899,212)	(1,457,486)	(15,356,698)	42,049,803
Health Reimbursement Arrangement [(a)]	12,221,361	-	-	12,221,361	(31,341)	-	(46,297)	(77,638)	12,143,723
Retiree Medical Plan [(a)]	3,131,389	-	11,834	3,143,223	(118,767)	-	(21,372)	(140,139)	3,003,084
Occupational Death and Disability [(a)]	277,426	-	-	277,426	(24,294)	-	(1,466)	(25,760)	251,666
Total Defined Contribution Plans	73,036,677	-	11,834	73,048,511	(174,402)	(13,899,212)	(1,526,621)	(15,600,235)	57,448,276
Total TRS	**163,421,243**	**128,174,000**	**19,797,430**	**311,392,673**	**(617,356,354)**	**(16,169,337)**	**(11,900,491)**	**(645,426,182)**	**(334,033,509)**
Judicial Retirement System (JRS)									
Defined Benefit Plan Retirement Trust	5,959,066	4,909,000	-	10,868,066	(13,686,755)	-	(120,216)	(13,806,971)	(2,938,905)
Defined Benefit Retirement Health Care Trust	615,702	-	191,410	807,112	(1,123,658)	-	(63,047)	(1,186,705)	(379,593)
Total JRS	**6,574,768**	**4,909,000**	**191,410**	**11,675,178**	**(14,810,413)**	**-**	**(183,263)**	**(14,993,676)**	**(3,318,498)**
National Guard/Naval Militia Retirement System (NGNMRS)									
Defined Benefit Plan Retirement Trust [(a)]	851,686	-	-	851,686	(1,492,633)	-	(149,790)	(1,642,423)	(790,737)
Other Participant Directed Plans									
Supplemental Annuity Plan	170,074,748	-	-	170,074,748	-	(214,277,525)	(6,717,407)	(220,994,932)	(50,920,184)
Deferred Compensation Plan	43,961,436	-	-	43,961,436	-	(60,758,144)	(1,833,094)	(62,591,238)	(18,629,802)
Total All Funds	**1,072,881,000**	**268,591,000**	**80,520,686**	**1,421,992,686**	**(1,923,143,517)**	**(356,933,185)**	**(50,172,583)**	**(2,330,249,285)**	**(908,256,599)**
Total Non-Participant Directed	639,956,126	268,591,000	80,520,686	989,067,812	(1,923,143,517)	(12,813,874)	(36,241,828)	(1,972,199,219)	(983,131,407)
Total Participant Directed	432,924,874	-	-	432,924,874	-	(344,119,311)	(13,930,755)	(358,050,066)	74,874,808
Total All Funds	**$ 1,072,881,000**	**$ 268,591,000**	**$ 80,520,686**	**$ 1,421,992,686**	**$ (1,923,143,517)**	**$ (356,933,185)**	**$ (50,172,583)**	**$ (2,330,249,285)**	**$ (908,256,599)**

(a) Employer only contributions.

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the Month Ended June 30, 2019

	Contributions				**Expenditures**				**Net**
	Contributions EE and ER	State of Alaska	Other	Total Contributions	Benefits	Refunds & Disbursements	Administrative & Investment	Total Expenditures	**Contributions/ (Withdrawals)**
Public Employees' Retirement System (PERS)									
Defined Benefit Plans:									
Retirement Trust	$ 30,954,676	$ -	$ 230	$ 30,954,906	$ (71,365,127)	$ (584,489)	$ (615,493)	$ (72,565,109)	$ (41,610,203)
Retirement Health Care Trust	9,000,088	-	16,565,745	25,565,833	(34,984,965)	-	(2,831,148)	(37,816,113)	(12,250,280)
Total Defined Benefit Plans	39,954,764	-	16,565,975	56,520,739	(106,350,092)	(584,489)	(3,446,641)	(110,381,222)	(53,860,483)
Defined Contribution Plans:									
Participant Directed Retirement	13,711,103	-	-	13,711,103	-	(4,417,001)	(123,301)	(4,540,302)	9,170,801
Health Reimbursement Arrangement [(a)]	1,060,311	-	-	1,060,311	(7,855)	-	(9,028)	(16,883)	1,043,428
Retiree Medical Plan [(a)]	1,004,512	-	14,282	1,018,794	(22,270)	-	(5,201)	(27,471)	991,323
Occupational Death and Disability: [(a)]									
All Others	227,918	-	-	227,918	(8,799)	-	(487)	(9,286)	218,632
Peace Officers and Firefighters	114,589	-	-	114,589	(27,603)	-	(244)	(27,847)	86,742
Total Defined Contribution Plans	16,118,433	-	14,282	16,132,715	(66,527)	(4,417,001)	(138,261)	(4,621,789)	11,510,926
Total PERS	**56,073,197**	**-**	**16,580,257**	**72,653,454**	**(106,416,619)**	**(5,001,490)**	**(3,584,902)**	**(115,003,011)**	**(42,349,557)**
Teachers' Retirement System (TRS)									
Defined Benefit Plans:									
Retirement Trust	10,923,530	-	1,683	10,925,213	(39,152,071)	(14,720)	(284,646)	(39,451,437)	(28,526,224)
Retirement Health Care Trust	2,642,151	-	5,546,952	8,189,103	(10,900,768)	-	(1,057,097)	(11,957,865)	(3,768,762)
Total Defined Benefit Plans	13,565,681	-	5,548,635	19,114,316	(50,052,839)	(14,720)	(1,341,743)	(51,409,302)	(32,294,986)
Defined Contribution Plans:									
Participant Directed Retirement	8,970,231	-	-	8,970,231	-	(487,133)	(44,865)	(531,999)	8,438,232
Health Reimbursement Arrangement [(a)]	2,392,751	-	-	2,392,751	(1,705)	-	(2,715)	(4,420)	2,388,331
Retiree Medical Plan [(a)]	477,237	-	2,031	479,268	(5,274)	-	(1,727)	(7,001)	472,267
Occupational Death and Disability [(a)]	47,936	-	-	47,936	(2,024)	-	(81)	(2,105)	45,831
Total Defined Contribution Plans	11,888,155	-	2,031	11,890,186	(9,003)	(487,133)	(49,388)	(545,525)	11,344,661
Total TRS	**25,453,836**	**-**	**5,550,666**	**31,004,502**	**(50,061,842)**	**(501,853)**	**(1,391,131)**	**(51,954,827)**	**(20,950,325)**
Judicial Retirement System (JRS)									
Defined Benefit Plan Retirement Trust	477,466	-	-	477,466	(1,155,326)	-	(12,249)	(1,167,575)	(690,109)
Defined Benefit Retirement Health Care Trust	49,243	-	53,326	102,569	(109,796)	-	(10,464)	(120,260)	(17,691)
Total JRS	**526,709**	**-**	**53,326**	**580,035**	**(1,265,122)**	**-**	**(22,713)**	**(1,287,835)**	**(707,800)**
National Guard/Naval Militia Retirement System (NGNMRS)									
Defined Benefit Plan Retirement Trust [(a)]	-	-	-	-	(149,216)	-	(36,843)	(186,059)	(186,059)
Other Participant Directed Plans									
Supplemental Annuity Plan	14,931,381	-	-	14,931,381	-	(15,672,186)	(379,316)	(16,051,502)	(1,120,121)
Deferred Compensation Plan	2,134,546	-	-	2,134,546	-	(4,058,867)	(133,776)	(4,192,643)	(2,058,097)
Total All Funds	**99,119,668**	**-**	**22,184,249**	**121,303,917**	**(157,892,799)**	**(25,234,396)**	**-**	**(188,675,876)**	**(67,371,959)**
Total Non-Participant Directed	59,372,408	-	22,184,249	81,556,657	(157,892,799)	(599,209)	(4,867,423)	(163,359,431)	(81,802,774)
Total Participant Directed	39,747,260	-	-	39,747,260	-	(24,635,187)	(681,258)	(25,316,445)	14,430,815
Total All Funds	**$ 99,119,668**	**$ -**	**$ 22,184,249**	**$ 121,303,917**	**$ (157,892,799)**	**$ (25,234,396)**	**$ (5,548,681)**	**$ (188,675,876)**	**$ (67,371,959)**

(a) Employer only contributions.

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the Twelve Months Ending June 30, 2019

PARTICIPANT DIRECTED DISBURSEMENTS BY PLAN AND BY TYPE

	PERS DCR Plan	TRS DCR Plan	Supplemental Annuity Plan	Deferred Compensation	TOTAL	% of Total
Payment to Beneficiary	$ 15,727	$ -	$ 258,407	$ 186,852	$ 460,986	0.1%
Death Benefit	1,023,809	79,947	11,744,816	2,439,070	15,287,642	4.5%
Disability / Hardship	85,714	-	120,792	158,909	365,415	0.1%
Minimum Required Distribution	98,496	18,776	8,756,273	3,250,394	12,123,939	3.5%
Qualified Domestic Relations Order	902,873	15,001	5,038,303	612,046	6,568,223	1.9%
Separation from Service / Retirement	53,057,811	13,785,488	187,148,970	53,927,199	307,919,468	89.5%
Purchase of Service Credit	-	-	1,209,964	183,674	1,393,638	0.4%
Transfer to a Qualifying Plan	-	-	-	-	-	0.0%
TOTAL	$ 55,184,430	$ 13,899,212	$ 214,277,525	$ 60,758,144	$ 344,119,311	100.0%

Notes for the DRB Supplement to the Treasury Report

June 2019

This report is the DRB supplement to the Treasury Division's Financial Report. It expands their "Net Contributions (Withdrawals)" column into contributions and expenditures. It shows contributions received from both employees and employers, contributions from the State of Alaska, and other non-investment income. It also expands expenditures into benefits, refunds & disbursements, and administrative & investment expenditures. The net amount of total contributions and total expenditures, presented as "Net Contributions (Withdrawals)", agrees with the same column in the Treasury Division's Report. Page one shows the year-to-date totals for the first twelve months of Fiscal Year 2019, while page two shows only the month of June 2019.

Highlights – On page one, for the **twelve months** ending June 30, 2019:

- PERS DB Pension – Average employer and employee contributions of $30.7 million per month; benefit payments of approximately $70.4 million per month; refunds average $879 thousand; and Administrative and Investment expenditures of $579 thousand per month (DOR and DRB).
- PERS DB Healthcare – Average employer contributions of $8.6 million per month; other income of $23.3 million from Aetna Rx rebates (most recently received in June for 4th Quarter of CY2018), $9.0 million from OptumRx Rx rebates (most recently received in June for 1st Quarter of CY2019), $19.5 million from Medicare drug subsidy (most recently received in March for CY2017 Final True Up), and $5.8 million from monthly EGWP subsidies; benefit payments of approximately $37 million per month; and average Administrative and Investment expenditures of $1.5 million per month (DOR and DRB).
- PERS DC Pension – Average employer and employee contributions of $13.5 million per month; participant disbursements average $4.6 million per month; and average Administrative and Investment expenditures of $327 thousand per month (DOR and DRB).
- PERS DCR Health – For HRA, RMP, and OD&D, only employer contributions average $4.6 million per month on behalf of participating employees; benefit payments of approximately $69 thousand per month. Currently, 42 benefits are being paid from the Occupational Death & Disability plans, 34 retirees are participating in RMP, and 40 retirees are participating in HRA. Administrative and investment expenditures were approximately $19 thousand per month (DOR and DRB).
- TRS DB Pension - Average employer and employee contributions of $6 million per month; benefit payments of approximately $39.4 million per month; refunds average $189 thousand; and average Administrative and Investment expenditures of $300 thousand per month (DOR and DRB).
- TRS DB Healthcare – Average employer contributions of $1.5 million per month; other income of $8.0 million from Aetna Rx rebates (most recently received in June for 4th Quarter of CY2018), $3.0 million from OptumRx Rx rebates (most recently received in June for 1st Quarter of CY2019), $6.4 million from Medicare drug subsidy (most recently received in March for CY2017 Final True Up), and $2.1 million from monthly EGWP subsidies; benefit payments of approximately $12.1 million per month; and average Administrative and Investment expenditures of $565 thousand per month (DOR and DRB).

- TRS DC Pension – Average employer and employee contributions of $4.8 million per month; participant disbursements average $1.2 million per month; and average Administrative and investment expenditures of $121 thousand per month (DOR and DRB).
- TRS DCR Health – For HRA, RMP, and OD&D, only employer contributions average $1.3 million per month on behalf of participating employees; benefit payments of approximately $15 thousand per month. Currently, 10 benefits are being paid from the Occupational Death & Disability plans, 14 retirees are participating in RMP, and 13 retirees are participating in HRA. Administrative and investment expenditures were approximately $6 thousand per month (DOR and DRB).
- JRS Pension – Average employer and employee contributions of $497 thousand per month; benefit payments of approximately $1.1 million per month; and average Administrative and Investment expenditures of $10 thousand per month (DOR and DRB).
- JRS Healthcare – Average employer contributions of $51 thousand per month; other income of $68 thousand from Aetna Rx rebates (most recently received in June for 4th Quarter of CY2018), $33 thousand from OptumRx Rx rebates (most recently received in June for 1st Quarter of CY2019), $70 thousand from Medicare drug subsidy (most recently received in March for CY2017 Final True Up), and $18 thousand from monthly EGWP subsidies; benefit payments of approximately $94 thousand per month; and average Administrative and Investment expenditures of $5 thousand per month (DOR and DRB).
- NGNMRS – Annual contribution from DMVA in the amount of $852 thousand was received in July; combination of lump-sum and monthly benefit payments of $124 thousand per month; and average Administrative and Investment expenditures of $12 thousand per month (DOR and DRB).
- SBS – Average employer and employee contributions and transfers in of $14.2 million per month. Participant disbursements average of $17.9 million per month; and average Administrative and Investment expenditures of $560 thousand per month (DOR and DRB).
- Deferred Compensation – Average member-only contributions and transfers in of $3.7 million per month; participant disbursements average of $5.1 million per month; and average Administrative and Investment expenditures of $153 thousand per month (DOR and DRB).

Highlights – On page two, activity for the **one month** of June 2019 only:

- PERS DB Healthcare – Other income of $9.0 million from OptumRx Rx rebates (for 1st Quarter of CY2019), $5.2 million from Aetna Rx rebates (for 4th quarter CY2018), $2.3 million from EGWP subsidies.
- TRS DB Healthcare – Other income of $3.0 million from OptumRx Rx rebates (for 1st Quarter of CY2019), $1.7 million from Aetna Rx rebates (for 4th quarter CY2018), $822 thousand from EGWP subsidies.
- JRS DB Healthcare – Other income of $33 thousand from OptumRx Rx rebates (for 1st Quarter of CY2019), $13 thousand from Aetna Rx rebates (for 4th quarter CY2018), $7 thousand from EGWP subsidies.
- All other funds – Nothing significant to report

If you have any questions or comments, please let me know.

ALASKA RETIREMENT MANAGEMENT BOARD

FINANCIAL REPORT
(Supplement to the Treasury Division Report)

As of July 31, 2019

Prepared by the Division of Retirement & Benefits

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the One Month Ending July 31, 2019

	Contributions				**Expenditures**				**Net**
	Contributions EE and ER	State of Alaska	Other	Total Contributions	Benefits	Refunds & Disbursements	Administrative & Investment	Total Expenditures	**Contributions/ (Withdrawals)**
Public Employees' Retirement System (PERS)									
Defined Benefit Plans:									
Retirement Trust	$ 29,283,263	$ 159,055,000	$ 770	$ 188,339,033	$ (73,034,097)	$ (1,852,025)	$ (750,111)	$ (75,636,233)	$ 112,702,800
Retirement Health Care Trust	8,462,737	-	4,905,148	13,367,885	(40,646,692)	-	(619,570)	(41,266,262)	(27,898,377)
Total Defined Benefit Plans	37,746,000	159,055,000	4,905,918	201,706,918	(113,680,789)	(1,852,025)	(1,369,681)	(116,902,495)	84,804,423
Defined Contribution Plans:									
Participant Directed Retirement	13,788,136	-	-	13,788,136	-	(5,039,033)	(1,639,224)	(6,678,257)	7,109,879
Health Reimbursement Arrangement [(a)]	2,881,783	-	-	2,881,783	(12,592)	-	(17,929)	(30,521)	2,851,262
Retiree Medical Plan [(a)]	1,047,612	-	2,784	1,050,396	(20,117)	-	(5,472)	(25,589)	1,024,807
Occupational Death and Disability: [(a)]									
All Others	231,208	-	-	231,208	(8,992)	-	(1,000)	(9,992)	221,216
Peace Officers and Firefighters	125,099	-	-	125,099	(27,994)	-	(501)	(28,495)	96,604
Total Defined Contribution Plans	18,073,838	-	2,784	18,076,622	(69,695)	(5,039,033)	(1,664,126)	(6,772,854)	11,303,768
Total PERS	**55,819,838**	**159,055,000**	**4,908,702**	**219,783,540**	**(113,750,484)**	**(6,891,058)**	**(3,033,807)**	**(123,675,349)**	**96,108,191**
Teachers' Retirement System (TRS)									
Defined Benefit Plans:									
Retirement Trust	7,986,202	141,129,000	1,856	149,117,058	(40,338,546)	(249,044)	(383,719)	(40,971,309)	108,145,749
Retirement Health Care Trust	2,002,245	-	1,672,175	3,674,420	(12,602,802)	-	(238,442)	(12,841,244)	(9,166,824)
Total Defined Benefit Plans	9,988,447	141,129,000	1,674,031	152,791,478	(52,941,348)	(249,044)	(622,161)	(53,812,553)	98,978,925
Defined Contribution Plans:									
Participant Directed Retirement	6,953,995	-	-	6,953,995	-	(3,047,544)	(486,749)	(3,534,293)	3,419,702
Health Reimbursement Arrangement [(a)]	1,527,292	-	-	1,527,292	(4,903)	-	(5,369)	(10,272)	1,517,020
Retiree Medical Plan [(a)]	366,636	-	16	366,652	(6,437)	-	(1,828)	(8,265)	358,387
Occupational Death and Disability [(a)]	36,994	-	-	36,994	(2,025)	-	(163)	(2,188)	34,806
Total Defined Contribution Plans	8,884,917	-	16	8,884,933	(13,365)	(3,047,544)	(494,109)	(3,555,018)	5,329,915
Total TRS	**18,873,364**	**141,129,000**	**1,674,047**	**161,676,411**	**(52,954,713)**	**(3,296,588)**	**(1,116,270)**	**(57,367,571)**	**104,308,840**
Judicial Retirement System (JRS)									
Defined Benefit Plan Retirement Trust	475,729	5,010,000	-	5,485,729	(1,170,262)	-	(10,635)	(1,180,897)	4,304,832
Defined Benefit Retirement Health Care Trust	48,983	-	25,372	74,355	(93,772)	-	(2,772)	(96,544)	(22,189)
Total JRS	**524,712**	**5,010,000**	**25,372**	**5,560,084**	**(1,264,034)**	**-**	**(13,407)**	**(1,277,441)**	**4,282,643**
National Guard/Naval Militia Retirement System (NGNMRS)									
Defined Benefit Plan Retirement Trust [(a)]	860,686	-	-	860,686	(136,468)	-	(6,999)	(143,467)	717,219
Other Participant Directed Plans									
Supplemental Annuity Plan	20,404,355	-	-	20,404,355	-	(25,146,030)	(670,902)	(25,816,932)	(5,412,577)
Deferred Compensation Plan	5,370,797	-	-	5,370,797	-	(6,391,182)	(208,061)	(6,599,243)	(1,228,446)
Total All Funds	**101,853,752**	**305,194,000**	**6,608,121**	**413,655,873**	**(168,105,699)**	**(41,724,858)**	**(5,049,446)**	**(214,880,003)**	**198,775,870**
Total Non-Participant Directed	55,336,469	305,194,000	6,608,121	367,138,590	(168,105,699)	(2,101,069)	(2,044,510)	(172,251,278)	194,887,312
Total Participant Directed	46,517,283	-	-	46,517,283	-	(39,623,789)	(3,004,936)	(42,628,725)	3,888,558
Total All Funds	**$ 101,853,752**	**$ 305,194,000**	**$ 6,608,121**	**$ 413,655,873**	**$ (168,105,699)**	**$ (41,724,858)**	**$ (5,049,446)**	**$ (214,880,003)**	**$ 198,775,870**

(a) Employer only contributions.

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the Month Ended July 31, 2019

	Contributions				**Expenditures**				**Net**
	Contributions EE and ER	State of Alaska	Other	Total Contributions	Benefits	Refunds & Disbursements	Administrative & Investment	Total Expenditures	**Contributions/ (Withdrawals)**
Public Employees' Retirement System (PERS)									
Defined Benefit Plans:									
Retirement Trust	$ 29,283,263	$ 159,055,000	$ 770	$ 188,339,033	$ (73,034,097)	$ (1,852,025)	$ (750,111)	$ (75,636,233)	$ 112,702,800
Retirement Health Care Trust	8,462,737	-	4,905,148	13,367,885	(40,646,692)	-	(619,570)	(41,266,262)	(27,898,377)
Total Defined Benefit Plans	37,746,000	159,055,000	4,905,918	201,706,918	(113,680,789)	(1,852,025)	(1,369,681)	(116,902,495)	84,804,423
Defined Contribution Plans:									
Participant Directed Retirement	13,788,136	-	-	13,788,136	-	(5,039,033)	(1,639,224)	(6,678,257)	7,109,879
Health Reimbursement Arrangement [(a)]	2,881,783	-	-	2,881,783	(12,592)	-	(17,929)	(30,521)	2,851,262
Retiree Medical Plan [(a)]	1,047,612	-	2,784	1,050,396	(20,117)	-	(5,472)	(25,589)	1,024,807
Occupational Death and Disability: [(a)]									
All Others	231,208	-	-	231,208	(8,992)	-	(1,000)	(9,992)	221,216
Peace Officers and Firefighters	125,099	-	-	125,099	(27,994)	-	(501)	(28,495)	96,604
Total Defined Contribution Plans	18,073,838	-	2,784	18,076,622	(69,695)	(5,039,033)	(1,664,126)	(6,772,854)	11,303,768
Total PERS	**55,819,838**	**159,055,000**	**4,908,702**	**219,783,540**	**(113,750,484)**	**(6,891,058)**	**(3,033,807)**	**(123,675,349)**	**96,108,191**
Teachers' Retirement System (TRS)									
Defined Benefit Plans:									
Retirement Trust	7,986,202	141,129,000	1,856	149,117,058	(40,338,546)	(249,044)	(383,719)	(40,971,309)	108,145,749
Retirement Health Care Trust	2,002,245	-	1,672,175	3,674,420	(12,602,802)	-	(238,442)	(12,841,244)	(9,166,824)
Total Defined Benefit Plans	9,988,447	141,129,000	1,674,031	152,791,478	(52,941,348)	(249,044)	(622,161)	(53,812,553)	98,978,925
Defined Contribution Plans:									
Participant Directed Retirement	6,953,995	-	-	6,953,995	-	(3,047,544)	(486,749)	(3,534,293)	3,419,702
Health Reimbursement Arrangement [(a)]	1,527,292	-	-	1,527,292	(4,903)	-	(5,369)	(10,272)	1,517,020
Retiree Medical Plan [(a)]	366,636	-	16	366,652	(6,437)	-	(1,828)	(8,265)	358,387
Occupational Death and Disability [(a)]	36,994	-	-	36,994	(2,025)	-	(163)	(2,188)	34,806
Total Defined Contribution Plans	8,884,917	-	16	8,884,933	(13,365)	(3,047,544)	(494,109)	(3,555,018)	5,329,915
Total TRS	**18,873,364**	**141,129,000**	**1,674,047**	**161,676,411**	**(52,954,713)**	**(3,296,588)**	**(1,116,270)**	**(57,367,571)**	**104,308,840**
Judicial Retirement System (JRS)									
Defined Benefit Plan Retirement Trust	475,729	5,010,000	-	5,485,729	(1,170,262)	-	(10,635)	(1,180,897)	4,304,832
Defined Benefit Retirement Health Care Trust	48,983	-	25,372	74,355	(93,772)	-	(2,772)	(96,544)	(22,189)
Total JRS	**524,712**	**5,010,000**	**25,372**	**5,560,084**	**(1,264,034)**	**-**	**(13,407)**	**(1,277,441)**	**4,282,643**
National Guard/Naval Militia Retirement System (NGNMRS)									
Defined Benefit Plan Retirement Trust [(a)]	860,686	-	-	860,686	(136,468)	-	(6,999)	(143,467)	717,219
Other Participant Directed Plans									
Supplemental Annuity Plan	20,404,355	-	-	20,404,355	-	(25,146,030)	(670,902)	(25,816,932)	(5,412,577)
Deferred Compensation Plan	5,370,797	-	-	5,370,797	-	(6,391,182)	(208,061)	(6,599,243)	(1,228,446)
Total All Funds	**101,853,752**	**305,194,000**	**6,608,121**	**413,655,873**	**(168,105,699)**	**(41,724,858)**	**(5,049,446)**	**(214,880,003)**	**198,775,870**
Total Non-Participant Directed	55,336,469	305,194,000	6,608,121	367,138,590	(168,105,699)	(2,101,069)	(2,044,510)	(172,251,278)	194,887,312
Total Participant Directed	46,517,283	-	-	46,517,283	-	(39,623,789)	(3,004,936)	(42,628,725)	3,888,558
Total All Funds	**$ 101,853,752**	**$ 305,194,000**	**$ 6,608,121**	**$ 413,655,873**	**$ (168,105,699)**	**$ (41,724,858)**	**$ (5,049,446)**	**$ (214,880,003)**	**$ 198,775,870**

(a) Employer only contributions.

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the Month Ending July, 31 2019

PARTICIPANT DIRECTED DISBURSEMENTS BY PLAN AND BY TYPE

	PERS DCR Plan	TRS DCR Plan	Supplemental Annuity Plan	Deferred Compensation	TOTAL	% of Total
Payment to Beneficiary	$ 6,033	$ -	$ 25,758	$ 8,055	$ 39,845	0.1%
Death Benefit	24,107	3,134	2,451,974	5,032	2,484,247	6.3%
Disability / Hardship	34,131	-	294	6,213	40,638	0.1%
Minimum Required Distribution	5,476	2,564	703,010	198,239	909,289	2.3%
Qualified Domestic Relations Order	-	31,809	807,583	67,675	907,067	2.3%
Separation from Service / Retirement	4,969,287	3,010,037	21,107,270	6,068,222	35,154,815	88.7%
Purchase of Service Credit	-	-	50,141	37,747	87,888	0.2%
Transfer to a Qualifying Plan	-	-	-	-	-	0.0%
TOTAL	$ 5,039,033	$ 3,047,544	$ 25,146,030	$ 6,391,182	$ 39,623,789	100.0%

Notes for the DRB Supplement to the Treasury Report

July 2019

This report is the DRB supplement to the Treasury Division's Financial Report. It expands their "Net Contributions (Withdrawals)" column into contributions and expenditures. It shows contributions received from both employees and employers, contributions from the State of Alaska, and other non-investment income. It also expands expenditures into benefits, refunds & disbursements, and administrative & investment expenditures. The net amount of total contributions and total expenditures, presented as "Net Contributions (Withdrawals)", agrees with the same column in the Treasury Division's Report. Page one shows the year-to-date totals for the first one month of Fiscal Year 2020, while page two shows only the month of July 2019.

Highlights – On page one, for the **one month** ending July 31, 2019:

- PERS DB Pension – Average employer and employee contributions of $29.3 million per month; benefit payments of approximately $73 million per month; refunds average $1.9 million; and Administrative and Investment expenditures of $750 thousand per month (DOR and DRB).
- PERS DB Healthcare – Average employer contributions of $8.5 million per month; other income of $2.6 million from Aetna Rx rebates (most recently received in July for 1st Quarter CY2019), $1.0 million from Medicare drug subsidy (most recently received in July for CY2013) and $1.3 million from monthly EGWP subsidies; benefit payments of approximately $40.6 million per month; and average Administrative and Investment expenditures of $620 thousand per month (DOR and DRB).
- PERS DC Pension – Average employer and employee contributions of $13.8 million per month; participant disbursements average $5 million per month; and average Administrative and Investment expenditures of $1.6 million per month (DOR and DRB).
- PERS DCR Health – For HRA, RMP, and OD&D, only employer contributions average $4.3 million per month on behalf of participating employees; benefit payments of approximately $70 thousand per month. Currently, 48 benefits are being paid from the Occupational Death & Disability plans, 34 retirees are participating in RMP, and 41 retirees are participating in HRA. Administrative and investment expenditures were approximately $25 thousand per month (DOR and DRB).
- TRS DB Pension - Average employer and employee contributions of $8 million per month; benefit payments of approximately $40.3 million per month; refunds average $249 thousand; and average Administrative and Investment expenditures of $384 thousand per month (DOR and DRB).
- TRS DB Healthcare – Average employer contributions of $2 million per month; other income of $872 thousand from Aetna Rx rebates (most recently received in July for 1st Quarter CY2019), $340 thousand from Medicare drug subsidy (most recently received in July for CY2013) and $459 thousand from monthly EGWP subsidies; benefit payments of approximately $12.6 million per month; and average Administrative and Investment expenditures of $238 thousand per month (DOR and DRB).
- TRS DC Pension – Average employer and employee contributions of $7 million per month; participant disbursements average $3 million per month; and average Administrative and investment expenditures of $487 thousand per month (DOR and DRB).

- TRS DCR Health – For HRA, RMP, and OD&D, only employer contributions average $1.9 million per month on behalf of participating employees; benefit payments of approximately $13 thousand per month. Currently, 9 benefits are being paid from the Occupational Death & Disability plans, 12 retirees are participating in RMP, and 12 retirees are participating in HRA. Administrative and investment expenditures were approximately $7 thousand per month (DOR and DRB).
- JRS Pension – Average employer and employee contributions of $476 thousand per month; benefit payments of approximately $1.2 million per month; and average Administrative and Investment expenditures of $11 thousand per month (DOR and DRB).
- JRS Healthcare – Average employer contributions of $49 thousand per month; other income of $17 thousand from Aetna Rx rebates (most recently received in July for 1st Quarter CY2019), $4 thousand from Medicare drug subsidy (most recently received in July for CY2013) and $4 thousand from monthly EGWP subsidies; benefit payments of approximately $94 thousand per month; and average Administrative and Investment expenditures of $3 thousand per month (DOR and DRB).
- NGNMRS – Annual contribution from DMVA in the amount of $861 thousand was received in July; combination of lump-sum and monthly benefit payments of $136 thousand per month; and average Administrative and Investment expenditures of $7 thousand per month (DOR and DRB).
- SBS – Average employer and employee contributions and transfers in of $20.4 million per month. Participant disbursements average of $25.1 million per month; and average Administrative and Investment expenditures of $671 thousand per month (DOR and DRB).
- Deferred Compensation – Average member-only contributions and transfers in of $5.4 million per month; participant disbursements average of $6.4 million per month; and average Administrative and Investment expenditures of $208 thousand per month (DOR and DRB).

Highlights – On page two, activity for the **one month** of July 2019 only:

- PERS DB Pension – State of Alaska additional contributions of $159.1 million.
- PERS DB Healthcare – Other income of $2.6 million from OptumRx Rx rebates (for 1st Quarter of CY2019), $1.0 million from Aetna Rx rebates (for CY2013), $1.3 million from EGWP subsidies (for June 2019).
- TRS DB Pension – State of Alaska additional contributions of $141.1 million.
- TRS DB Healthcare – Other income of $872 thousand from OptumRx Rx rebates (for 1st Quarter of CY2019), $340 thousand from Aetna Rx rebates (for CY2013), $459 thousand from EGWP subsidies (for June 2019).
- JRS Pension – State of Alaska additional contributions of $5.0 million.
- JRS DB Healthcare – Other income of $17 thousand from OptumRx Rx rebates (for 1st Quarter of CY2019), $4 thousand from Aetna Rx rebates (for CY2013), $4 thousand from EGWP subsidies (for June 2019).
- NGNMRS – Annual contribution from DMVA in the amount of $861 thousand.
- All other funds – Nothing significant to report

If you have any questions or comments, please let me know.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: History of PERS / TRS Employer Contribution Rates

ACTION: ______

DATE: September 19, 2019

INFORMATION: X

Below is a history of employer contribution rates adopted by the Alaska Retirement Management Board for Fiscal Years 2012 through 2020, as well as the proposed FY 2021 contribution rates.

ARM BOARD ADOPTED RATES

	FY12 (a)	FY13	FY14 (b)	FY15 (b)	FY15 (c)	FY16	FY17	FY18	FY19 (d)	FY20	PROPOSED FY21
Public Employees' Retirement System (PERS)											
DB/DCR Employer Contribution Rate	33.49%	35.84%	35.68%	44.03%	31.90%	27.19%	26.14%	25.01%	27.58%	28.62%	30.85%
DCR - Retiree Medical Plan	0.51%	0.48%	0.48%	1.66%	1.66%	1.68%	1.18%	1.03%	0.94%	1.32%	1.27%
DCR - OD&D - All Others	0.20%	0.14%	0.20%	0.22%	0.22%	0.22%	0.17%	0.16%	0.26%	0.26%	0.31%
DCR - OD&D - P/F	0.97%	0.99%	1.14%	1.06%	1.06%	1.05%	0.49%	0.43%	0.76%	0.72%	0.70%
Teachers' Retirement System (TRS)											
DB Employer Contribution Rate	45.55%	52.67%	53.62%	70.75%	48.69%	29.27%	28.02%	26.78%	28.90%	30.47%	30.47%
DCR - Retiree Medical Plan	0.58%	0.49%	0.47%	2.04%	2.04%	2.04%	1.05%	0.91%	0.79%	1.09%	0.93%
DCR - OD&D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.08%	0.08%	0.08%

(a) Beginning in Fiscal Year 2012, the defined benefit employer contribution rates for both PERS and TRS incorporated the normal cost of the Defined Contribution Retirement Plan.

(b) As noted in the June 30, 2012 actuarial valuation reports, "The Board changed the amortization method used for funding from the level percentage of payroll method to the level dollar method in June 2012, effective June 30, 2012."

(c) During the FY 2014 legislative session, HB 385 enacted certain changes into law. In AS 37.10.220(a), item (a)(8)(B) was amended to define that "an appropriate contribution rate for liquidating the past service liability of the defined benefit retirement plan under AS 14.25.009 - 14.25.220 or the past service liability of the defined benefit retirement plan under AS 39.35.095 - 39.35.680 must be determined by a level percent of pay method based on amortization of the past service liability for a closed term of 25 years;"
The PERS DB and TRS DB Employer Contribution Rates for FY 2015 were updated to the level percentage of pay methodology from the previously determined rates that were prepared using the level dollar methodology, and have been done so going forward.

(d) Beginning in Fiscal Year 2019, employer contribution rates for plans which have no past service liability as determined by the actuarial valuation process will not reflect a contribution rate for liquidating past service liability under AS 37.10.220(a)(8)(B).

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: FY 21 PERS Employer Contribution Rate
Tier I - III

ACTION: X

DATE: September 19, 2019

INFORMATION:

BACKGROUND:

AS 37.10.220(a)(8) sets forth the responsibility of the Alaska Retirement Management Board (Board) to annually certify to each employer in the system contribution rates for normal costs and for liquidating any past service liability:

> *(8) coordinate with the retirement system administrator to have an annual actuarial valuation of each retirement system prepared to determine system assets, accrued liabilities, and funding ratios and to certify to the appropriate budgetary authority of each employer in the system*
>
> *(A) an appropriate contribution rate for normal costs; and*
>
> *(B) an appropriate contribution rate for liquidating any past service liability; in this subparagraph, the appropriate contribution rate for liquidating the past service liability of the defined benefit retirement plan under AS 14.25.009 - 14.25.220 or the past service liability of the defined benefit retirement plan under AS 39.35.095 - 39.35.680 must be determined by a level percent of pay method based on amortization of the past service liability for a closed term of 25 years;*

AS 39.35.270 requires that the amount of each Public Employees' Retirement System (PERS) employer's contribution to the system shall be determined by applying the employer's contribution rate, as certified by the Alaska Retirement Management Board (Board), to the total compensation paid to the active employee. Statutory employer contribution and additional state contribution are established under the following two sections of Alaska Statute:

Sec. 39.35.255. Contributions by employers. (a) Each employer shall contribute to the system every payroll period an amount calculated by applying a rate of 22 percent of the greater of the total of all base salaries

(1) paid by the employer to employees who are active members of the system, including any adjustments to contributions required by AS 39.35.520; or

(2) paid by the employer to employees who were active members of the system during the corresponding payroll period for the fiscal year ending June 30, 2008."

and:

Sec. 39.35.280. Additional state contributions. In addition to the contributions that the state is required to make under AS 39.35.255 as an employer, the state shall contribute to the plan each July 1 or, if funds are not available on July 1, as soon after July 1 as funds become available, an amount for the ensuing fiscal year that, when combined with the total employer contributions that the administrator estimates will be allocated under AS 39.35.255(c), is sufficient to pay the plan's past service liability at the contribution rate adopted by the board under AS 37.10.220 for that fiscal year.

STATUS:

The Division of Retirement & Benefits' actuary, Buck, has completed the FY 21 Allocation of the Additional State Contributions as shown in their letter dated August 28, 2019 based on the June 30, 2018 valuation report. This valuation report has been reviewed by the Board's actuary, Gabriel, Roeder, Smith & Co. (GRS)

The Actuarial Committee met September 18, 2019, and passed a motion recommending that the Board adopt Resolution 2019-07.

RECOMMENDATION:

That the Alaska Retirement Management Board set the Fiscal Year 2021 PERS actuarially determined contribution rate attributable to employers consistent with its fiduciary duty, as set out in the attached form of Resolution 2019-07.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2021 Employer Contribution Rate
For the Public Employees' Retirement System

Resolution 2019-07

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, AS 37.10.220(a)(8) requires the Board to coordinate with the retirement system administrator to conduct an annual actuarial valuation of each retirement system to determine system assets, accrued liabilities and funding ratios, and to certify to the appropriate budgetary authority of each employer in the system an appropriate contribution rate for normal costs and an appropriate contribution rate for liquidating any past service liability determined by a level percent of pay method based on amortization of the past service liability for a closed term of 25 years; and

WHEREAS, AS 39.35.255 establishes a statutory employer contribution rate of 22.00 percent and AS 39.35.280 requires additional state contribution to make up the difference between 22.00 percent and the actuarially determined contribution rate; and

WHEREAS, the Buck letter dated August 28, 2019 determines that the actuarially determined contribution rate for pension benefits is 20.66 percent composed of the normal cost rate of 2.88 percent and past service rate of 17.78 percent; and

WHEREAS, the Buck letter dated August 28, 2019 determines that the actuarially determined contribution rate for postemployment healthcare benefits is 4.27 percent composed of the normal cost rate of 3.82 percent and past service rate of 0.45 percent; and

WHEREAS, the Buck letter dated August 28, 2019 presents the employer rate incorporating the total cost of the Defined Contribution Retirement Plan of 5.92 percent;

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, that the Fiscal Year 2021 actuarially determined contribution rate attributable to employers participating in the Public Employees' Retirement System is set at 30.85 percent, composed of the contribution rate for defined benefit pension of 20.66 percent, the contribution rate for postemployment healthcare of 4.27 percent, and the contribution rate for defined contribution pension of 5.92 percent.

DATED at Juneau, Alaska this 19th day of September, 2019.

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Chair

ATTEST:

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Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: FY 2021 PERS Retiree Major Medical and Occupational Death & Disability

ACTION: X

DATE: September 19, 2019

INFORMATION:

BACKGROUND:

The Alaska Retirement Management Board (Board) establishes rates for the Public Employees' Retirement System (PERS) Defined Contribution Retirement Plan for the following plans: 1) Retiree Major Medical Insurance and 2) Occupational Death & Disability under the following two sections in Alaska Statute:

Retiree Major Medical Insurance
AS 39.35.750 (b) requires that "An employer shall also contribute an amount equal to a percentage, as adopted by the board, of each member's compensation from July 1 to the following June 30 to pay for retiree major medical insurance."

Occupational Death & Disability
AS 39.35.750 (e) requires that "An employer shall make annual contributions to the plan in an amount determined by the board to be actuarially required to fully fund the cost of providing occupational disability and occupational death benefits under AS 39.35.890 and 39.35.892. The contribution required under this subsection for peace officers and fire fighters and the contribution required under this subsection for other employees shall be separately calculated based on the actuarially calculated costs for each group of employees."

STATUS:

The Division of Retirement & Benefits' actuary, Buck, has completed the actuarial valuation of the PERS DCR Plan as of June 30, 2018. The valuation has been reviewed by the Board's actuary, Gabriel, Roeder, Smith & Co. (GRS).

According to the PERS Defined Contribution Retirement Plan actuarial valuation report, and confirmed by GRS, the Fiscal Year 2021 actuarially determined contribution rates attributable to employers for the Retiree Major Medical Insurance should be 1.27 percent; for the peace officer/firefighter Occupational Death & Disability benefit should be 0.70 percent; and for "all other" Occupational Death & Disability benefit should be 0.31 percent.

The Actuarial Committee met September 18, 2019, and passed a motion recommending that the Board adopt Resolutions 2019-08 and 2019-09

RECOMMENDATION:

That the Alaska Retirement Management Board set Fiscal Year 2021 PERS Defined Contribution Retirement Retiree Major Medical Insurance and Occupational Death & Disability Benefit rates as set out in the following resolutions:

1. Resolution 2019-08: Public Employees' Defined Contribution Retirement Plan Retiree Major Medical Insurance Rate

2. Resolution 2019-09: Public Employees' Defined Contribution Retirement Plan Occupational Death & Disability Benefit Rate

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2021 Employer Contribution Rate
For Public Employees' Defined Contribution Retirement Plan
Retiree Major Medical Insurance Rate

Resolution 2019-08

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, AS 37.10.220 requires the Board to coordinate with the retirement system administrator to conduct an annual actuarial valuation of each retirement system to determine system assets, accrued liabilities and funding ratios; and

WHEREAS, AS 39.35.750(b) requires the Board to approve an amount equal to a percentage of each member's compensation from July 1 to the following June 30 to pay for retiree major medical insurance; and

WHEREAS, the June 30, 2018 PERS Defined Contribution actuarial valuation report determines that the actuarially determined contribution rate for retiree major medical insurance is 1.27 percent, composed of the normal cost rate of 1.15 percent and past service rate of 0.12 percent;

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, the Fiscal Year 2021 employer contribution rate for the retiree major medical insurance for the Public Employees' Defined Contribution Retirement Plan is set at 1.27 percent.

DATED at Anchorage, Alaska this 19th day of September, 2019.

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Chair

ATTEST:

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Secretary

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2021 Employer Contribution Rate
For Public Employees' Defined Contribution Retirement Plan
Occupational Death & Disability Benefit Rates

Resolution 2019-09

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, AS 37.10.220 requires the Board to coordinate with the retirement system administrator to conduct an annual actuarial valuation of each retirement system to determine system assets, accrued liabilities and funding ratios; and

WHEREAS, AS 39.35.750(e) requires the Board to determine an actuarially sound amount required to fully fund the cost of providing occupational disability and occupational death benefits under AS 39.35.890 and 39.35.892, and that such contribution for peace officers and fire fighters, and the contribution for other employees shall be calculated separately; and

WHEREAS, the June 30, 2018 PERS Defined Contribution actuarial valuation report determines that the actuarially determined contribution rate for peace officer / firefighter occupational death & disability is 0.70 percent, which is the normal cost rate, and the actuarially determined contribution rate for "all other" is 0.31 percent, which is the normal cost rate; and

WHEREAS, there is no past service liability as determined by the annual actuarial valuation of the PERS Defined Contribution occupational death & disability, so no contribution rate for liquidating past service liability is appropriate under AS 37.10.220(a)(8)(B);

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, the Fiscal Year 2021 employer contribution rate for public employees' occupational death and disability benefit rate is set at 0.70 percent for peace officers / fire fighters, and at 0.31 percent for all other Public Employees' Defined Contribution Retirement Plan employees.

DATED at Anchorage, Alaska this 19th day of September, 2019.

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Chair

ATTEST:

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Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	FY 21 TRS Employer Contribution Rate Tier I - II	ACTION:	X
DATE:	September 19, 2019	INFORMATION:	

BACKGROUND:

AS 37.10.220(a)(8) sets forth the responsibility of the Alaska Retirement Management Board (Board) to annually certify to each employer in the system contribution rates for normal costs and for liquidating any past service liability:

> *(8) coordinate with the retirement system administrator to have an annual actuarial valuation of each retirement system prepared to determine system assets, accrued liabilities, and funding ratios and to certify to the appropriate budgetary authority of each employer in the system*
>
> *(A) an appropriate contribution rate for normal costs; and*
>
> *(B) an appropriate contribution rate for liquidating any past service liability; in this subparagraph, the appropriate contribution rate for liquidating the past service liability of the defined benefit retirement plan under AS 14.25.009 - 14.25.220 or the past service liability of the defined benefit retirement plan under AS 39.35.095 - 39.35.680 must be determined by a level percent of pay method based on amortization of the past service liability for a closed term of 25 years;*

AS 14.25.070 requires that the amount of each Teachers' Retirement System (TRS) employer's contribution to the system shall be determined by applying the employer's contribution rate, as certified by the Board, to the total compensation paid to the active employee. Statutory employer contribution and additional state contribution are established under the following two sections of Alaska Statute:

Sec. 14.25.070. Contributions by employers. (a) Each employer shall contribute to the system every payroll period an amount calculated by applying a rate of 12.56 percent to the total of all base salaries paid by the employer to active members of the system, including any adjustments to contributions required by AS 14.25.173(a).

and:

Sec. 14.25.085. Additional state contributions. In addition to the contributions that the state is required to make under AS 14.25.070 as an employer, the state shall contribute to the plan each July 1 or, if funds are not available on July 1, as soon after July 1 as funds become available, an amount for the ensuing fiscal year that, when combined with the total employer contributions that the administrator estimates will be allocated under AS 14.25.070(c), is sufficient to pay the plan's past service liability at the contribution rate adopted by the board under AS 37.10.220 for that fiscal year.

STATUS:

The Division of Retirement & Benefits' actuary, Buck, has completed the FY 21 Allocation of the Additional State Contributions as shown in their letter dated August 28, 2019 based on the June 30, 2018 valuation report. The TRS June 30, 2018 valuation report has been reviewed by the Board's actuary, Gabriel, Roeder, Smith & Co. (GRS).

The Actuarial Committee met September 18, 2019, and passed a motion recommending that the Board adopt Resolution 2019-10.

RECOMMENDATION:

That the Alaska Retirement Management Board set the Fiscal Year 2021 TRS actuarially determined contribution rate attributable to employers consistent with its fiduciary duty, as set out in the attached form of Resolution 2019-10.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2021 Employer Contribution Rate
For the Teachers' Retirement System

Resolution 2019-10

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, AS 37.10.220(a)(8) requires the Board to coordinate with the retirement system administrator to conduct an annual actuarial valuation of each retirement system to determine system assets, accrued liabilities and funding ratios, and to certify to the appropriate budgetary authority of each employer in the system an appropriate contribution rate for normal costs and an appropriate contribution rate for liquidating any past service liability determined by a level percent of pay method based on amortization of the past service liability for a closed term of 25 years; and

WHEREAS, AS 14.25.070 establishes a statutory employer contribution rate of 12.56 percent and AS 14.25.085 requires additional state contribution to make up the difference between 12.56 percent and the actuarially determined contribution rate; and

WHEREAS, the Buck letter dated August 28, 2019 determines that the actuarially determined contribution rate for pension benefits is 20.94 percent composed of the normal cost rate of 2.53 percent and past service rate of 18.41 percent; and

WHEREAS, the Buck letter dated August 28, 2019 determines that the actuarially determined contribution rate for postemployment healthcare benefits is 3.40 percent composed of the normal cost rate of 3.40 percent and past service rate of 0.00 percent; and

WHEREAS, the Buck letter dated August 28, 2019 presents the employer rate incorporating the total cost of the Defined Contribution Retirement Plan of 6.13 percent;

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, that the Fiscal Year 2021 actuarially determined contribution rate attributable to employers participating in the Teachers' Retirement System is set at 30.47 percent, composed of the contribution rate for defined benefit pension of 20.94 percent, the contribution rate for postemployment healthcare of 3.40 percent, and the contribution rate for defined contribution pension of 6.13 percent.

DATED at Juneau, Alaska this 19th day of September, 2019.

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Chair

ATTEST:

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Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: FY 2021 TRS Retiree Major Medical and Occupational Death & Disability

ACTION: X

DATE: September 19, 2019

INFORMATION:

BACKGROUND:

The Alaska Retirement Management Board (Board) establishes rates for the Teachers' Retirement System (TRS) Defined Contribution Retirement Plans for the following plans: 1) Retiree Major Medical Insurance and 2) Occupational Death & Disability under the following two sections in Alaska Statute:

Retiree Major Medical Insurance
AS 14.25.350 (b) requires that "An employer shall also contribute an amount equal to a percentage, as approved by the board, of each member's compensation from July 1 to the following June 30 to pay for retiree major medical insurance."

Occupational Death & Disability
AS 14.25.350 (e) requires that "An employer shall make annual contributions to a trust account in the plan, applied as a percentage of each member's compensation from July 1 to the following June 30, in an amount determined by the board to be actuarially required to fully fund the cost of providing occupational disability and occupational death benefits under AS 14.25.310 - 14.25.590."

STATUS:

The Division of Retirement & Benefits' actuary, Buck, has completed the actuarial valuation of the TRS DCR Plan as of June 30, 2018. The valuation has been reviewed by the Board's actuary, Gabriel, Roeder, Smith & Co. (GRS).

According to the TRS DCR Plan actuarial valuation report, and confirmed by GRS, the Fiscal Year 2021 actuarially determined contribution rate attributable to employers for the Retiree Major Medical Insurance should be 0.93 percent and for the Occupational Death & Disability Benefit should be 0.08 percent.

The Actuarial Committee met September 18, 2019, and passed a motion recommending that the Board adopt Resolutions 2019-11 and 2019-12.

RECOMMENDATION:

That the Alaska Retirement Management Board set Fiscal Year 2021 TRS Defined Contribution Retirement Plan Retiree Major Medical Insurance and Occupational Death & Disability Benefit rates as set out in the following resolutions:

1. Resolution 2019-11: Teachers' Defined Contribution Retirement Plan Retiree Major Medical Insurance Rate

2. Resolution 2019-12: Teachers' Defined Contribution Retirement Plan Occupational Death & Disability Benefit Rate

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2021 Employer Contribution Rate
For Teachers' Defined Contribution Retirement Plan
Retiree Major Medical Insurance Rate

Resolution 2019-11

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, AS 37.10.220 requires the Board to coordinate with the retirement system administrator to conduct an annual actuarial valuation of each retirement system to determine system assets, accrued liabilities and funding ratios; and

WHEREAS, AS 14.25.350(b) requires the Board to approve an amount equal to a percentage of each member's compensation from July 1 to the following June 30 to pay for retiree major medical insurance; and

WHEREAS, the June 30, 2018 TRS Defined Contribution actuarial valuation report determines that the actuarially determined contribution rate for retiree major medical insurance is 0.93 percent, which is the normal cost rate; and

WHEREAS, there is no past service liability as determined by the annual actuarial valuation of the TRS Defined Contribution retiree major medical insurance, so no contribution rate for liquidating past service liability is appropriate under AS 37.10.220(a)(8)(B);

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, the Fiscal Year 2021 employer contribution rate for the retiree major medical insurance for the Teachers' Defined Contribution Retirement Plan is set at 0.93 percent.

DATED at Juneau, Alaska this 19th day of September, 2019.

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Chair

ATTEST:

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Secretary

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2021 Employer Contribution Rate
For Teachers' Defined Contribution Retirement Plan
Occupational Death & Disability Benefit Rate

Resolution 2019-12

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, AS 37.10.220 requires the Board to coordinate with the retirement system administrator to conduct an annual actuarial valuation of each retirement system to determine system assets, accrued liabilities and funding ratios; and

WHEREAS, AS 14.25.350 (e) requires the Board to determine an actuarially sound amount required to fully fund the cost of providing occupational disability and occupational death benefits under AS 14.25.310 – 14.25.590; and

WHEREAS, the June 30, 2018 TRS Defined Contribution actuarial valuation report determines that the actuarially determined contribution rate for occupational death & disability is 0.08 percent, which is the normal cost rate; and

WHEREAS, there is no past service liability as determined by the annual actuarial valuation of the TRS Defined Contribution occupational death & disability, so no contribution rate for liquidating past service liability is appropriate under AS 37.10.220(a)(8)(B);

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, the Fiscal Year 2021 employer contribution rate for teachers' occupational death and disability benefit rate is set at 0.08 percent for all Teachers' Defined Contribution Retirement Plan employees.

DATED at Juneau, Alaska this 19th day of September, 2019.

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Chair

ATTEST:

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Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	FY 2021 Alaska National Guard and Naval Militia Contribution Amount	ACTION:	X
DATE:	September 19, 2019	INFORMATION:	

BACKGROUND:

AS 26.05.226 requires that "(a) The Department of Military and Veterans' Affairs (DMVA) shall contribute to the Alaska National Guard and Alaska Naval Militia retirement system the amounts determined by the Alaska Retirement Management Board as necessary to (1) fund the system based on the actuarial requirements of the system as established by the Alaska Retirement Management Board; and (2) administer the system. (b) The amount required for contributions from the Department of Military and Veterans' Affairs under (a) of this section shall be included in the annual appropriations made to the Department of Military and Veterans' Affairs."

STATUS:

The Division of Retirement & Benefits' (Division's) actuary, Buck, has completed the actuarial valuation of the Alaska National Guard and Naval Militia Retirement System (NGNMRS) as of June 30, 2018. The actuarial valuation has been reviewed by the Alaska Retirement Management Board's (Board's) actuary, Gabriel, Roeder, Smith & Co. (GRS) and then certified and accepted by the Board.

According to the NGNMRS June 30, 2018 actuarial valuation report, and confirmed by GRS, the Fiscal Year 2021 actuarially determined contribution amount should be $725,551, consisting of the normal cost of $483,551 and expense load of $242,000. There is no past service liability, and thus no contribution amount for liquidating past service liability is appropriate under AS 37.10.220(a)(8)(B).

The Actuarial Committee met September 18, 2019, and passed a motion recommending that the Board adopt Resolution 2019-13 setting the FY 2021 NGNMRS contribution amount at $725,551.

RECOMMENDATION:

That the Alaska Retirement Management Board set the Fiscal Year 2021 NGNMRS annual contribution amount consistent with its fiduciary duty, as set out in the attached form of Resolution 2019-13.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2021 Contribution Amount
For the Alaska National Guard and Naval Militia Retirement System

Resolution 2019-13

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, AS 37.10.220(a)(8) requires the Board to coordinate with the retirement system administrator to conduct an annual actuarial valuation of each retirement system to determine system assets, accrued liabilities and funding ratios, and to certify to the appropriate budgetary authority of each employer in the system an appropriate contribution rate for normal costs and an appropriate contribution rate for liquidating any past service liability; and

WHEREAS, the June 30, 2018 Alaska National Guard and Naval Militia Retirement System actuarial valuation report determines that the actuarially determined contribution amount is $725,551, composed of the normal cost of $483,551, and expense load cost of $242,000; and

WHEREAS, there is no past service liability as determined by the actuarial valuation of the Alaska National Guard and Naval Militia Retirement System, so no contribution amount for liquidating past service liability is appropriate under AS 37.10.220(a)(8)(B);

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, that the Fiscal Year 2021 contribution amount for the State of Alaska, Department of Military and Veterans' Affairs to the Alaska National Guard and Naval Militia Retirement System is set at $725,551.

DATED at Anchorage, Alaska this 19th day of September, 2019.

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Chair

ATTEST:

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Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: FY 2021 JRS Employer Contribution Rate

ACTION: ________

DATE: September 19, 2019

INFORMATION: X

BACKGROUND:

AS 22.25.046 states in part that:

(a) The state court system shall contribute to the judicial retirement system at the rate established by the commissioner of administration. The contribution rate shall be based on the results of an actuarial valuation of the judicial retirement system. The results of the actuarial valuation shall be based on actuarial methods and assumptions adopted by the commissioner of administration.

(b) The contribution rate shall be a percentage which, when applied to the covered compensation of all active members of the judicial retirement system, will generate sufficient money to support, along with contributions from members, the benefits of the judicial retirement system.

(c) Employer contributions shall be separately computed for benefits provided by AS 22.25.090 and shall be deposited in the Alaska retiree health care trust established under AS 39.30.097(a)."

STATUS:

The Division of Retirement & Benefits' (Division's) actuary, Buck, has completed the actuarial valuation of the Alaska Judicial Retirement System (JRS) as of June 30, 2018. The actuarial valuation has been reviewed by the Alaska Retirement Management Board's (Board's) actuary, Gabriel, Roeder, Smith & Co. (GRS) and then certified and accepted by the Board.

According to page 5 of the JRS actuarial valuation as of June 30, 2018, the recommended Fiscal Year 2021 employer contribution rate is 83.94 percent based on the following table:

	Pension	Post-employment Health Care	Total
Normal Cost Rate	42.04%	6.12%	48.16%
Past Service Cost Rate	35.78%	-6.45%	35.78%
Total Employer Contribution Rate	77.82%	6.12%	83.94%

The Alaska Legislature has established operating budget language that explicitly addresses JRS past service costs separate from the normal costs. Normal costs as a percentage are charged to the Alaska Court System's operating budget and past service cost in dollars is funded separately in retirement section language like PERS and TRS. The computed JRS Past Service Contribution amount is $5,145,000 as shown on page 2 of the Buck letter dated August 28, 2019. The contribution amount should be reflected in the operating budget language section and should be deposited in the JRS pension benefit trust during FY 2021.

ALASKA RETIREMENT MANAGEMENT BOARD

Portfolio Transition

Steve Sikes, CFA
Victor Djajalie, CFA
Casey Colton, CFA

September 19-20, 2019

Key Board Decisions

Determine Investment Objective

- Fund's Purpose
- Governance – who makes which decisions?

Determine Asset Allocation

- Strategic
- Tactical

Oversee Implementation

- Manager Structure – number and types of manager allocations.
- Manager Selection

Monitor Results

- Are the fund, asset classes and mandates performing as expected?
- Are they achieving objectives?

Summary of June Board Meeting

FY20 Asset Allocation approved. Significant changes to asset allocation:

- 13% increase in Fixed Income/Cash from 11% to 24%
- Absolute Return eliminated

Significant changes to Manager Structure

- 27 accounts eliminated across asset classes
- Portable Alpha program eliminated
- Broad Domestic Equity entirely passive and factor based approaches

Asset Allocation

Fiscal Year 2020 Asset Allocation

ARMB Target Defined Benefit Asset Allocation			
PERS/TRS/JRS	**FY19**	**FY20**	**Change**
Broad Domestic Equity	24%	26%	2%
Global Equity Ex-US	22%	18%	-4%
Fixed Income/Cash	11%	24%	13%
Real Assets	17%	13%	-4%
Private Equity	9%	11%	2%
Absolute Return	7%	0%	-7%
Opportunistic	10%	8%	-2%
Total	100%	100%	0%

Fiscal Year 2020 Actual vs. Target

Portfolio in compliance with FY20 target asset allocation

ARMB FY20 Actual vs Target Allocation as of Aug 30, 2019				
PERS Pension	**Actual**	**FY20 Target**	**Difference**	**+/- AA Band**
Broad Domestic Equity	26.6%	26%	0.6%	6%
Global Equity Ex-US	18.4%	18%	0.4%	4%
Fixed Income	24.7%	24%	0.7%	6%
Real Assets	13.1%	13%	0.1%	7%
Private Equity	10.9%	11%	-0.1%	6%
Absolute Return	0.0%	0%	0.0%	0%
Opportunistic	6.3%	8%	-1.7%	4%
Total	100%	100%	0%	

Net Change in Asset Classes from Portfolio Transition

Net Change in Asset Classes from Portfolio Transition			
($ millions)	**Total**	**External**	**Internal**
Broad Domestic Equity	1,022	1,047	(25)
Global Equity Ex-US	(676)	(675)	(1)
Fixed Income	3,069	1,270	1,799
Real Assets	(928)	(927)	(2)
Private Equity	-	-	-
Absolute Return	(1,538)	-	(1,538)
Opportunistic	(949)	(715)	(234)
Total	**-**	**-**	**-**

External – Net transactions that involved open market execution

Internal – Net transactions that were effected through internal accounting transfers at no cost

Manager Structure Changes

Manager Structure Changes

Transition Strategy

- Managed transition to FY20 Asset Allocation and Equity/Fixed income policy benchmark "betas." High level of coordination required across investment teams.
- Trading executed by internal equity and fixed income teams where prudent to do so. This provided an efficient way to maintain equity exposure during transitions. External managers employed where unique trading experience and knowledge required.
- Transition accounts used to consolidate holdings and create crossing opportunities where possible.
- Cash used to bridge market exposure when settlement conventions would otherwise create gap in market exposure.
- Due to liquidity constraints, several mandate specific transitions were designed with extended executions (MLPs, Portable Alpha (small cap), Micro Cap, STOXX Minimum Variance).

Manager Structure Changes

Broad Domestic Equity

Terminated:
- Lazard Domestic Equity
- ARMB Equity Yield
- ARMB Russell 1000 Growth
- ARMB Russell 1000 Value
- ARMB Russell 200
- ARMB S&P 500 Equal Weight
- Portable Alpha
- 6 Active Small Cap Managers
- 3 Micro Cap Managers

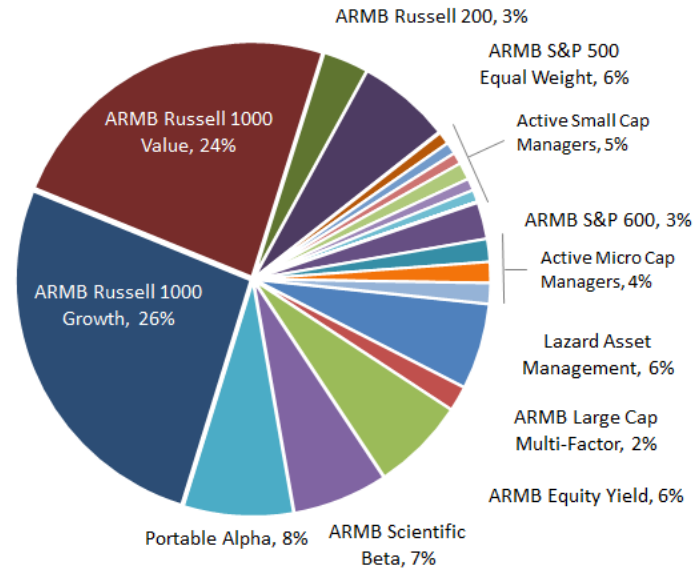
Added/Increased:
- S&P 900
- Scientific Beta
- S&P 600

Manager Structure Changes

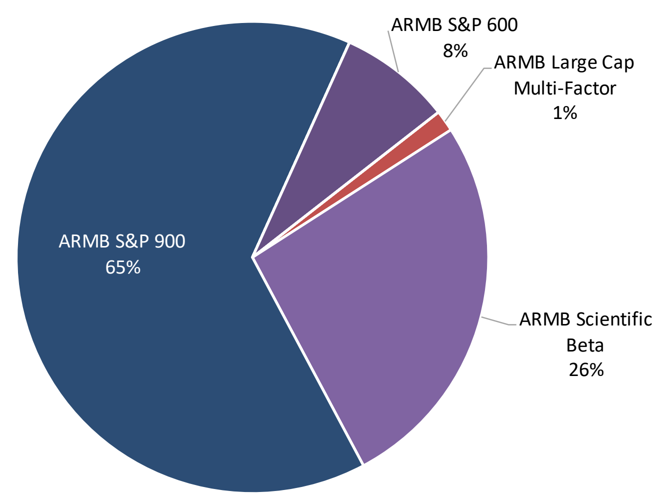
Fund	Manager	6/30/2019 Net Asset Value	8/30/2019 Net Asset Value	Difference
AY47	Lazard Asset Management	363,483,509	(2,973)	(363,486,483)
AYK4	ARMB Large Cap Multi-Factor	105,329,468	104,385,300	(944,168)
AY5E	ARMB Equity Yield	397,822,504	5,318	(397,817,186)
AYLM	ARMB Scientific Beta	403,976,761	1,881,346,542	1,477,369,781
AYG2	Portable Alpha	465,552,018	(142,591)	(465,694,609)
AY30	Large Cap Transition Account	6,558	375	(6,183)
	Domestic Large Cap - Active	**1,736,170,819**	**1,985,591,972**	**249,421,153**
				-
AY4L	S&P900 (was ARMB Russell 1000 Growth)	1,633,073,748	4,616,622,752	2,983,549,004
AY4M	ARMB Russell 1000 Value	1,462,238,354	(5,213)	(1,462,243,567)
AY4R	ARMB Russell 200	192,773,199	(5,225)	(192,778,424)
AYLN	ARMB S&P 500 Equal Weight	396,071,709	(4,881)	(396,076,591)
AY6B	SSgA Futures Large Cap	4,085,873	7,243	(4,078,629)
	Domestic Large Cap - Passive	**3,688,242,883**	**4,616,614,676**	**928,371,793**
				-
	Large Cap Pool	**5,424,413,702**	**6,602,206,648**	**1,177,792,945**
				-
AYLE	ArrowMark Small Cap Growth	52,623,434	-	(52,623,434)
AYLD	BMO Global Asset Management	49,939,200	-	(49,939,200)
AY5G	Frontier Capital Management	48,755,801	-	(48,755,801)
AY4G	Jennison Associates, LLC	72,135,702	-	(72,135,702)
AYLF	T. Rowe Small Cap Growth	50,735,401	-	(50,735,401)
AY5H	Victory Capital Management	51,027,185	-	(51,027,185)
AY43	Small Cap Transition Account	-	179,365	179,365
	Domestic Small Cap - Active	**325,216,723**	**179,365**	**(325,037,357)**
				-
AY4N	SSgA Russell 2000 Growth	5,630	5,681	51
AY4P	SSgA Russell 2000 Value	7,328	7,378	50
AY6A	SSgA Futures Small Cap	4,074,039	7,163	(4,066,876)
AYKX	ARMB S&P 600	154,667,363	550,352,189	395,684,825
	Domestic Small Cap - Passive	**158,754,360**	**550,372,411**	**391,618,051**
				-
AY4Z	Lord Abbett Micro Cap	96,307,863	-	(96,307,863)
AY4E	Deprince, Race & Zollo Micro Cap	88,234,466	-	(88,234,466)
AYKW	Zebra Capital Management	86,942,865	18	(86,942,847)
	Domestic Micro Cap	**271,485,195**	**18**	**(271,485,177)**
				-
	Small Cap Pool	**755,456,278**	**550,551,794**	**(204,904,483)**
				-
	Broad Domestic Equity	**6,179,869,980**	**7,152,758,442**	**972,888,462**

Broad Domestic Equity

Broad Domestic Equity as of June 30, 2019

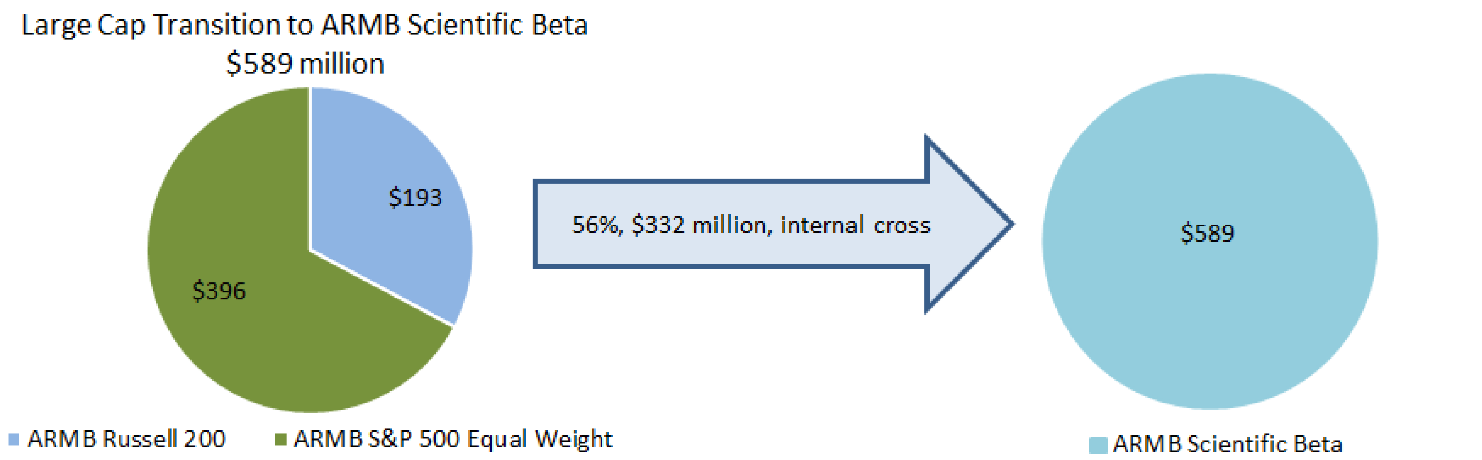


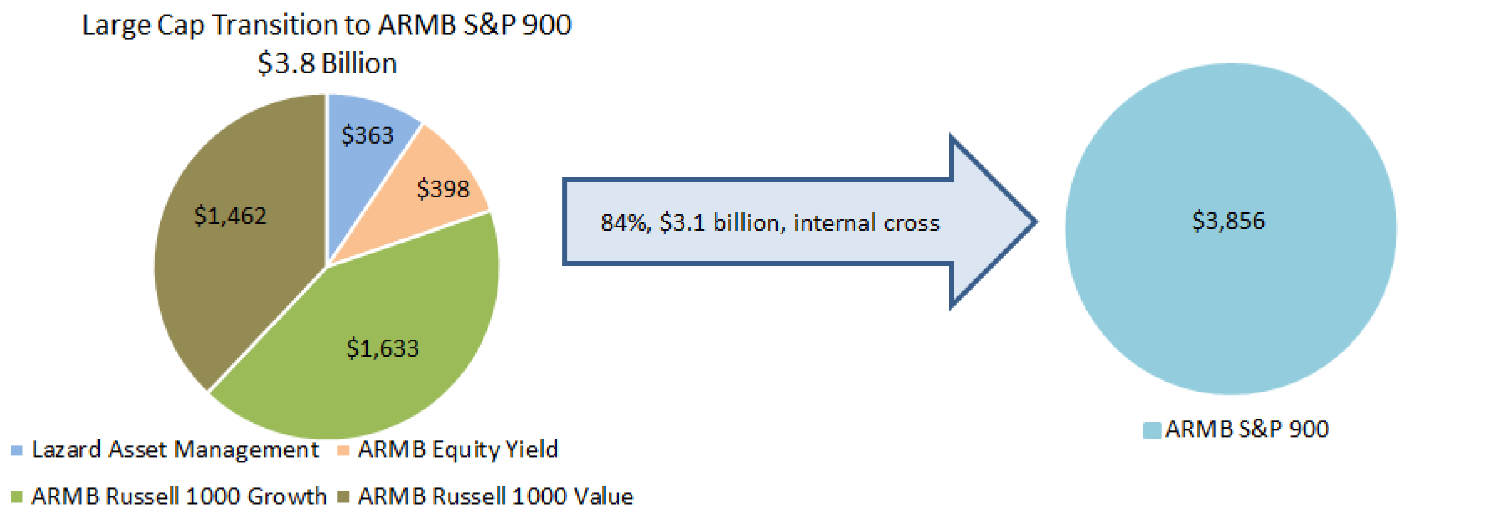
Broad Domestic Equity as of August 30, 2019



Manager Structure Changes

- Internal crossing used where practical





Manager Structure Changes

Futures related investment strategies have been wound down:

Portable Alpha

- The Portable Alpha program consisted of a basket of:
  - Long S&P 500 E-mini futures
  - Short Russell 2000 E-mini futures
  - Long actively managed small cap stocks

- The investment strategy was valued at ~$640MM prior to liquidation.
  - Futures positions were closed simultaneous with the liquidation of small cap stocks in 4 phases over a 4 week period.
  - Assets were transitioned into large cap domestic equity stocks.

Cash Equitization

- Staff managed a cash equitization program that invested ~70% of cash in domestic equity accounts in S&P 500 E-mini futures and Russell 2000 E-mini futures.

- Futures related positions valued at $28.9 million were sold and the program has been discontinued due to the lower cash levels anticipated from passive and factor based strategies.

Manager Structure Changes

Global Equity Ex-US

No structural changes were approved by ARMB at June board meeting.

Assets were sold as a result of reduced asset class allocation from 22% to 18%. These reductions were made across existing mandates.

Separately, a $200 million mandate with Legal & General for a Scientific Beta international developed market mandate was funded.

Private Equity

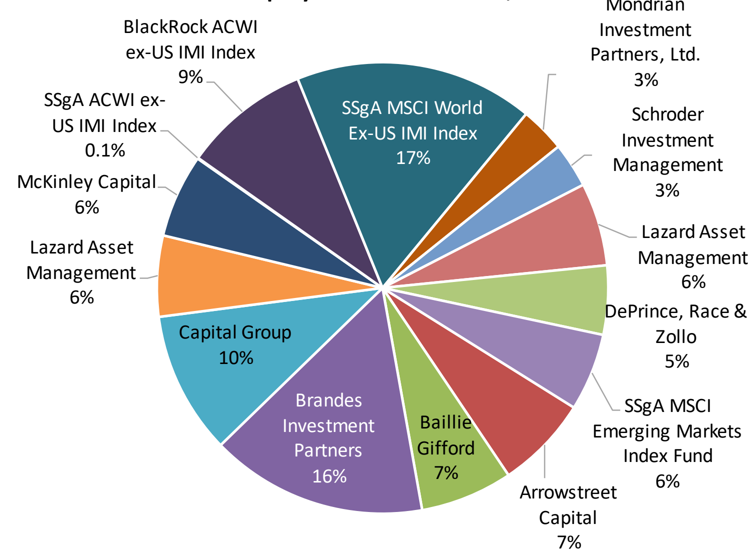
No structural changes were approved by ARMB at June Board meeting.

Manager Structure Changes

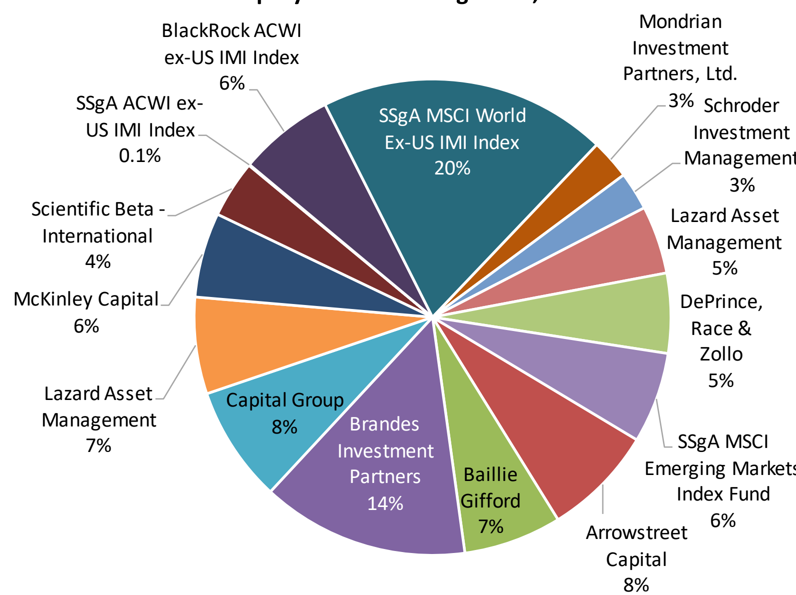
		6/30/2019 Net Asset Value	8/30/2019 Net Asset Value	Difference
AYLP	Allianz - NFJ	133,599	129,879	(3,720)
AYLQ	Arrowstreet Capital	391,924,215	374,858,254	(17,065,961)
AYLR	Baillie Gifford	387,825,423	329,699,040	(58,126,383)
AY65	Brandes Investment Partners	911,869,305	697,559,302	(214,310,004)
AY67	Capital Group	598,834,053	390,769,054	(208,064,999)
AY58	Lazard Asset Management	339,794,019	325,305,697	(14,488,322)
AY69	McKinley Capital	350,214,826	285,351,571	(64,863,256)
AYLS	Scientific Beta - International	-	193,007,608	193,007,608
	Developed International - Active	**2,980,595,441**	**2,596,680,404**	**(383,915,037)**
AY68	SSgA ACWI ex-US IMI Index	3,324,751	3,312,449	(12,302)
AY6U	BlackRock ACWI ex-US IMI Index	533,157,891	321,329,392	(211,828,498)
AYL7	SSgA MSCI World Ex-US IMI Index	1,003,938,538	968,675,920	(35,262,618)
	Developed International - Passive	**1,540,421,180**	**1,293,317,762**	**(247,103,418)**
AY5B	Mondrian Investment Partners, Ltd.	190,086,661	134,020,257	(56,066,403)
AY5D	Schroder Investment Management	188,744,662	128,674,464	(60,070,198)
	International Small Cap	**378,831,323**	**262,694,721**	**(116,136,602)**
	Developed International Equity Pool	**4,899,847,944**	**4,152,692,887**	**(747,155,057)**
AY6P	Lazard Asset Management	348,855,404	228,835,979	(120,019,425)
AYLG	DePrince, Race & Zollo	290,154,806	268,765,775	(21,389,031)
AYLB	SSgA MSCI Emerging Markets Index Fund	325,288,608	305,700,828	(19,587,780)
	Emerging Markets Equity Pool	**964,298,818**	**803,302,582**	**(160,996,236)**
	Global Equity ex-US	**5,864,146,762**	**4,955,995,469**	**(908,151,293)**

Global Equity Ex-US

Global Equity Ex-US as of June 30, 2019



Global Equity Ex-US as of August 30, 2019



Manager Structure Changes

Opportunistic

Asset class is underweight target by -1.7%. Risk Parity and/or other multi-asset strategies will be considered to address underweight.

Terminated:

- Analytic Buy/Write – covered calls
- ARMB STOXX Minimum Variance
- Mondrian Investment Partners – international fixed income
- Western Asset Management – taxable municipal bonds
- MacKay Shields – high yield

Transferred to Fixed Income:

- Fidelity Tactical Bond
- Fidelity Real Estate High Income

Transferred from Absolute Return:

- Man Group Alternative Risk Premia
- JPMorgan Systematic Beta

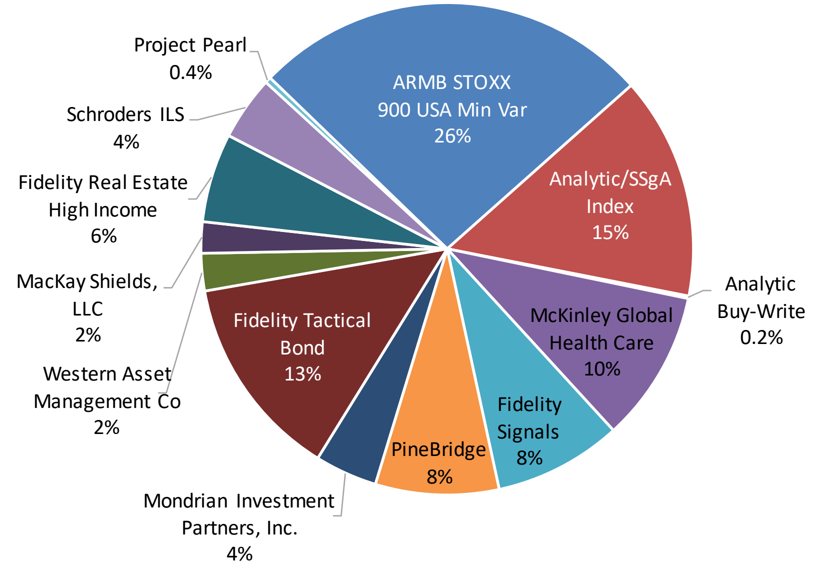
Manager Structure Changes

		6/30/2019 Net Asset Value	8/30/2019 Net Asset Value	Difference
AYKY	ARMB STOXX 900 USA Min Var	681,608,237	18,399	(681,589,838)
AY4W	Analytic/SSgA Index	380,603,141	(71,587)	(380,674,728)
AY4X	Analytic Buy-Write	4,335,901	(134,045)	(4,469,945)
AY5N	McKinley Global Health Care	258,972,671	250,214,681	(8,757,991)
	Alternative Equity Strategies	**1,325,519,950**	**250,027,449**	**(1,075,492,501)**
AY1W	Fidelity Signals	218,549,428	406,888,590	188,339,162
AY1X	PineBridge	210,730,418	398,423,937	187,693,519
	Tactical Allocation Strategies	**429,279,847**	**805,312,527**	**376,032,681**
AY63	Mondrian Investment Partners, Inc. (1)	106,480,077	-	(106,480,077)
AY1F	Fidelity Tactical Bond (2)	349,439,945	-	(349,439,945)
AY1D	Western Asset Management Co (1)	63,932,448	-	(63,932,448)
AY9P	MacKay Shields, LLC (1)	53,427,704	-	(53,427,704)
AYRP	Fidelity Real Estate High Income (2)	152,094,422	-	(152,094,422)
	Opportunistic Fixed Income	**725,374,597**	**-**	**(725,374,597)**
AYLU	Zebra Global Equity Fund (3)	-	3,903,353	3,903,353
AYLV	Zebra Global Equity Advantage Fund (3)	-	1,990,959	1,990,959
AYL2	Man Group Alternative Risk Premia (4)	-	331,121,191	331,121,191
AYL3	JP Morgan Systematic Alpha (4)	-	172,442,008	172,442,008
	Alternative Beta	**-**	**509,457,511**	**509,457,511**
AY1H	Schroders ILC	109,511,490	84,526,725	(24,984,765)
AY1J	Project Pearl	10,290,795	10,006,309	(284,486)
	Other Opportunities	**119,802,285**	**94,533,034**	**(25,269,251)**
	Opportunistic	**2,599,976,678**	**1,659,330,521**	**(940,646,157)**

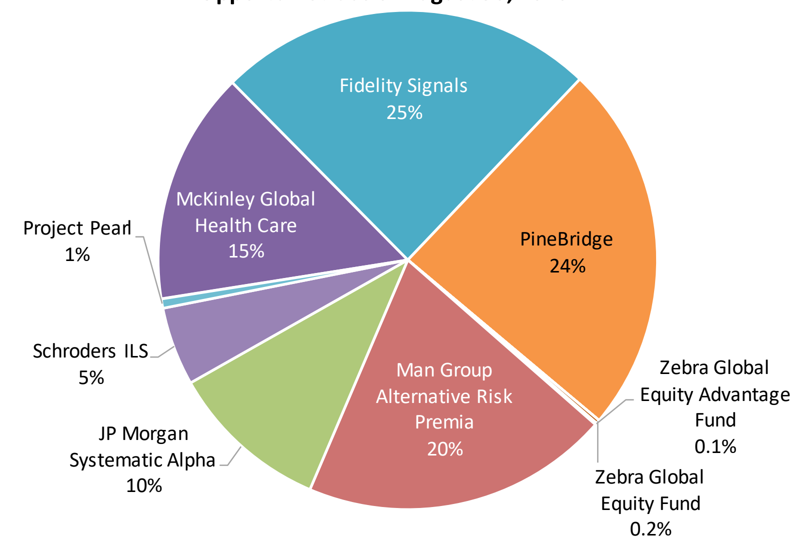
(1) Account transferred to Fixed Income. Terminated.
(2) Account transferred to Fixed Income. Not terminated.
(3) Account transferred from Absolute Return. Terminated.
(4) Account transferred from Absolute Return. Not terminated.

Opportunistic

Opportunistic as of June 30, 2019



Opportunistic as of August 30, 2019



Manager Structure Changes

Absolute Return

Asset class eliminated

Terminated:

- Zebra Global Equity Fund
- Zebra Global Equity Advantage Fund
- Prisma Capital Partners – transferred to Fixed Income while winding down

Transferred to Fixed Income:

- Crestline Investors, LLC
- Crestline Special Lending Fund
- Crestline Specialty Lending Fund II

Transferred to Opportunistic:

- Man Group Alternative Risk Premia
- JPMorgan Systematic Beta

Manager Structure Changes

Real Assets

REITS reduced to accommodate lower asset class allocation

Terminated:

- Brookfield Infrastructure
- Lazard Infrastructure
- Advisory Research MLP
- Tortoise MLP

Manager Structure Changes

Fixed Income/Cash

Asset class increased from 11% to 24%.

Transferred from Opportunistic:
- Fidelity Tactical Bond
- Fidelity Real Estate High Income

Transferred from Absolute Return:
- Crestline Investors, LLC
- Crestline Special Lending Fund
- Crestline Specialty Lending Fund II
- Prisma Capital Partners – transferred to Fixed Income while winding down

Strategy Change:
- U.S. core bond investment transitioning from Bloomberg Barclays Intermediate Treasury portfolio to Bloomberg Barclays Aggregate portfolio.

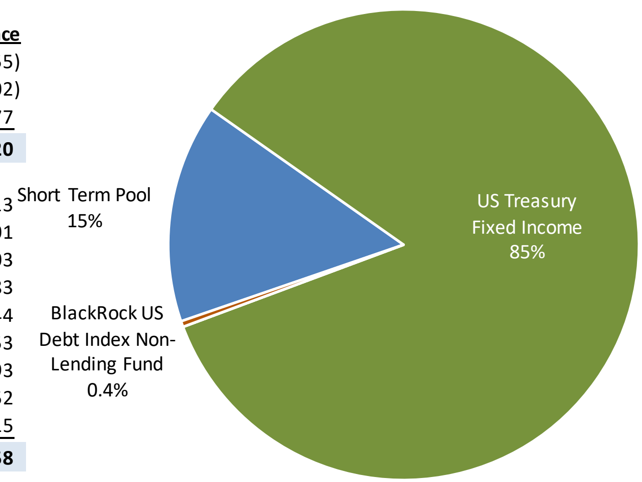
Manager Structure Changes

Fixed Income

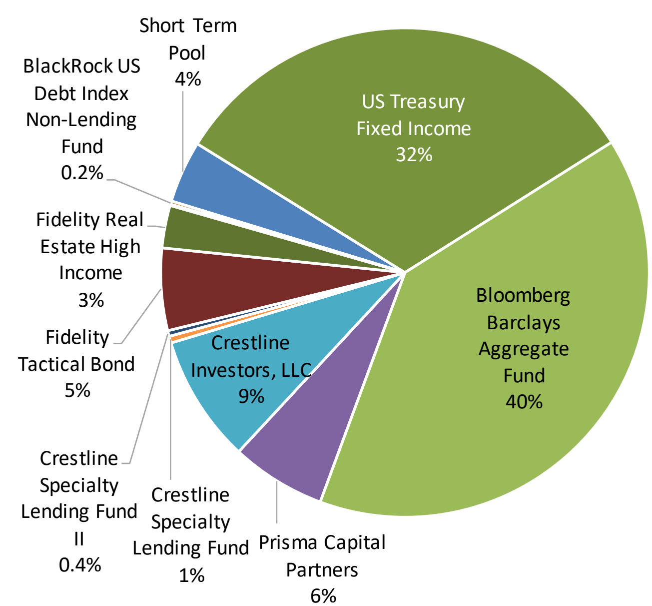
		6/30/2019 Net Asset Value	8/30/2019 Net Asset Value	Difference
AY70	Short Term Pool	498,795,559	269,877,604	(228,917,955)
AY1A	US Treasury Fixed Income	2,805,599,788	2,121,770,086	(683,829,702)
AY77	Bloomberg Barclays Aggregate Fund	-	2,605,713,377	2,605,713,377
	Internal Fixed Income	**3,304,395,347**	**4,997,361,066**	**1,692,965,720**
AY8N	Prisma Capital Partners (1)	-	412,983,513	412,983,513
AY9F	Crestline Investors, LLC (2)	-	555,275,801	555,275,801
AYLX	Crestline Specialty Lending Fund (2)	-	29,394,303	29,394,303
AYLZ	Crestline Specialty Lending Fund II (2)	-	24,907,083	24,907,083
AY1F	Fidelity Tactical Bond (4)	-	357,558,044	357,558,044
AYRP	Fidelity Real Estate High Income (4)	-	185,203,453	185,203,453
AY9P	MacKay Shields, LLC (3)	-	5,914,793	5,914,793
AY63	Mondrian Investment Partners, Inc. (3)	-	69,152	69,152
AY1N	BlackRock US Debt Index Non-Lending Fund	13,205,103	13,577,519	372,415
	External Fixed Income	**13,205,103**	**1,584,883,662**	**1,571,678,558**
	Fixed Income	**3,317,600,450**	**6,582,244,728**	**3,264,644,278**

(1) Account transferred from Absolute Return. Terminated.
(2) Account transferred from Absolute Return. Not terminated.
(3) Account transferred from Opportunistic. Terminated.
(4) Account transferred from Opportunistic. Not terminated.

Fixed Income as of June 30, 2019



Fixed Income as of August 30, 2019



Evaluation

- Unofficial FY20 performance of the plans is consistent with the policy benchmarks suggesting execution transition friction was reasonable. As of August 30, estimated FYTD performance:
  - PERS Total Fund .04%
  - PERS Total Fund Policy Benchmark -.03%
- Most of the asset class transition was completed prior to the onset of August volatility.
- Transition benefitted from capabilities of internal equity and fixed income.
- Good coordination between investment and accounting staff.
- State Street Bank and NRS made significant changes to accounting structure and processed a high volume of transfers without significant issue.

Fixed Income

Fixed Income Overview

- ARMB approved broadening the mandate for internally managed fixed income portfolio from a mainly U.S. Treasury mandate to a broader fixed income mandate. A new account was created to facilitate this transition.
- U.S. Intermediate Treasury portfolio (AY1A) is benchmarked against Bloomberg Barclays Intermediate Treasury Index.
- ARMB Barclays Aggregate portfolio (AY77) is benchmarked against Bloomberg Barclays Aggregate Index.

Fixed Income Portfolio/Index Comparison

As of July 29, 2019	AY1A	AY73	BBG Barclays Agg. Index
Yield to Worst	1.98	2.56	2.52
Effective Duration	3.71	5.54	5.59
Spread Duration	0.30	3.70	3.44
Average Quality	AA+	AA	AA
Key Rate Duration			
1yr	0.11	0.09	0.17
2yr	0.12	0.12	0.30
3yr	1.07	0.57	0.51
5yr	1.60	1.50	1.19
10yr	0.79	1.15	1.04
20yr	0.00	0.73	1.22
30yr	0.01	1.39	1.18
Sector Breakdown (in %)			
Cash	2.67	3.76	0.00
Treasury	85.79	34.18	39.46
Agency/Gov't Sponsored	0.19	2.66	4.94
Credit	7.76	24.85	25.19
Collateralized	3.58	34.55	29.75

Source: Yieldbook Analytics

Fixed Income Transition Process

- Optimize the portfolio across various interest rates scenarios.
- Gradually build positions in mortgage (MBS), corporate, and asset backed (ABS) securities.
- Manage corporate bond transaction costs by transferring existing corporate bonds exposure and participate in new issue market.
- Large liquid positions in U.S. Treasury securities will effectively hedge interest rate and curve exposure.

ALASKA RETIREMENT MANAGEMENT BOARD

Global Equity ex-US
Manager Structure

Bob Mitchell, CFA
Chief Investment Officer

Shane Carson, CAIA, CFA
Manager of External Public Equity and DC Investments
September 2019

Key Board Decisions

Determine Investment Objective

- Fund's Purpose
- Governance – who makes which decisions?

Determine Asset Allocation

- Strategic
- Tactical

Oversee Implementation

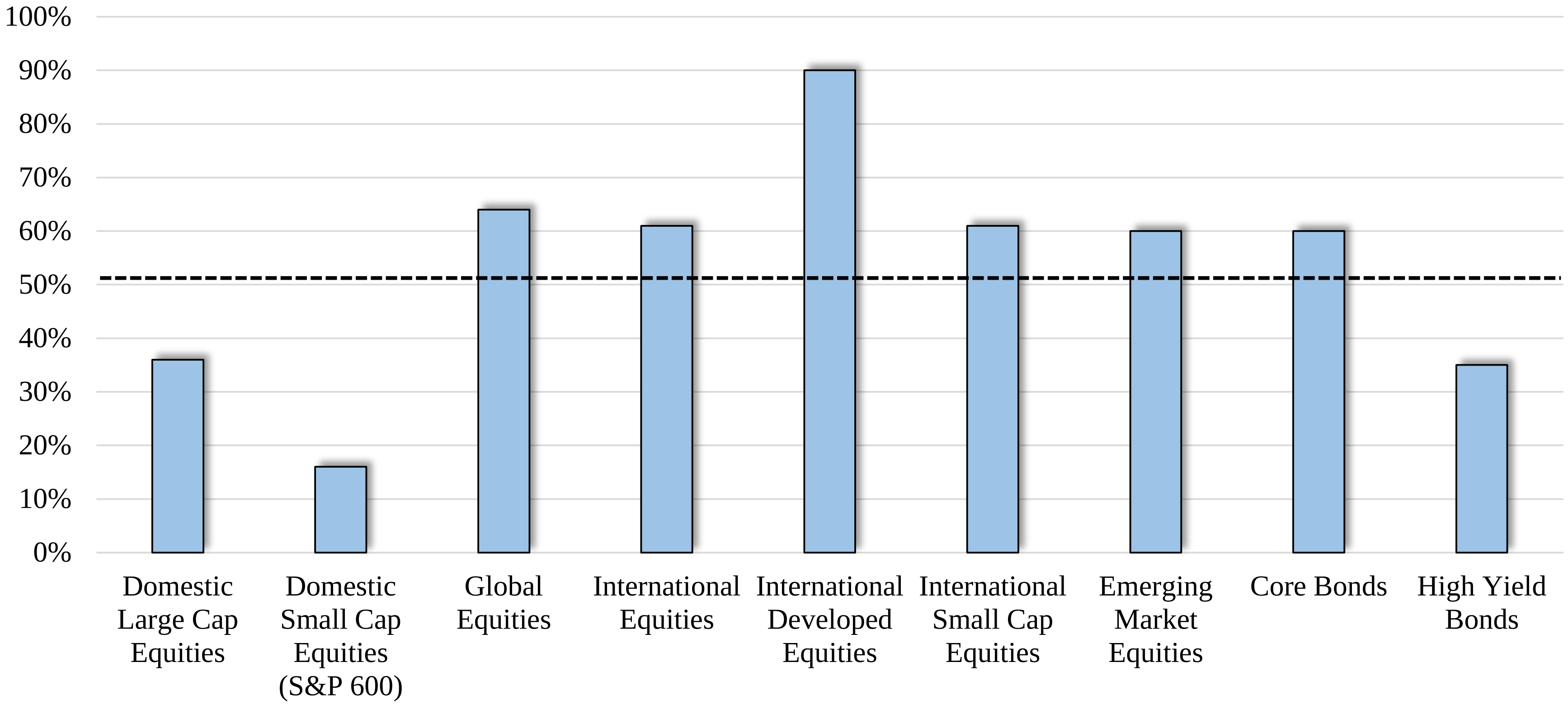
- Manager Structure – number and types of manager allocations.
- Manager Selection

Monitor Results

- Are the fund, asset classes and mandates performing as expected?
- Are they achieving objectives?

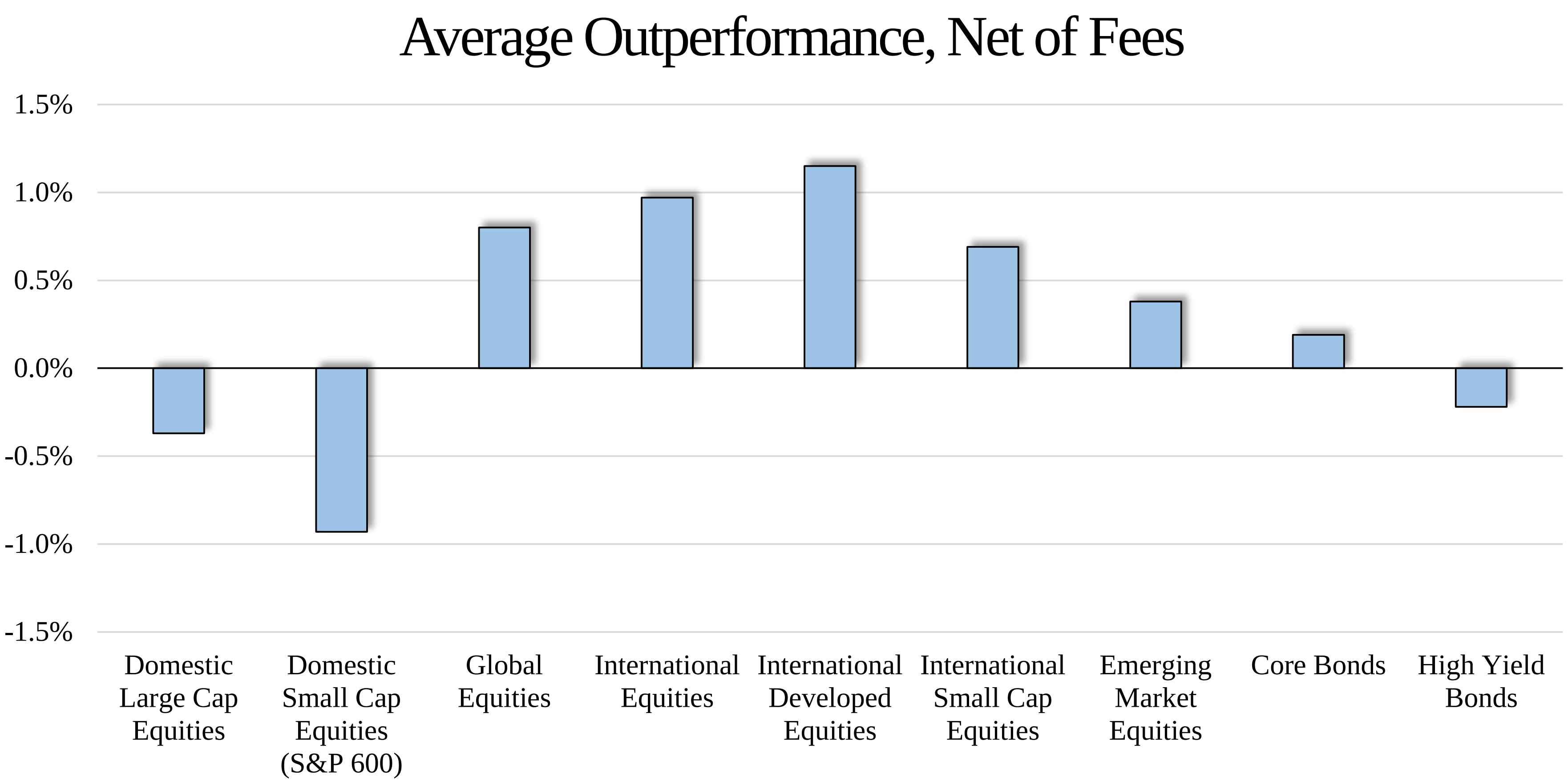
Employ Active Managers
When Reasonable Expectation of Outperformance

Percentage of Managers That Outperform, Net of Fees



Average rolling 3-year median performance over 20 years ending 6/30/2019, less estimated fees. Sources: *Active vs. Passive Report: Second Quarter 2019* and *2017 Investment Management Fee Survey*, both from Callan.

Employ Active Managers When Expected Outperformance Compensates



Average rolling 3-year median performance over 20 years ending 6/30/2019, less estimated fees. Sources: *Active vs. Passive Report: Second Quarter 2019* and *2017 Investment Management Fee Survey*, both from Callan.

Active versus Passive

Hurdles to Success

- Are we structured to identify and hire good managers?
- The manager we hire is actually good, not merely luck
- Product stays open
- Product avoids style drift
- Product doesn't get too large

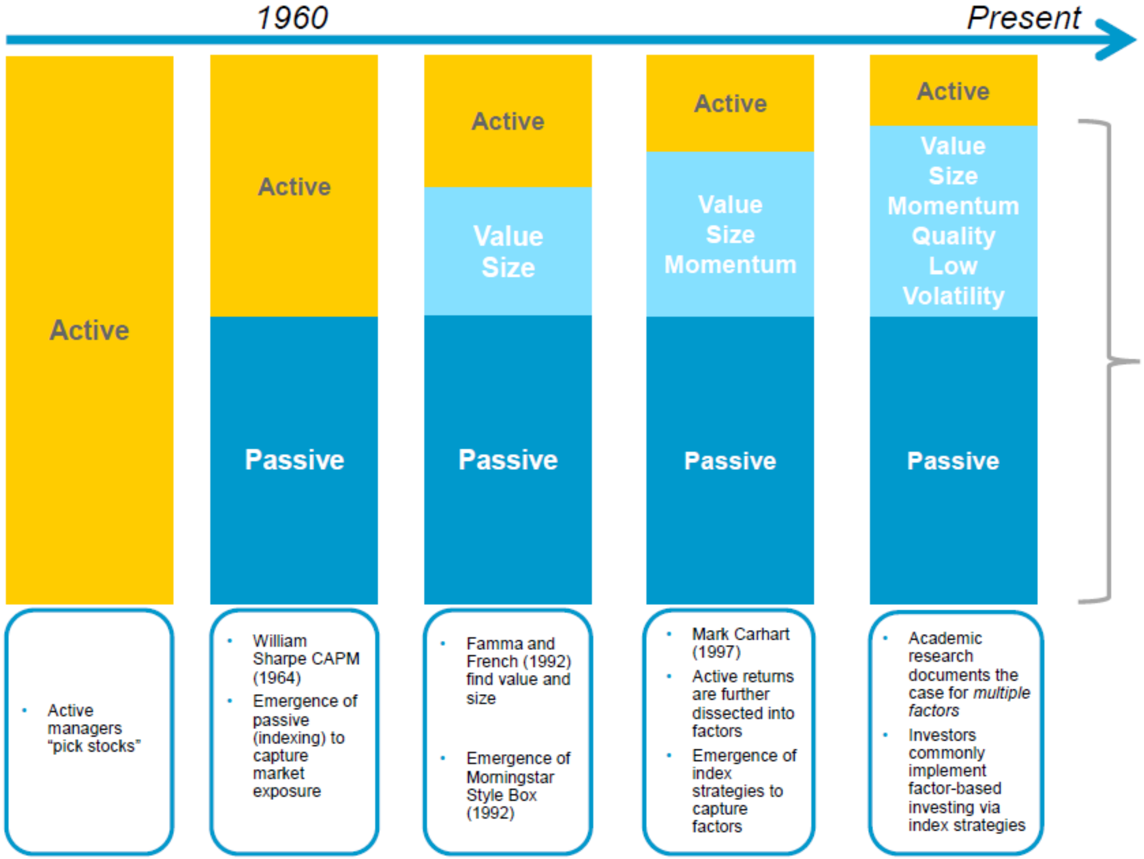
Hurdles to Success (2)

- Firm ownership doesn't change
- Individual managing the portfolio stays
- Do we have the structure and temperament to stick with the manager when the going gets tough?

Comment on Active-Passive, William Jennings, February 2011

Factor Indices

History of factors



Factors can be implemented through active or passive strategies. Passive provide:

- ✓ Lower management fees
- ✓ Lower transaction costs
- ✓ Higher transparency

Approximately 90% of traditional active manager performance can be attributed to factor tilts and beta. The remainder can be classified as "alpha"*

4

Legal & General
INVESTMENT MANAGEMENT AMERICA

*Source: LGIMA, Bloomberg, Morningstar, Kenneth French Data Library, Scientific Beta. Data as of December 31, 2018 using monthly returns over 15-year period.
Factor returns inclusive of market, size, value, momentum and quality based off of Fama, French, Carhart methodology.
Study refers to the average monthly performance of the top quartile of active large cap US equity mutual funds over a 15-year period.
Chart depicted above are intended for illustrative purposes only

Factor Based Investing, Legal & General Presentation to ARMB, April 2019

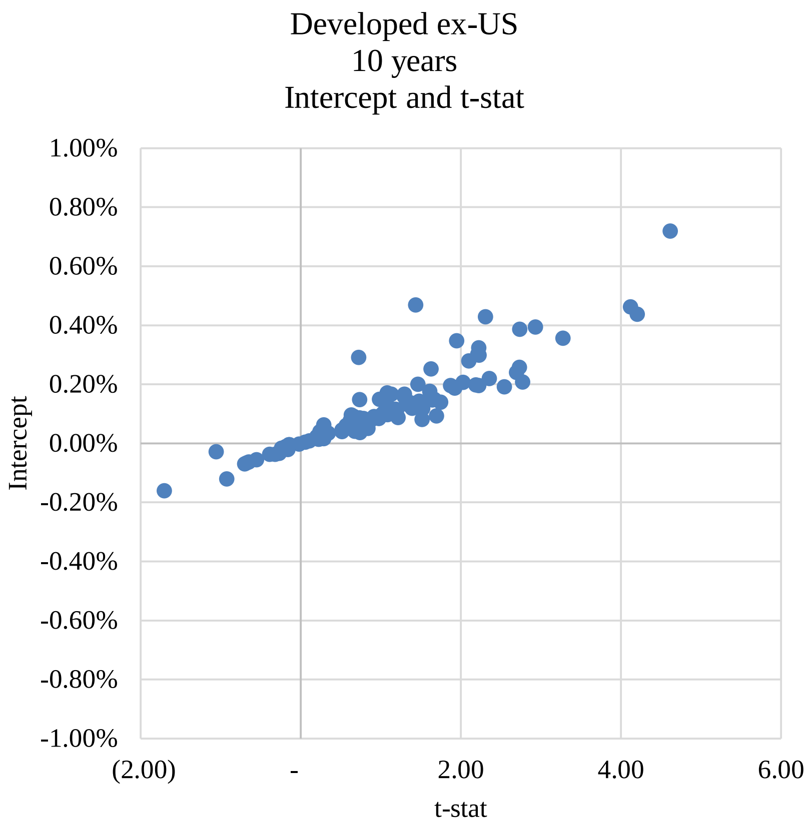
Relative Performance

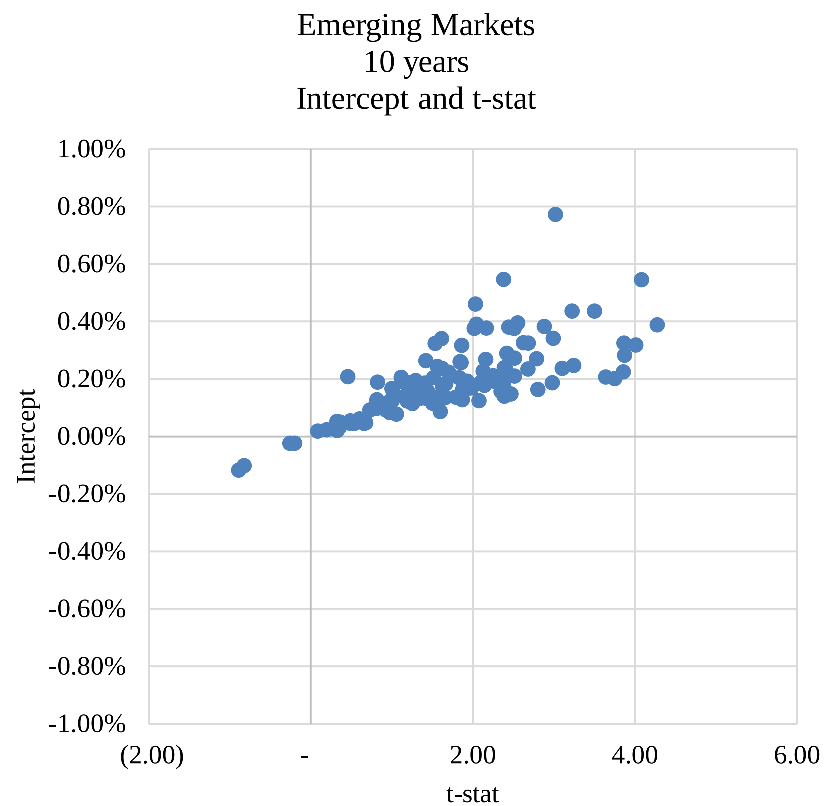
	Mandate	1 year	3 years (ann.)	6 years (ann.)	10 years (annualized)
ARMB	Global ex-US	-0.69%	-0.07%	1.06%	0.54%
ARMB (est. n)		-1.00%	-0.38%	0.75%	0.23%
Arrowstreet	Global ex-US	-0.39%	1.58%		
Arrowstreet (n)		-0.83%	1.10%		
Baillie Gifford	Global ex-US Growth	-0.94%	-0.27%		
Baillie Gifford (n)		-1.35%	-0.73%		
Brandes	Global ex-US Value	-2.06%	-1.39%	1.33%	0.10%
Brandes (n)		-2.37%	-1.77%	0.94%	-0.31%
Capital Group	Developed ex-US	6.35%	4.81%	2.47%	1.84%
Capital Group (n)		5.94%	4.38%	2.06%	1.41%
Lazard	Global ex-US	-1.44%	-2.20%	0.68%	0.97%
Lazard (n)		-1.61%	-2.39%	0.49%	0.73%
McKinley Capital	Global ex-US Growth	-4.72%	-1.42%	1.67%	0.37%
McKinley Capital (n)		-5.21%	-1.94%	1.15%	-0.18%
Schroder	Developed ex-US Small Cap	-3.29%	-1.17%	0.64%	
Schroder (n)		-3.98%	-1.99%	-0.20%	
Mondrian	Developed ex-US Small Cap	5.54%	0.04%	-1.16%	
Mondrian (n)		4.85%	-0.73%	-1.92%	
DePrince, Race & Zollo, Inc (n)	Emerging Markets Value	-1.98%			
Lazard (n)	Emerging Markets	-6.29%	-2.96%	-2.10%	-0.71%

Manager performance from Callan
Manager benchmarks may be blended if modified during contractual period
ARMB fee estimate using July 2019 fee load, annualized

Active Manager – Selection Process

- Screen for managers with significant net of fee performance in excess of, and not captured by, market cap and factor indices





Active Manager – Selection Process

- Apply manager selection and evaluation criteria to existing and prospective managers

Category	**Summary Selection Criteria**
Firm	Ownership structure and stability Adequacy of systems and support
Key personnel / Investment Team	Thought leader Committed with minimal distractions Team stability Compensation structure
Portfolio	Philosophy and idea generation Portfolio construction and risk controls Capacity management
Quantitative analysis	Performance analysis Exposures consistent with expectations Relative and absolute risk within expectations
Other considerations	Fees Headline risk Client service

Manager Selection, Monitoring, and Watch List, April 2019 ARMB meeting

Active Manager Structure - Recommendations

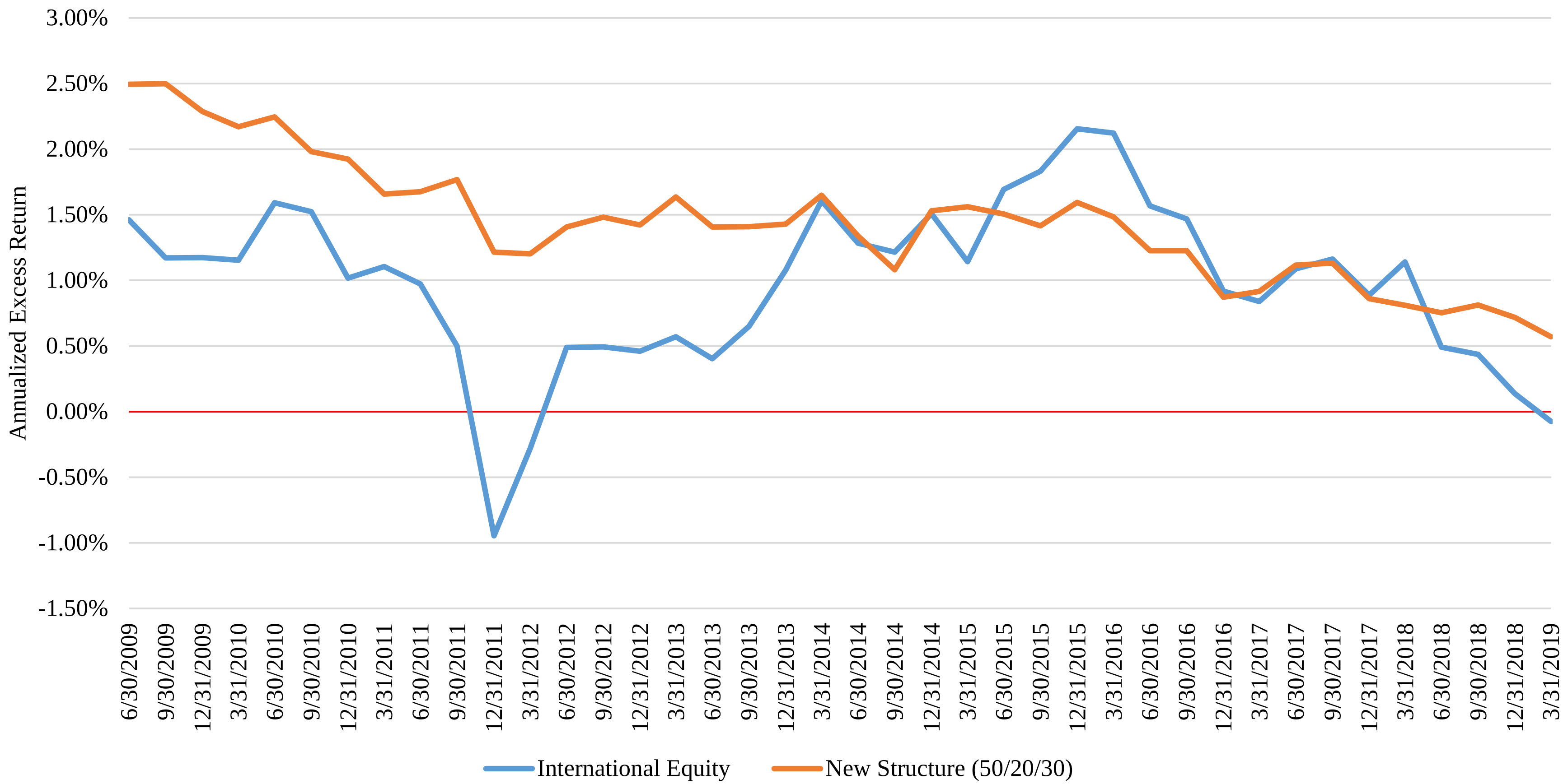
- Invest approximately 50% passive, 20% factor indices, and 30% active managers
- Simplify manager structure
  - Terminate active stand-alone emerging markets and small cap managers
- Consolidate active managers
  - Control aggregate fee load and negotiating strength
  - Increase manager-specific risk
  - Focus on managers expected to provide excess return, net of fee
    - Quantitative screen tools
    - Qualitative manager selection process

Summary of Recommended Manager Changes

Manager	Passive / Active / Factor	Benchmark	Retain	Terminate
SSGA	Passive	MSCI World ex-US IMI	X	
SSGA	Passive	MSCI Emerging Markets	X	
Legal and General	Factor	Sci Beta Developed MBMS 4F EW	X	
Legal and General	Factor	Sci Beta Emerging MBMS 4F EW	X	
Arrowstreet Capital	Active	MSCI ACWI ex-US	X	
Baillie Gifford	Active	MSCI ACWI ex-US Growth	X	
Brandes Investment Partners	Active	MSCI ACWI ex-US Value	X	
Capital Group	Active	MSCI EAFE	Modify*	
DePrince, Race & Zollo	Active	MSCI Emerging Markets Value		X
Lazard Asset Management	Active	MSCI ACWI ex-US		X
Lazard Asset Management	Active	MSCI Emerging Markets		X
McKinley Capital	Active	MSCI ACWI ex-US Growth		X
Mondrian Investment Partners, Ltd.	Active	MSCI EAFE Small Cap		X
Sands Group (not funded)	Active	MSCI Emerging Markets Growth		X
Schroder Investment Management	Active	MSCI EAFE Small Cap		X

*Change contractual mandate and benchmark to MSCI ACWI ex-US

Historical Performance
Rolling 3-Year Relative Return
Compared to ARMB Blended Benchmark



Source: Callan

ARMB Blended Benchmark: 12/1991–6/2006:100% MSCI EAFE. 7/2006–6/2008:87.5% MSCI EAFE, 12.5% MSCI EM. 7/2008–6/2017:100% MSCI ACWI ex-US.7/2017 – today: 100% MSCI ACWI ex-US IMI

New Structure represents model historical performance

Fee Estimates After Changes

Total Effective Fee	ARMB - Current	ARMB – Proposed	Median	Callan Description
All Non-US Mandates	0.32%	0.14%	N/A	
Excluding Passive	0.44%	0.24%	0.41%	Active Non-US Equity

ARMB fee estimates based on 7/31/2019 net asset values and fee structures

Median Manager Fee Source: *2017 Investment Management Fee Survey*, from Callan.

Median fee, Actual with mandate size $300 million to $600 million

Median represents median payments fund sponsors made to their investment managers for a range of assets under management

Next Steps 2019-2020

- Continue to evaluate active management
  - Explore the use of quantitative screens to improve manager selection
  - Develop a stable of potential managers
  - Closely monitor performance of Brandes and Baillie Gifford
- Evaluate factor indices
  - Is there improved methodology?
  - Consider additional factors

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September 2019

Real Assets Strategic Plan Review

Avery Robinson, CAIA
Co-Head Real Assets Consulting

Jonathan Gould, CAIA
Vice President

Callan

Why Invest in Real Assets Revisited

Real Asset Investing Strengths and Considerations

Strengths

Competitive returns

Diversification benefits when added to portfolios of stocks and bonds

Low correlations with stocks and bonds

Strong income component

Inefficiency creates return opportunities

Inflation protection characteristics

Considerations

Real Assets are cyclical in nature

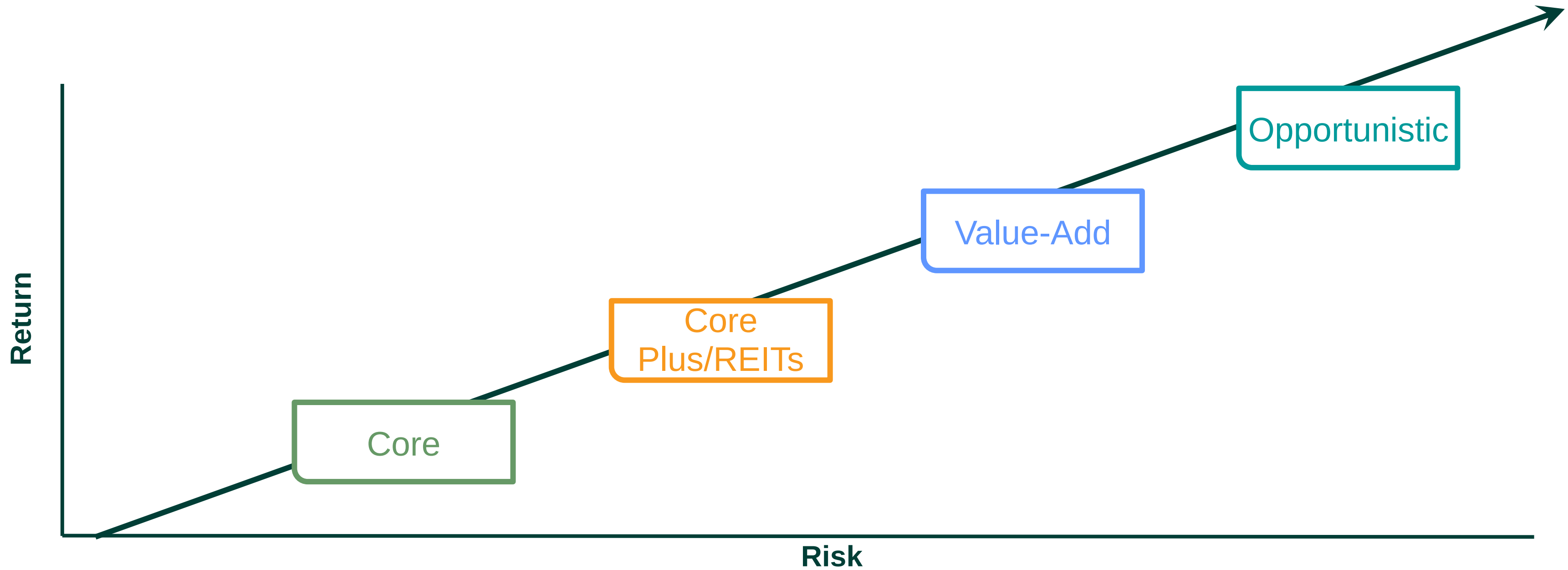
Private real assets

- Not valued daily
- Illiquid
- Management intensive/implementation risks
- High fees compared to mainstream asset classes
- Lack of investable indices; benchmarking issues

Public real estate

- Volatility
- Lower diversification benefits than private real assets

Private Real Assets Strategies – Relative Risk/Return



	Core		Non-Core	
	Core	**Core Plus / REITs**	**Value-Add**	**Opportunistic**
Net Return estimate	Up to 8%	8-10%	10-12%	13%+
Asset	Stable asset, Highly leased	Stable, plus moderate upside	Enhancement of existing asset, Material improvement, releasing	Development of a new asset, Significant capital improvement
Expected Income vs Appreciation Return	>75% from Income	65% Income / 35% Appreciation	50%/50%	>65% from Appreciation

Core Funds

Core Funds (Real Estate)

– Open-end funds most prevalent
– Infinite-life
– Quarterly appraisal-based valuations
– Quarterly liquidity; however, not guaranteed
– Total universe size: $200 billion
– Gross Asset Values: $705 million - $42 billion
– Leverage: 15% - 30%
– Dynamic universe: funds with 40+ years of history and newly formed funds
– Entry and exit queues arise at various points in the cycle for various reasons
– Easy to benchmark using NFI-ODCE, a leveraged fund-level benchmark

Core Funds (Farmland, Infrastructure and Timber)

– Similar characteristics to real estate, but fewer options
– More challenging to benchmark

Real Assets Separate Accounts

A Separate Account is a vehicle designed for one investor

- All properties or assets held in the separate account are for that investor
- Investments typically include core investments

Advantages include:

- Maximum investor control and flexibility
- Portfolios can be tailored to the specific objectives of the investor
- Client can terminate advisor (typically with 30 days notice) and transfer management of the assets to another manager
- Historically lower fee schedules

Disadvantages include:

- Assuming an investor wants to build a diversified portfolio, the minimum required to implement a diversified portfolio is ~$400+ million depending on the asset class. Hence, separate accounts are limited to medium and large investors.

Greater administrative requirements

- Funding into real assets separate accounts takes longer than into open-end funds, as all properties or assets need to be acquired, versus investing in an open end fund where there is an existing portfolio.

Value-Add Real Assets Strategies

Value-Add

- Seeks a competitive income return with potential for capital appreciation
- Acquires properties or assets and incorporates re-leasing, repositioning, re-development or other value-enhancement strategies
- Once value has been created, the property is targeted for sale
- Leverage ranges from 40% to 75% loan-to-value or loan-to-cost
- Anticipated that half of the total return will be from income and the other half from appreciation

Investment Vehicles

- Closed End funds

Opportunistic Real Estate Strategies

Opportunistic

- Return targets are higher than core and value-add
- Incorporates various investment tactics that are not a focus of conservative strategies. (i.e. Ground-up development, buying publically traded REITs and taking the assets private, etc.)
- Leverage used to enhance returns (65%+)
- Anticipated that more than two-thirds of the total return will be derived from capital appreciation

Investment Vehicles

- Closed-End Funds

Returns
for Periods Ended June 30, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years
Blmbg:Aggregate	3.08	7.87	2.31	2.95	3.90	4.27	4.93	5.50
S&P:500	4.30	10.42	14.19	10.71	14.70	8.75	5.90	9.97
NCREIF:Total Index	1.51	6.51	6.89	8.83	9.25	8.70	8.87	9.36
NCREIF:NFI-ODCE Val Wt Gr	1.42	6.86	7.72	9.85	9.93	8.04	8.38	9.09
FTSE:NAREIT All Eq Index	1.79	13.01	5.92	8.88	16.03	9.41	10.66	10.47
NCREIF:Timberland Index	0.11	2.23	3.05	4.47	3.90	7.04	6.29	7.41
NCREIF:Farm Idx	0.70	5.63	6.24	7.98	11.05	14.22	12.33	11.56

Private infrastructure index (MSCI) not included due to limited history and participants.

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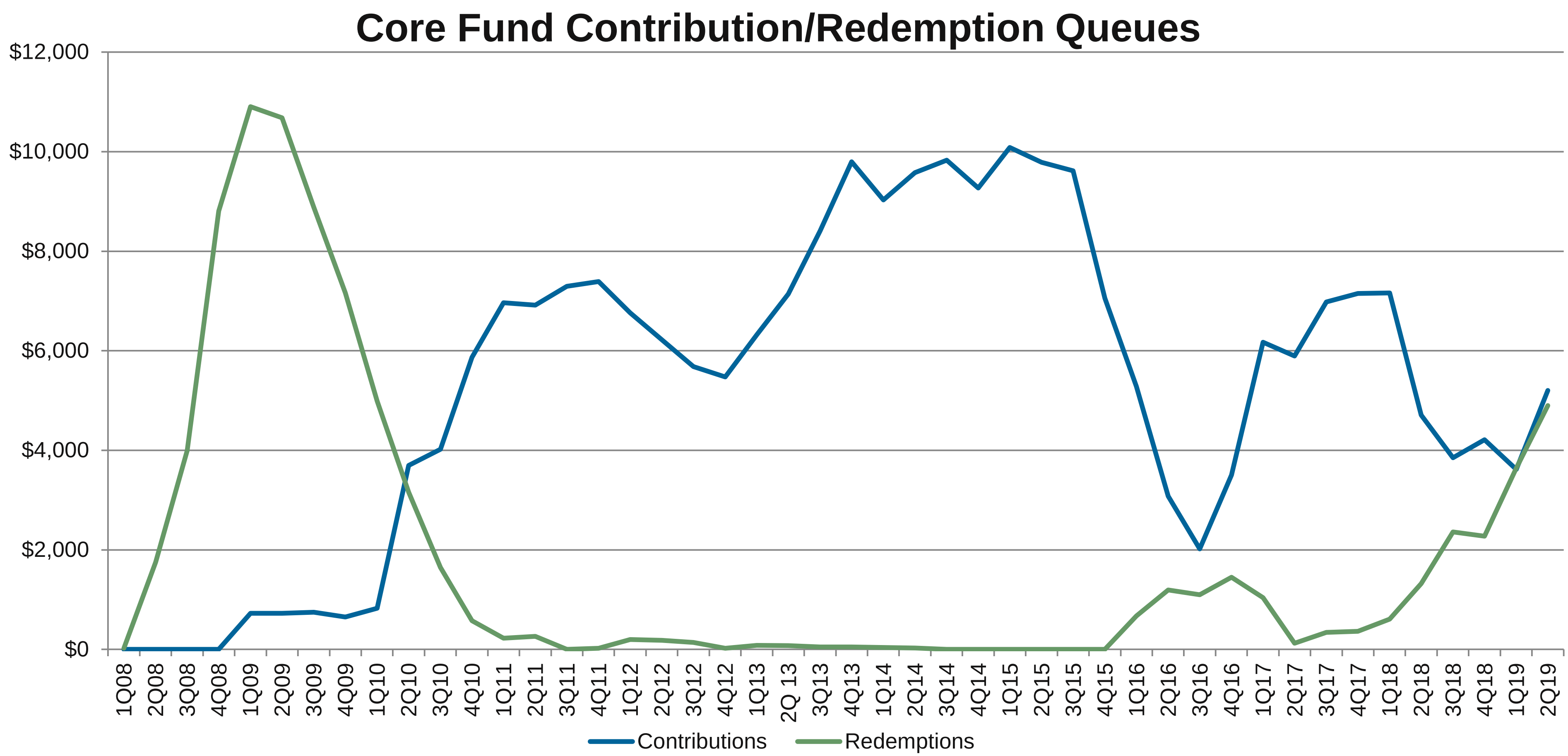
Real Assets Market Overview and Performance Review

Real Estate Market Overview

- U.S. real estate fundamentals are healthy. The real estate sector continued to see steady returns driven by above inflation-level rent growth in many metropolitan areas.
- Within the NPI, the vacancy rate for U.S. property was 5.7% in the second quarter of 2019, near its lowest level since 2001. Vacancies were below their 20-year average in every major sector, however the rate of absorption has flattened.
- Net operating income has been growing annually, and is expected to be the primary driver of returns going forward as the real estate cycle is in a mature phase and appreciation has been moderating.
- Valuations continue to creep higher, although there is a dispersion between property sectors. The office sector has had varying levels of performance based on location, suburban versus CBD (Central Business District), as well as market, primary or secondary/tertiary. Industrial performance has been strong and multi-family may benefit from increased demand in the presence of declining home affordability.
- Supply and demand fundamentals are balanced but peaking. Supply is in check and aided by strict commercial real estate lending standards. Demand continues on the back of synchronized domestic growth.
- The industrial sector is performing the strongest, benefitting as structural shifts in the economy, property markets, and consumer habits continue to dampen demand for traditional retail space. Office is performing as expected late in the cycle and tenant improvements and other capital expenditures are increasingly eroding cash flow. Multifamily remains strong due to positive demographic trends, except for the Class A luxury segment in prime markets such as New York. Retail is the laggard.

Investor Capital Flows



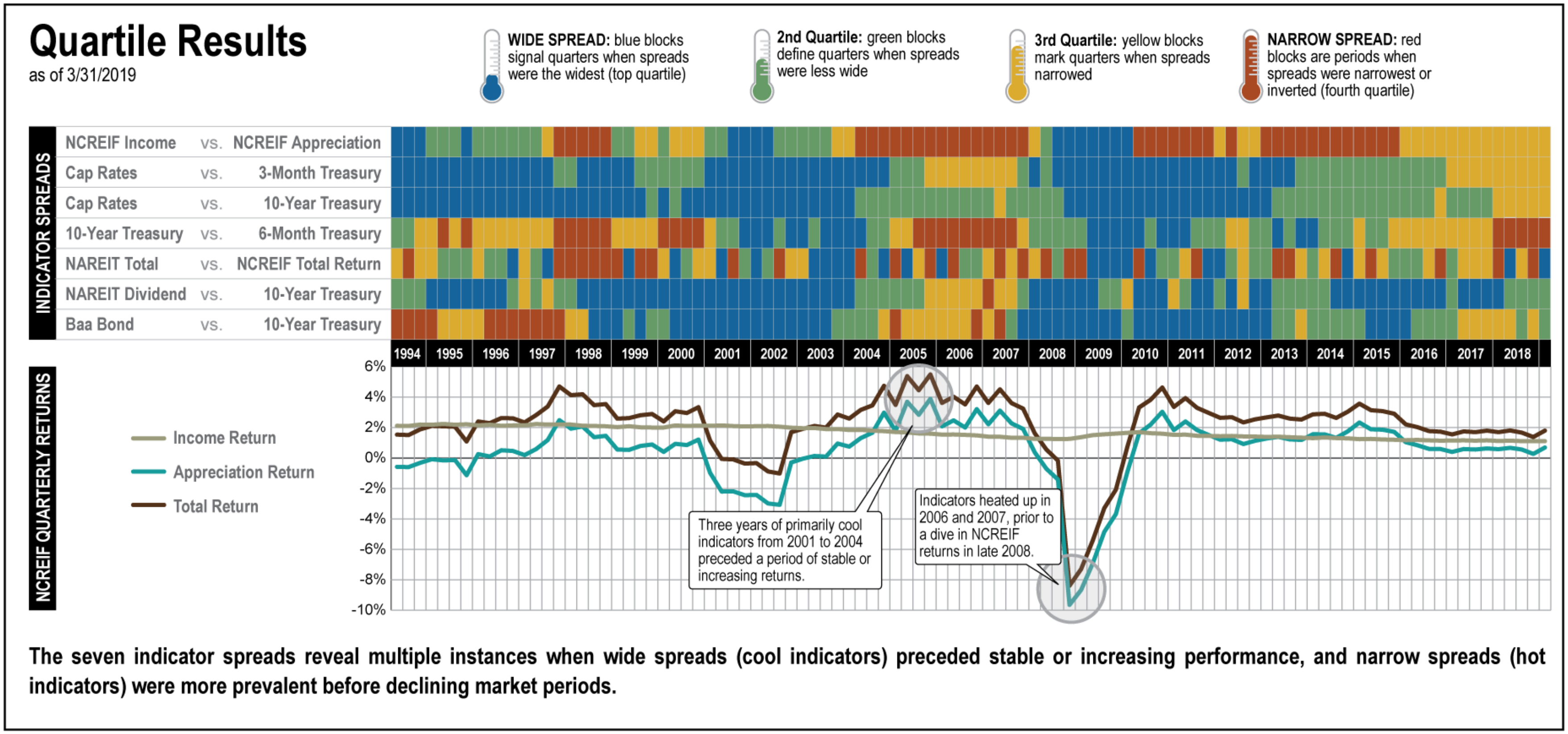
– Investor appetite for core real estate has leveled out as redemption queues have increased, indicating some reduced demand for real estate

– Institutional investors, who previously reached their target allocations, are now feeling the “denominator effect”

– Concern about core pricing is a factor

Source: Callan research, as of Q2 2019

Callan Real Estate Indicators

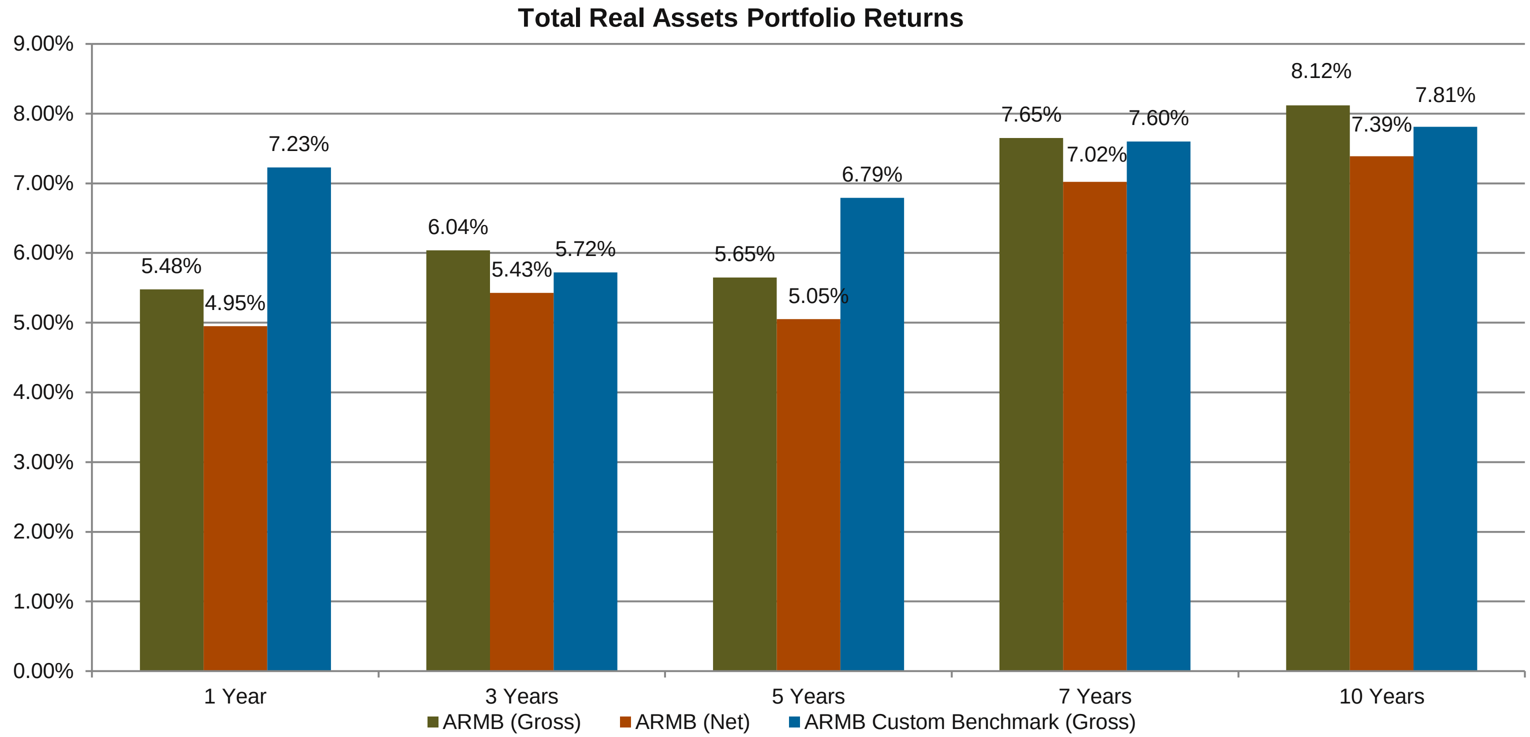


– Very few indicators are at their coolest

– Narrow spreads (hot indicators) are a cautionary signal and may be a sign of a declining market approaching

ARMB Real Assets Portfolio Returns

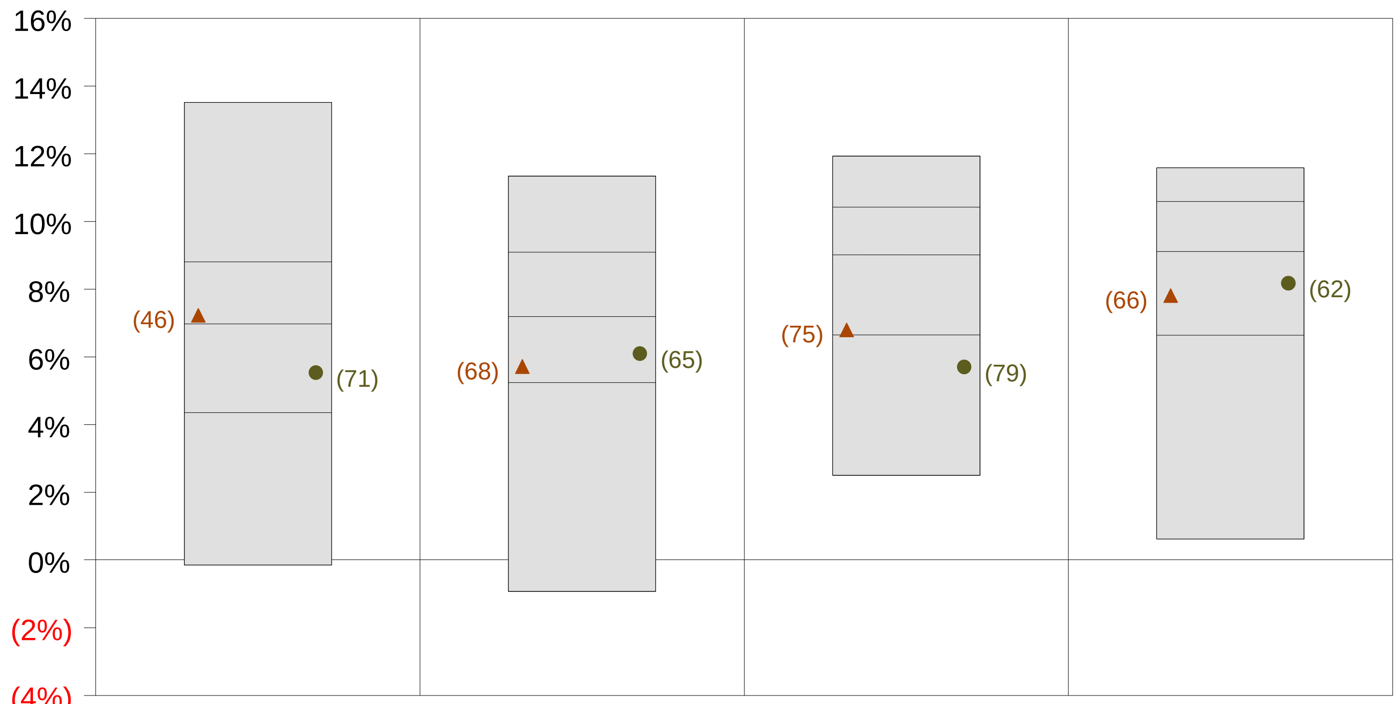
For Period Ended June 30, 2019



Sub-Sector Returns	1 Year	3 Years	5 Years	7 Years	10 Years
Real Estate	6.67%	6.84%	9.41%	9.92%	9.61%
Real Assets (ex. Real Estate)	4.69%	5.50%	2.79%	6.13%	7.01%
Total Real Assets Portfolio	**5.48%**	**6.04%**	**5.65%**	**7.65%**	**8.12%**

ARMB Real Assets Portfolio Returns

Performance vs Callan Total Real Assets Database



	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	13.52	11.34	11.94	11.59
25th Percentile	8.81	9.09	10.42	10.59
Median	6.98	7.19	9.02	9.11
75th Percentile	4.35	5.23	6.65	6.64
90th Percentile	(0.16)	(0.94)	2.50	0.62
Total Real Assets Portfolio ●	5.48	6.04	5.65	8.12
Real Assets Target ▲	7.23	5.72	6.79	7.81

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ARMB Real Assets Strategic Plan Review

Goal of the Real Assets Strategic Plan

The goal of this exercise is to identify the optimal mix of real assets that help achieve the role of real assets while taking into account practicality and implementation constraints

Role of Real Assets Restated

<u>Objective</u>

The Alaska Retirement Management Board (ARMB) will invest in real estate with the goals of portfolio diversification and attaining the optimum return on the portfolio, consistent with the assumption of prudent risk and safety of principal.

Based on Callan's analysis of the ARMB total portfolio, including characteristics such as the size of the program, liquidity and yield needs, we believe this objective is consistent with the role the entire real assets portfolio should play within the context of the broader portfolio

<u>Return Expectations</u>

Over rolling six- year periods, the ARMB real estate investment portfolio is expected to generate a net-of-fee total return between public equities and fixed-income.

Based on Callan's long-term capital markets return forecast for the components of the real assets program, we believe the return expectations for the portfolio are reasonable and obtainable

ARMB Asset Allocation

ARMB Asset Allocation Model

RECENTLY ADOPTED ASSET ALLOCATION

		PROJECTED RETURN		PROJECTED RISK
Asset Class	**Target Weight**	**1-Year Arithmetic**	**20-Year Geometric Return**	**Annualized Standard Deviation**
Broad US Equity	26.40%	8.50%	7.10%	18.00%
Global Ex-US Equity	18.00%	9.20%	7.25%	21.10%
Fixed Income	22.60%	3.40%	3.40%	2.90%
Opportunistic	8.00%	6.45%	6.10%	10.20%
Private Equity	11.00%	12.40%	8.40%	29.30%
Real Assets	**13.00%**	**7.60%**	**6.80%**	**14.25%**
Cash Equivalents	1.00%	1.00%	1.00%	1.00%
Total Fund	**100.00%**	**7.86%**	**7.13%**	**13.82%**

UNCONSTRAINED POTENTIAL LONG-TERM ALLOCATION

		PROJECTED RETURN		PROJECTED RISK
Asset Class	**Target Weight**	**1-Year Arithmetic**	**20-Year Geometric Return**	**Annualized Standard Deviation**
Broad US Equity	30.30%	8.50%	7.10%	18.00%
Global Ex-US Equity	19.80%	9.20%	7.25%	21.10%
Fixed Income	28.40%	3.40%	3.40%	2.90%
Opportunistic	0.00%	6.45%	6.10%	10.20%
Private Equity	12.50%	12.40%	8.40%	29.30%
Real Assets	**8.00%**	**7.60%**	**6.80%**	**14.25%**
Cash Equivalents	1.00%	1.00%	1.00%	1.00%
Total Fund	**100.00%**	**7.84%**	**7.13%**	**13.70%**

ARMB Capital Market Projections

ARMB Asset Allocation Model 2019-2028

Asset Class	Target Weight	1-Year Arithmetic	20-Year Geometric Return	Annualized Standard Deviation	Projected Yield	Range
Broad US Equity	26.00%	8.50%	7.10%	18.00%	2.00%	+/- 6%
Global Ex-US Equity	18.00%	9.20%	7.25%	21.10%	3.10%	+/- 4%
Fixed Income	24.00%	3.40%	3.40%	2.90%	3.30%	+/- 6%
Opportunistic	8.00%	6.45%	6.10%	10.20%	2.80%	+/- 4%
Private Equity	11.00%	12.40%	8.40%	29.30%	0.00%	+/- 6%
Real Assets	13.00%	7.60%	6.80%	14.25%	4.70%	+/- 7%
Core Real Estate	X	7.30%	6.25%	15.70%	4.75%	
Non-Core Real Estate	X	9.40%	7.80%	19.30%	2.85%	
Timber	X	7.10%	6.20%	14.55%	3.90%	
Farmland	X	7.20%	6.25%	15.00%	4.50%	
Private Infrastructure	X	8.15%	6.75%	18.00%	5.00%	
REITs	X	8.70%	6.80%	20.70%	5.00%	
Total Fund	**100.00%**		**7.13%**	**13.82%**		

- Goal of this exercise is to solve for the sub-target weightings
- Structure considerations include flexibility to efficiently further reduce real assets allocation (potentially to 8%)
- Structure considerations additionally include goal to lower base management fee

ARMB Capital Market Projections

ARMB Program Correlation Matrix

	Broad US Equity	Global ex US Equity	Fixed Income	Opportunistic	Private Equity	Core Real Estate	Non-Core Real Estate	Timber	Farmland	Private Infrastructure	REITs
Broad US Equity	1.000										
Global ex US Equity	0.853	1.000									
Fixed Income	-0.210	-0.226	1.000								
Opportunistic	0.983	0.825	-0.078	1.000							
Private Equity	0.917	0.883	-0.250	0.886	1.000						
Core Real Estate	0.736	0.706	-0.040	0.728	0.660	1.000					
Non-Core Real Estate	0.919	0.883	-0.173	0.896	0.935	0.884	1.000				
Timber	0.793	0.789	-0.050	0.786	0.670	0.650	0.725	1.000			
Farmland	0.796	0.799	-0.100	0.784	0.810	0.600	0.788	0.700	1.000		
Private Infrastructure	0.854	0.833	-0.150	0.839	0.800	0.690	0.825	0.790	0.760	1.000	
REITs	0.811	0.817	-0.120	0.797	0.790	0.630	0.790	0.760	0.600	0.800	1.000

- Private Core Real Estate, Timber and Farmland provide the highest diversification benefits to the broader asset classes
- Private Infrastructure provides limited diversification benefits based on the proxy model. However, the underlying assets associated with infrastructure do not have a substitute within the real assets program
- Although REITs experience noticeable correlations to equities, they also provide unparalleled liquidity within the real assets program which can help aid future allocation adjustments

Real Assets Fee Consideration

The fees below include estimates based on what could be achieved for the various strategies

The fee estimate takes into consideration ARMB's existing fee structures and manager relationships

Base Fee Based on NAV (bps)	Existing Fees	Market Fees	Potential Fee Estimate
REITs Internally Managed	0.00%	0.00%	0.00%
REITs Externally Managed	N/A	0.25%	0.15%
Core Real Estate Separate Account	0.51%	0.60%	0.50%
Core Real Estate Fund	0.62%	0.70%	0.55%
Non Core Real Estate Fund	1.15%	1.15%	1.15%
Farmland Separate Account	0.81%	0.85%	0.65%
Farmland Fund	N/A	0.95%	0.95%
Private Infrastructure Fund	0.70%	0.70%	0.70%
Timber Separate Account	0.84%	0.85%	0.80%
Timber Fund	N/A	0.85%	0.85%

ARMB Asset Allocation

ARMB AssetMax Model Considerations

- The recommended target mix below is modestly adjusted for rounding and to maintain core real estate as the base of the program
- The mix recommendation results in a slightly lower standard deviation while still achieving the exact broader asset allocation return target for the program of 6.80%

Portfolio Component	Rounded Mix Recommendation
Core Real Estate	35
REITs	15
Farmland	25
Timber	10
Infrastructure	15
Totals	100

10 Yr. Geometric Mean Return	6.79%
20 Yr. Geometric Mean Return	6.78%
Projected Standard Deviation	14.28%

ARMB Asset Allocation

ARMB Real Assets AssetMax Modeling Results

	Existing Portfolio After Approved Allocation Revisions Implemented (June 2019)		Variances	
	Exposure	% of Real Assets	Recommended Mix	Variance
Core Real Estate	$1,418.00	37.93%	35.00%	-2.93%
Farmland	$865.60	23.15%	25.00%	1.85%
Private Infrastructure	$570.80	15.27%	15.00%	-0.27%
Timber	$365.10	9.77%	10.00%	0.23%
REITs	$295.70	7.91%	15.00%	7.09%
Energy	$89.40	2.39%	0.00%	-2.39%
Non-Core Real Estate	$133.98	3.58%	0.00%	-3.58%
MLPs	-	-	0.00%	-
Listed Infrastructure	-	-	0.00%	-
Total Real Assets	$3,738.58	100%	100.00%	-
Total Fund	**$25,901.00**			**-**

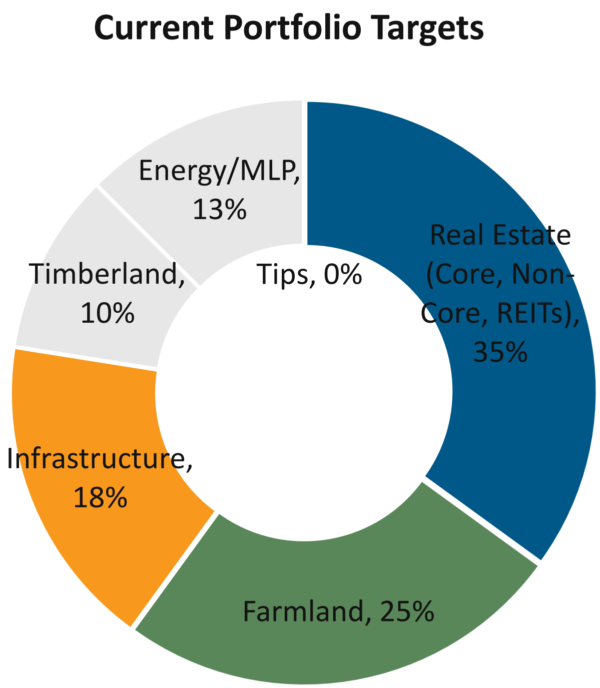
– Core real estate, farmland, private infrastructure and timber are currently close to their long-term recommended targets

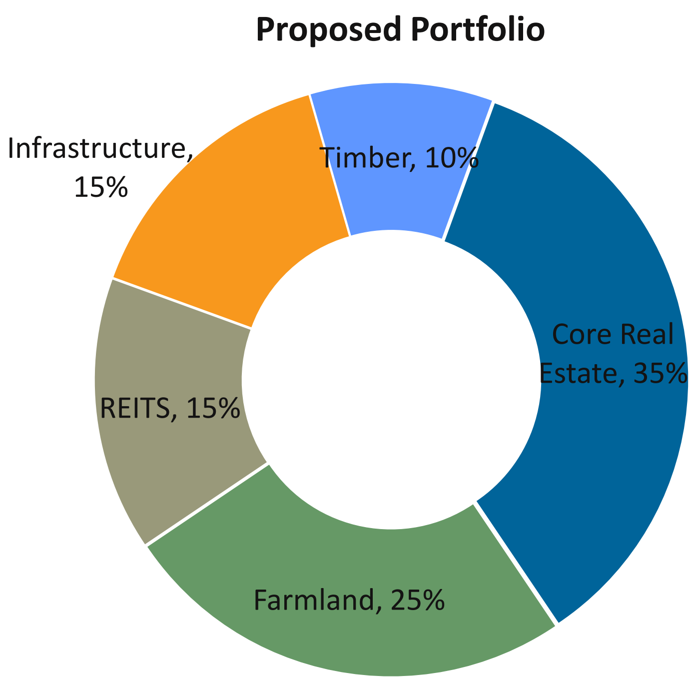
– The non-core real estate and energy allocations will reduce as the funds liquidate

– The REIT allocation will need the largest adjustment; however, this is also the easiest strategy to efficiently increase exposure

ARMB Real Assets Portfolio

Portfolio Targets





Recommendations:

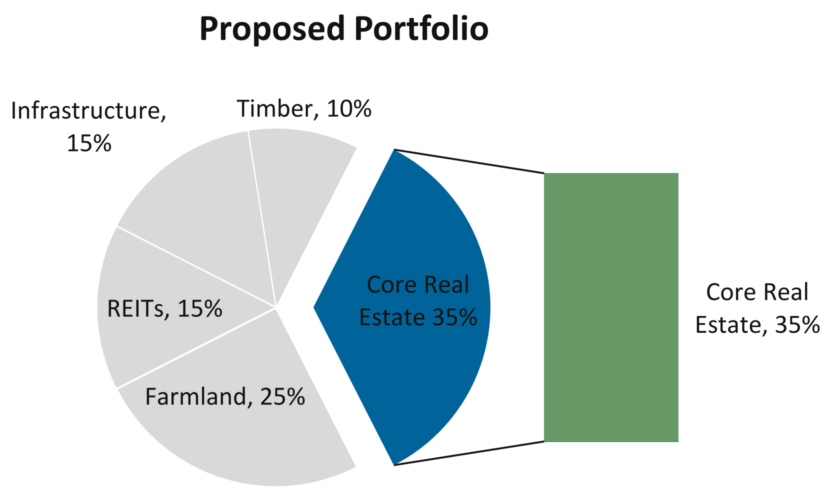
– Core real estate to serve as the foundation of the real assets portfolio

– Discontinue non-core real estate allocation

– Distinct sub-targets to REITs, farmland, infrastructure and timber

Core Real Estate

Traditional Core



Traditional core real estate should be accessed preferably through commingled funds with a consideration for select separate account relationships

This allocation should serve as the cornerstone of the real assets portfolio, as it is designed to achieve all of the program's stated objectives

Core Plus strategies and international core can be considered for this allocation but should be limited to 5% of real assets portfolio

Considerations for Core Funds in the Current Market Environment

- Fees: Core comingled fees have come down during the past five years and continue to moderate, lessening the argument that separate accounts provide significant savings
- Control: As commingled funds continue to grow, style drift may occur in their attempts to compete
- Investor behavior: New investor base may impact the behavior of commingled funds (i.e. Since 2016, 19% of all new capital to ODCE funds has come from international sources). Many funds are now pursuing retail investors and defined contribution feeder vehicles

Implementation Considerations

Core Real Estate

Both separate account and commingled funds are feasible structures to access core real estate. Separate accounts are not ideal given the following:

– Diversification is imperative, particularly given the recent dispersion of performance within the core space (i.e. Industrial property performance vs Retail property performance). Funds help mitigate this risk

– Multiple core commingled (ODCE) funds are recommended

– Separate accounts, if pursued, should take advantage of expertise or strategies not easily obtained via commingled funds

– Separate accounts, if pursued, should be programmatic in nature, with managers receiving recurring additional capital contributions to ensure their best recommendations are not influenced by their capital restrictions

Discontinue Non-Core Real Estate Program

Non-Core Real Estate

– Non-core real estate commands the highest base and overall fees compared to the other suggested real asset classes

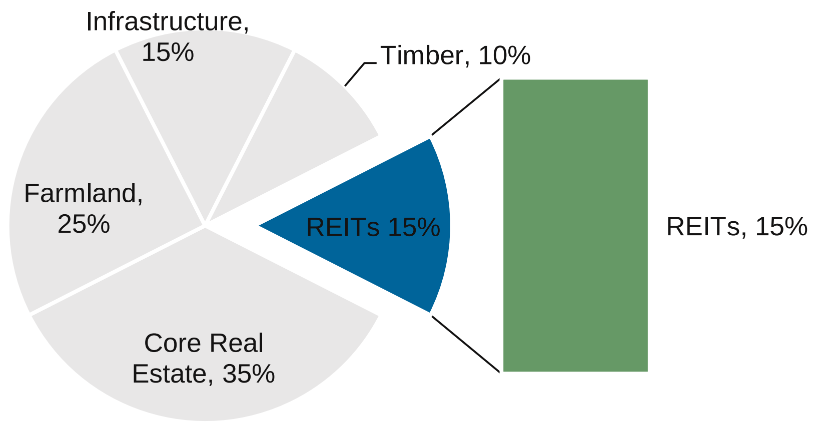
– Given the closed-end fund nature of non-core real estate, it also provides the least liquidity and would hamper the overall program's ability to reduce the real asset target

– Vintage year diversification is imperative for a successful non-core real estate program. The potential reduction in the real assets target could negatively impact the program's ability to accomplish this requirement

Public REITs

Managed REITs

Proposed Portfolio



Internally-managed REITs represents an inexpensive way to get broad exposure to real estate while maintaining high liquidity

REITs provide diversification benefits within the real assets portfolio due to their relatively lower correlation to private real estate, farmland and timber

Considerations for REITs in the Current Market Environment:

– REITs have historically generated performance comparable to public equities and have also provided consistent dividend yields across real estate cycles and varying market conditions.

– Public REITs and REIT indices include real estate operating companies in addition to real estate assets and, further, are increasingly gaining exposure to non-traditional real estate and real assets sectors, including infrastructure, data centers, movie theaters, casinos, farmland and advertisements, all of which provide additional diversification benefits.

Implementation Considerations

REITs

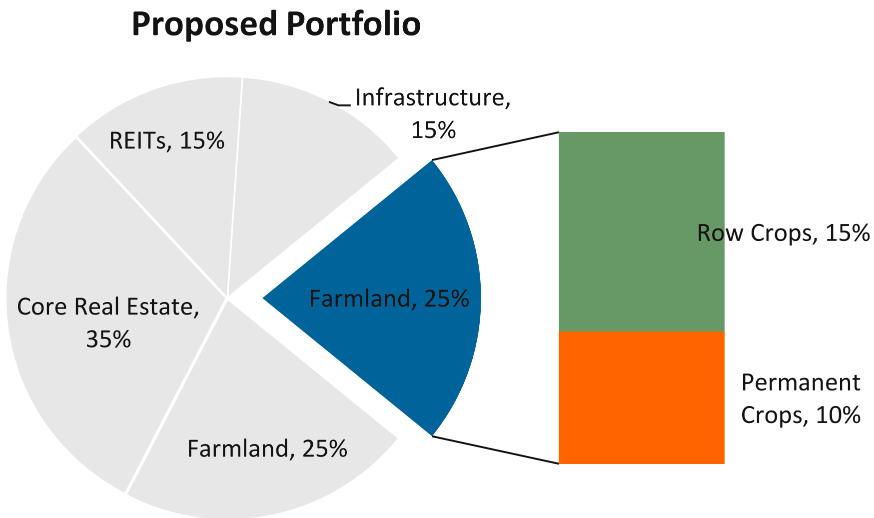
Internally-managed separate accounts are preferable, particularly for passive strategies, given the cost savings

REITs benefit from being relatively easy to implement and adjust quickly

Given that the predominant goal of the ARMB real assets program is to provide diversification for the overall plan, REITs should be limited to no more than 20% of the real asset portfolio due to their higher correlation to equities

Farmland

Row Crops / Permanent Crops



Farmland should be primarily accessed through separate accounts

Considerations for Farmland in the Current Market Environment:

- Macroeconomic and demographic trends, including the return of inflation, increasing global population, increased global protein consumption per capita, and an aging farmer population in the US, continue to make this an attractive asset class to invest in
- The retaliatory tariffs placed on America by China have created uncertainty in the markets. Many managers believe that the long-term effects of the tariffs will be muted, but short-run dislocations could prove material
- Disparity between managers' ability to place capital can be significant

Implementation Considerations

Farmland

Farmland should be primarily accessed through separate accounts; however, fund opportunities should be selectively explored given the emergence of new fund options

A sub-allocation target of 60% to row crops and 40% to permanent crops is recommended. Permanent crops will serve as a return enhancer given the potential lower return outlook for row crops. The long-term expected return for permanent crops is 7% - 9% and 4% - 6% for row crops

This sub-allocation approach will also provide some internal diversification benefits. During the past 25 years row and permanent crops have produced a correlation 0.738

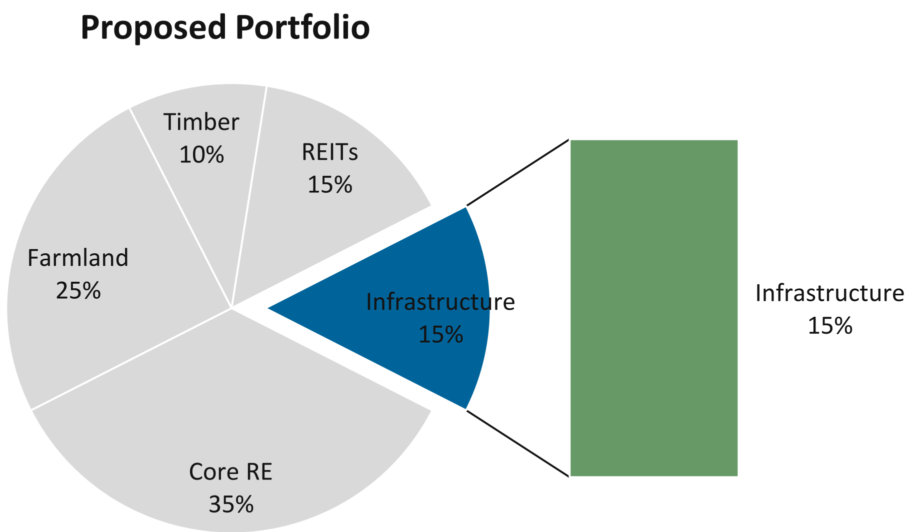
Permanent crop management typically commands an increased asset management fee (Approximately 25bps)

Institutional farmland trades infrequently. Meaningful adjustments to the allocation can take years depending on the opportunities

Despite the growth in fund opportunities, the number of institutional farmland managers is small (Less than 10)

Infrastructure

Private Diversified Core



Private infrastructure should be accessed via commingled funds

Open-end, diversified funds are preferable. Universe of offerings continues to expand, particularly over the past two years

Considerations for Infrastructure in the Current Market Environment:

– Increased institutional interest coupled with the growth of funds has contributed to increased competition for infrastructure assets

– There is potential for additional investment opportunities in U.S. infrastructure - if support for public private partnerships gains momentum with current administration

Implementation Considerations

Infrastructure

Separate accounts are not feasible given the size of the assets

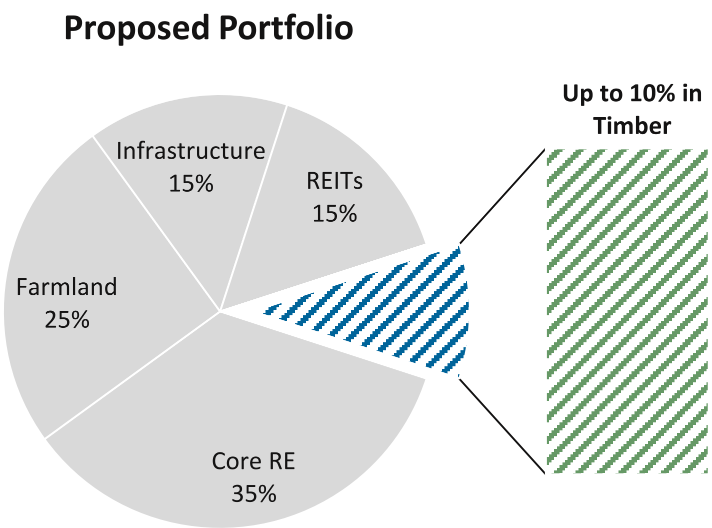
The behavior of non-core infrastructure is not consistent with the goals of the real assets portfolio (limited diversification benefits, high fees, illiquidity)

Core infrastructure should be the focus of the program

Core infrastructure considerations:

- The core fund space is growing but remains limited. (Less than five funds with 5yr+ histories)
- The underlying strategies for those funds vary considerably
- There has been a wide divergence in performance from these core funds
  - 2018 Returns:
    - Hi: 22.8%
    - Low: 1.90%

Timber



- Timber returns have been low for a number of years; income specifically has been low or negative for ARMB accounts (Total return of 4.4% since the program's inception)
- Given the disappointing performance of the asset class and the tempered outlook, selectively reducing timber exposure should be considered
- ARMB should also revisit the management fee structure for the program's timber managers with the goal of lowering fees
- ARMB timber managers should be encouraged to explore non-traditional ways to improve returns (conservation finance, mining minerals, excavating rock deposits)
- If fees cannot be reduced and/or managers are not confident in their ability to improve returns through non-traditional strategies, consideration should be given to eliminating the asset class from ARMB's portfolio

Implementation Considerations

Timber

- Separate accounts are the preferred method to maintain timber exposure given the control and relatively higher liquidity when compared to timber funds
- However, the timber fund market has grown recently and the fees are now comparable with separate account fees
- Specifically there has been an increase in open-end funds which could eventually serve as a viable substitute to increase diversification

Recommendation Summary

- Establish sub-targets for the real assets program, as follows:
  - Core Real Estate: 35%
  - Farmland: 25%
  - REITs: 15%
  - Private Infrastructure: 15%
  - Timber: 10%* (Range from 0 – 10%)
- For Core Real Estate, focus on diversified commingled funds. Potentially eliminate UBS, LaSalle and Sentinel separate accounts. Consider their respective fund options.
- For REITs, continue to manage internally, based on expertise
- For Farmland, establish sub-target of 60% row crops, 40% permanent crops
- For Infrastructure, remain focused on core, diversified funds
- For Timber, closely monitor performance and manager outlook. Revisit possibility of disposing of timber exposure if outlook does not improve
- Discontinue the Non-Core Real Estate program

ARMB Real Assets Allocation Proposed Changes

Existing Portfolio After Approved Allocation Revisions Implemented (June 2019)

	Exposure	% of Real Assets	% of Total
Core Real Estate	$1,418.00	37.93%	5.47%
Farmland	$865.60	23.15%	3.34%
Private Infrastructure	$570.80	15.27%	2.20%
Timber	$365.10	9.77%	1.41%
REITs	$295.70	7.91%	1.14%
Energy	$89.40	2.39%	0.35%
Non-Core Real Estate	$133.98	3.58%	0.52%
MLPs	-	-	-
Listed Infrastructure	-	-	-
Total Real Assets	$3,738.58	100.00%	14.43%
Total Fund	**$25,901.00**		

After Proposed Real Asset Recommendations

	Exposure	% of Real Assets	% of Total
Core Real Estate	$1,178.50	35.00%	4.55%
Farmland	$841.78	25.00%	3.25%
Private Infrastructure	$505.07	15.00%	1.95%
Timber	$336.71	10.00%	1.30%
REITs	$505.07	15.00%	1.95%
Energy	-	-	-
Non-Core Real Estate	-	-	-
MLPs	-	-	-
Listed Infrastructure	-	-	-
Total Real Assets	$3,367.13	100.00%	13.00%
Total Fund	**$25,901.00**		

Implementation Considerations:

– Given the only strategy recommended for elimination, non-core real estate, is illiquid, the recommendation will take a few years to be feasibly implemented

– As the energy and non-core real estate fund portfolios mature and capital is returned, the proceeds should be reinvested in REITs

– As illustrated above, if ARMB were able to implement this change “instantaneously”, all of the asset classes would be very close to their long-term target with the exception of REITs

– Given the relative closeness to the long-term targets, an immediate sell-down of any of the strategies is not necessary

Real Asset Fee Estimates

The proposed structure could potentially reduce management fees from 65bps to approximately 54bps

Base Fee Based on NAV (bps)	Potential Management Fee Estimate	Target
Core Real Estate Funds	0.55%	35.00%
Farmland Separate Accounts	0.65%	25.00%
REITs - Internally Managed	0.00%	15.00%
Private Infrastructure Funds	0.70%	15.00%
Timber Separate Accounts	0.80%	10.00%
	Real Assets Program Average Fee	**0.54%**

Real Asset Allocation Implementation Recommendation Summary

GOAL	NEAR-TERM (0-6 Months)	MID-TERM (6-24 Months)	LONG-TERM (24 Months+)
Diversify Core Real Estate Portfolio	Evaluate existing separate account managers (LaSalle, Sentinel and UBS) to determine the role and position of their portfolio as they fit within the broader real assets program’s objectives and goals Based on the evaluation, recommend if the separate accounts should remain in place or be liquidated	If liquidation is recommended, determine if the existing managers offer a suitable diversified fund which may accept the contributed assets and move forward accordingly. Determination will also include an examination of factors such as performance and fees If existing separate account managers do not offer a suitable substitute Fund, conduct a search for a replacement core diversified fund. Dispose/transfer selected separate account properties to fund those new commitments.	
Reposition Farmland Portfolio	Evaluate existing separate account managers (Hancock and UBS) to determine the role and position of their portfolio as they fit within the broader real asset program’s objectives and goals. Evaluate their experience and ability to pursue permanent crop investments	If existing managers are deemed suitable to invest in permanent crops, instruct them to pursue the strategy while also considering reducing row crop exposure If existing manager are not deemed suitable, conduct a search for farmland managers who are and provide them an allocation	
Increase REIT Portfolio	Strategically increase REIT exposure as capital from other components which are above their targets is returned	Continue to rebalance into REITs	

Real Asset Allocation Implementation Recommendation Summary Continued…

GOAL	NEAR-TERM (0-6 Months)	MID-TERM (6-24 Months)	LONG-TERM (24 Months+)
Maintain Infrastructure Portfolio	Review infrastructure portfolio. Activate dividend option from both IFM and JPMorgan. Use these distributions to rebalance and fund other components of the real assets program as necessary. (i.e. REITs)	Maintain exposure while monitoring new fund opportunities	Maintain exposure while monitoring new fund opportunities
Manage Timber Portfolio	Review existing separate accounts (Hancock and TIR). Instruct managers to provide comprehensive timberland outlook and propose strategies to increase returns	Re-evaluate the outlook of the timber portfolio. Make recommendation to maintain or reduce exposure Maintain flexibility to opportunistically sell asset	Maintain flexibility to opportunistically sell assets
Discontinue Non-Core Real Estate	Reinvest returned capital into REITs	Continue to reinvest returned capital into REITs	Continue to reinvest returned capital into REITs

Disclaimers

This report is for informational purposes only and should not be construed as legal or tax advice on any matter. Any decision you make on the basis of this content is your sole responsibility. You should consult with legal and tax advisers before applying any of this information to your particular situation.

This report may consist of statements of opinion, which are made as of the date they are expressed and are not statements of fact.

Reference to or inclusion in this report of any product, service or entity should not be construed as a recommendation, approval, affiliation or endorsement of such product, service or entity by Callan.

Past performance is no guarantee of future results.

The statements made herein may include forward-looking statements regarding future results. The forward-looking statements herein: (i) are best estimations consistent with the information available as of the date hereof and (ii) involve known and unknown risks and uncertainties such that actual results may differ materially from these statements. There is no obligation to update or alter any forward-looking statement, whether as a result of new information, future events or otherwise. Undue reliance should not be placed on forward-looking statements.

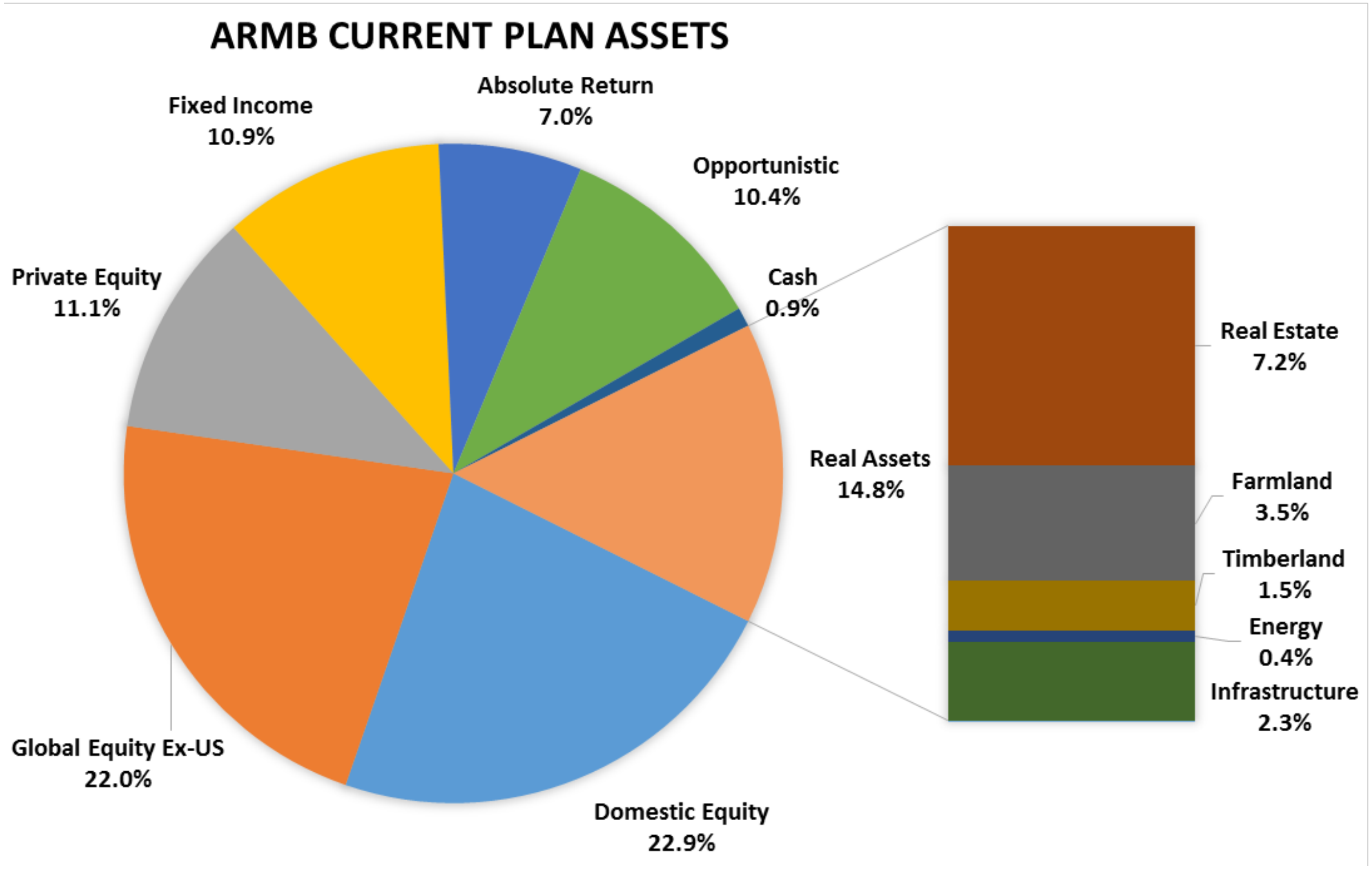
ALASKA RETIREMENT MANAGEMENT BOARD

FY 2020 Real Assets Investment Plan

Nicholas Orr, CFA

Current Plan Asset Allocation

- As of 6/30/2019, Real Assets represents 14.8% of the total portfolio.



Role of Real Assets

Objectives

- Diversify the portfolio while providing attractive total returns, inflation sensitivity, and income.

Strategy

- Seek to establish exposure to real assets through both public and private securities in core, stabilized investments as well as non-core, value-add / opportunistic investments.

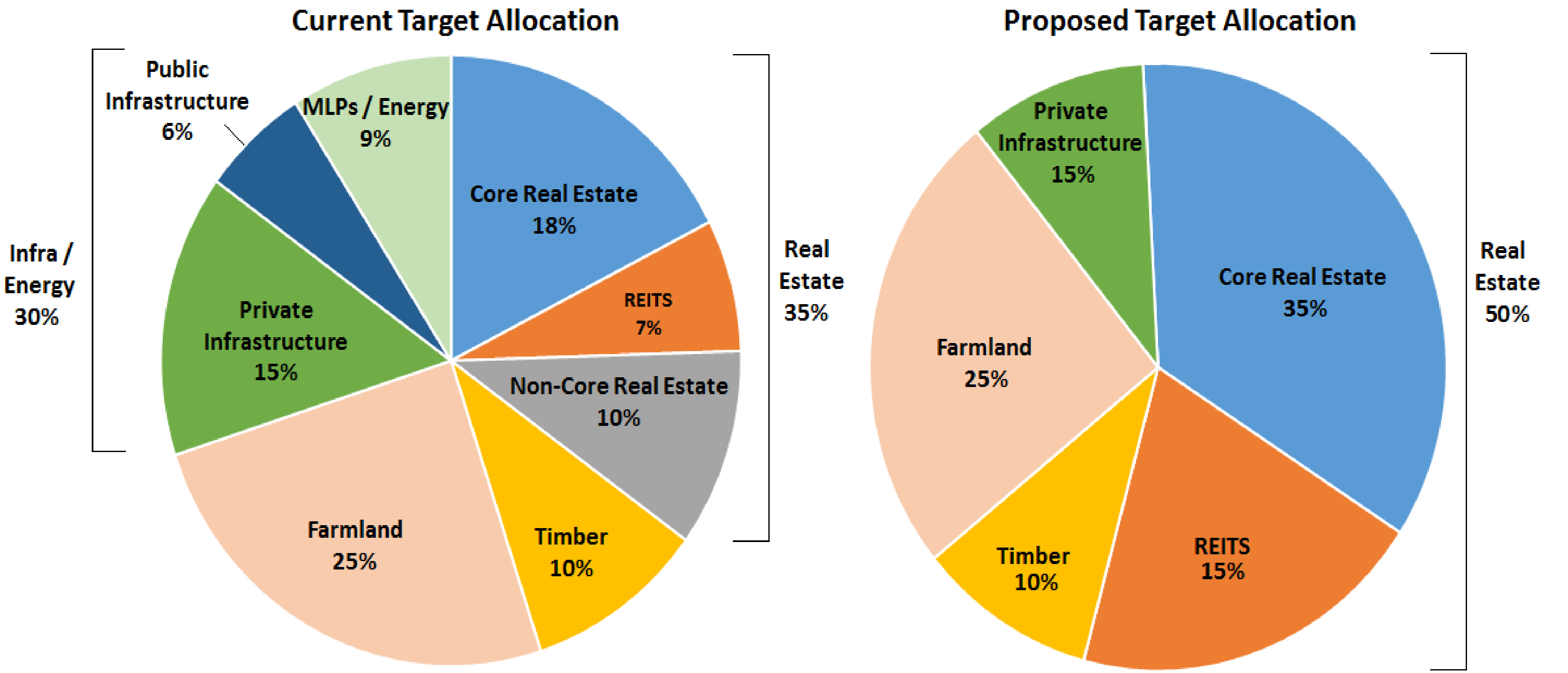
Return Expectations

- Net-of-fee performance is expected to be between public equities and fixed income over rolling 6-year periods.

Real Asset Characteristics

	Core Real	Non-Core Real	REITs	Timber	Farmland	Infrastructure	MLPs
Objectives							
Attractive Returns	✓	✓	✓	✓	✓	✓	✓
Low Volatility	✓	X	X	✓	✓	✓	X
High Income	✓	X	✓	X	✓	✓	✓
Strategy							
Lower Risk / Lower Return	✓	X	X	✓	✓	✓	X
Low Leverage	✓	X	X	✓	✓	X	X
High Quality Assets	✓	X	✓	✓	✓	✓	✓

Proposed Target Allocation Changes



Proposed Allocation vs Actual

	Current Target	Current Weight	Proposed Target
Private Core Real Estate	18%	37%	35%
Non-Core Real Estate	10%	4%	0%
REITs	7%	8%	15%
Total Real Estate	35%	49%	50%
Timber	10%	10%	10%
Farmland	25%	23%	25%
Infrastructure / Energy	30%	18%	15%

Real Estate

- Real Estate Portfolio is comprised of core real estate, REITs, and non-core real estate.

	Current Amount	% of ARMB Real Estate Portfolio	Number of Properties
Private Core Real Estate	1.80B		
Commingled Funds:			
BlackRock US Core	214MM	12%	--
JPM SPF	261MM	14%	--
UBS TPF	65MM	4%	--
Separate Accounts:			
UBS	535MM	29%	11
Sentinel	175MM	10%	3
LaSalle	123MM	7%	2
Non-Core Real Estate	131MM	8%	--
REITs	296MM	16%	--

Real Estate

	1 Year	3 Year	5 Year	7 Year	10 Year	15 Year
ARMB Total Real Estate	6.17%	6.20%	8.73%	9.21%	8.81%	7.06%
ARMB Core Real Estate	4.77%	6.59%	8.42%	8.94%	8.85%	7.95%
NFI-ODCE	5.46%	6.61%	8.76%	9.51%	8.87%	7.01%
UBS IMA	7.22%	8.02%	11.60%	11.85%	10.80%	9.34%
Sentinel IMA	6.17%	8.10%	10.03%	9.38%	10.32%	8.86%
LaSalle IMA	-2.04%	3.58%	4.05%	5.36%	7.36%	6.30%
JPM SPF	4.43%	6.12%	8.15%	9.57%	8.78%	7.68%
UBS TPF	-1.03%	3.41%	6.19%	6.97%	7.22%	6.53%
BlackRock USCPF	6.34%	-	-	-	-	-
Non-Core Real Estate	9.16%	8.28%	11.59%	11.24%	8.24%	3.97%
REITs	12.92%	5.75%	8.81%	9.50%	15.92%	-
FTSE-NAREIT	13.01%	5.92%	8.88%	9.65%	16.03%	9.41%

Note: annualized net-of-fee returns

Real Estate - Recommendations

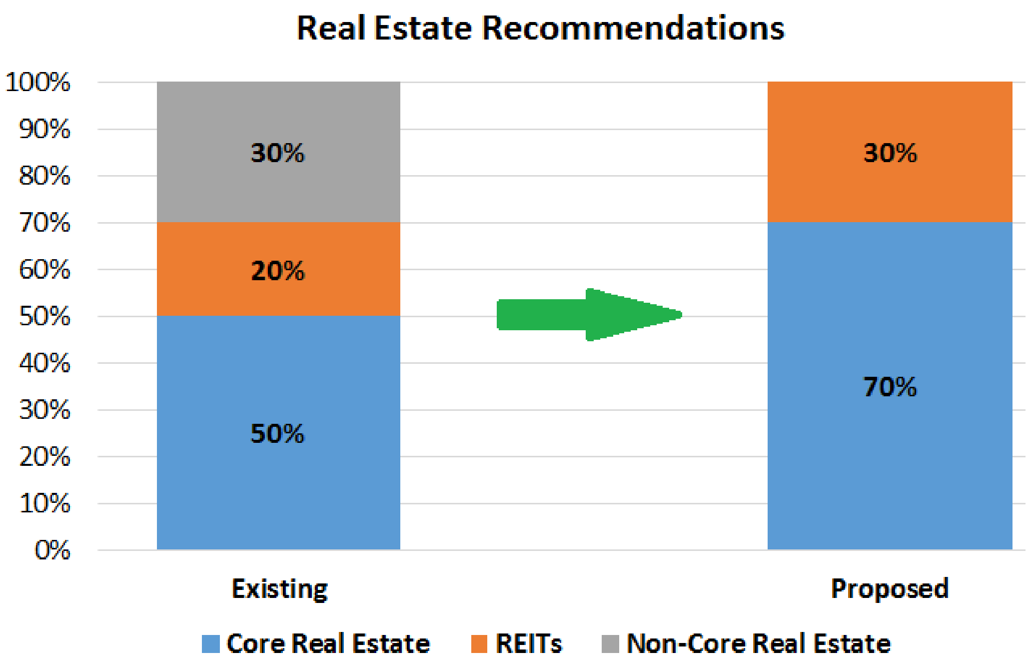
	Current Weight	Current Target	Proposed Target
Private Core Real Estate	37%	17%	35%
REITs	8%	7%	15%
Non-Core Real Estate	4%	11%	0%
Benchmark		NFI-ODCE / NAREIT	NFI-ODCE / NAREIT

- Recommendation: increase core real estate target and increase REITs
- Transition separate accounts to commingled funds. This will increase diversification and management focus with similar returns.

Real Estate – Recommendations

Core Real Estate Allocation

- Shift existing core assets / capital into open-end commingled funds
  - Improve quality of assets.
  - Improve quality of management attention.
  - Improve diversification.



REITs Allocation

- Allows for liquidity, exposure to trophy properties challenging to access in the private space, and emerging real estate sectors (self-storage, health care, data centers, etc.).

Real Estate – Recommendations (core)

Separate Account: Sentinel

- Explore transferring Sentinel separate account assets to the Sentinel Real Estate Fund (SREF), or similar commingled fund.
- SREF's strategy and investments are substantially similar to those of the ARMB separate account, albeit with modest use of leverage.
- ARMB would be gaining diversification with no change in strategy.
- SREF focuses on apartments and has outperformed both the NFI-ODCE Index as well as the NCREIF Apartment Sub-index over the 1, 3, 5, and 10 year time periods.

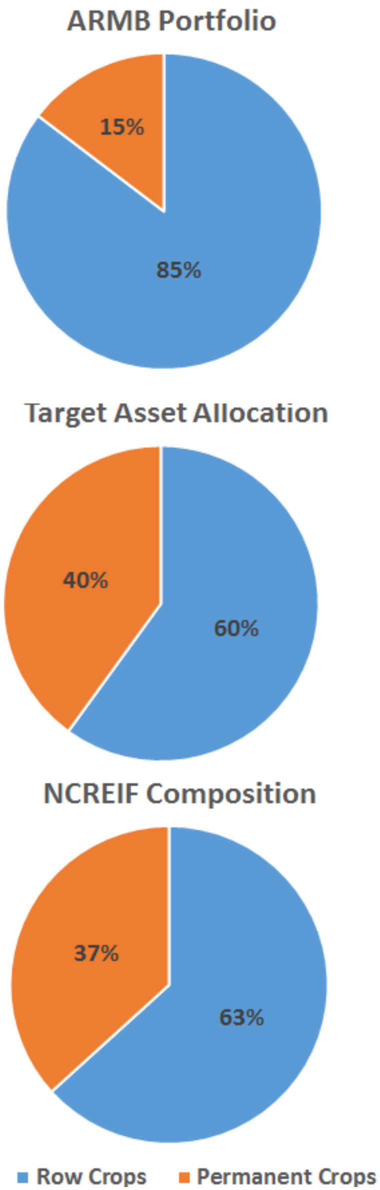
Separate Account: UBS

- Transfer or liquidate assets from the account as necessary to fund investment in open-end commingled ODCE fund(s).
- Transfer two multi-family assets to SREF.

Farmland

	Market Value	Number of Properties
UBS Farmland	594.5MM	67
Hancock Ag	270.3MM	26

	1 Year	3 Year	5 Year	7 Year	10 Year
ARMB Farmland Custom Benchmark	5.04%	5.50%	5.72%	8.25%	9.09%
Hancock Ag (Gross)	2.30%	3.44%	4.28%	5.37%	6.94%
Hancock Ag (Net)	1.47%	2.59%	3.44%	4.47%	6.03%
UBS Farmland (Gross)	4.63%	4.93%	5.75%	8.30%	8.99%
UBS Farmland (Net)	3.80%	4.03%	4.86%	7.41%	8.10%



Note: annualized returns

Timber

	Market Value	Number of Properties
TIR	272.5MM	14
Hancock Timber	100.3MM	3

	1 Year	3 Year	5 Year	7 Year	10 Year
NCREIF Timberland	2.95%	3.29%	4.62%	6.03%	3.98%
Hancock Timber (Gross)	5.72%	3.53%	3.03%	5.79%	5.60%
Hancock Ag (Net)	4.98%	2.90%	2.52%	5.24%	4.93%
TIR (Gross)	4.99%	3.46%	4.35%	5.32%	4.25%
TIR (Net)	4.14%	2.61%	3.58%	4.58%	3.47%

Outlook:

- Timber is likely to have challenging fundamentals going forward
- Oversupply in many markets
- Lack of widespread institutional demand
- Slowing of new home construction

Recommendation:

- Opportunistically look to reduce exposure to Timber
- Move target from 10% to range of 0 – 10%

Note: annualized returns

Infrastructure

	Current Weight	Current Target	Proposed Target
Infrastructure / Energy	18%	30%	15%
Private Infrastructure	89%	40%	100%
Public Infrastructure	0%	20%	0%
Energy	11%	40%	0%
Benchmark		CPI + 4 / S&P Global Infrastructure Index / Alerian MLP Index	CPI + 4

		Performance			
	Market Value	1 Year	3 Year	5 Year	Since Inception
IFM	467.3MM	14.28%	13.02%	-	14.53%
JPM Infrastructure	120.7MM	2.87%	6.40%	3.74%	4.25%

Note: annualized net-of-fee returns

Real Assets Portfolio - Recommendations

- Reposition and Increase Real Estate allocation
  - Eliminate non-core allocation
  - Increase REITs
- Opportunistically look to reduce Timber portfolio
- Change Infrastructure Benchmark
- Change Real Assets Policy Benchmark

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	Fiscal Year 2020 Real Assets Annual Investment Plan	ACTION:	X
DATE:	September 19-20, 2019	INFORMATION:	

BACKGROUND

Staff prepares an Annual Real Assets Investment Plan to review performance, structure, objectives, and strategy of the portfolio. The plan establishes the Board-approved plan for the portfolio for the upcoming fiscal year.

STATUS

Staff, with the assistance of Callan, has developed the Real Assets Annual Investment Plan for Fiscal Year 2020. The Real Assets Annual Investment Plan includes a presentation of the Fiscal Year 2020 investment strategy. Specific recommendations for the Real Assets Fiscal Year 2020 Investment Plan are as follows:

Real Estate
- Change Private core real estate allocation from 17.5% to 35%
- Change Non-core real estate allocation from 10.5% to 0%
- Change REIT allocation from 7% to 15%

Timberland
- Change allocation from 10% to 0 – 10%

Farmland
- No Change (25%)

Infrastructure / Energy
- Change allocation from 30% to 15%
- Change index to CPI+4

RECOMMENDATION

The ARMB approve Resolution 2019-14 which adopts the Real Assets Annual Investment Plan for Fiscal Year 2020 and Resolution 2019-15 which changes the Infrastructure guidelines.

Attachments: Infrastructure guidelines

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to Real Assets Annual Investment Plan

Resolution 2019-14

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, the Board contracts an independent consultant to provide experience and expertise in asset allocation and other investment matters to come before the Board; and

WHEREAS, the Board has established an asset allocation for the funds that considers earnings and liabilities on a current as well as a future basis; and

WHEREAS, the Board has authorized investments in Real Assets for the Public Employees' Retirement System, Teachers' Retirement System, and Judicial Retirement System, including investments for those systems in the State of Alaska Retirement and Benefits Plans Trust; and

WHEREAS, the Board will establish and on an annual basis review an investment plan for Real Assets asset class.

NOW THEREFORE BE IT RESOLVED THAT THE ALASKA RETIREMENT MANAGEMENT BOARD adopt the Real Assets Annual Investment Plan for Fiscal Year 2020, attached hereto and made a part hereof.

DATED at Juneau, Alaska this ___ day of September, 2019.

____
Chair

ATTEST:

____
Secretary

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to Infrastructure Investment Guidelines

Resolution 2019-15

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, the Board contracts an independent consultant to provide experience and expertise in asset allocation and other investment matters to come before the Board; and

WHEREAS, the Board has established an asset allocation for the funds that considers earnings and liabilities on a current as well as a future basis; and

WHEREAS, the Board has authorized investment in real estate assets for the Public Employees' Retirement System, Teachers' Retirement System, and Judicial Retirement System, including investments for those systems in the State of Alaska Retirement and Benefit Plans Trust; and

WHEREAS, the Board establishes and from time to time as necessary, modifies investment policies, procedures, and guidelines for real estate;

NOW THEREFORE, BE IT RESOLVED THAT THE ALASKA RETIREMENT MANAGEMENT BOARD adopts the Infrastructure Investment Guidelines, attached hereto and made a part hereof.

This resolution repeals and replaces Resolution 2018-16.

DATED at Juneau, Alaska this _____ day of September, 2019.

____
Chair

ATTEST:

____
Secretary

Infrastructure

ARMB Investment Guidelines

In addition to the Infrastructure Guidelines, public infrastructure investments shall comply with ARMB's Investment Guidelines for Domestic, International and Alternative Equities.

Section 1. Investment Objective

To develop a diversified portfolio of infrastructure investments with a focus on total return which will seek to produce a net-of-fee total return between public equities and fixed income over rolling six-year periods. Each ARMB infrastructure advisor will place an emphasis on the preservation of capital and diversify the infrastructure investments to minimize risk. To the extent return objectives can be met, current income shall be given preference over appreciation.

Section 2. ARMB Infrastructure Advisor Selection

ARMB will select qualified investment managers who have the discretion to invest in infrastructure. In order for entities to be considered, the entity must demonstrate that it is able to add value through its infrastructure knowledge, experience and strategy; evaluate the risks of each infrastructure investment which is contemplated; and comply with these ARMB Infrastructure Investment Guidelines.

ARMB will implement an investment process for infrastructure which will, over time, include a minimum of two private investment advisors who have been selected on a competitive basis. Each ARMB infrastructure investment advisor will provide services according to an agreed upon investment management agreement (contract) and the ARMB Investment Guidelines. ARMB will endeavor to allocate specific funds to each ARMB infrastructure investment advisor. ARMB infrastructure advisors will invest funds on a discretionary basis in infrastructure investment opportunities to the extent of its specific allocation.

Compensation for investment management services will be done on a fee basis that is competitive. The preferred method of calculating ARMB infrastructure investment advisor fees will be based upon a formula, which considers 1) the cost basis of assets under management and 2) market value of the assets under management.

Section 3. Allocation

ARMB's allocation to infrastructure investments shall be determined by the Board of Trustees and reviewed annually.

CIO Discretionary Investment Authority – The CIO shall have the following discretionary investment authority:

a) To increase or decrease existing separate account allocations and investments in open-end funds;

b) To commit to new investment funds up to $100 million for each fund; and,

c) To engage consultants and take other action as may be necessary to ensure sufficient due diligence is performed on all investments under consideration.

The CIO shall exercise this discretion within Board approved asset allocations, investment plans, and guidelines as they may apply.

The CIO will provide prior notification to the Chair of ARMB before committing to any investments under this authority. All discretionary CIO investment actions shall be reported to the Board.

Section 4. Performance Benchmark

The benchmark for the total infrastructure portfolio will be CPI + 4%~~, the S&P Global Infrastructure Index, and the Alerian MLP Index~~. Investment managers for public stock portfolios will be allowed to use their preferred infrastructure benchmark. Private investment advisors will be evaluated based on the income and total return objectives of their strategies. The inflation index used to calculate the actual real rate of return is the CPI All Urban.

Section 5. Investment Constraints

(a) Private infrastructure investment strategies shall be constrained by the partnership agreements and other agreements establishing the contractual arrangement with ARMB's infrastructure investment advisors.

(b) Location: No more than 10% of ARMB's infrastructure investments shall be located in emerging markets.

(c) Strategy: No more than 20% of ARMB's infrastructure investments shall be focused on development of infrastructure assets.

(d) Diversification and Concentration: Each ARMB infrastructure advisor shall ensure that the infrastructure investments under its control are adequately diversified in the context of its investment strategy.

(e) Leverage: The total amount of leverage utilized by private infrastructure managers shall not exceed 75% of the value of the asset as measured at the time the leverage is placed on the asset. Public infrastructure investment managers shall not use leverage.

Section 6. Ownership Structure

Private infrastructure investments will be owned in a structure designed to limit ARMB's liability to the amount of its investment and, where feasible, to recognize and preserve tax-exempt status.

Section 7. Reporting System

Staff will develop and implement a comprehensive and responsive reporting and monitoring system for each ARMB infrastructure advisor.

Section 8. Lines of Responsibility

The infrastructure investment program will be implemented and monitored through the coordinated efforts of the ARMB, staff, and the ARMB infrastructure advisors. A description of the program participants and their general responsibilities are as follows:

ARMB – The statutorily created board which is the fiduciary for the retirement trust funds, comprised of trustees appointed by the Governor to represent the beneficiaries' interest. ARMB hires qualified infrastructure investment advisors and consultants, approves the ARMB Investment Guidelines and revisions to them, and approves the Annual Investment Plan prepared by staff.

Staff - Investment professionals on staff at the Department of Revenue assigned to ARMB infrastructure investments, which will assist in the program's design, policy implementation, and administration. Staff will recommend revisions to the Infrastructure Investment Guidelines as may be necessary from time to time to ARMB.

Annually, staff will prepare an Annual Investment Plan. This document will recommend, as appropriate, revisions to the overall infrastructure investment strategy, revisions to the Infrastructure Investment Guidelines, and make recommendations for additional allocations as may be desirable.

ARMB Infrastructure Advisors – Qualified entities selected by ARMB that provide institutional infrastructure investment management services to ARMB. ARMB Infrastructure Advisors will invest and manage the portfolios in accordance with their contracts.

Section 9. Confidentiality

Pursuant to 15 AAC 112.770, ARMB shall withhold from other persons all information furnished to it by ARMB Infrastructure Advisor(s) or consultant(s) which is reasonably designated by ARMB Infrastructure Advisor(s) or consultant(s) as being confidential or proprietary, within the meaning of Alaska Statutes regarding rights to public information, except to the extent that the information is needed by ARMB in order to adequately report on the status and performance of the portfolio, or to comply with a court subpoena or with an official criminal investigation.

Those portions of reports provided pursuant to the Agreement with ARMB Infrastructure Advisor(s) shall be considered confidential pursuant to 15 AAC 112.770 to the extent that information is reasonably designated by ARMB Infrastructure Advisor(s) as being confidential or proprietary, or to the extent the disclosure of which would unfairly prejudice the ability of ARMB Infrastructure Advisor(s) or ARMB to manage, lease, market or sell such property or assets.

Section 10. Revisions

The ARMB Investment Guidelines are to be reviewed no less than annually and revised as appropriate.

Section 11. ARMB Infrastructure Advisors

The following entities have been selected and appointed as ARMB Infrastructure Advisors to acquire infrastructure investments on a discretionary basis for the Alaska Retirement Management Board:

IFM Investors 114 West 47th Street New York, NY 10036 Phone: 212-784-2260 www.ifminvestors.com	~~**Lazard Asset Management LLC**~~ ~~30 Rockefeller Plaza, 57th Floor~~ ~~New York, NY 10112~~ ~~Phone: 212-632-6519~~ ~~www.lazardnet.com~~
JPMorgan Asset Management 270 Park Avenue, 7th Floor, NY1-K141 New York, NY 10017 Phone: 212-648-2219 www.jpmorgan.com	~~**Brookfield Investment Management Inc.**~~ ~~250 Vesey Street~~ ~~New York, NY 10281-1023~~ ~~Phone: 212-978-1794~~ ~~www.brookfieldim.com~~

Infrastructure

ARMB Investment Guidelines

In addition to the Infrastructure Guidelines, public infrastructure investments shall comply with ARMB's Investment Guidelines for Domestic, International and Alternative Equities.

Section 1. Investment Objective

To develop a diversified portfolio of infrastructure investments with a focus on total return which will seek to produce a net-of-fee total return between public equities and fixed income over rolling six-year periods. Each ARMB infrastructure advisor will place an emphasis on the preservation of capital and diversify the infrastructure investments to minimize risk. To the extent return objectives can be met, current income shall be given preference over appreciation.

Section 2. ARMB Infrastructure Advisor Selection

ARMB will select qualified investment managers who have the discretion to invest in infrastructure. In order for entities to be considered, the entity must demonstrate that it is able to add value through its infrastructure knowledge, experience and strategy; evaluate the risks of each infrastructure investment which is contemplated; and comply with these ARMB Infrastructure Investment Guidelines.

ARMB will implement an investment process for infrastructure which will, over time, include a minimum of two private investment advisors who have been selected on a competitive basis. Each ARMB infrastructure investment advisor will provide services according to an agreed upon investment management agreement (contract) and the ARMB Investment Guidelines. ARMB will endeavor to allocate specific funds to each ARMB infrastructure investment advisor. ARMB infrastructure advisors will invest funds on a discretionary basis in infrastructure investment opportunities to the extent of its specific allocation.

Compensation for investment management services will be done on a fee basis that is competitive. The preferred method of calculating ARMB infrastructure investment advisor fees will be based upon a formula, which considers 1) the cost basis of assets under management and 2) market value of the assets under management.

Section 3. Allocation

ARMB's allocation to infrastructure investments shall be determined by the Board of Trustees and reviewed annually.

CIO Discretionary Investment Authority – The CIO shall have the following discretionary investment authority:

a) To increase or decrease existing separate account allocations and investments in open-end funds;

b) To commit to new investment funds up to $100 million for each fund; and,

c) To engage consultants and take other action as may be necessary to ensure sufficient due diligence is performed on all investments under consideration.

The CIO shall exercise this discretion within Board approved asset allocations, investment plans, and guidelines as they may apply.

The CIO will provide prior notification to the Chair of ARMB before committing to any investments under this authority. All discretionary CIO investment actions shall be reported to the Board.

Section 4. Performance Benchmark

The benchmark for the total infrastructure portfolio will be CPI + 4%. Investment managers for public stock portfolios will be allowed to use their preferred infrastructure benchmark. Private investment advisors will be evaluated based on the income and total return objectives of their strategies. The inflation index used to calculate the actual real rate of return is the CPI All Urban.

Section 5. Investment Constraints

(a) Private infrastructure investment strategies shall be constrained by the partnership agreements and other agreements establishing the contractual arrangement with ARMB's infrastructure investment advisors.

(b) Location: No more than 10% of ARMB's infrastructure investments shall be located in emerging markets.

(c) Strategy: No more than 20% of ARMB's infrastructure investments shall be focused on development of infrastructure assets.

(d) Diversification and Concentration: Each ARMB infrastructure advisor shall ensure that the infrastructure investments under its control are adequately diversified in the context of its investment strategy.

(e) Leverage: The total amount of leverage utilized by private infrastructure managers shall not exceed 75% of the value of the asset as measured at the time the leverage is placed on the asset. Public infrastructure investment managers shall not use leverage.

Section 6. Ownership Structure

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JPMorgan Asset Management 270 Park Avenue, 7th Floor, NY1-K141 New York, NY 10017 Phone: 212-648-2219 www.jpmorgan.com	

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	Fiscal Year 2020 Real Assets Annual Investment Plan	ACTION:	X
DATE:	September 19-20, 2019	INFORMATION:	

BACKGROUND

Staff prepares the Real Assets Policy Benchmark to appropriately measure portfolio performance. The Policy Benchmark establishes the Board-approved benchmark for the portfolio for the upcoming fiscal year.

STATUS

Staff, with the assistance of Callan, has developed the Real Assets Annual Investment Plan for Fiscal Year 2020. The Real Assets Annual Investment Plan will likely change the Real Assets portfolio in a way that requires a change in the benchmark in order to provide a meaningful comparison.

Current Policy Benchmark

45.5% NCREIF Property Index
2% FTSE-NAREIT
25% NCREIF Farmland
10% NCREIF Timber
17.5% S&P Global Infrastructure Index

Proposed Policy Benchmark

37.5% NFI-ODCE
10% FTSE-NAREIT
25% NCREIF Farmland
10% NCREIF Timber
17.5% CPI+4

RECOMMENDATION

The ARMB approve Resolution 2019-16 which adopts the Real Assets Policy Benchmarks for Fiscal Year 2020.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Real Assets Policy Benchmark

Resolution 2019-16

WHEREAS, the Alaska Retirement Management Board (Board) was established by law to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, under AS 37.10.210-220, the Board is to establish and determine the investment objectives and policy for each of the funds entrusted to it; and

WHEREAS, AS 37.10.071 and AS 37.10.210-220 require the Board to apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the funds entrusted to it and treat beneficiaries thereof with impartiality; and

WHEREAS, the Board contracts an independent consultant to provide experience and expertise in asset allocation and other investment matters to come before the Board; and

WHEREAS, the Board has established an asset allocation for the funds that considers earnings and liabilities on a current as well as a future basis; and

WHEREAS, the Board has authorized investments in Real Assets for the Public Employees' Retirement System, Teachers' Retirement System, and Judicial Retirement System, including investments for those systems in the State of Alaska Retirement and Benefits Plans Trust; and

WHEREAS, the Board will establish and on an annual basis review an investment plan for Real Assets asset class.

NOW THEREFORE BE IT RESOLVED THAT THE ALASKA RETIREMENT MANAGEMENT BOARD adopt the following Real Assets Policy Benchmark starting October 1, 2019.

Real Assets	37.5% NFI-ODCE 10% FTSE-NAREIT 25% NCREIF Farmland 10% NCREIF Timberland 17.5% CPI+4

DATED at Juneau, Alaska this ___ day of September, 2019.

____
Chair

ATTEST:

____
Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: S&P 500 Consolidation

ACTION: X

DATE: September 19-20, 2019

INFORMATION:

BACKGROUND

The Supplemental Annuity Plan and PERS/TRS Defined Contribution Retirement Plans under the fiduciary responsibility of Alaska Retirement Management Board (ARMB) offer an S&P 500 Index fund managed by State Street Global Advisors (SSGA) at a cost of 1 basis point. The Deferred Compensation Plan offers an S&P 500 Index fund managed by BlackRock at a cost of 2 basis points.

This structure, with different vendors and fees for the same mandate, is often confusing for participants. To address these issues, staff undertook the project of consolidating the investment in the S&P 500 Index with a single vendor and reviewing the fees being charged for this mandate to ensure participants are receiving competitive rates.

STATUS

Staff requested bids from 10 different managers who offer an S&P Index fund for Defined Contribution plans, and selected SSGA as investment manager for the board's consideration. SSGA provided the lowest bid, with the additional benefits of strong customer service and over a 10-year history of servicing three out of the four participant-directed plans for this option.

RECOMMENDATION

The Alaska Retirement Management Board direct staff to terminate the S&P 500 Index fund mandate for the Deferred Compensation Plan managed by BlackRock and contract with SSGA to provide an S&P 500 Index fund for the Deferred Compensation Plan, Supplemental Annuity Plan and PERS/TRS Defined Contribution Retirement Plans subject to successful contract negotiations.

ALASKA RETIREMENT MANAGEMENT BOARD

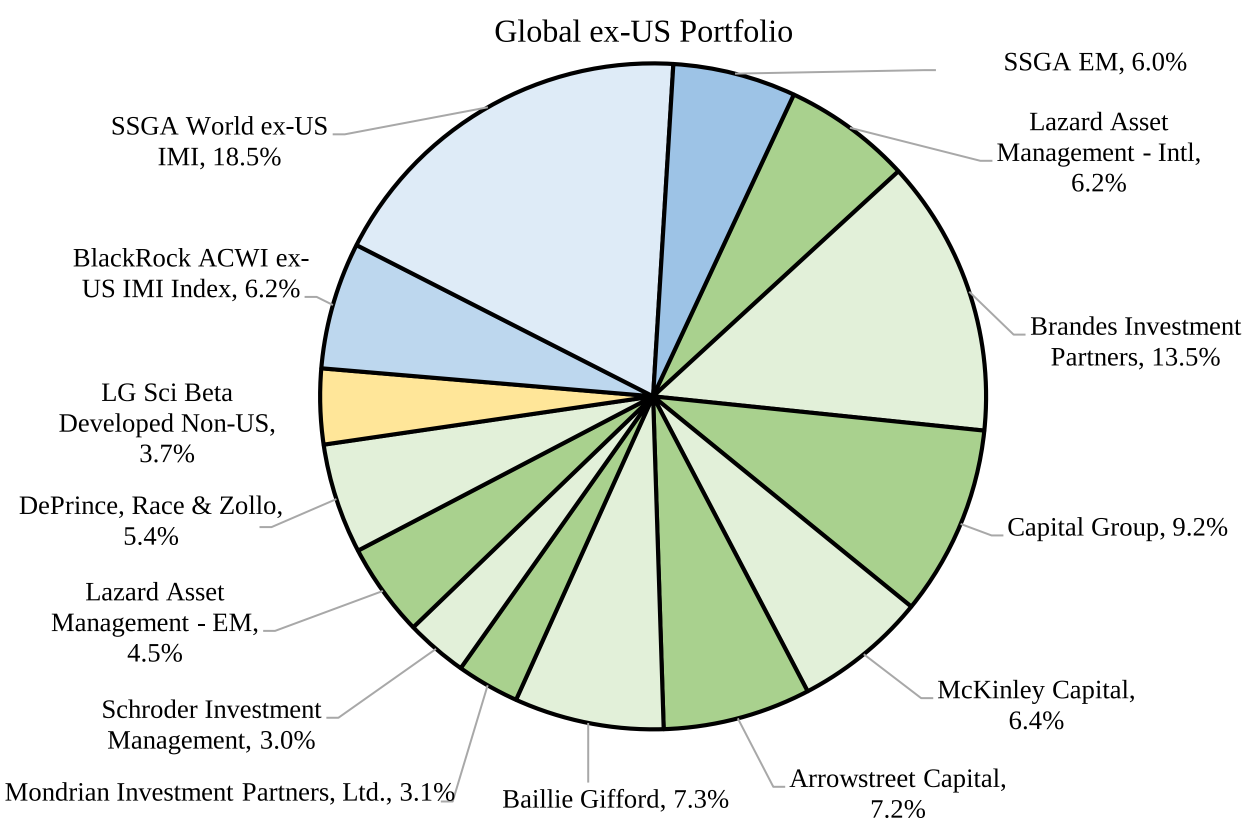
SUBJECT:	Global ex-US Manager Structure	ACTION:	X
DATE:	September 19 - 20, 2019	INFORMATION:	

<u>BACKGROUND</u>:

The Alaska Retirement Management Board's (ARMB) Global ex-US portfolio currently has a target weight of 18% of total ARMB assets. In dollar terms this is approximately $4.9 billion as of July 31, 2019.

ARMB Global ex-US portfolio profile as of July 31, 2019:

The asset class is invested approximately 30% in passive strategies, 4% in factor indices, and 66% in active managers.



STATUS:

The following table identifies proposed changes to existing mandates in the Global ex-US asset class. For further discussion, please reference the Global Equity ex-US Manager Structure ARMB presentation at the September 2019 ARMB meeting.

Manager	Passive / Active / Factor	Benchmark	Retain	Terminate
SSGA	Passive	MSCI World ex-US IMI	X	
SSGA	Passive	MSCI Emerging Markets	X	
Legal and General	Factor	Sci Beta Developed MBMS 4F EW	X	
Legal and General	Factor	Sci Beta Emerging MBMS 4F EW	X	
Arrowstreet Capital	Active	MSCI ACWI ex-US	X	
Baillie Gifford	Active	MSCI ACWI ex-US Growth	X	
Brandes Investment Partners	Active	MSCI ACWI ex-US Value	X	
Capital Group	Active	MSCI EAFE	Modify	
DePrince, Race & Zollo	Active	MSCI Emerging Markets Value		X
Lazard Asset Management	Active	MSCI ACWI ex-US		X
Lazard Asset Management	Active	MSCI Emerging Markets		X
McKinley Capital	Active	MSCI ACWI ex-US Growth		X
Mondrian Investment Partners, Ltd.	Active	MSCI EAFE Small Cap		X
Sands Group (not funded)	Active	MSCI Emerging Markets Growth		X
Schroder Investment Management	Active	MSCI EAFE Small Cap		X

RECOMMENDATION:

The Alaska Retirement Management Board adopt the proposed changes to the Global ex-US asset class as identified in the preceding table in this action memo.

In addition, the Alaska Retirement Management Board direct staff to modify the mandate with Capital Group to include emerging markets and change the performance benchmark from the MSCI EAFE Index to the MSCI ACWI ex-US Index.

Callan

September 19, 2019

ARMB Board Meeting

Investment Performance
Periods Ended June 30, 2019

Steve Center, CFA
Senior Vice President

Paul Erlendson
Senior Vice President

Agenda

- Market and Economic Environment

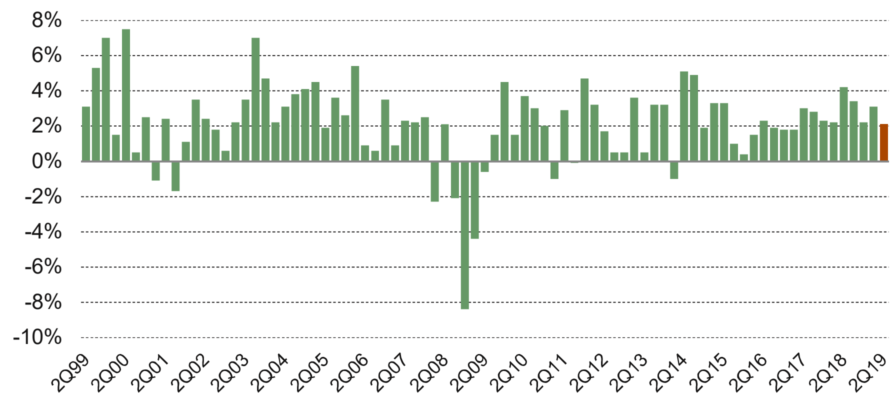
- Total Fund Performance
  – Major Asset Classes
  – Global ex-US Equity Detailed Review
  – Global ex-US Equity Benchmark Policy
  – Participant-Directed Plans

U.S. Economy

June 30, 2019

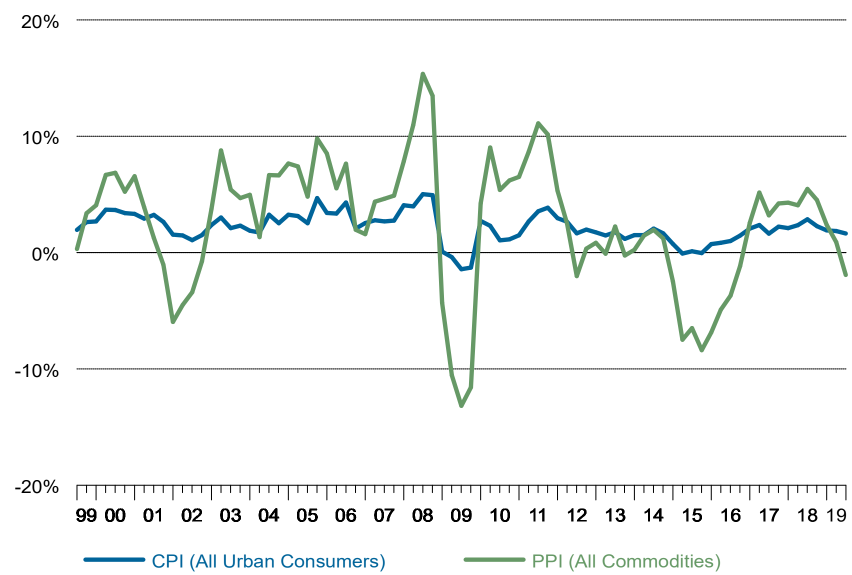
- The second estimate of second quarter GDP growth came in at 2.0% (annualized)
  - This figure reflects a decline from the first estimate of 2.1%, lower than the 3.1% growth in Q1 (3.1%).
  - Growth from consumer spending was much stronger than anticipated, at 4.3%.
- Labor market remains healthy, but volatile
  - On average, over 170,000 jobs were added on a monthly basis in the second quarter. However, job growth was highly inconsistent; reaching 224,000 in April and June, with a low of 74,000 in May.
  - US unemployment was 3.7% in June, July and August
- Moderate inflation
  - As of June, the CPI-U rose 1.6% over the last 12 months, while core CPI-U grew 2.0% over the same period.
  - Though month-end July, the CPI rose 1.8% over the trailing 12-month period
- The Fed provided more dovish guidance for 2019
  - As of June, the Federal Open Market Committee (FOMC) held the Fed Funds target range at 2.25% to 2.50%

Quarterly Real GDP Growth (20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year

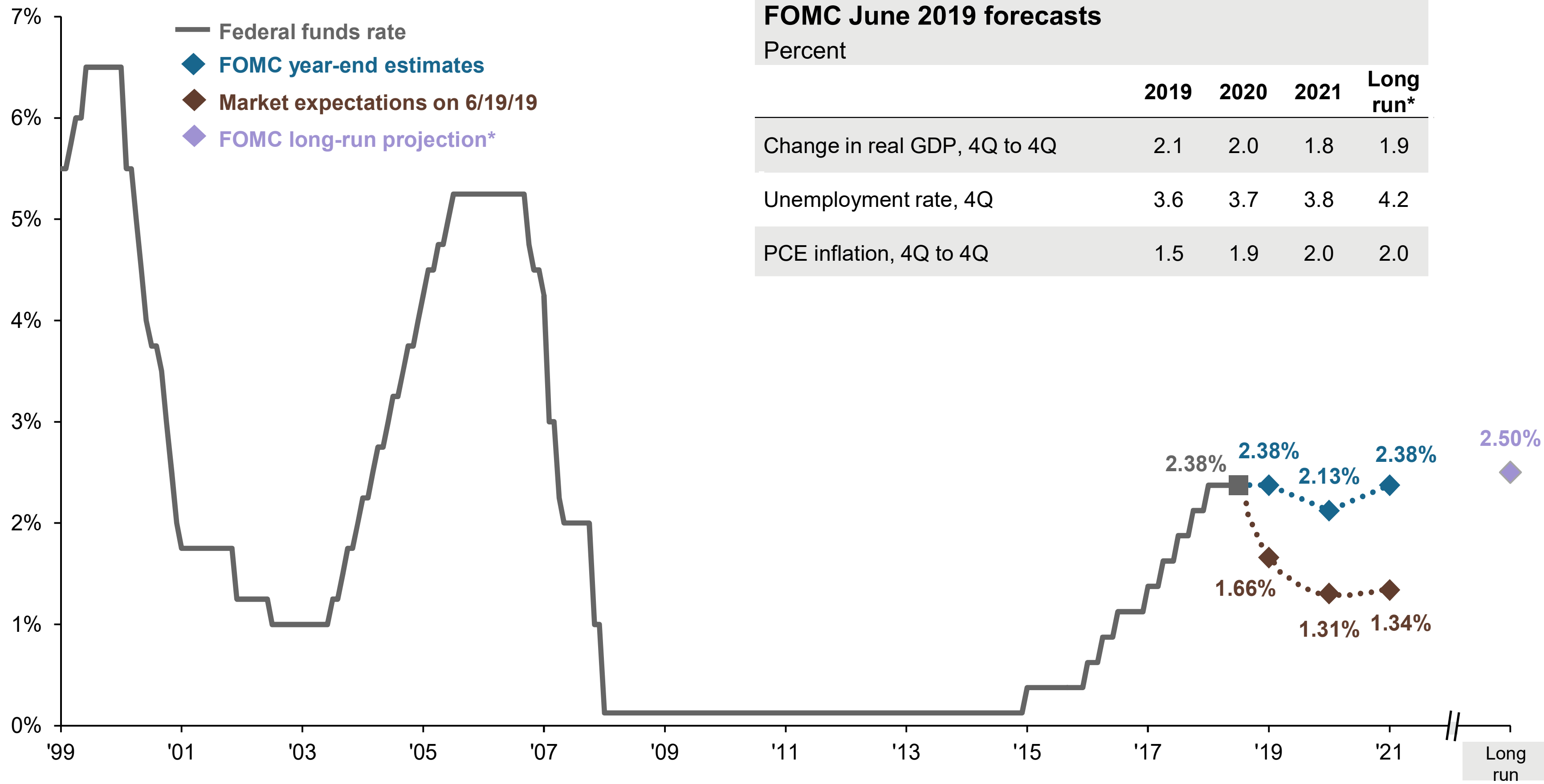


Source: Bureau of Labor Statistics

The Fed and Interest Rates

Federal funds rate expectations

FOMC and market expectations for the federal funds rate



FOMC June 2019 forecasts

Percent

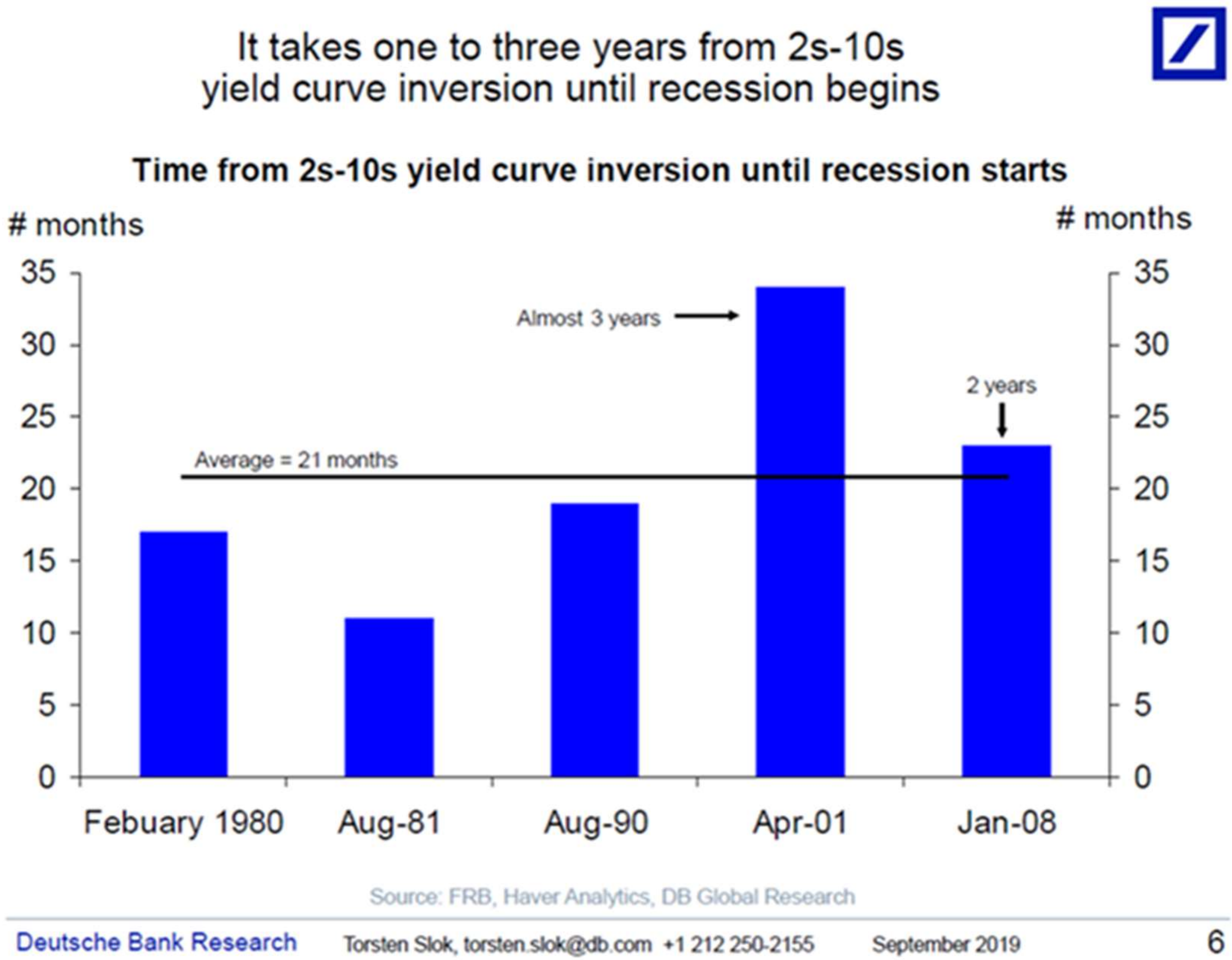
	2019	2020	2021	Long run*
Change in real GDP, 4Q to 4Q	2.1	2.0	1.8	1.9
Unemployment rate, 4Q	3.6	3.7	3.8	4.2
PCE inflation, 4Q to 4Q	1.5	1.9	2.0	2.0

- At its July 31, 2019 meeting, the Federal Reserve Open Market Committee (FOMC) voted to lower the target by 25 basis points to a new range of 2 to 2-1/4 percent. In a press release, the FOMC said its decision was based on “implications of global developments for the economic outlook as well as muted inflation pressures.”

Source: JP Morgan Guide to the Markets as of June 30, 2019

How Long Until the Next Recession?

Although the yield curve has inverted, a recession may not be imminent.



Asset Class Performance

Periodic Table of Investment Returns for Periods Ended June 30, 2019

Best

Last Quarter	Last 2 Quarters	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 20 Years
S&P:500 4.3%	S&P:500 18.5%	S&P:500 10.4%	S&P:500 14.2%	S&P:500 10.7%	S&P:500 14.7%	Russell:2000 Index 7.8%
MSCI:EAFE 3.7%	Russell:2000 Index 17.0%	Blmbg:Aggregate 7.9%	Russell:2000 Index 12.3%	NCREIF:NFI-ODCE Val Wt Nt 8.9%	Russell:2000 Index 13.4%	MSCI:EM Gross 7.6%
Blmbg:Aggregate 3.1%	MSCI:EAFE 14.0%	NCREIF:NFI-ODCE Val Wt Nt 5.9%	MSCI:EM Gross 11.1%	Russell:2000 Index 7.1%	NCREIF:NFI-ODCE Val Wt Nt 8.9%	NCREIF:NFI-ODCE Val Wt Nt 7.4%
Russell:2000 Index 2.1%	MSCI:EM Gross 10.8%	3 Month T-Bill 2.3%	MSCI:EAFE 9.1%	Blmbg:Aggregate 2.9%	MSCI:EAFE 6.9%	S&P:500 5.9%
NCREIF:NFI-ODCE Val Wt Nt 1.2%	Blmbg:Aggregate 6.1%	MSCI:EM Gross 1.6%	NCREIF:NFI-ODCE Val Wt Nt 6.8%	MSCI:EM Gross 2.9%	MSCI:EM Gross 6.2%	Blmbg:Aggregate 4.9%
MSCI:EM Gross 0.7%	Blmbg:Commodity Price Idx **3.8%**	MSCI:EAFE 1.1%	Blmbg:Aggregate 2.3%	MSCI:EAFE 2.2%	Blmbg:Aggregate 3.9%	MSCI:EAFE 4.0%
3 Month T-Bill 0.6%	NCREIF:NFI-ODCE Val Wt Nt 2.4%	Russell:2000 Index (3.3%)	3 Month T-Bill 1.4%	3 Month T-Bill 0.9%	3 Month T-Bill 0.5%	3 Month T-Bill 1.9%
Blmbg:Commodity Price Idx **(1.8%)**	3 Month T-Bill 1.2%	Blmbg:Commodity Price Idx **(8.9%)**	Blmbg:Commodity Price Idx **(3.6%)**	Blmbg:Commodity Price Idx **(10.0%)**	Blmbg:Commodity Price Idx **(4.2%)**	Blmbg:Commodity Price Idx **(0.2%)**

Worst

U.S. Equity Market

June 30, 2019

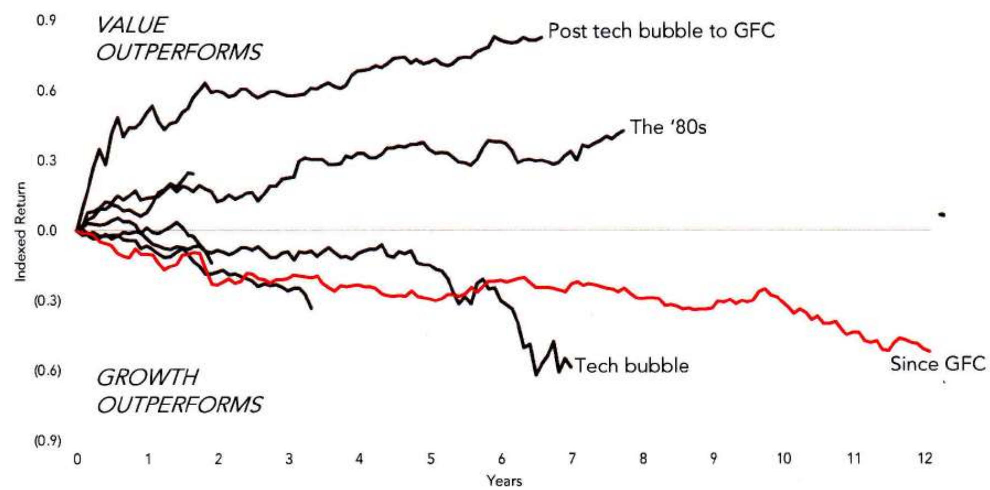
- The S&P 500 Index appreciated 4.3% in the second quarter
  - The index provided positive returns in April and June, but significantly negative returns in May.
  - Financials was the strongest performing sector at +7.7% (Russell 3000), while Energy was the weakest returning -3.9%.
  - Growth outperformed Value in the second quarter
  - *R1000 Growth climbed 4.6% in the second quarter, while R1000 Value grew 3.8%.*
- Large caps outperformed in the second quarter, followed by mid cap and finally, small caps
  - Last quarter, the R1000 was up 4.3% vs. the R2000 which was up 2.1%.

Large Cap Equity	Last Quarter	Last 2 Quarters	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Russell 1000 Index	4.25	18.84	10.02	14.15	10.45	14.77
Russell 1000 Growth	4.64	21.49	11.56	18.07	13.39	16.28
Russell 1000 Value	3.84	16.24	8.46	10.19	7.46	13.19
Mid Cap Equity						
Russell Midcap Index	4.13	21.35	7.83	12.16	8.63	15.16
Russell Midcap Growth	5.40	26.08	13.94	16.49	11.10	16.02
Russell Midcap Value	3.19	18.02	3.68	8.95	6.72	14.56
Small Cap Equity						
Russell 2000 Index	2.10	16.98	-3.31	12.30	7.06	13.45
Russell 2000 Growth	2.75	20.36	-0.49	14.69	8.63	14.41
Russell 2000 Value	1.38	13.47	-6.24	9.81	5.39	12.40

Growth Outpaced Value for Quarter, Continues to Widen Return Gap

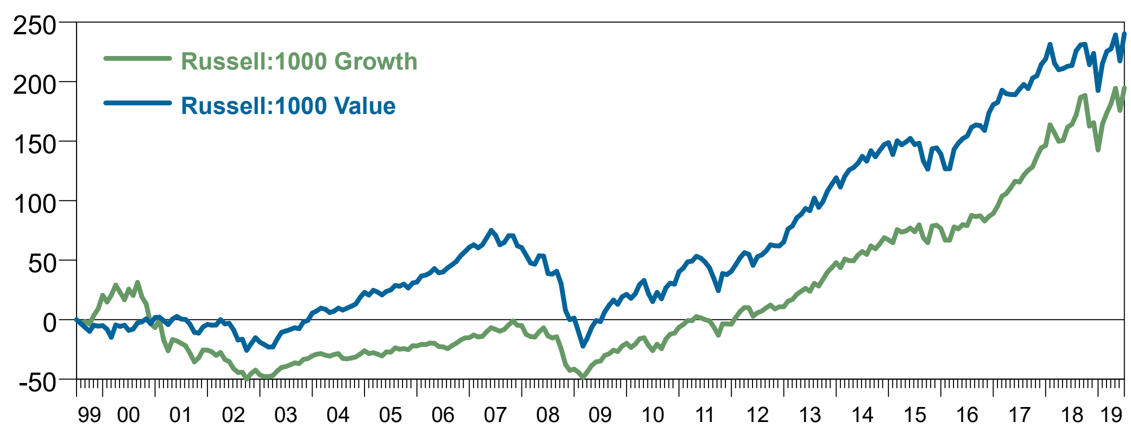
- Growth outperformed value across all market caps, extending duration of growth outperformance since the GFC.
- While growth has outperformed value in recent time periods, value beats growth over the trailing 20-year period.
- Why the divergence? Speculation that low interest rates (and by proxy, discount rates) make growth stocks more attractive at higher valuations compared to similar value stocks, which typically are trading at discount.
- Investors are more inclined to invest in the perceived certainty of growth over the potential of value being unlocked (with the downside of holding a value-trap).

Value/Growth Cycle Duration
1978 – 2019



Index returns are based on the Russell 1000 Value Index and the Russell 1000 Growth Index.

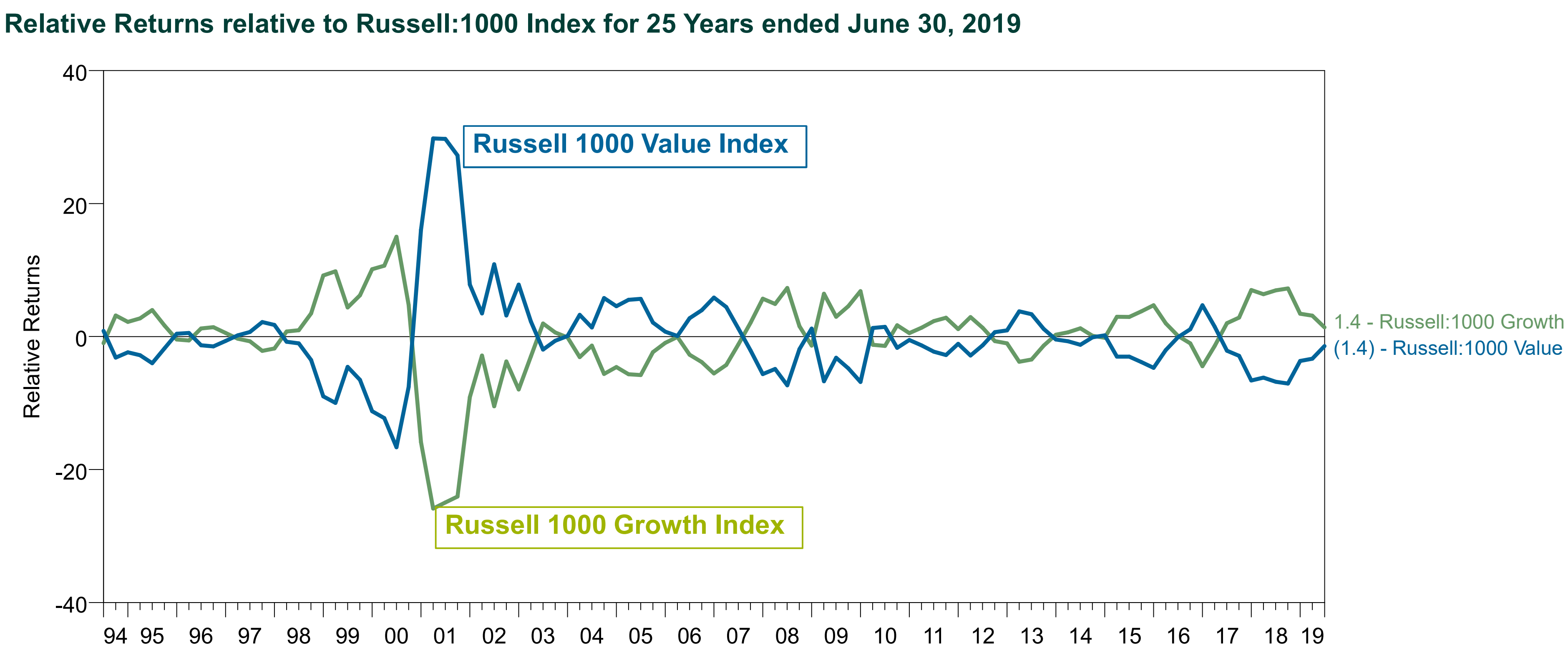
Cumulative Returns for Russell 1000 Style Indices: 20 Years



Source: Callan, AJO Partners

Growth and Value Through Time: I

Rolling one-year differences between Growth and Value

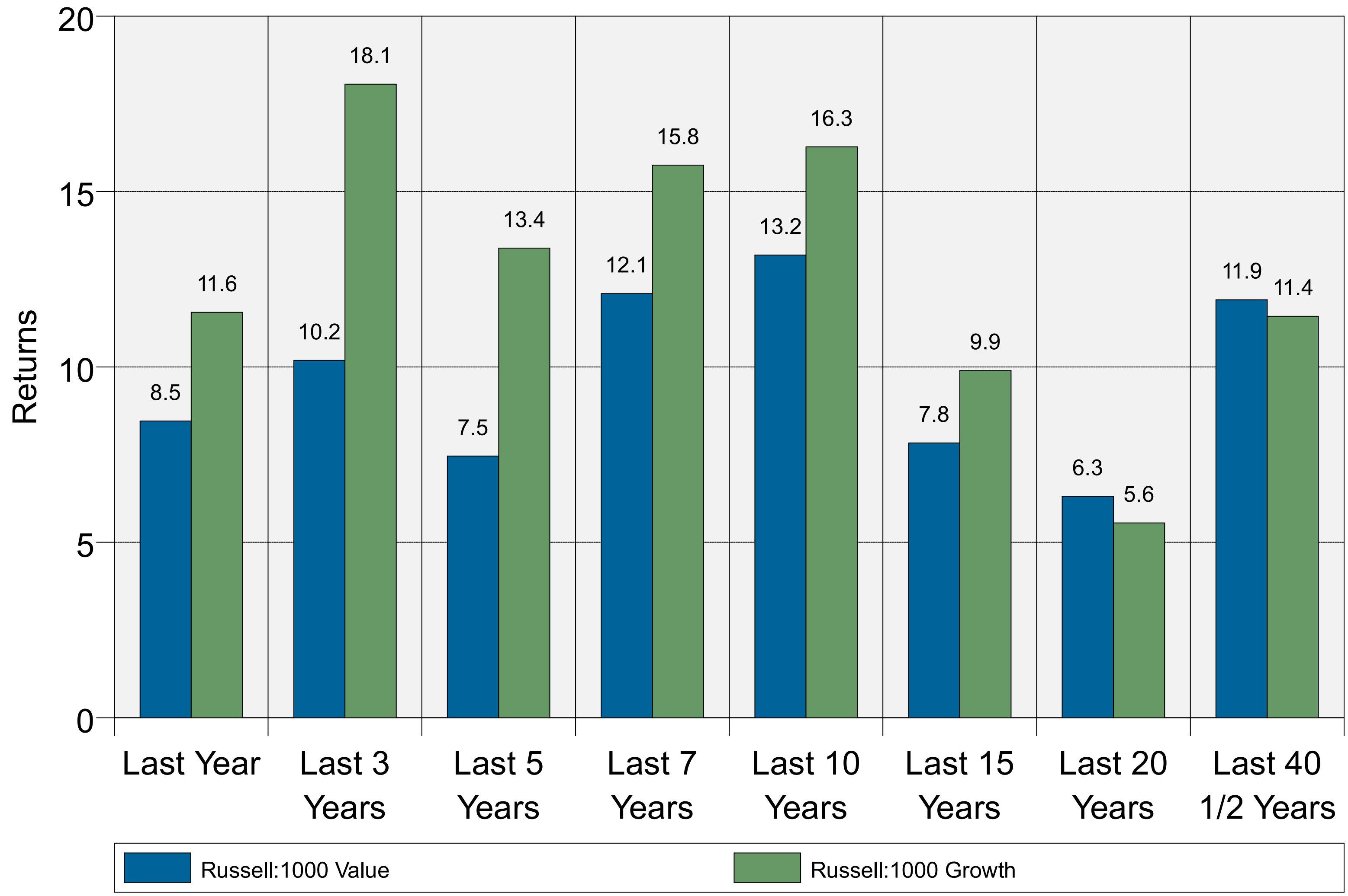


- Over the last 25 years, Growth stocks have tended to outperform value stocks
- Value returns exceeded growth returns from 2000 through 2007
- A risk-embracing environment has fueled growth stocks

Growth and Value Through Time: II

Growth outperformed Value for last 15 years, but Value won over longer periods

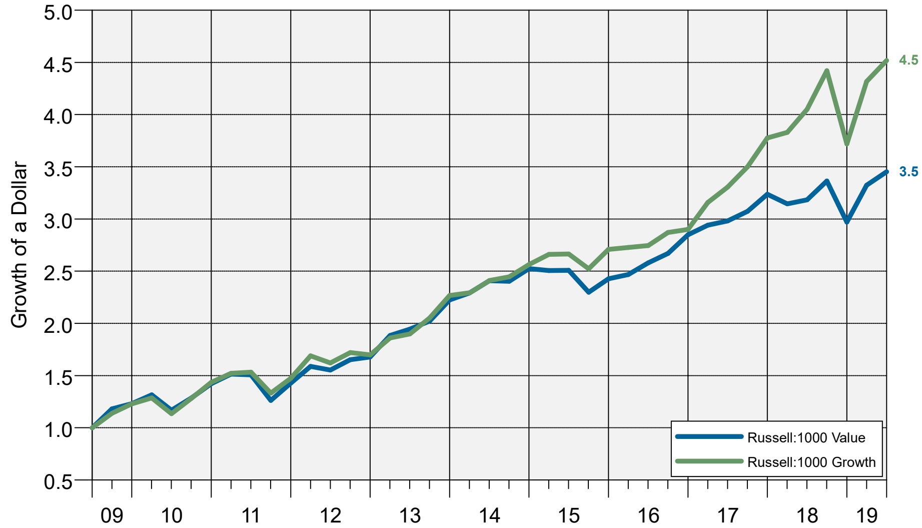
Returns for Various Periods Ending June 30, 2019



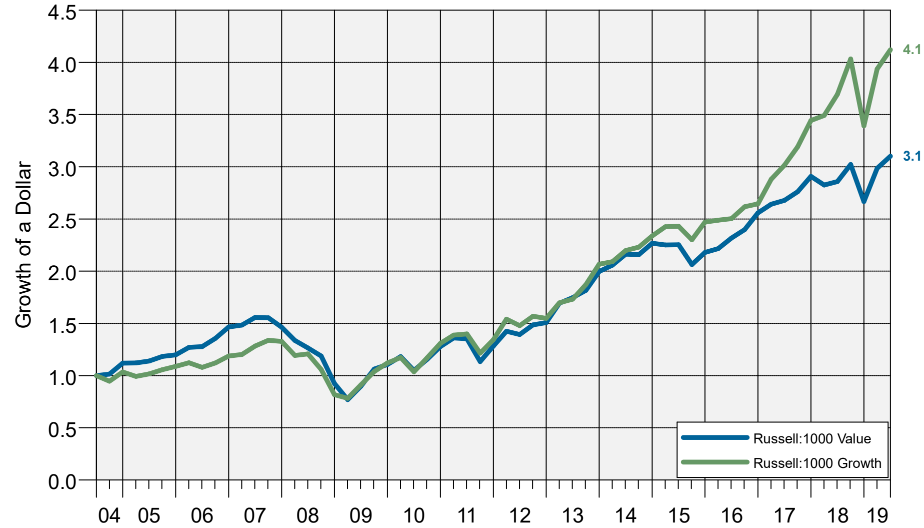
Growth vs. Value Over Time

Growth outperformed value for last 15 years, but value won over longer periods.

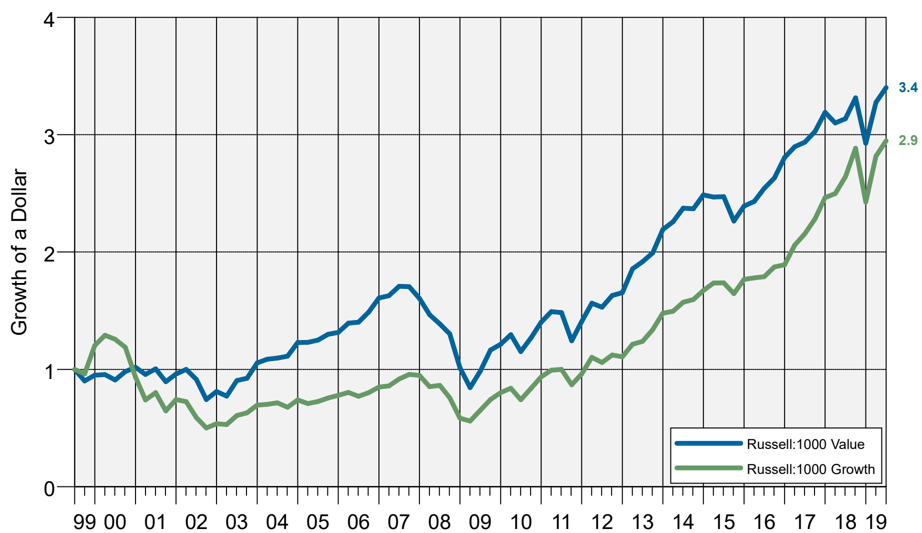
Growth of a Dollar for 10 Years Ended June 30, 2019



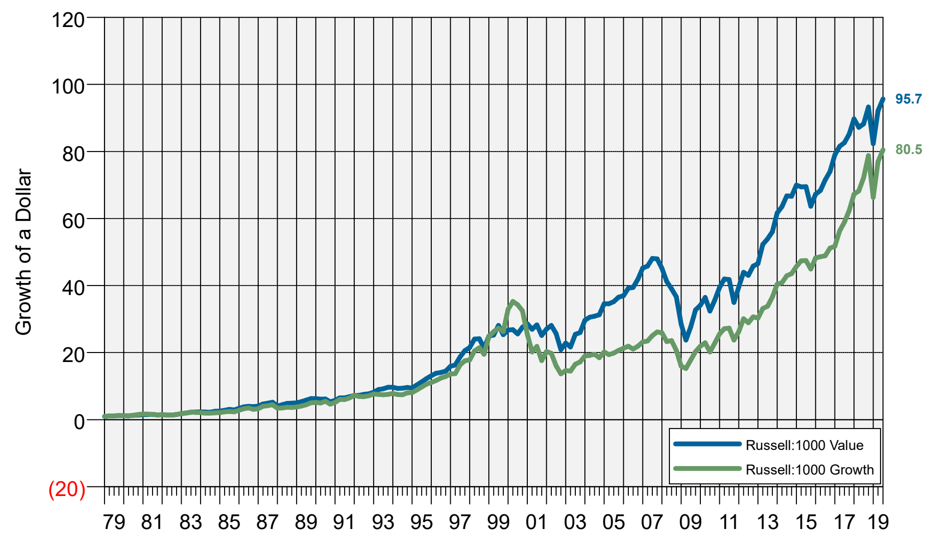
Growth of a Dollar for 15 Years Ended June 30, 2019



Growth of a Dollar for 20 Years Ended June 30, 2019



Growth of a Dollar for 40 1/2 Years Ended June 30, 2019

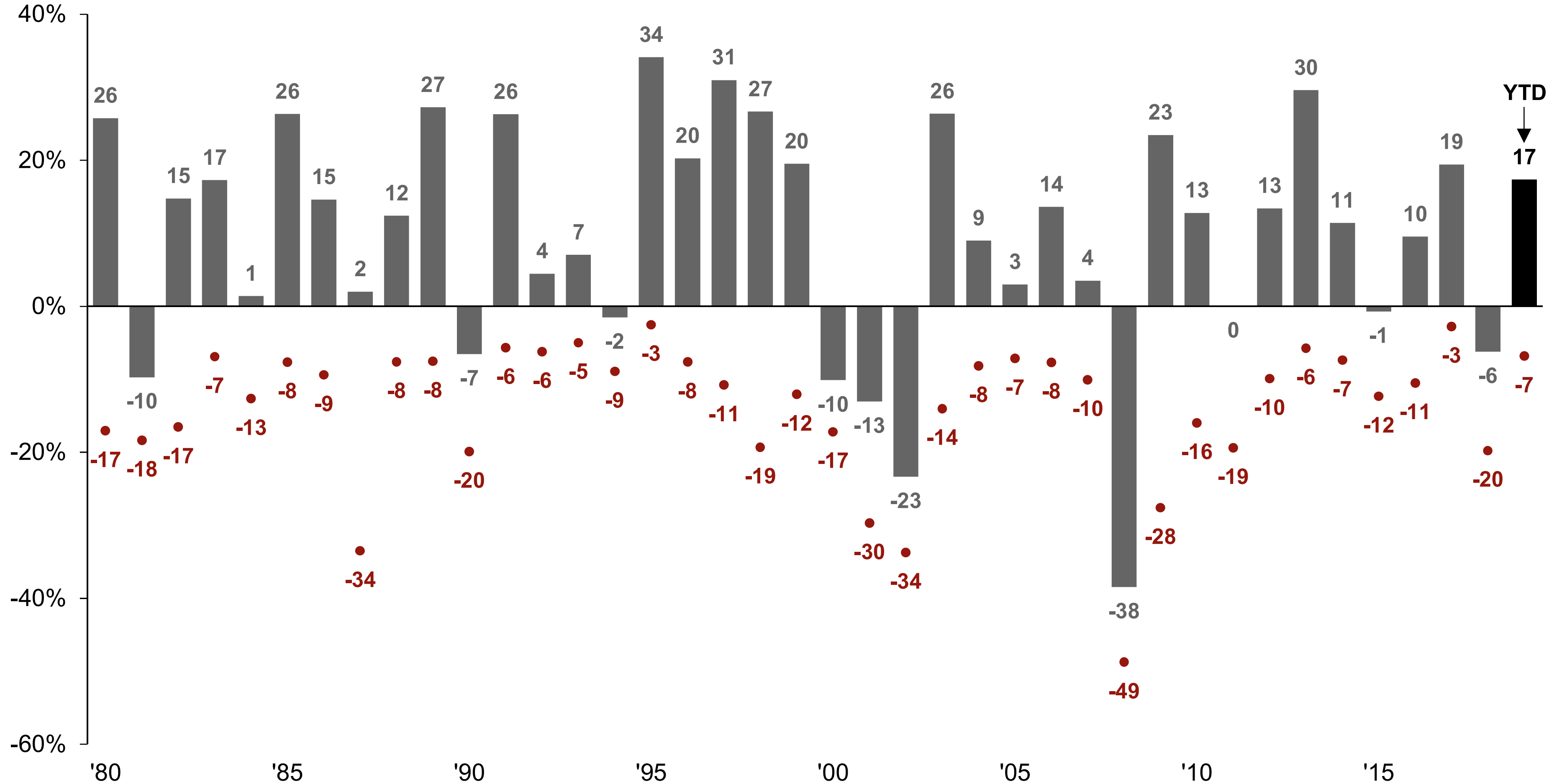


S&P 500 Intra Year Declines and Year-End Returns

Equities are inherently volatile

S&P 500 intra-year declines vs. calendar year returns

Despite average intra-year drops of 13.9%, annual returns positive in 29 of 39 years

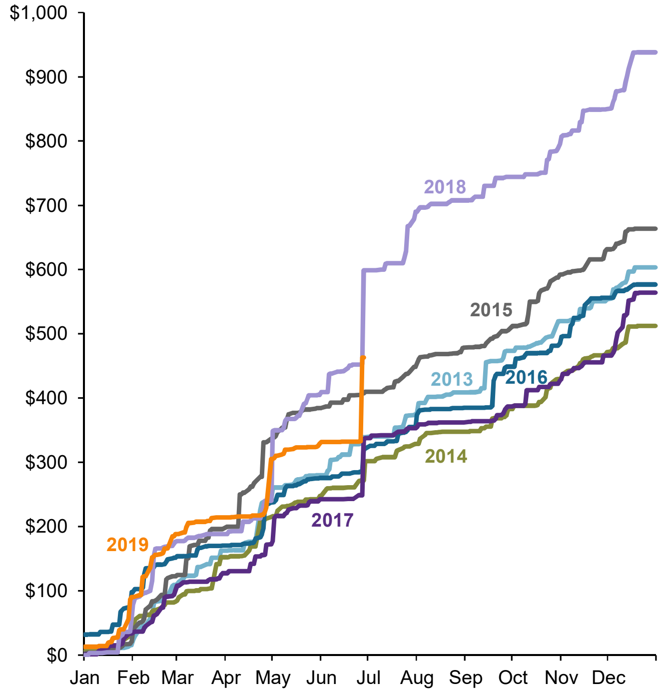


Source: JP Morgan Guide to the Markets as of June 30, 2019. FACTSET

S&P 500 Earnings

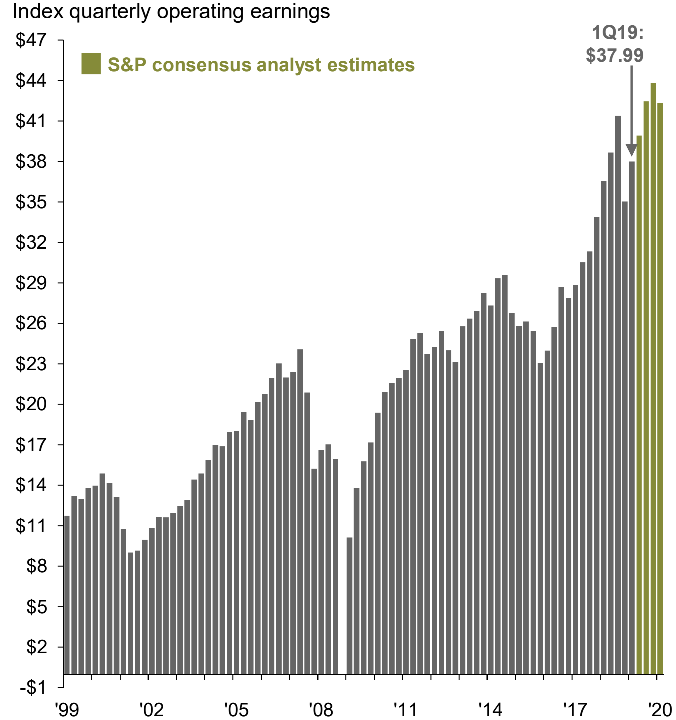
June 30, 2019

S&P 500 announced buybacks
Value of announced buybacks, $bn



Source: JP Morgan Guide to the Markets. As of June 30, 2019

S&P 500 operating earnings per share
Index quarterly operating earnings



Source: JP Morgan Guide to the Markets. As of June 30, 2019

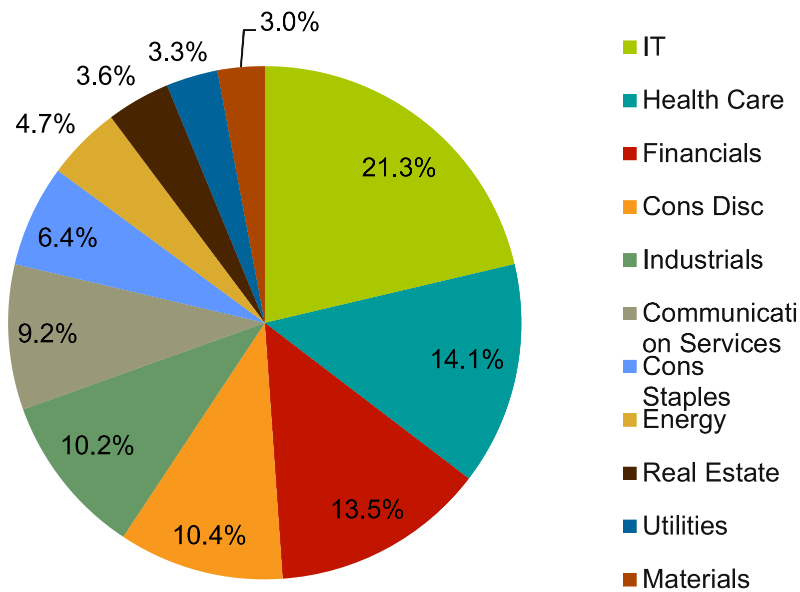
- For Q2 2019, with 99% of S&P 500 companies reporting results, the blended earnings decline for the S&P 500 is -0.4%. This marks the first time the index has reported two straight quarters of year-over-year earnings declines since Q1 and Q2 2016.
- 109 companies in the index have issued EPS guidance for Q3 2019. Of these 109 companies, 79 have issued negative EPS guidance and 30 have issued positive EPS guidance. The percentage of companies issuing negative EPS guidance is 72% (79 out of 109), which is above the 5-year average of 70%.

Source: JP Morgan Guide to the Markets as of June 30, 2019. FACTSET; Earnings Insight as of August 30, 2019.

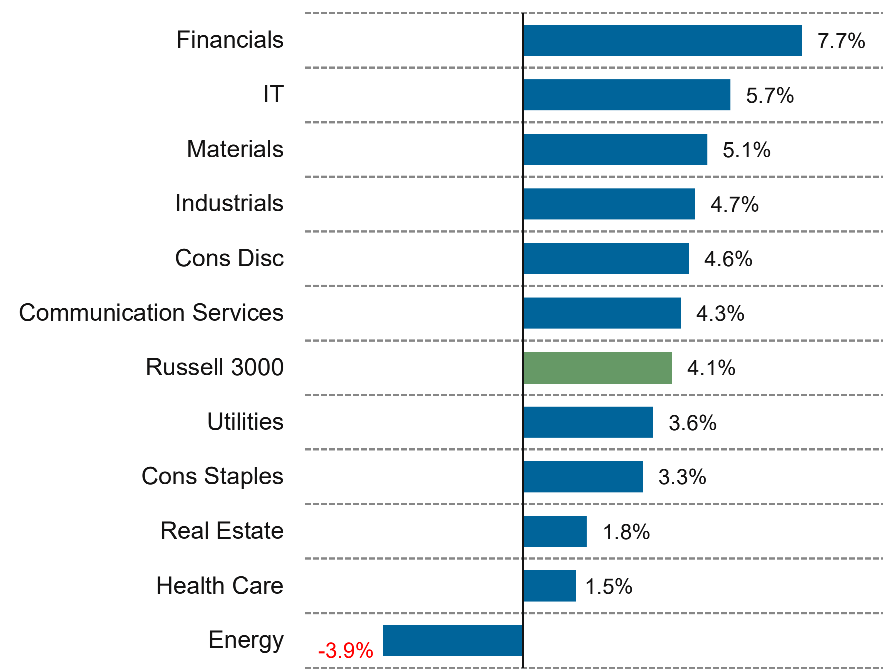
U.S. Equity Returns

June 30, 2019

Economic Sector Exposure (Russell 3000)



Quarterly Returns (Russell 3000)

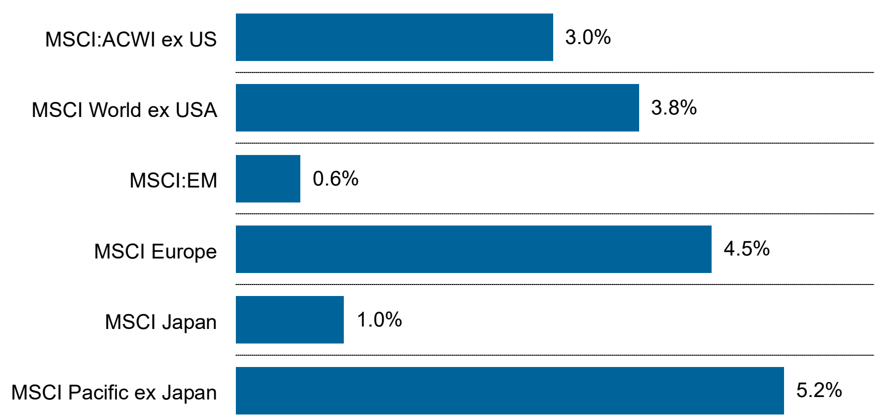


- The Russell 1000 Index rose 4.3% in the second quarter. Gains were driven by the Financial sector (+7.9%), followed by IT (+5.9%) and Materials (+5.6%).
- The Russell 2000 Index climbed 2.1% in the second quarter. Returns were driven by the Industrials sector (+8.5%), followed by Utilities (+5.3%) and Financials (+5.1%).

International Equity Returns

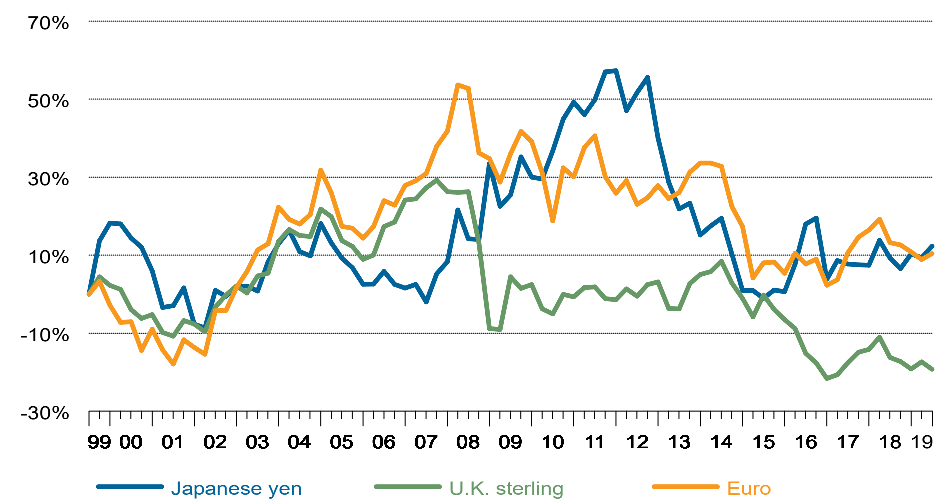
June 30, 2019

Regional Quarterly Performance (U.S. Dollar)



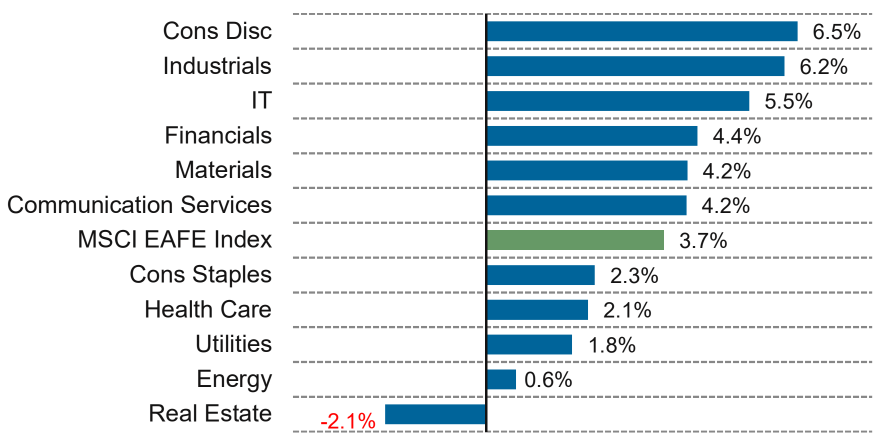
Source: MSCI

Major Currencies' Cumulative Returns (vs. U.S. Dollar)



Source: MSCI

MSCI EAFE Sector Returns

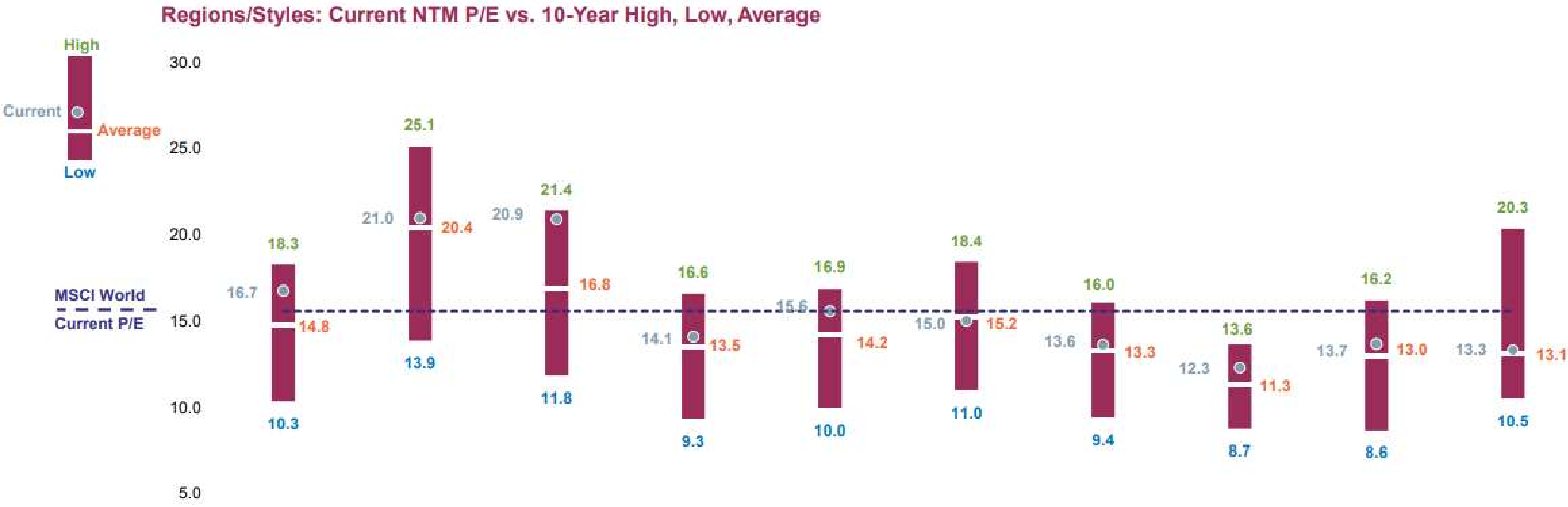


Source: MSCI

- International equity markets underperformed domestic equity in the second quarter (MSCI EAFE Index: +3.7%). Japan was again a laggard returning 1.0%.
- Consumer Discretionary and Industrials led performance from a sector perspective, while Real Estate provided negative returns.
- The euro (+1.4%) and the yen (+2.7%) rose against the dollar in the second quarter, while British pound fell 2.3%.

Global Equity Valuations

June 30, 2019



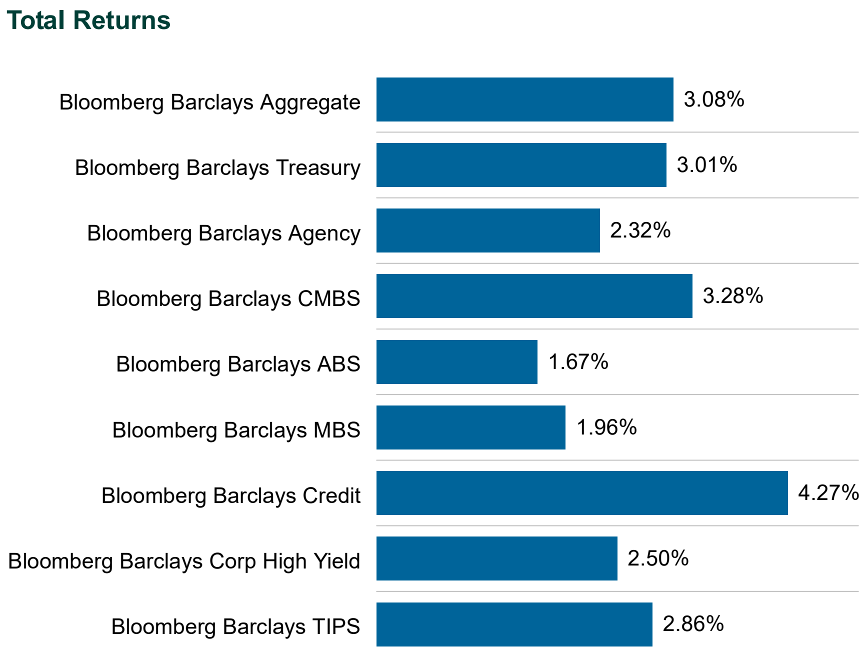
	S&P 500	Russell 2000	Russell 1000 Growth	Russell 1000 Value	MSCI World	MSCI World ex USA Small Cap	MSCI EAFE	MSCI EM	MSCI Europe	MSCI AC Asia Pac
High Date	11/17	9/17	1/18	2/17	1/18	9/09	5/15	7/09	3/15	7/09
Low Date	9/11	9/11	9/11	9/11	9/11	9/11	9/11	9/11	9/11	9/11

Source: Eaton Vance Monthly Market Monitor

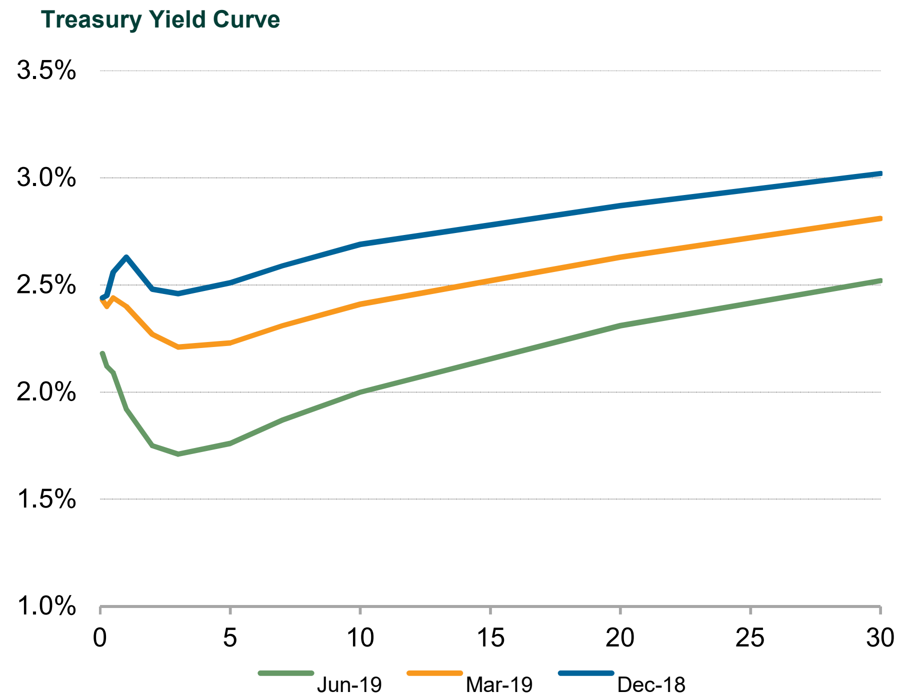
FactSet as of 6/30/19. NTM P/E is market price per share divided by expected earnings per share over the next twelve months.

Fixed Income

June 30, 2019



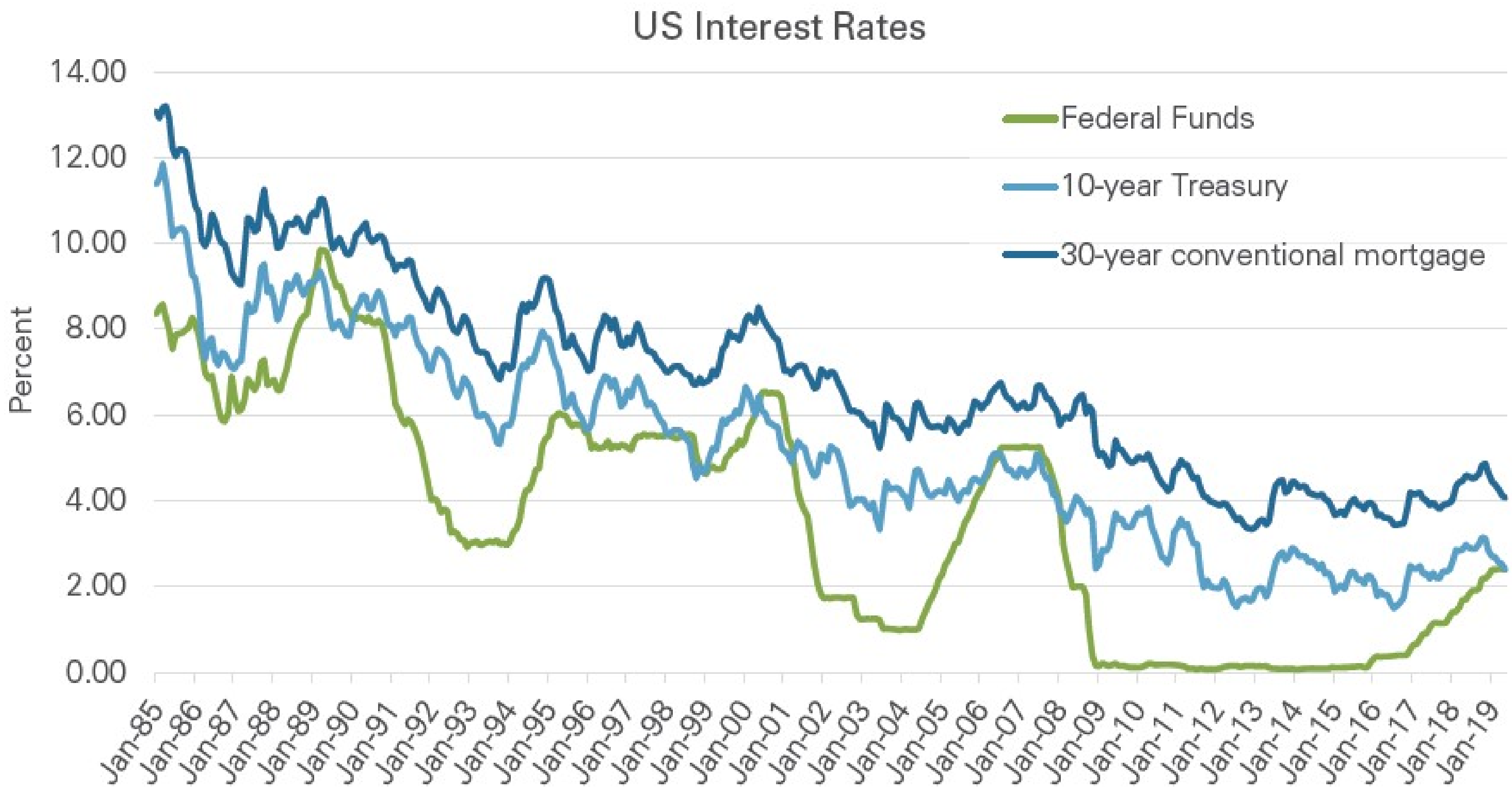
Source: Bloomberg



Source: U.S. Department of the Treasury

- As the Federal Reserve struck a more dovish tone, government bond yields fell across the maturity spectrum.
- The widely followed spread between the 2- and 10-year ended the month at 25 bps, up from 14 bps at the end of the first quarter.
- In this falling rate environment, the Bloomberg Aggregate Index gained 3.1%.
- Credit spreads tightened during the second quarter, and outperformed all other sectors returning 4.3% (Bloomberg Credit Index).

With some variation, decades of declining interest rates

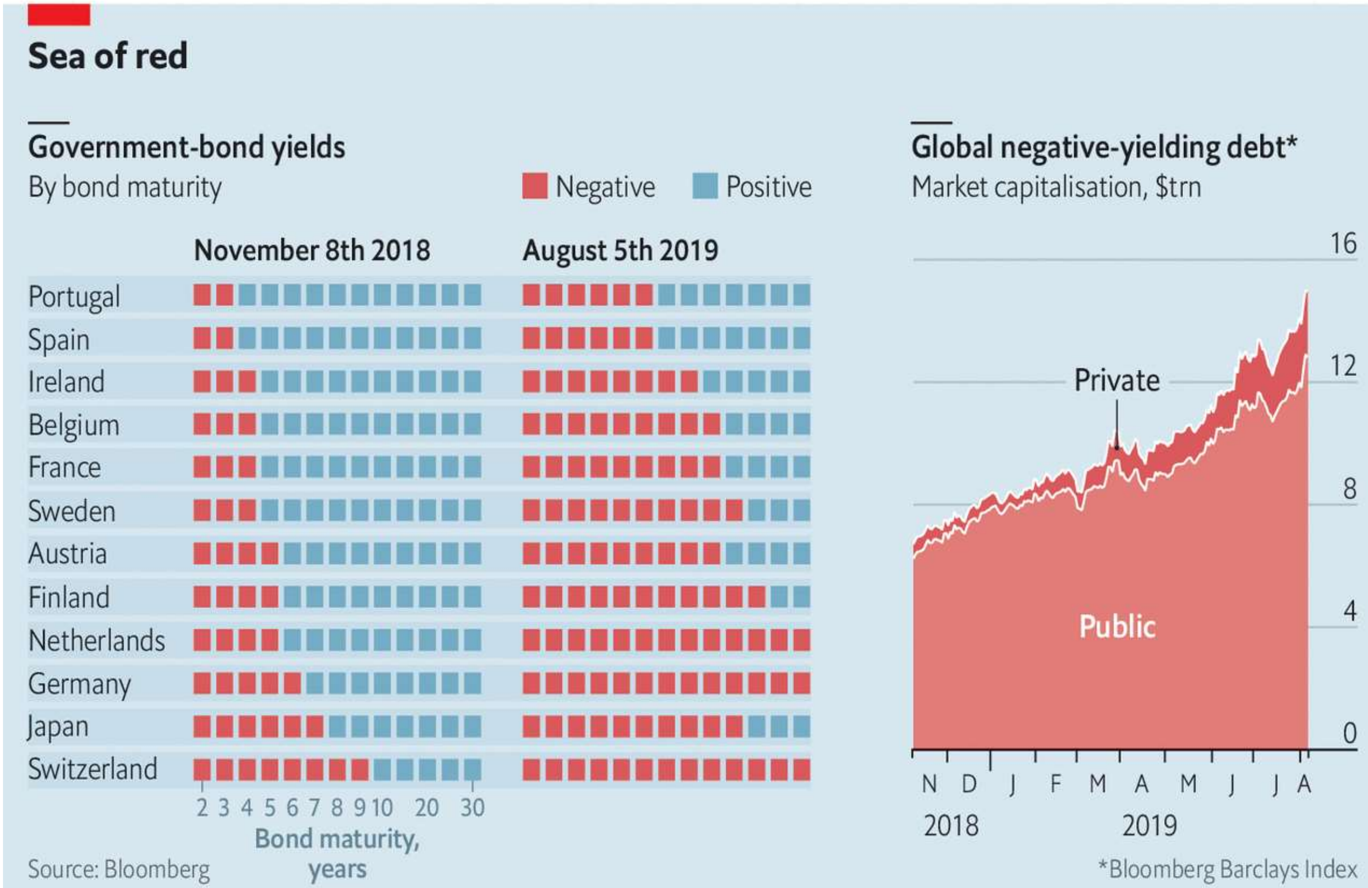


As of June 28, 2019 (last business day in June):

- Effective Fed Funds rate was 2.40%
- 10-Year Treasury Yield was 2.00%
- 30-Year Treasury Yield was 2.52%

Sources: Campbell Timber Group; Federal Reserve Bank; FreddieMac; US Treasury Department

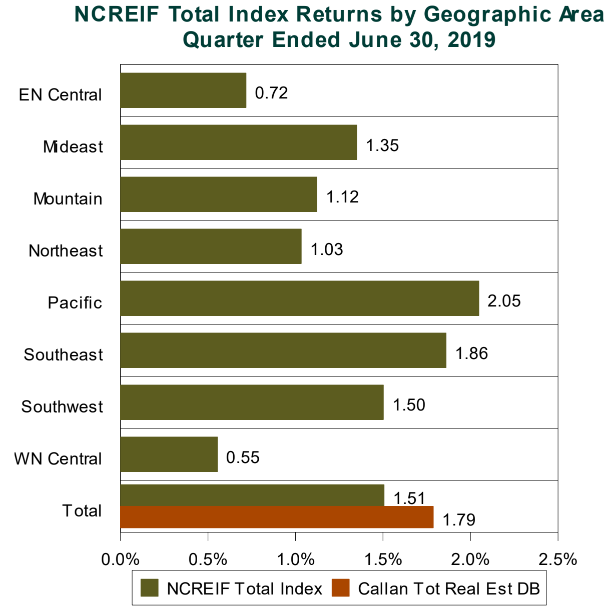
$15 Trillion in bonds with negative yields if held to maturity

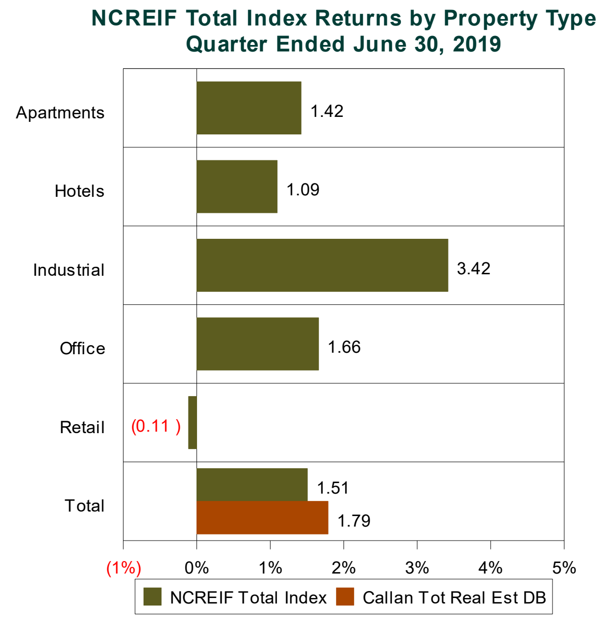


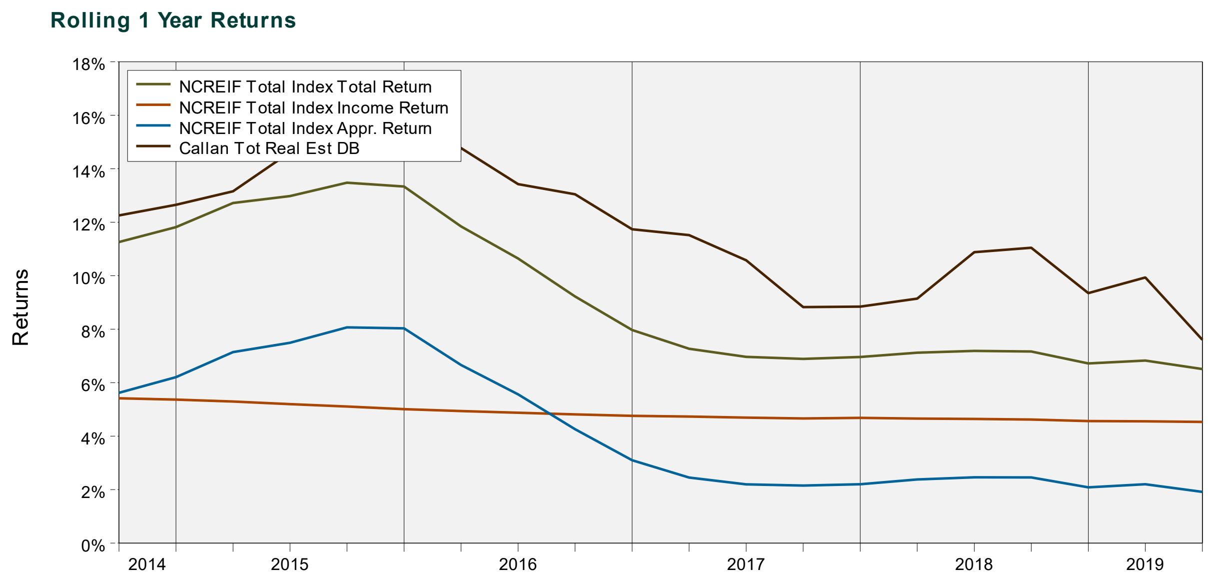
- Bloomberg and *The Economist* report that 25% of global sovereign and credit bonds trade at negative yields
  - Negative rates will theoretically encourage spending and investment as depositors are incentivized to spend cash rather than store it at the bank and incur a guaranteed loss.
- Trade disputes cause investors to favor the safety of government bonds, pushing yields lower.
- Expectations of low inflation are another source of downward pressure on bond yields globally

Source: *The Economist*, August 10, 2019, "Bond Yields: Under Water"

June 30, 2019


NCREIF Total Index Returns by Geographic Area
Quarter Ended June 30, 2019
EN Central 0.72
Mideast 1.35
Mountain 1.12
Northeast 1.03
Pacific 2.05
Southeast 1.86
Southwest 1.50
WN Central 0.55
Total 1.51 1.79
0.0% 0.5% 1.0% 1.5% 2.0% 2.5%
NCREIF Total Index
Callan Tot Real Est DB


NCREIF Total Index Returns by Property Type
Quarter Ended June 30, 2019
Apartments 1.42
Hotels 1.09
Industrial 3.42
Office 1.66
Retail (0.11)
Total 1.51 1.79
(1%) 0% 1% 2% 3% 4% 5%
NCREIF Total Index
Callan Tot Real Est DB

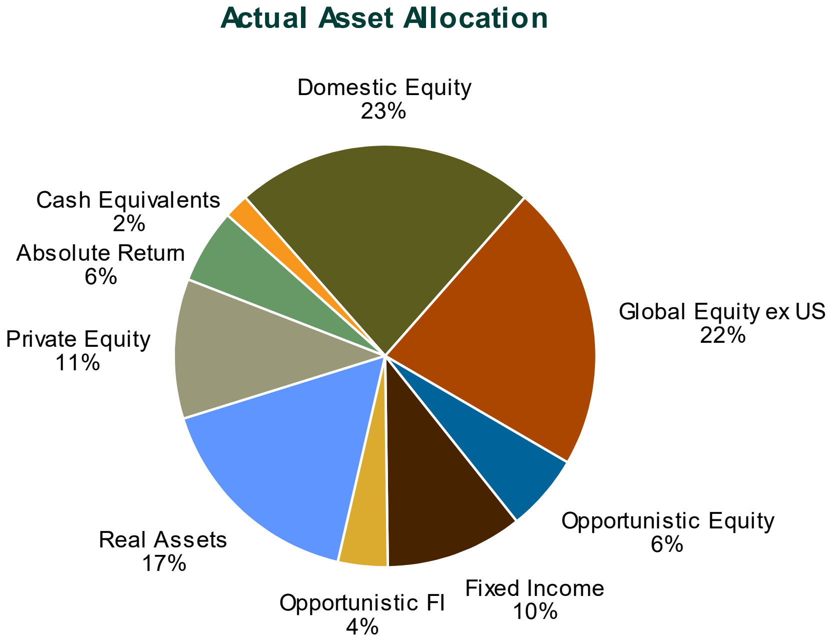

Rolling 1 Year Returns
NCREIF Total Index Total Return
NCREIF Total Index Income Return
NCREIF Total Index Appr. Return
Callan Tot Real Est DB
Returns
18%
16%
14%
12%
10%
8%
6%
4%
2%
0%
2014
2015
2016
2017
2018
2019

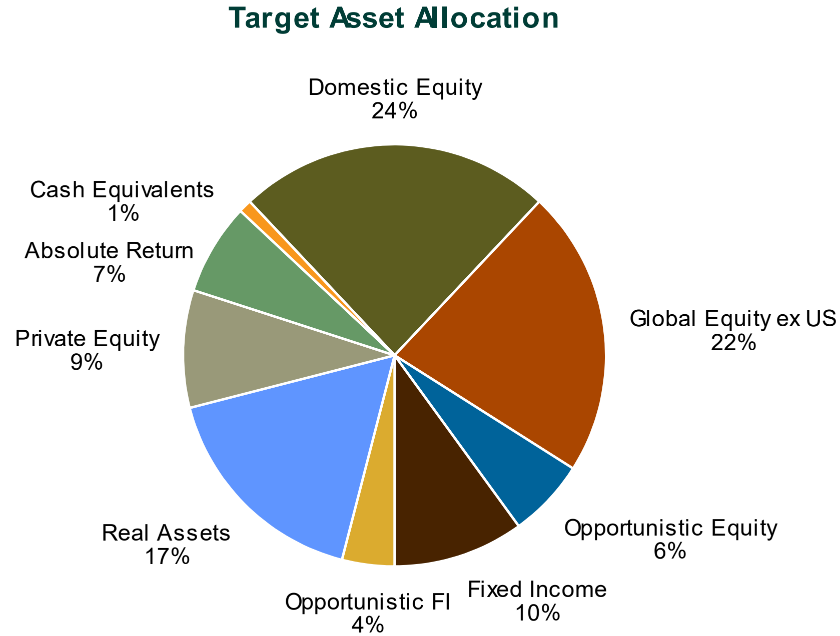
Callan

Pension Plan

Asset Allocation – Public Employees' Retirement System

Quarter Ending June 30, 2019





Asset Class	$000s Actual	Weight Actual	Target	Percent Difference	$000s Difference
Domestic Equity	2,188,657	23.1%	24.0%	(0.9%)	(87,645)
Global Equity ex US	2,077,962	21.9%	22.0%	(0.1%)	(8,649)
Opportunistic Equity	560,793	5.9%	6.0%	(0.1%)	(8,282)
Fixed Income	993,678	10.5%	10.0%	0.5%	45,219
Opportunistic FI	360,223	3.8%	4.0%	(0.2%)	(19,161)
Real Assets	1,571,636	16.6%	17.0%	(0.4%)	(40,745)
Private Equity	1,010,394	10.7%	9.0%	1.7%	156,780
Absolute Return	544,142	5.7%	7.0%	(1.3%)	(119,779)
Cash Equivalents	177,108	1.9%	1.0%	0.9%	82,262
Total	9,484,593	100.0%	100.0%		

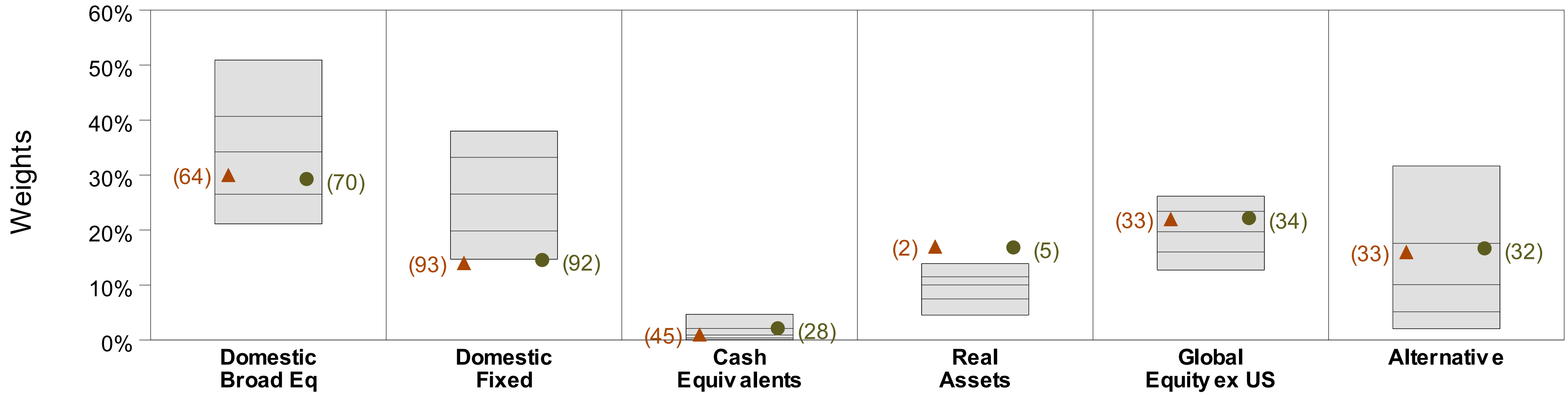
PERS is used as illustrative throughout the presentation.

The other plans exhibit similar modest and understandable variations from strategic target allocations.

Asset Allocation vs. Public Funds (PERS)

Callan Public Fund Database

Asset Class Weights vs Callan Public Fund Sponsor Database



	Domestic Broad Eq	Domestic Fixed	Cash Equivalents	Real Assets	Global Equity ex US	Alternative
10th Percentile	50.92	37.99	4.68	13.90	26.17	31.67
25th Percentile	40.68	33.23	2.11	11.50	23.40	17.58
Median	34.23	26.55	0.91	10.03	19.71	10.07
75th Percentile	26.52	19.85	0.37	7.48	16.02	5.13
90th Percentile	21.12	14.70	0.05	4.54	12.73	2.06
Fund ●	28.99	14.27	1.87	16.57	21.91	16.39
Target ▲	30.00	14.00	1.00	17.00	22.00	16.00

- Asset class weights are relatively in line with their targets. Fixed income is well below the "average" weighting of other public funds.
- Weightings to real assets and alternatives remain high relative to other public funds.
- ARMB's pension funds' asset allocation targets reflect a "growth" orientation.

*Note that "Alternative" includes private equity and absolute return

Total Fund Return vs Public Funds (PERS)

Callan Public Fund Database

Returns
for Periods Ended June 30, 2019
Group: Callan Public Fund Sponsor Database

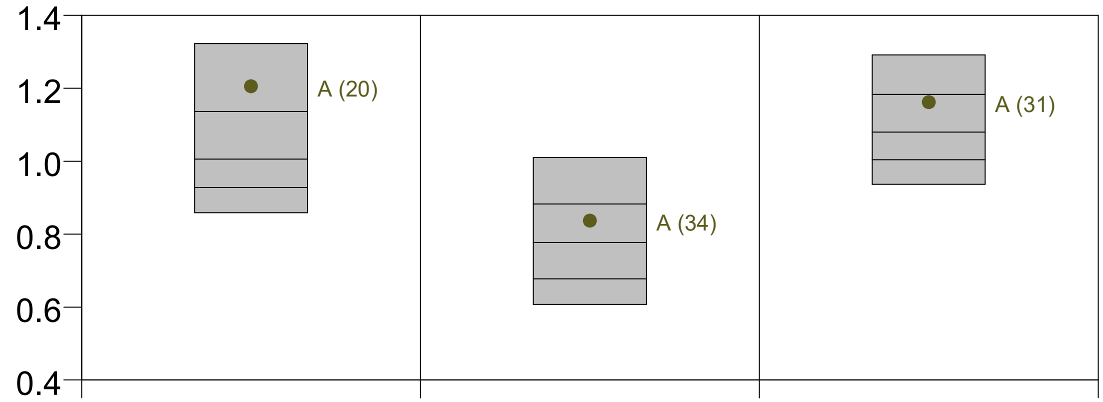
	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	7.67	10.33	7.09	10.42
25th Percentile	6.85	9.57	6.50	9.85
Median	6.19	8.91	5.96	9.20
75th Percentile	5.41	8.21	5.44	8.34
90th Percentile	4.66	7.44	4.72	7.60
Member Count	210	209	206	184
PERS - Total Fund ● A	5.99	9.61	6.27	9.38

- As displayed on the previous slide, ARMB's pension portfolio allocation policy reflects an orientation toward capital growth as opposed to income generation.
- It is worth noting that the Funds' lower weighting to Domestic Equity compared to Public Fund peers will reflect relative return rankings versus that peer group based on domestic equity results.

Total Fund Sharpe Ratio Rankings vs Public Funds (PERS)

Callan Public Fund Database

Sharpe Ratio
for Periods Ended June 30, 2019
Group: Callan Public Fund Sponsor Database



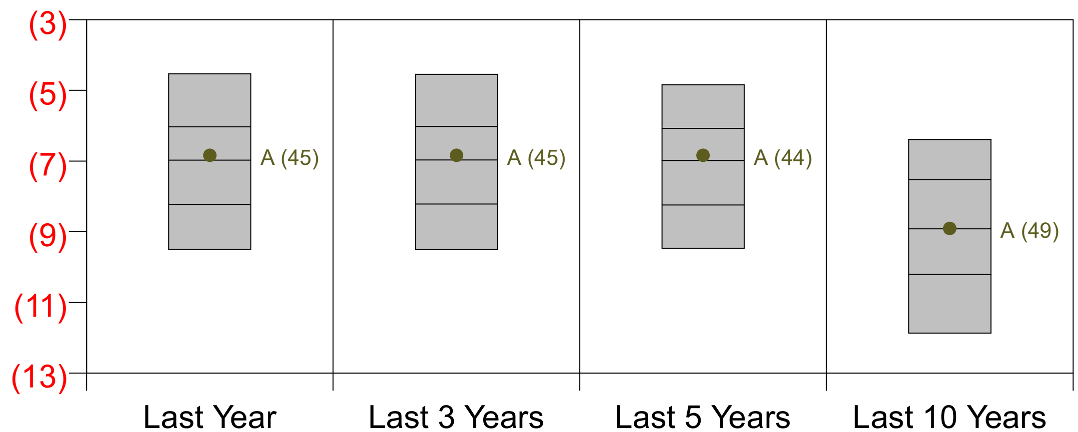
	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	1.32	1.01	1.29
25th Percentile	1.14	0.88	1.18
Median	1.01	0.78	1.08
75th Percentile	0.93	0.68	1.00
90th Percentile	0.86	0.61	0.94
Member Count	209	206	184
PERS - Total Fund ● A	1.21	0.84	1.16

- Sharpe ratio is a risk-adjusted measure of return.
- ARMB's risk-adjusted return (Sharpe ratio) was above the Public Funds median for the three-, five-, and 10-year periods.

Total Maximum Drawdown Rankings vs Public Funds (PERS)

Callan Public Fund Database

Maximum Drawdown
for Periods Ended June 30, 2019
Group: Callan Public Fund Sponsor Database



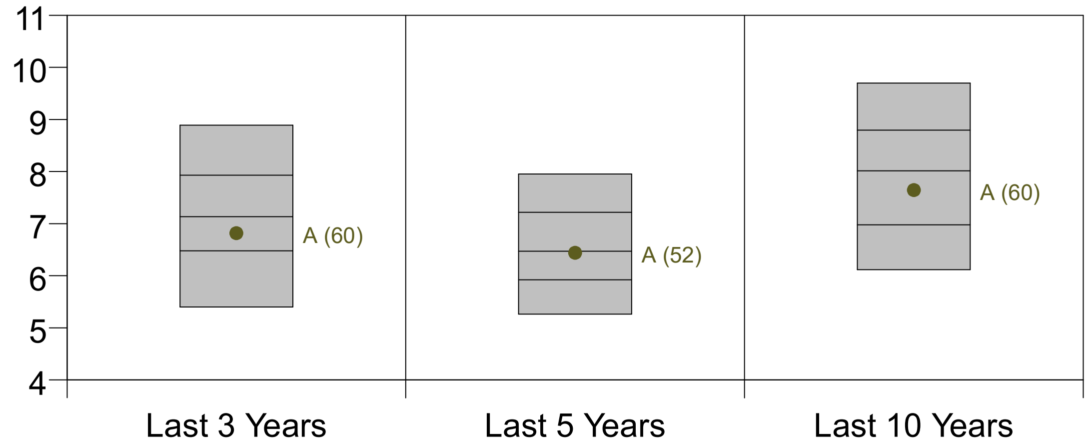
	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	(4.53)	(4.54)	(4.84)	(6.39)
25th Percentile	(6.03)	(6.02)	(6.07)	(7.52)
Median	(6.97)	(6.97)	(6.98)	(8.92)
75th Percentile	(8.22)	(8.21)	(8.24)	(10.20)
90th Percentile	(9.50)	(9.50)	(9.47)	(11.86)
Member Count	210	209	206	184
PERS - Total Fund ● A	(6.83)	(6.83)	(6.83)	(8.90)

- "Maximum drawdown" is a measure of the largest loss from peak to trough in a given period.
- Lower rankings reflect larger drawdowns (i.e. bigger losses). ARMB had ranked below-median over the five- and 10-year periods but now ranks above median for all trailing periods shown.
- Drawdowns in the last year, three years, and five years reflect performance during the fourth quarter of 2018.

Standard Deviation Ranking vs Public Funds (PERS)

Callan Public Fund Database

Standard Deviation
for Periods Ended June 30, 2019
Group: Callan Public Fund Sponsor Database



	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	8.90	7.96	9.70
25th Percentile	7.93	7.22	8.80
Median	7.14	6.48	8.02
75th Percentile	6.48	5.93	6.98
90th Percentile	5.41	5.27	6.12
Member Count	209	206	184
PERS - Total Fund ● A	6.82	6.45	7.65

- “Standard deviation” measures variability of returns. It is one measurement of investment risk.
- Less standard deviation results in lower rankings. A lower ranking of standard deviation is good.
- ARMB’s portfolio diversification has resulted in moderate levels of volatility compared to peers.

PERS Performance – 2nd Quarter 2019 & Trailing Year

Relative Attribution Effects for Quarter ended June 30, 2019

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	24%	4.16%	4.10%	0.02%	(0.02%)	(0.00%)
Fixed-Income	10%	10%	2.40%	2.36%	0.00%	(0.00%)	0.00%
Opportunistic	10%	10%	3.34%	3.78%	(0.04%)	(0.00%)	(0.05%)
Real Assets	17%	17%	0.84%	1.78%	(0.16%)	0.00%	(0.16%)
Global Equity ex US	22%	22%	2.69%	2.74%	(0.01%)	0.00%	(0.01%)
Private Equity	11%	9%	1.24%	3.36%	(0.23%)	0.00%	(0.22%)
Absolute Return	6%	7%	0.33%	1.49%	(0.07%)	0.01%	(0.07%)
Cash Equivalents	1%	1%	0.66%	0.64%	0.00%	(0.01%)	(0.01%)
Total			**2.40% =**	**2.92% +**	**(0.49%) +**	**(0.02%)**	**(0.52%)**

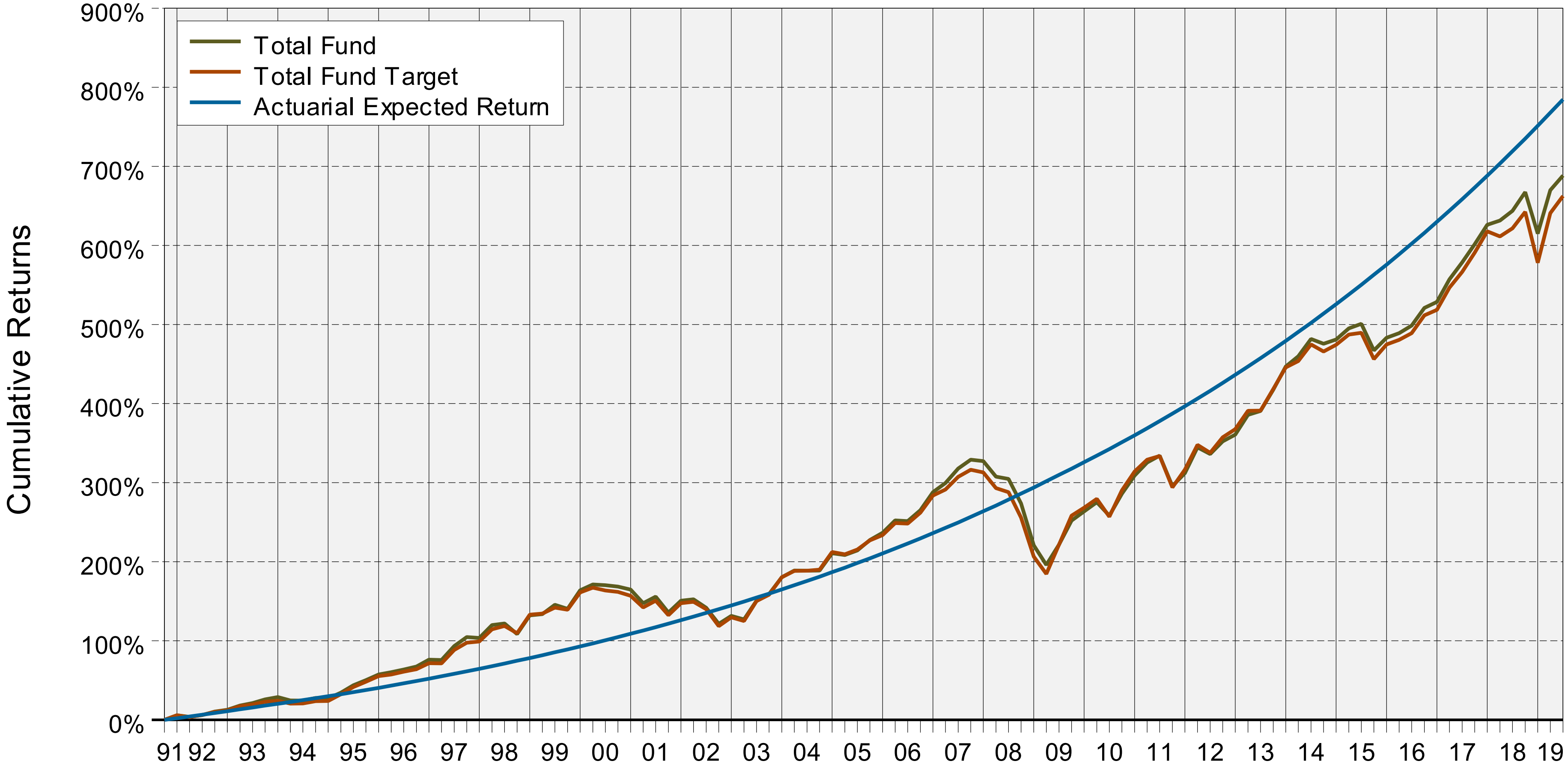
One Year Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	23%	24%	8.32%	8.98%	(0.15%)	(0.17%)	(0.32%)
Fixed-Income	10%	10%	6.34%	6.19%	0.01%	(0.10%)	(0.09%)
Opportunistic	10%	10%	7.21%	9.72%	(0.24%)	(0.02%)	(0.26%)
Real Assets	18%	17%	6.19%	7.23%	(0.16%)	0.01%	(0.15%)
Global Equity ex US	21%	22%	(0.08%)	0.26%	(0.07%)	0.06%	(0.01%)
Private Equity	10%	9%	13.71%	2.71%	1.01%	(0.01%)	0.99%
Absolute Return	7%	7%	3.65%	1.15%	0.20%	(0.00%)	0.20%
Cash Equivalents	1%	1%	2.50%	2.31%	0.00%	(0.00%)	(0.00%)
Total			**5.99% =**	**5.65% +**	**0.59% +**	**(0.25%)**	**0.34%**

- The benchmark for Private Equity is 1/3 S&P 500, 1/3 Russell 2000, and 1/3 MSCI EAFE.

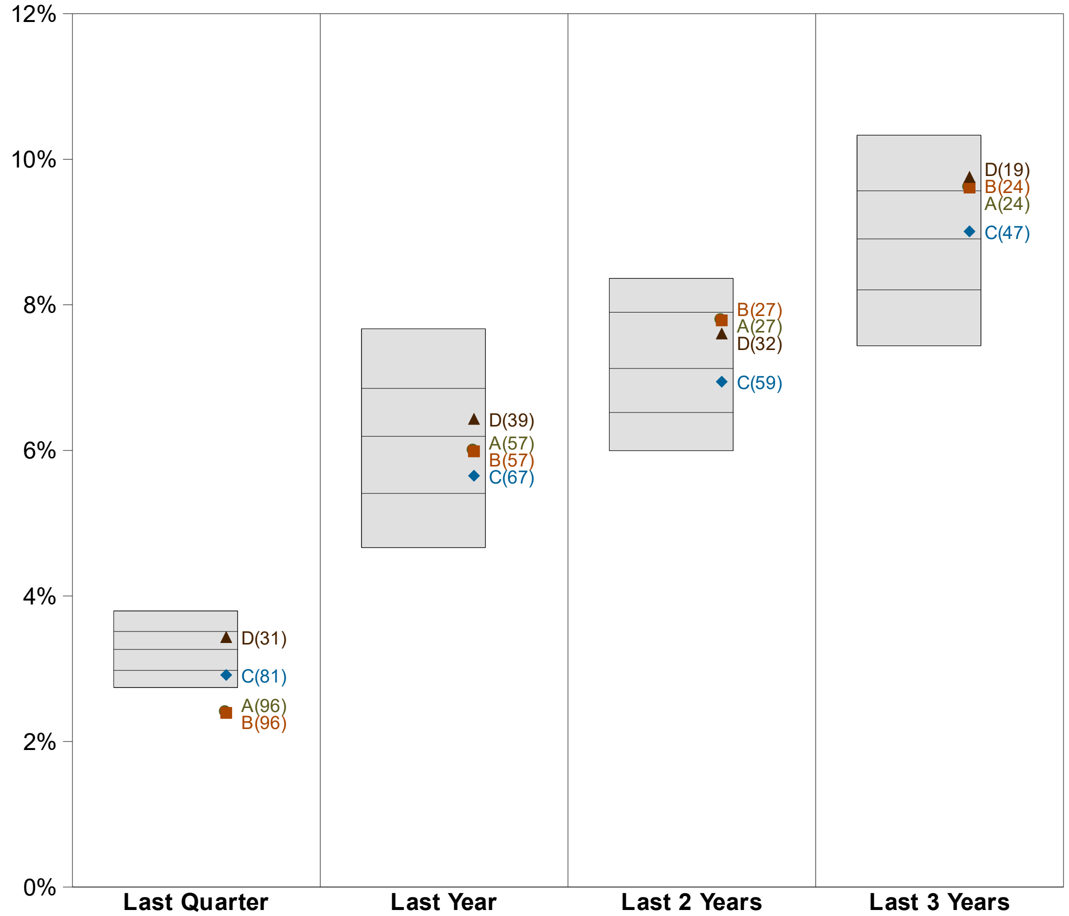
PERS Long-Term Total Fund Performance as of 6/30/19

Cumulative Returns Actual vs Target



- Each Fund has two targets: the asset allocation policy return and the actuarial return.
- Total Fund returns continue to closely track the strategic allocation target.
- Setbacks in 3Q15 and 4Q18 have hindered the Total Fund’s progress toward closing the gap versus the actuarial return following the Global Financial Crisis of 2008/2009.

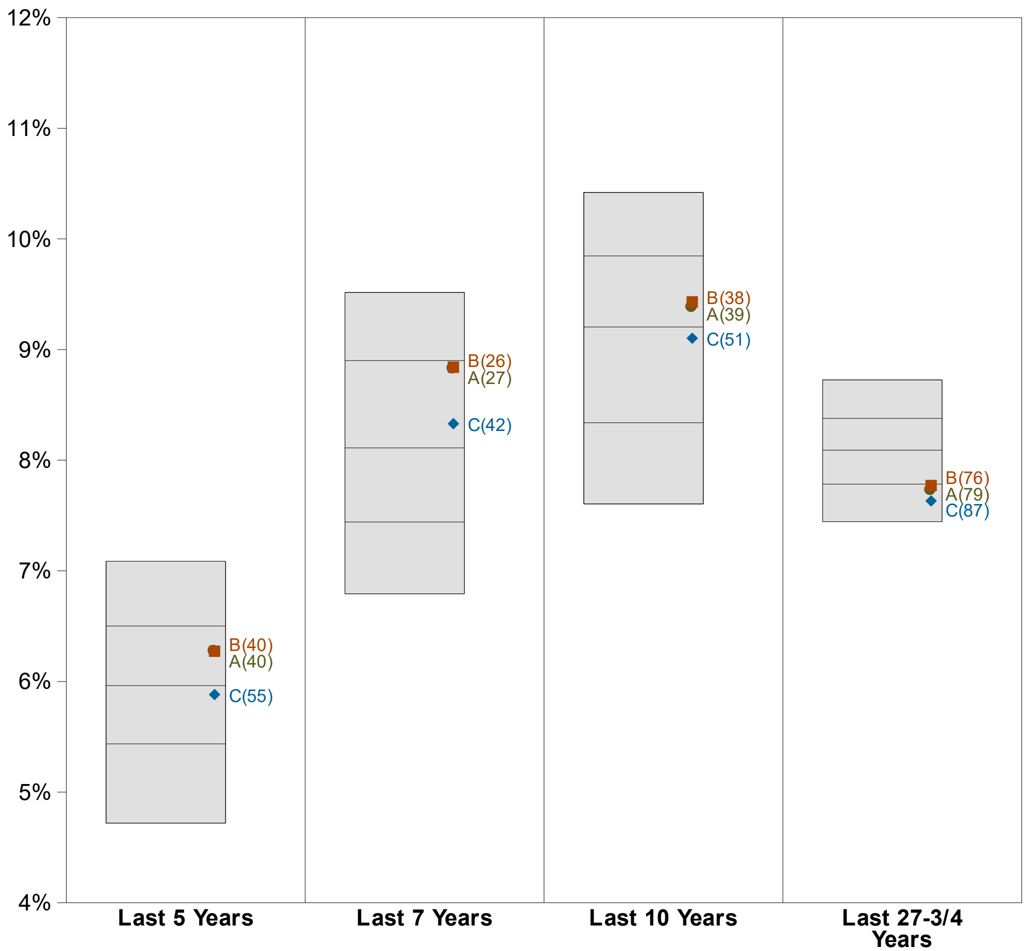
Annualized Total Fund Returns as of 6/30/19



	Last Quarter	Last Year	Last 2 Years	Last 3 Years
10th Percentile	3.79	7.67	8.36	10.33
25th Percentile	3.51	6.85	7.90	9.57
Median	3.27	6.19	7.13	8.91
75th Percentile	2.98	5.41	6.52	8.21
90th Percentile	2.74	4.66	6.00	7.44
PERS Total Plan ● A	2.40	5.99	7.79	9.61
TRS Total Plan ■ B	2.39	5.99	7.79	9.61
Target Index ◆ C	2.91	5.65	6.94	9.01
Public Market Proxy ▲ D	3.44	6.43	7.61	9.76

- PERS and TRS have outperformed their target for the last year, two-year, and three-year periods.
- PERS 2[nd] quarter performance trailed the target, underperforming by 51 basis points. Underperformance in Real Assets and Private Equity were the primary detractors.

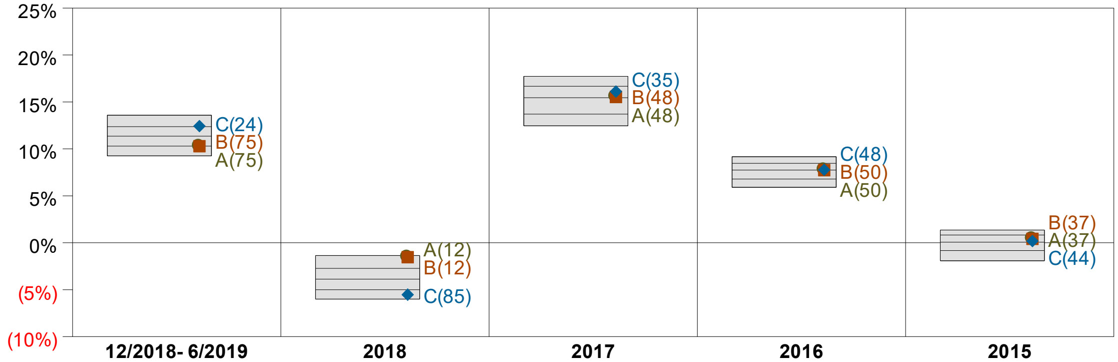
Longer-Term Total Fund Returns as of 6/30/19



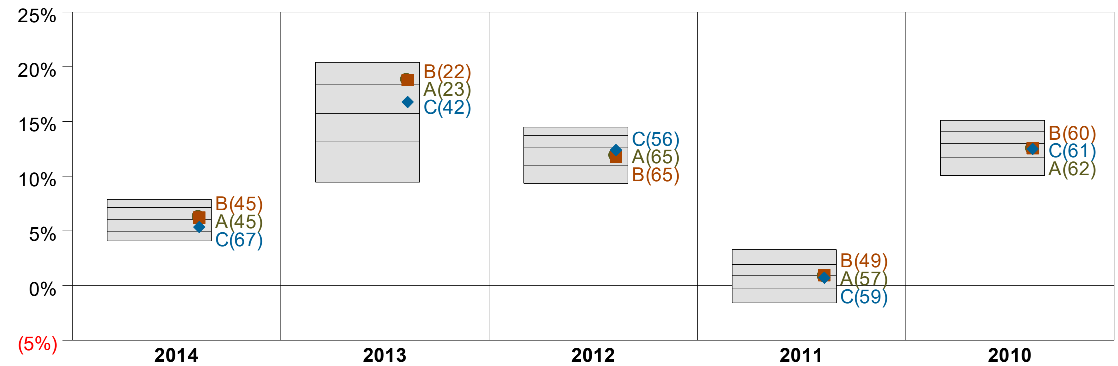
	Last 5 Years	Last 7 Years	Last 10 Years	Last 27-3/4 Years
10th Percentile	7.09	9.52	10.42	8.73
25th Percentile	6.50	8.90	9.85	8.38
Median	5.96	8.11	9.20	8.09
75th Percentile	5.44	7.44	8.34	7.78
90th Percentile	4.72	6.79	7.60	7.44
PERS Total Plan ● A	6.27	8.82	9.38	7.73
TRS Total Plan ■ B	6.27	8.84	9.43	7.77
Target Index ◆ C	5.88	8.33	9.10	7.63

- Five-, seven-, and ten-year performance is above target and median.
- 27¾ year return for PERS beats the target by 10 basis points.

Calendar Period Total Fund Performance



	12/2018- 6/2019	2018	2017	2016	2015
10th Percentile	13.59	(1.36)	17.74	9.16	1.35
25th Percentile	12.37	(2.73)	16.67	8.47	0.83
Median	11.35	(3.87)	15.45	7.74	0.06
75th Percentile	10.30	(5.00)	13.71	6.79	(0.84)
90th Percentile	9.25	(6.01)	12.46	5.90	(1.92)
PERS Total Plan ● A	10.28	(1.53)	15.52	7.74	0.40
TRS Total Plan ■ B	10.28	(1.54)	15.54	7.74	0.41
Target Index ◆ C	12.43	(5.53)	16.11	7.77	0.18



	2014	2013	2012	2011	2010
10th Percentile	7.89	20.41	14.49	3.29	15.11
25th Percentile	7.14	18.40	13.73	1.93	14.10
Median	6.03	15.73	12.66	0.91	12.99
75th Percentile	4.93	13.13	10.96	(0.30)	11.68
90th Percentile	4.08	9.45	9.34	(1.58)	10.07
PERS Total Plan ● A	6.22	18.74	11.81	0.77	12.45
TRS Total Plan ■ B	6.22	18.79	11.79	0.95	12.55
Target Index ◆ C	5.35	16.78	12.38	0.72	12.49

- Peer group range of returns during 2016, 2015, and 2014 were very tight.
- Wide range of peer group returns during calendar 2013 due to varying fixed-income allocations within the Public Fund universe.
- PERS ranks above median in five and TRS ranks above median in six of the 10 periods shown.

Total Domestic Equity through 6/30/19

Performance vs Public Fund - Domestic Equity (Gross)

		Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile		4.64	9.99	15.38	10.64	12.91	15.16
25th Percentile		4.13	9.09	14.30	10.32	12.58	14.78
Median		3.84	7.73	13.81	9.73	12.14	14.45
75th Percentile		3.68	6.32	12.86	9.09	11.53	13.91
90th Percentile		3.37	5.14	12.21	8.15	10.75	13.47
Domestic Equity Pool	● A	4.16	8.32	13.69	9.70	12.20	14.26
Standard & Poor's 500	■ B	4.30	10.42	14.19	10.71	12.92	14.70
Russell 3000 Index	▲	4.10	8.98	14.02	10.19	12.56	14.67

Domestic Equity Component Returns

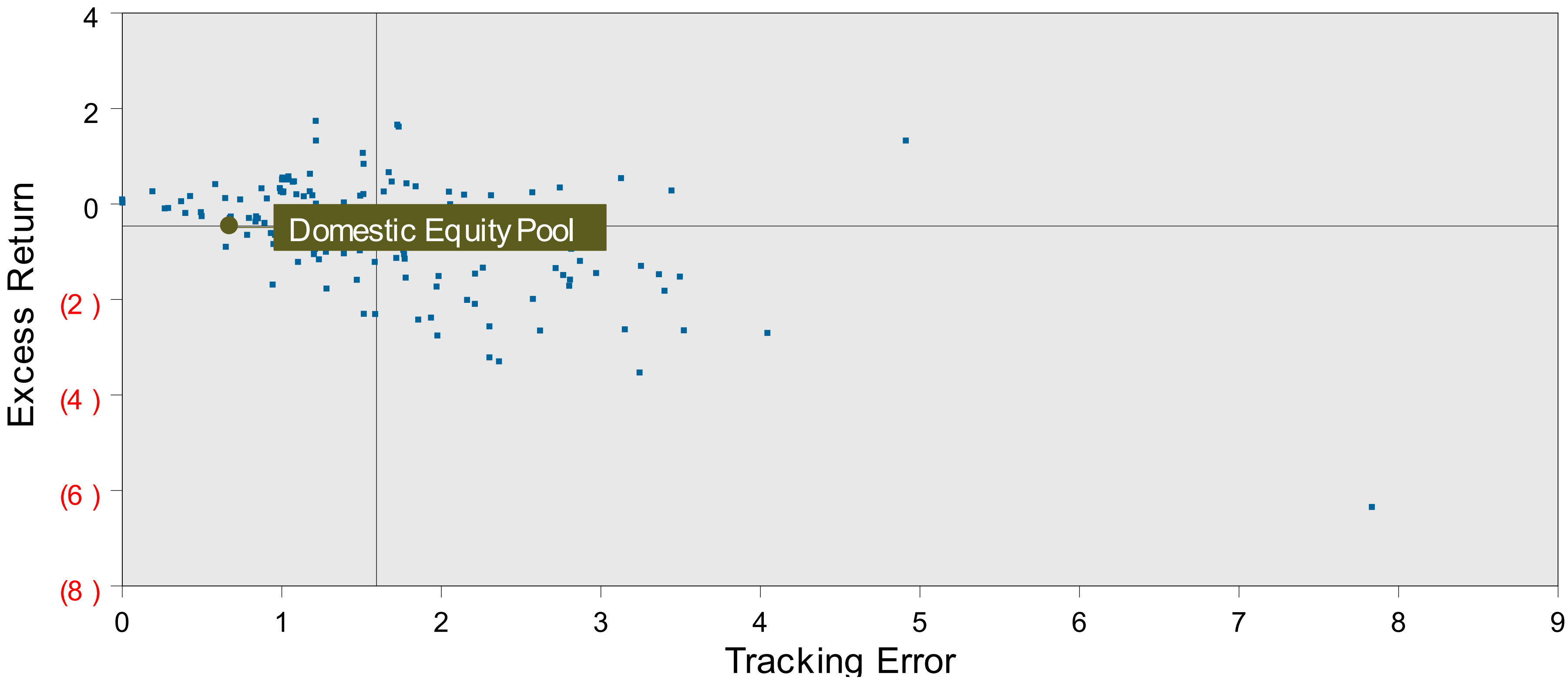
Returns for Periods Ended June 30, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 6 Years
Total Dom Equity Pool	4.16%	8.32%	13.69%	9.70%	12.20%
Russell 3000 Index	4.10%	8.98%	14.02%	10.19%	12.56%
Large Cap Managers	4.25%	10.10%	14.01%	10.32%	12.75%
Large Cap Active	4.84%	9.40%	14.28%	10.06%	12.68%
Large Cap Passive	4.25%	10.21%	14.22%	10.59%	12.89%
Russell 1000 Index	4.25%	10.02%	14.15%	10.45%	12.81%
Small Cap Managers	3.54%	(0.99%)	13.81%	8.05%	10.69%
Small Cap Active	3.62%	(0.25%)	14.67%	8.42%	11.01%
Small Cap Passive	1.86%	(4.77%)	9.46%	6.39%	9.01%
Russell 2000 Index	2.10%	(3.31%)	12.30%	7.06%	9.66%
Opportunistic Equity	4.21%	8.34%	9.49%	6.15%	8.86%

- The active large cap allocation (fourth line in the table above) trailed its benchmark (the Russell 1000 index) over the one-, five-, and six-year periods.
- The overall small cap allocation has contributed positive excess return when compared to its benchmark (the Russell 2000 index).

Domestic Equity Excess Return and Risk

Risk Analysis vs. Public Fund – Domestic Equity (Gross)
Five Years Ended June 30, 2019



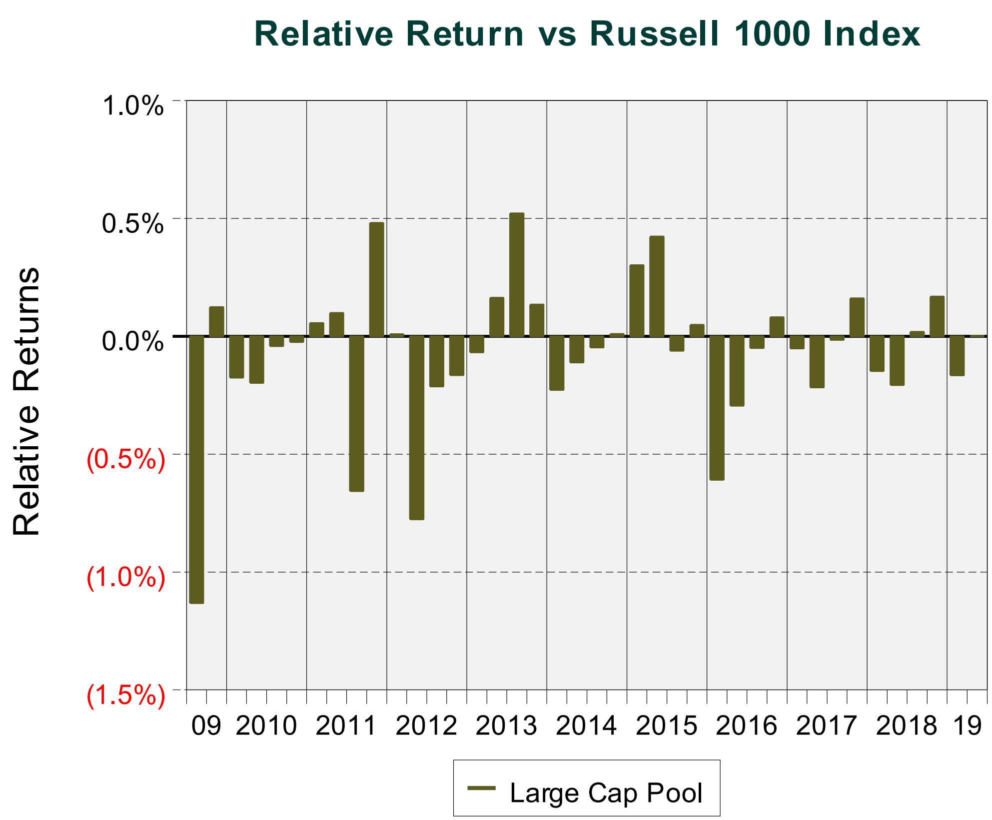
- The Domestic Equity Pool has slightly underperformed the Russell 3000 Index over five years but exhibits very tight tracking (low tracking error) to the benchmark relative to public fund peers.

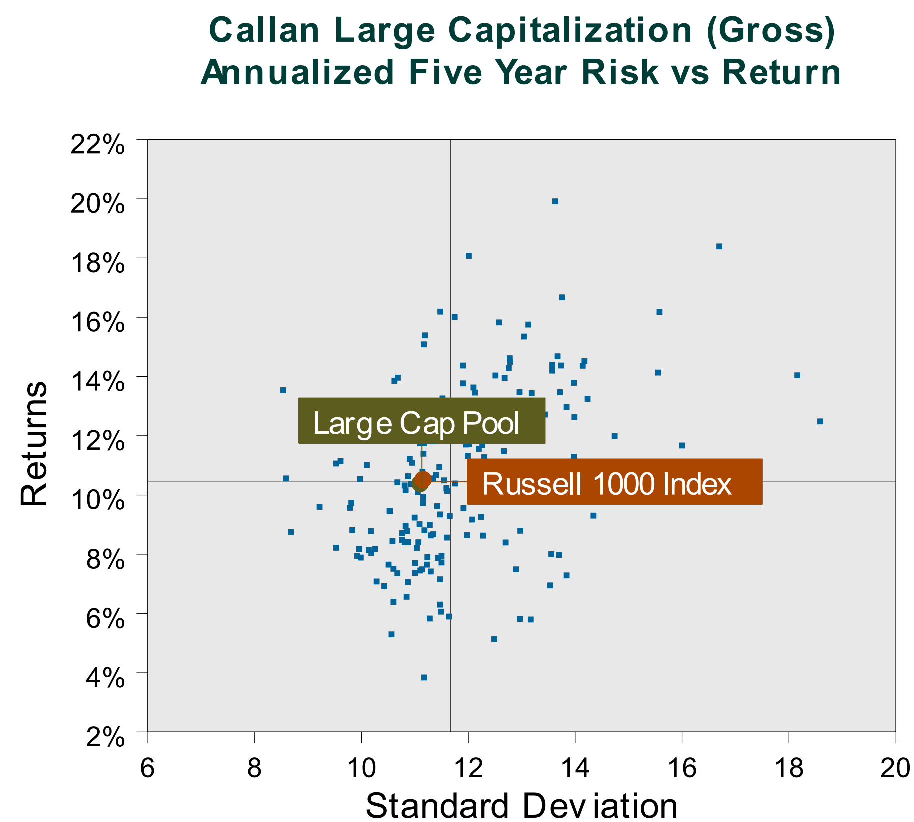
Large Cap Domestic Equity through 6/30/19

Performance vs Callan Large Capitalization (Gross)

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	6.55	15.75	20.92	14.30	16.48	16.75
25th Percentile	5.39	12.56	17.42	12.70	15.17	15.79
Median	4.33	9.47	14.23	10.47	12.82	14.56
75th Percentile	3.36	6.29	12.14	8.37	10.96	13.43
90th Percentile	2.53	2.88	10.44	7.29	9.97	12.70
Large Cap Pool ●	4.25	10.10	14.01	10.32	12.75	14.44
Russell 1000 Index ▲	4.25	10.02	14.15	10.45	12.81	14.77

Large Cap Domestic Equity as of 6/30/19

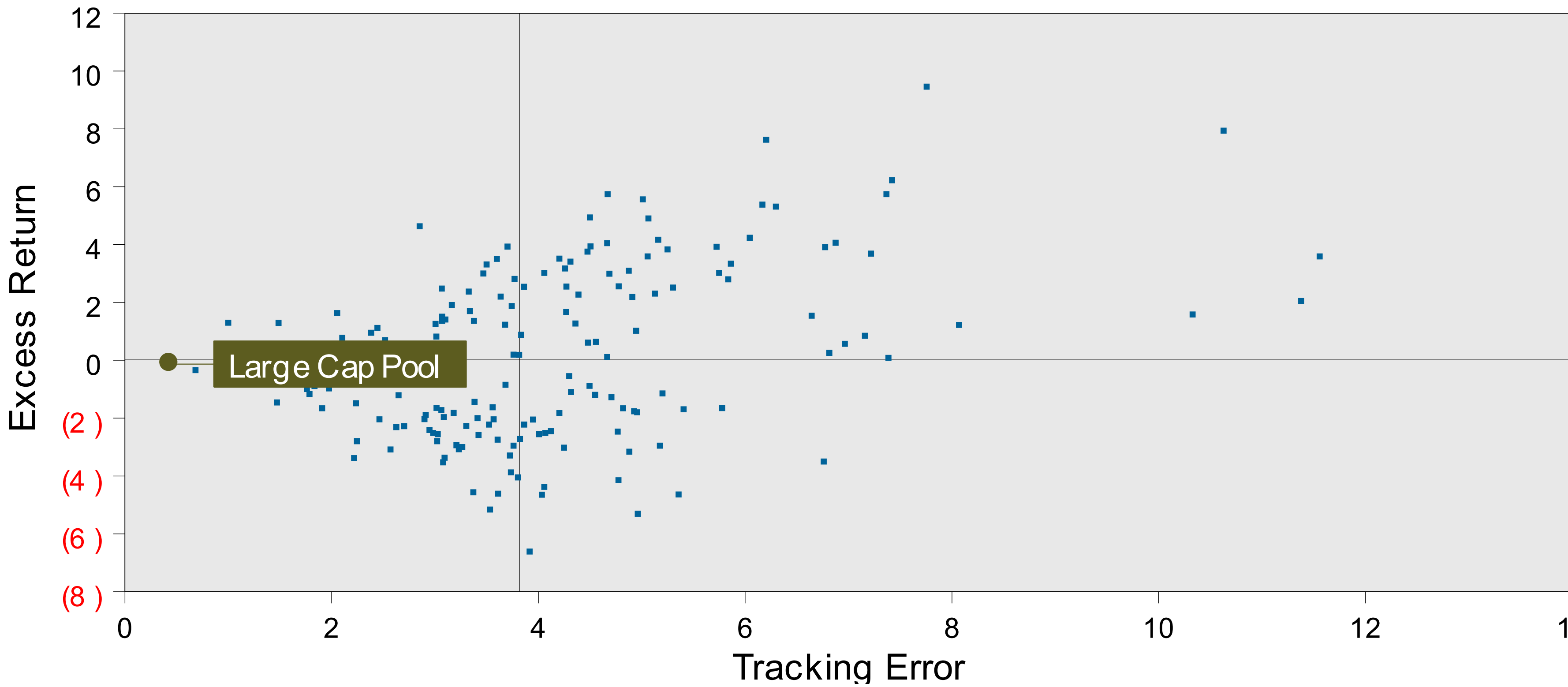




- Over half of the large cap allocation is passively managed.
- Long-term performance exhibits market-like returns with similar risk.

Large Cap Domestic Equity Excess Return and Risk

Risk Analysis vs. Callan Large Capitalization (Gross)
Five Years Ended June 30, 2019



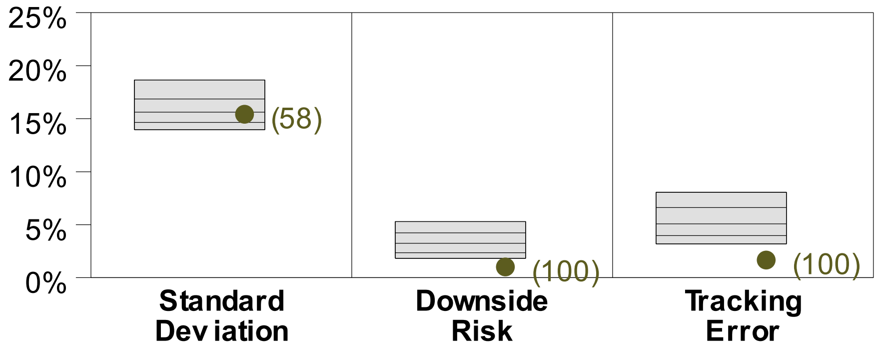
- The Large Cap Domestic Equity Pool has moderately underperformed the Russell 1000 Index over five years but exhibits extremely tight tracking (low tracking error) to the benchmark relative to large cap peers.

Small Cap Domestic Equity through 6/30/19

Performance vs Callan Small Capitalization (Gross)

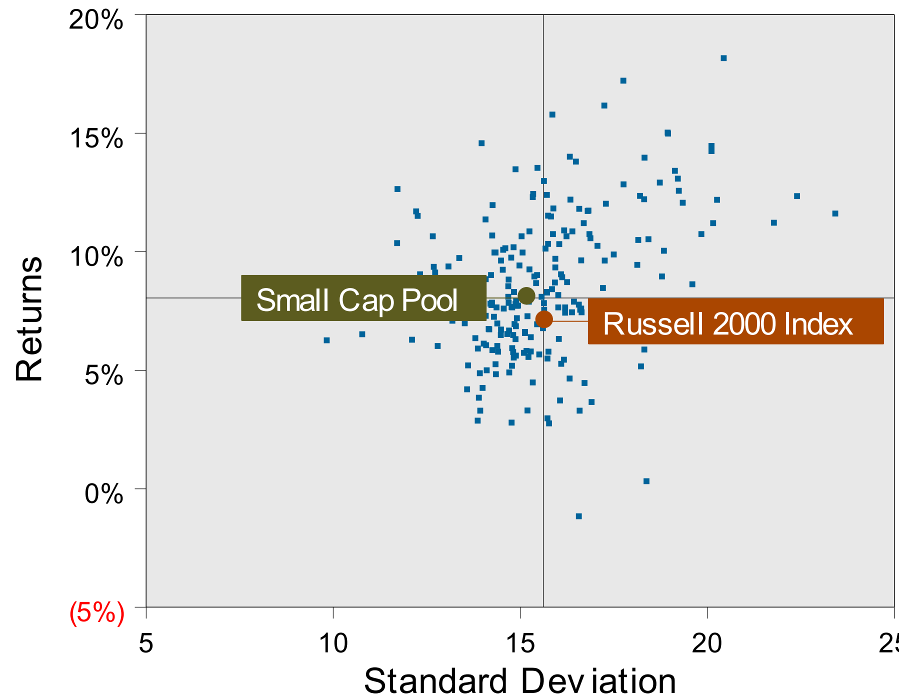
	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	7.09	9.99	19.42	21.32	12.36	14.41	17.57
25th Percentile	5.13	5.25	13.04	16.57	10.56	12.68	16.58
Median	3.04	(1.55)	7.62	12.47	8.05	10.94	14.98
75th Percentile	1.56	(5.68)	3.62	10.21	6.40	9.35	13.97
90th Percentile	0.22	(8.73)	1.53	7.95	5.08	8.25	13.04
Small Cap Pool ●	3.54	(0.99)	9.37	13.81	8.05	10.69	14.17
Russell 2000 Index ▲	2.10	(3.31)	6.62	12.30	7.06	9.66	13.45

Small Cap Domestic Equity through 6/30/19



	Standard Deviation	Downside Risk	Tracking Error
10th Percentile	18.66	5.29	8.05
25th Percentile	16.85	4.24	6.62
Median	15.62	3.24	5.08
75th Percentile	14.65	2.35	3.98
90th Percentile	13.96	1.83	3.19
Small Cap Equity Pool ●	15.22	0.81	1.48

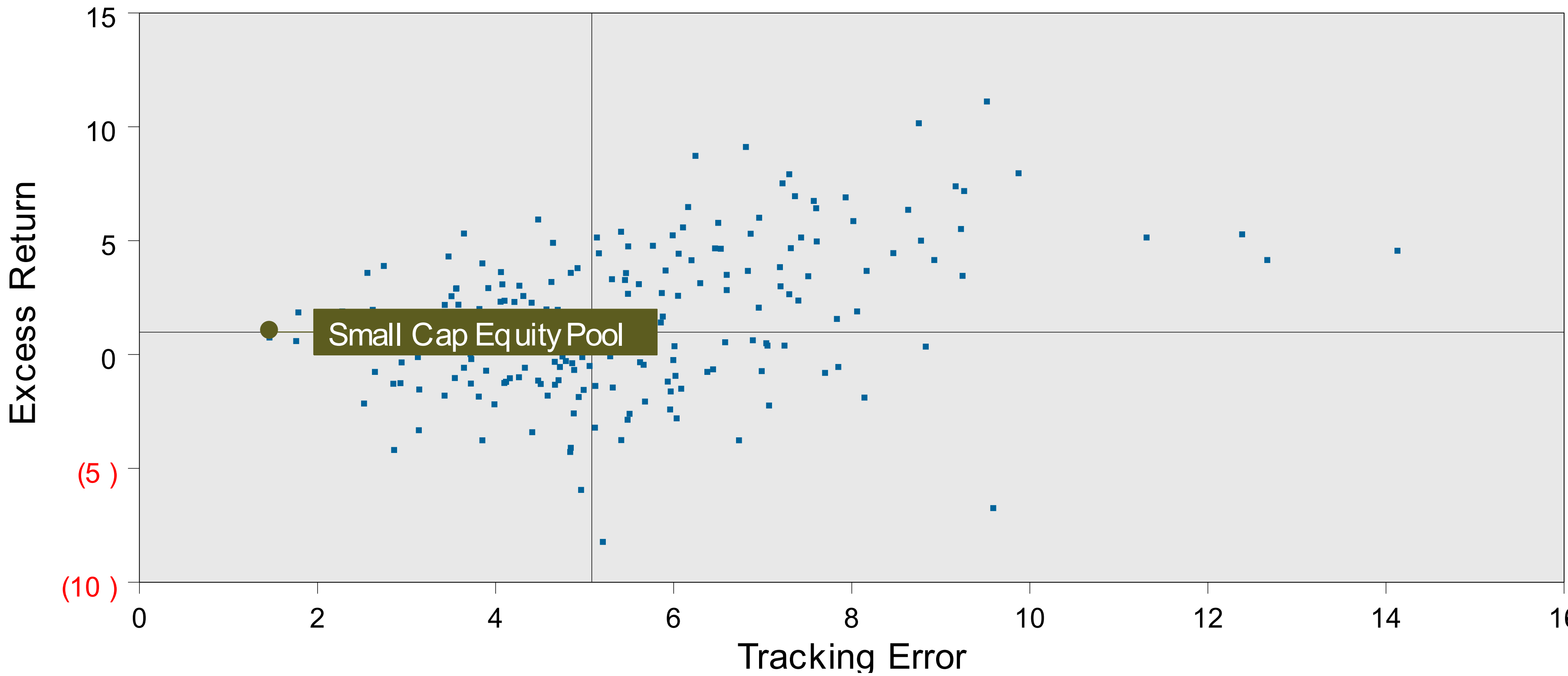
Callan Small Capitalization (Gross)
Annualized Five Year Risk vs Return



- The five-year risk statistics of standard deviation, downside risk, and tracking error compare favorably versus the peer group of small cap managers.

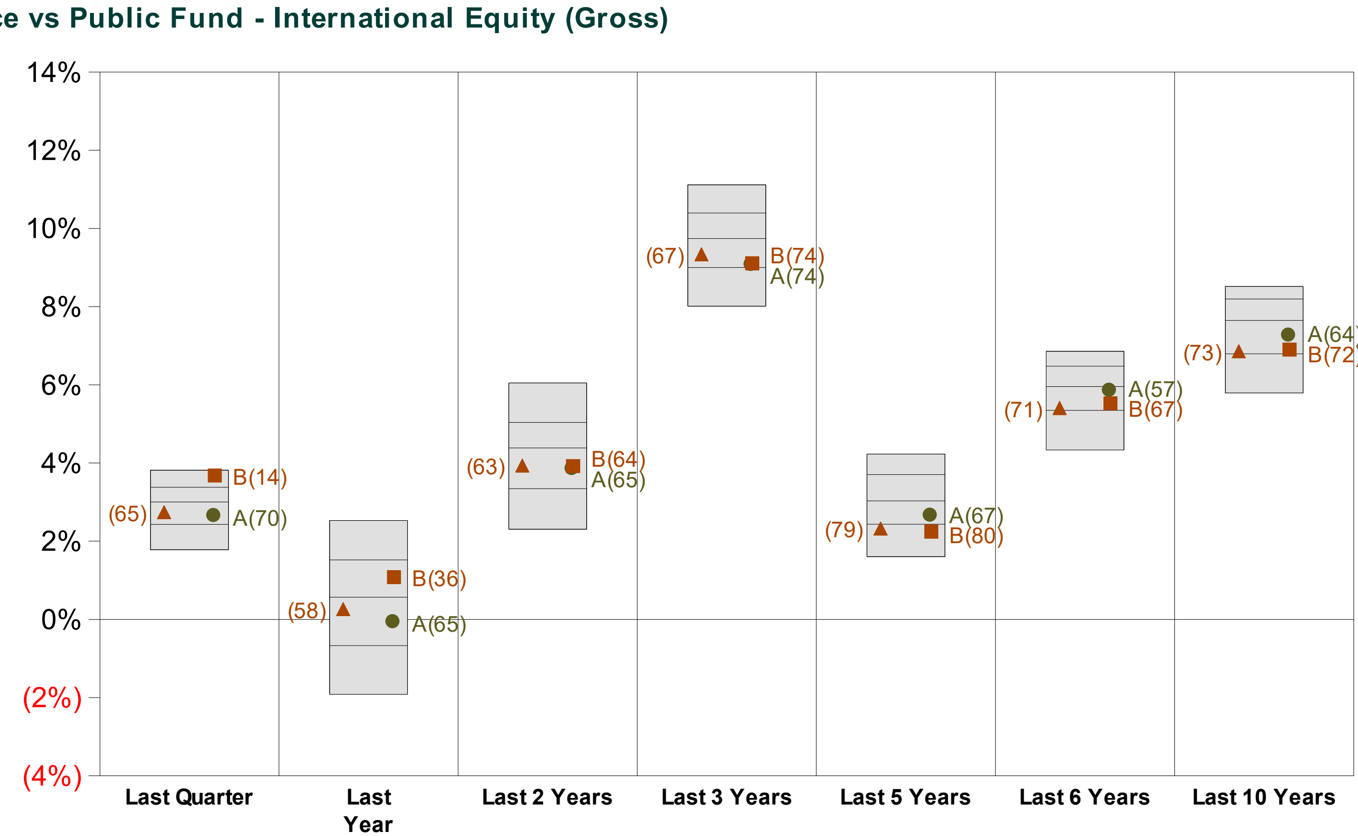
Small Cap Domestic Equity Excess Return and Risk

Risk Analysis vs. Callan Small Capitalization (Gross)
Five Years Ended June 30, 2019



- The Small Cap Domestic Equity Pool has outperformed the Russell 2000 Index over five years while exhibiting very tight tracking (low tracking error) to the benchmark relative to small cap peers.

International Equity through 6/30/19

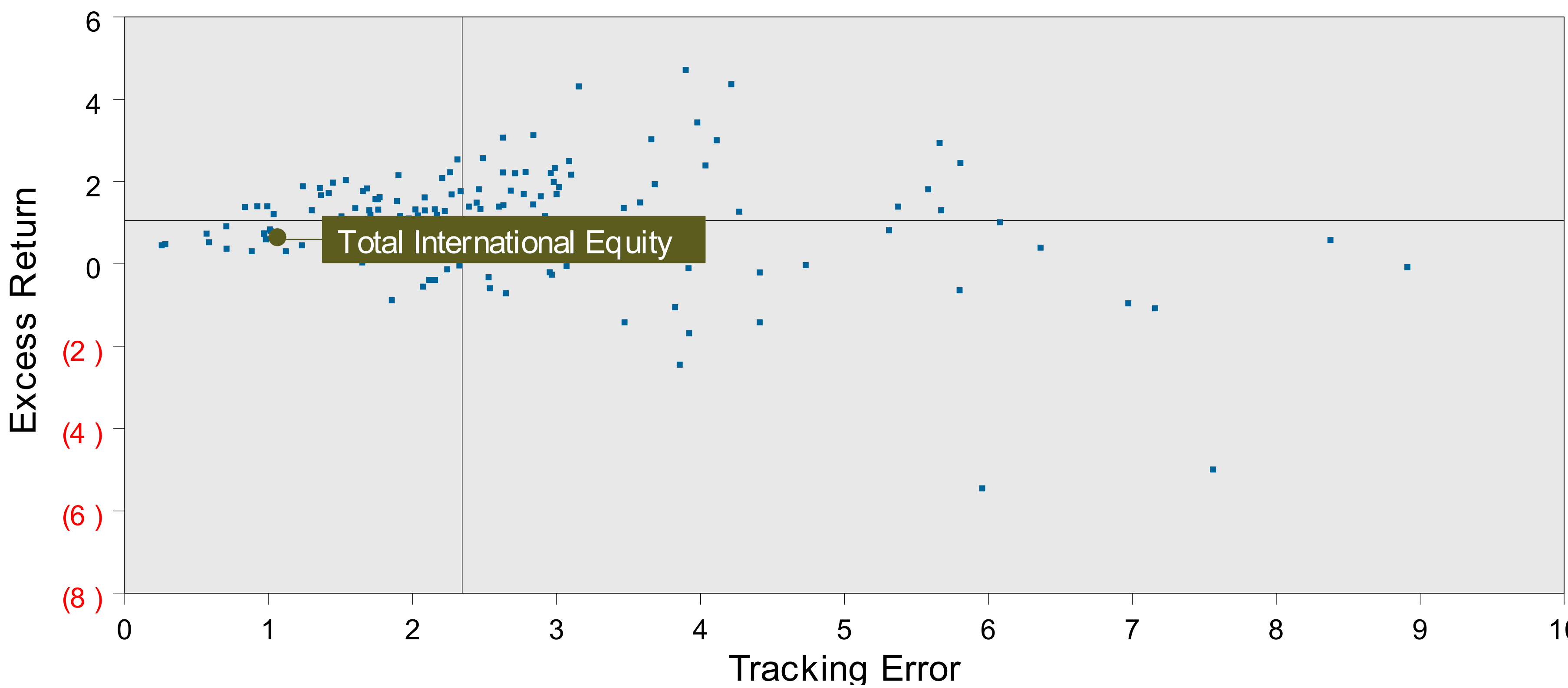


		Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile		3.82	2.53	6.05	11.12	4.23	6.86	8.51
25th Percentile		3.38	1.52	5.04	10.40	3.70	6.48	8.20
Median		3.00	0.57	4.39	9.74	3.03	5.96	7.64
75th Percentile		2.43	(0.67)	3.35	9.00	2.44	5.35	6.79
90th Percentile		1.78	(1.92)	2.31	8.01	1.61	4.33	5.79
Total International Equity	● A	2.62	(0.09)	3.83	9.05	2.64	5.83	7.24
MSCI EAFE Index	■ B	3.68	1.08	3.92	9.11	2.25	5.53	6.90
Int'l Equity Target	▲	2.74	0.26	3.94	9.34	2.33	5.41	6.86

The Int'l Equity Target currently consists of MSCI ACWI ex U.S. IMI.

International Equity Excess Return and Risk

Risk Analysis vs. Public Fund – International Equity (Gross)
Five Years Ended June 30, 2019

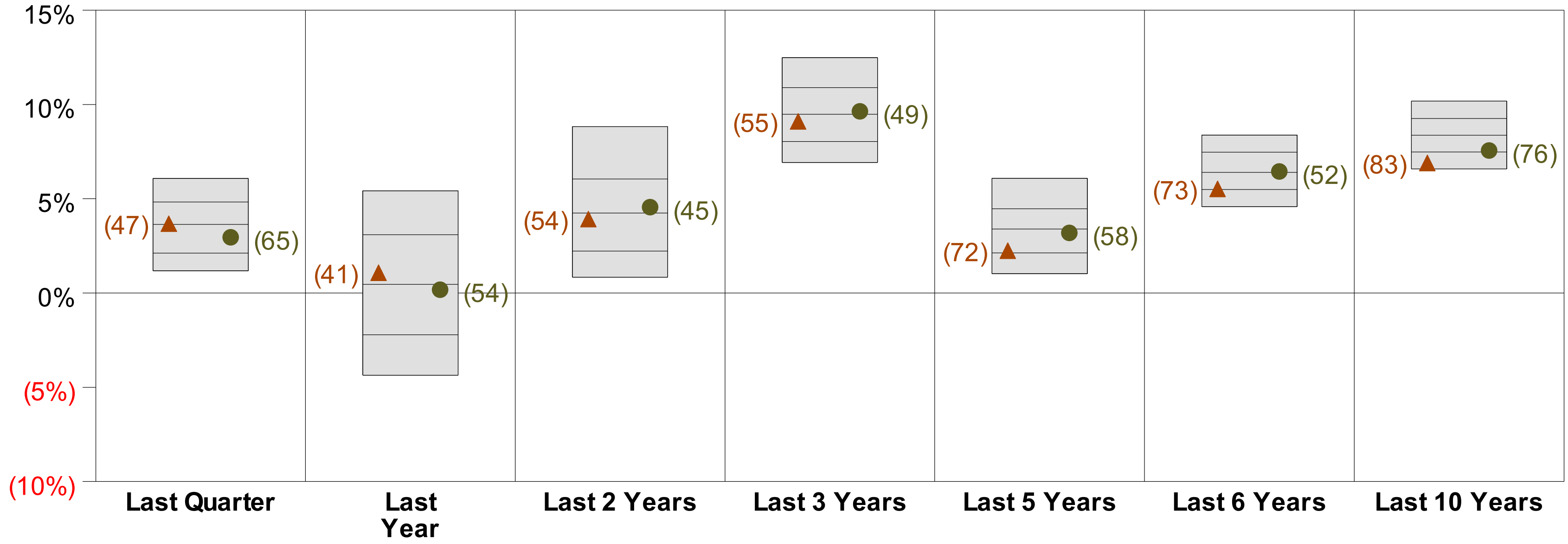


- The Total International Equity portfolio has outperformed the Int'l Equity Target over five years while exhibiting very tight tracking (low tracking error) to the benchmark relative to public fund peers.

The Int'l Equity Target currently consists of MSCI ACWI ex U.S. IMI.

International Equity ex Emerging Markets through 6/30/19

Performance vs Callan Non-US Equity (Gross)



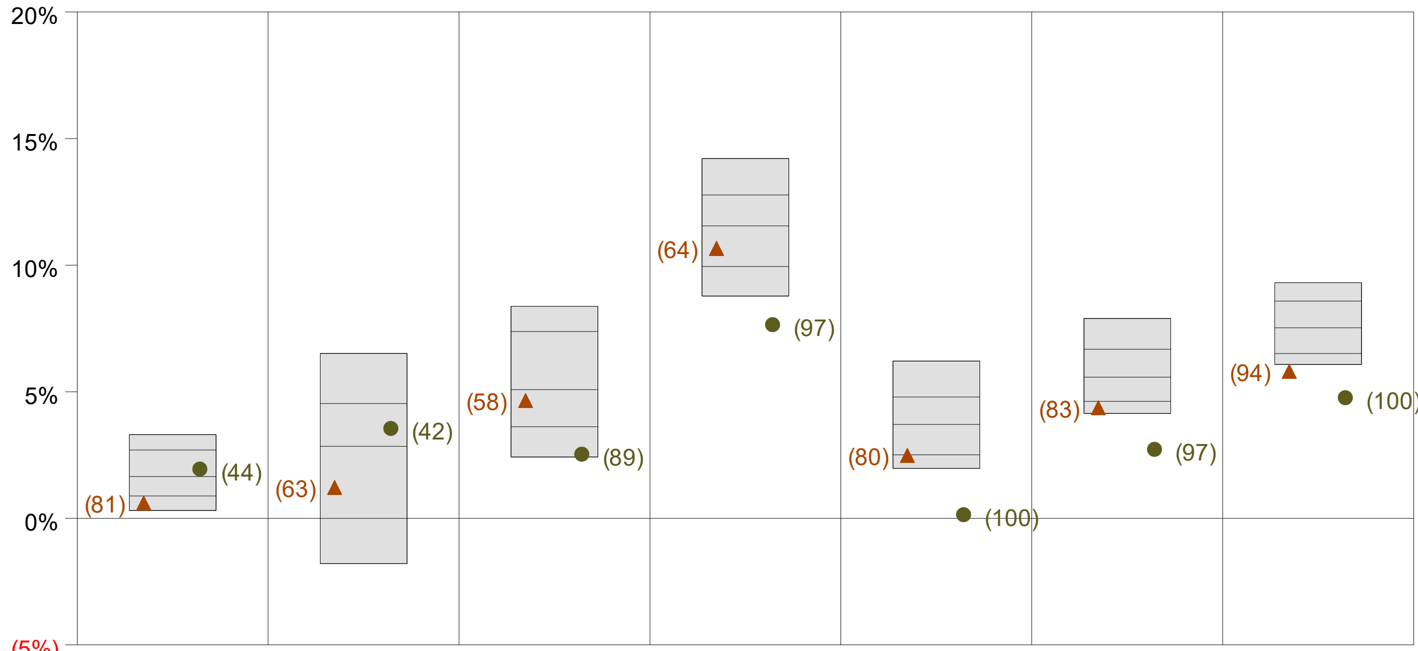
	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	6.08	5.42	8.83	12.49	6.09	8.38	10.19
25th Percentile	4.83	3.09	6.05	10.90	4.47	7.47	9.26
Median	3.64	0.46	4.24	9.48	3.40	6.40	8.37
75th Percentile	2.11	(2.22)	2.22	8.04	2.13	5.49	7.48
90th Percentile	1.18	(4.36)	0.84	6.93	1.02	4.58	6.58
Int'l Equity Pool (ex Emerging. Mkt) ●	2.86	0.09	4.46	9.55	3.09	6.35	7.47
MSCI EAFE ▲	3.68	1.08	3.92	9.11	2.25	5.53	6.90

International Equity ex Emerging Markets through 6/30/19

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Int'l Equity Pool (ex Emerging Market)	**2.86%**	**0.09%**	**9.55%**	**3.09%**	**7.47%**
Arrowstreet ACWI ex -US	3.16%	2.21%	10.40%	-	-
Baillie Gifford ACWI ex US	5.98%	0.88%	10.28%	-	-
Blackrock ACWI ex US IMI	2.91%	0.52%	9.46%	2.50%	-
Brandes Investment	(0.48%)	(5.37%)	7.01%	1.58%	6.62%
Capital Guardian	3.77%	4.74%	14.19%	5.39%	9.15%
Lazard Asset Intl	4.67%	3.30%	7.67%	2.56%	7.70%
McKinley Capital	2.95%	(2.93%)	8.48%	4.46%	8.10%
Schroder Inv Mgmt	0.97%	(11.08%)	8.46%	3.97%	-
Mondrian Intl Sm Cap	4.51%	(1.70%)	9.94%	4.96%	-
SSgA World ex US IMI	3.51%	-	-	-	-
MSCI EAFE Index	3.68%	1.08%	9.11%	2.25%	6.90%
MSCI ACWI ex-US IMI Index	2.74%	0.26%	9.17%	2.25%	6.78%

Emerging Markets through 6/30/19

Performance vs Callan Emerging Broad (Gross)



	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	3.30	6.51	8.38	14.21	6.21	7.89	9.31
25th Percentile	2.70	4.54	7.38	12.77	4.79	6.68	8.58
Median	1.65	2.84	5.08	11.55	3.71	5.57	7.53
75th Percentile	0.89	(0.00)	3.62	9.95	2.51	4.62	6.51
90th Percentile	0.31	(1.79)	2.43	8.78	1.98	4.14	6.08
Emerging Markets Pool ●	1.88	3.48	2.47	7.59	0.08	2.66	4.69
MSCI EM ▲	0.61	1.22	4.65	10.66	2.49	4.37	5.81

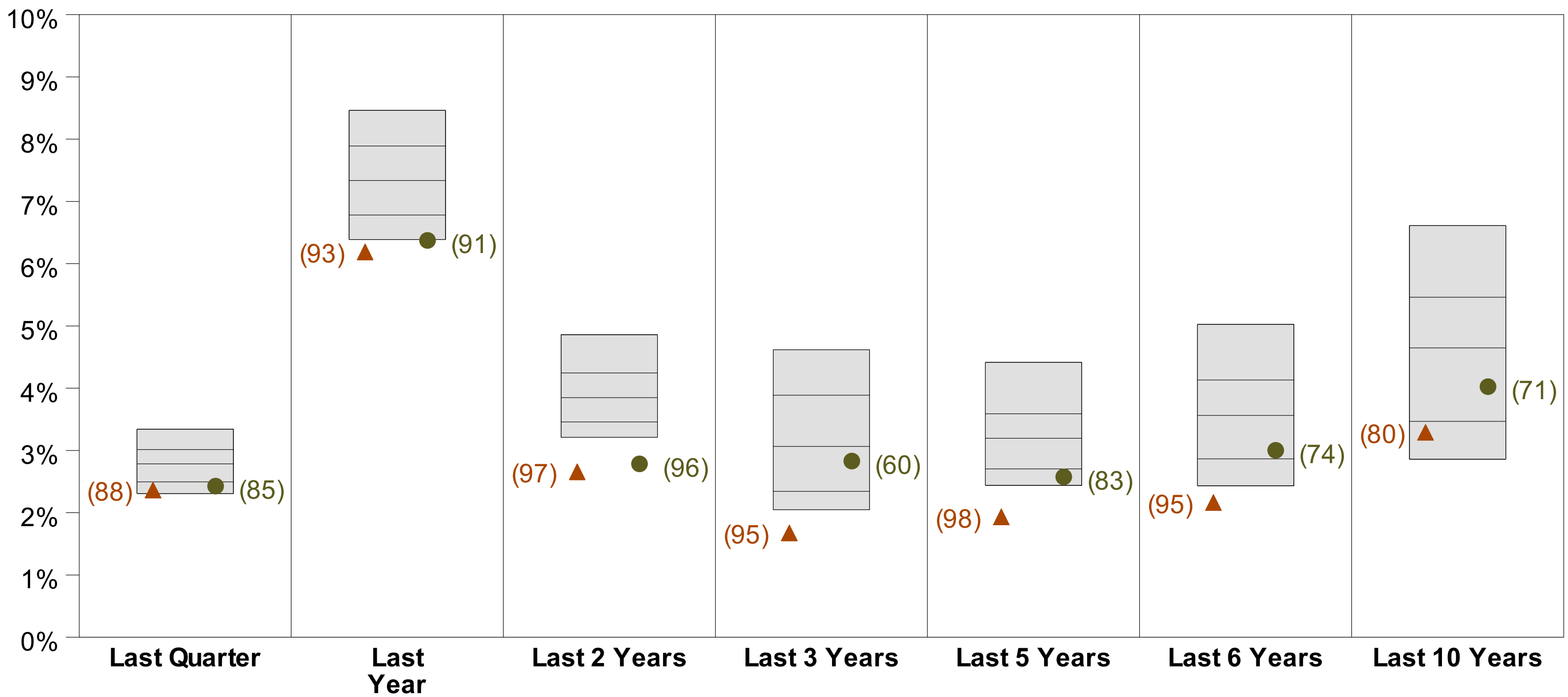
- After underperforming by 3.76% in 2Q17, 1.38% in 3Q17, 1.68% in 4Q17, 4.03% in 2Q18, and 1.87% in 1Q19, the Emerging Markets Pool lags the benchmark and ranks in the bottom quartile for all trailing periods longer than one year.

Emerging Markets Pool through 6/30/19

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Emerging Markets Pool	**1.88%**	**3.48%**	**7.59%**	**0.08%**	**4.69%**
DRZ Emerging (net)	2.22%	6.07%	-	-	-
Lazard Emerging (net)	2.66%	2.57%	6.99%	(0.44%)	5.43%
SSgA Emerging Markets	0.64%	-	-	-	-
MSCI EM	0.61%	1.22%	10.66%	2.49%	5.81%

Total Fixed Income as of 6/30/19

Performance vs Public Fund - Domestic Fixed (Gross)



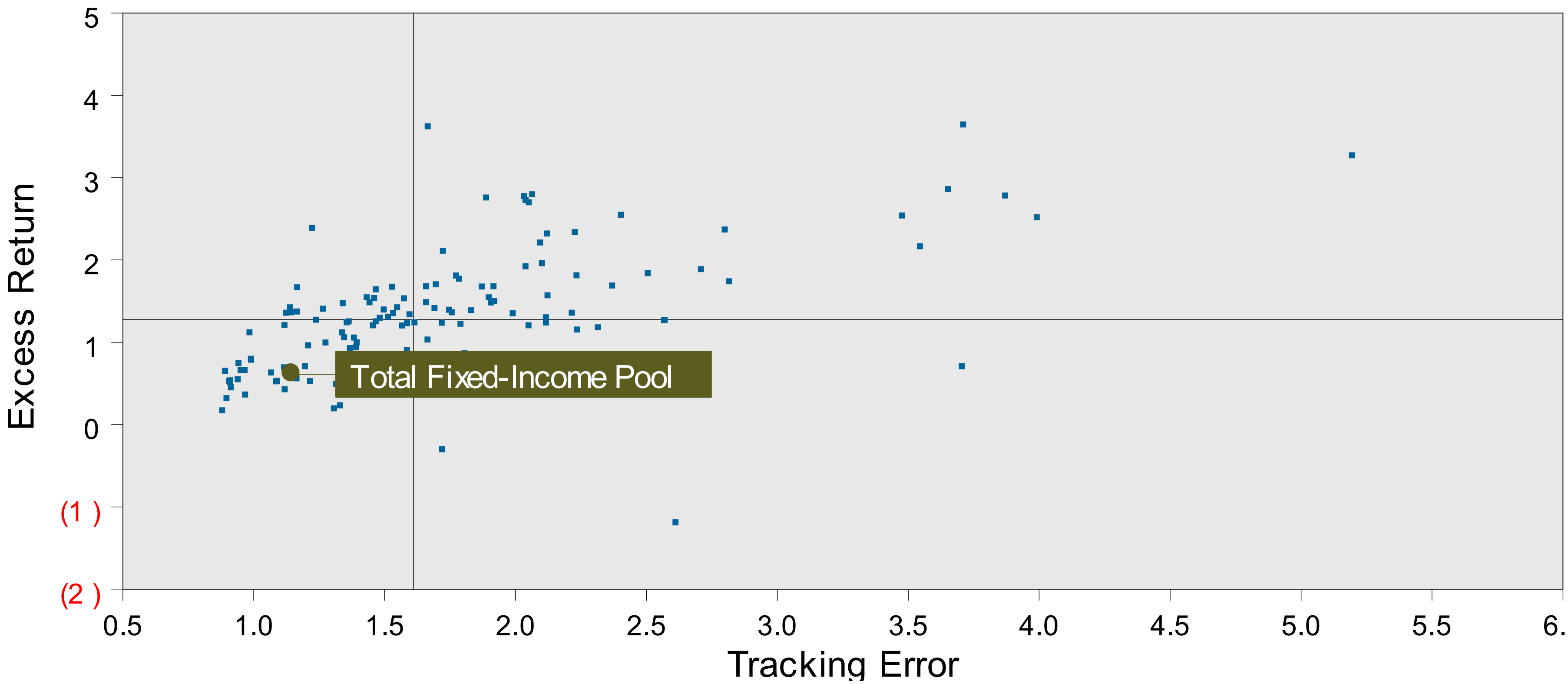
	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	3.34	8.46	4.86	4.62	4.42	5.03	6.61
25th Percentile	3.01	7.89	4.25	3.89	3.59	4.13	5.46
Median	2.78	7.34	3.85	3.07	3.20	3.56	4.65
75th Percentile	2.49	6.78	3.46	2.34	2.70	2.86	3.47
90th Percentile	2.31	6.39	3.21	2.05	2.44	2.43	2.86
Total Fixed-Income Pool ●	2.40	6.34	2.75	2.80	2.54	2.97	4.00
Fixed-Income Target ▲	2.36	6.19	2.66	1.68	1.93	2.16	3.29

- The Total Bond portfolio has a custom target, intermediate in nature, that reflects a cautious view on the risk of rising rates.

Includes In-House and External Portfolios

Total Fixed Income Excess Return and Risk

Risk Analysis vs. Public Fund – Domestic Fixed (Gross)
Five Years Ended June 30, 2019



- The Total Fixed Income portfolio has outperformed the Fixed Income Target over five years and exhibits modest tracking error to the benchmark relative to public fund peers despite the custom nature of the benchmark.

Opportunistic through 6/30/19

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Opportunistic	**3.32%**	**7.22%**	**-**	**-**	**-**
Opportunistic Equity	**4.21%**	**8.34%**	**9.49%**	**6.15%**	**-**
ARMB STOXX Min Var	5.20%	13.28%	10.03%	-	-
Analytic SSgA/Buy Write	2.88%	3.57%	7.47%	5.53%	-
McKinley Healthcare Transformation	3.73%	-	-	-	-
Russell 1000 Index	4.25%	10.02%	14.15%	10.45%	14.77%
Tactical Global	**2.55%**	**-**	**-**	**-**	**-**
PineBridge	1.70%	-	-	-	-
Fidelity Signals	3.38%	-	-	-	-
Taxable Muni Composite	**5.58%**	**12.96%**	**5.52%**	**6.64%**	**-**
Western Asset Taxable Muni	5.58%	12.96%	5.62%	6.94%	-
Blmbg Gov/Credit Bd	3.53%	8.52%	2.41%	3.11%	4.09%
Blmbg Aggregate Index	3.08%	7.87%	2.31%	2.95%	3.90%
Blmbg Intmdt Treas	2.36%	6.19%	1.31%	1.95%	2.44%
Blmbg Muni Tax Bd Idx	5.46%	11.70%	4.56%	6.08%	8.04%
International Fixed Income Pool	**3.07%**	**6.00%**	**2.66%**	**0.22%**	**1.92%**
Mondrian Investment Partners	4.07%	8.32%	3.46%	0.95%	2.52%
Citi Non-US Gvt Bd Idx	3.93%	4.54%	0.83%	0.19%	1.88%
Mondrian Benchmark	4.01%	7.45%	2.37%	0.35%	2.01%
Tactical FI					
FIAM Tactical Bond	3.44%	9.33%	5.71%	-	-
Schroders Insurance Linked	(1.99%)	(3.40%)	(1.46%)	-	-
Blmbg Aggregate Index	3.08%	7.87%	2.31%	2.95%	3.90%
T-Bills + 6%	2.08%	8.31%	7.38%	6.87%	6.49%
High Yield	**3.60%**	**9.33%**	**7.42%**	**5.06%**	**8.76%**
FIAM High Yield CMBS	3.77%	9.91%	6.40%	-	-
MacKay Shields	3.31%	9.61%	8.99%	6.25%	9.36%
High Yield Target(1)	3.17%	10.01%	8.34%	5.18%	9.45%

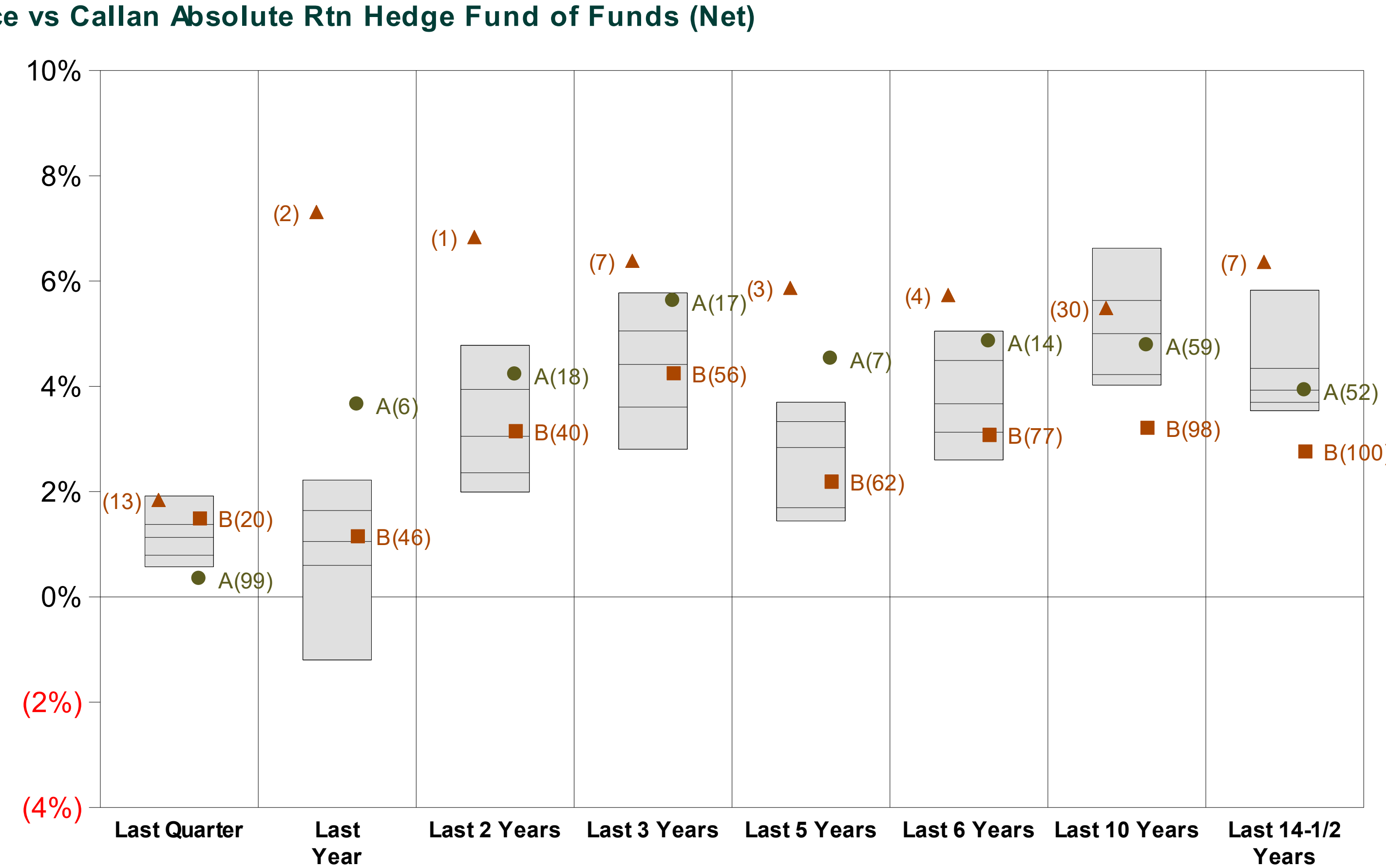
(1) ML Hi Yield Master II from 12/31/06; ML Hi Yield Cash Pay prior to 12/31/06.

Real Assets through 6/30/19

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 6 Years
Real Assets	**0.78%**	**6.23%**	**6.60%**	**5.65%**	**6.87%**
Real Assets Target (1)	1.78%	7.23%	5.72%	6.79%	7.48%
Real Estate Pool	0.48%	6.26%	6.51%	8.85%	9.43%
Real Estate Target (2)	1.54%	7.27%	6.86%	8.90%	9.32%
Private Real Estate	0.22%	5.21%	6.86%	8.97%	9.43%
NCREIF Total Index	1.51%	6.51%	6.89%	8.83%	9.22%
ARMB REIT	1.71%	12.92%	5.75%	8.81%	9.49%
NAREIT Equity Index	1.79%	13.01%	5.92%	8.88%	9.56%
Total Farmland	0.41%	3.05%	3.57%	4.40%	5.03%
UBS Farmland	0.52%	3.80%	4.03%	4.86%	5.63%
Hancock Agricultural	0.17%	1.47%	2.59%	3.44%	3.92%
ARMB Farmland Target (3)	0.61%	5.04%	5.50%	5.72%	6.75%
Total Timber	2.14%	4.37%	2.68%	3.29%	4.46%
Timberland Investment Resources	2.61%	4.14%	2.60%	3.58%	4.36%
Hancock Timber	0.90%	4.98%	2.90%	2.52%	4.44%
NCREIF Timberland Index	1.04%	2.95%	3.29%	4.62%	5.49%
Total Energy Funds *	0.39%	1.03%	11.74%	(5.44%)	(5.49%)
CPI + 5%	2.00%	6.45%	7.01%	6.25%	6.39%
MLP Composite *	(1.04%)	0.64%	0.12%	(6.20%)	(0.39%)
Advisory Research (FKA FAMCO) MLP	(1.44%)	(0.43%)	(0.94%)	(7.48%)	(2.09%)
Tortoise Capital Adv MLP	(0.65%)	1.26%	0.96%	(5.11%)	1.12%
Alerian MLP Index	0.12%	3.09%	(0.42%)	(7.20%)	(2.93%)
Total Infrastructure *	2.96%	10.39%	11.16%	6.84%	-
Brookfield	4.45%	13.95%	7.70%	3.45%	-
Lazard	4.80%	9.04%	14.46%	9.09%	-
JPM Infrastructure	1.20%	2.87%	6.40%	3.80%	-
IFM Infrastructure	2.82%	14.28%	13.02%	-	-
Global Infrastructure Idx	5.34%	12.17%	8.78%	4.83%	8.72%

Real estate returns are provided to Callan by ARMB's real estate consultant.

Absolute Return Composite through 6/30/19



		Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years	Last 14-1/2 Years
10th Percentile		1.92	2.22	4.78	5.77	3.70	5.05	6.63	5.83
25th Percentile		1.38	1.64	3.94	5.05	3.33	4.49	5.63	4.34
Median		1.13	1.05	3.05	4.42	2.84	3.67	5.00	3.93
75th Percentile		0.79	0.60	2.36	3.61	1.70	3.13	4.22	3.70
90th Percentile		0.57	(1.20)	1.99	2.81	1.44	2.60	4.02	3.54
Absolute Return	● A	0.33	3.65	4.21	5.61	4.51	4.84	4.77	3.91
HFRI Fund of Funds Compos	■ B	1.49	1.15	3.15	4.25	2.19	3.08	3.21	2.76
T-Bills + 5%	▲	1.84	7.31	6.84	6.38	5.87	5.73	5.49	6.37

Absolute Return Composite through 6/30/19

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Absolute Return	**0.33%**	**3.65%**	**5.61%**	**4.51%**	**4.77%**
Crestline ABS	2.11%	6.18%	8.80%	8.12%	6.77%
Prisma ABS	0.25%	1.89%	4.66%	1.99%	-
Crestline Specialty Lending Fund	8.80%	15.23%	13.70%	-	-
Crestline Specialty Lending Fund II	5.58%	10.69%	-	-	-
Zebra Global Equity	(1.68%)	1.05%	(1.30%)	-	-
Zebra Global Advantage	(3.55%)	1.83%	(3.84%)	-	-
JP Morgan Systematic Alpha	(6.91%)	(8.70%)	-	-	-
Man Group Alternative Risk Premia	1.10%	(1.44%)	-	-	-
HFRI Fund of Funds Index	1.48%	1.14%	4.24%	2.19%	3.21%

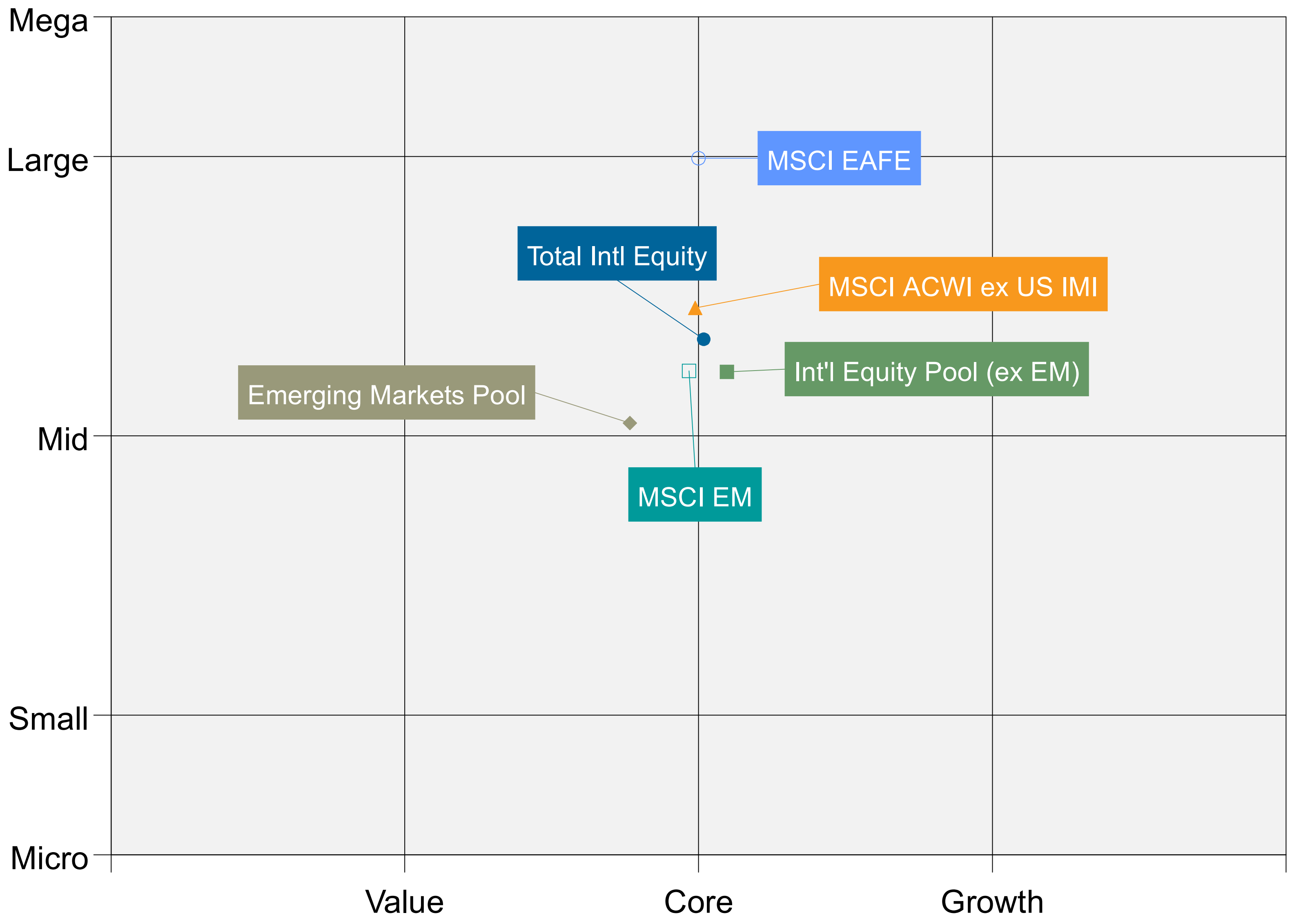
Data on Crestline ABS and Prisma ABS has not yet been provided for the current quarter.

Callan

Global Equity ex-U.S. Detailed Review

International Equity Composites and Benchmarks Style Map

For 5 Years Ended June 30, 2019



Total International Equity Style Exposure Matrix

For Quarter Ended June 30, 2019

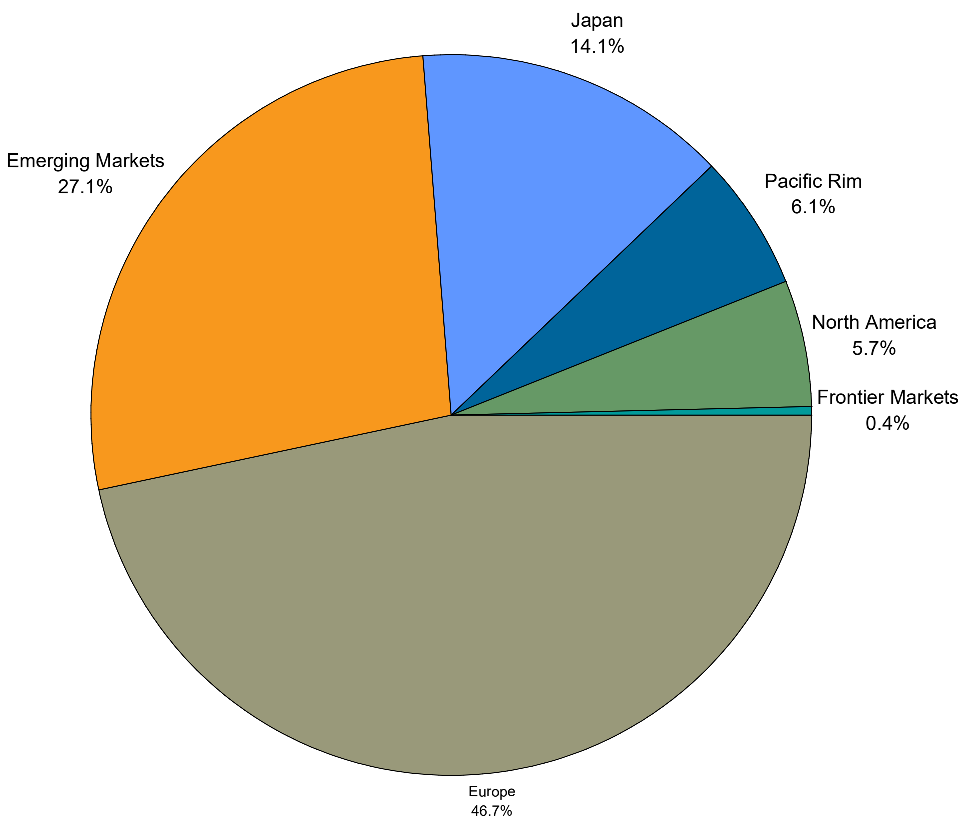
Top: Total International Equity
Bottom: MSCI ACWI ex US IMI
Parentheses Represent # of Holdings

	Value	Core	Growth	Total
Europe	12.9% (491) 12.8% (474)	13.3% (543) 11.9% (521)	20.0% (523) 17.6% (504)	46.2% (1557) 42.3% (1499)
N. America	1.1% (105) 2.1% (102)	1.3% (104) 2.7% (100)	1.4% (99) 2.1% (98)	3.8% (308) 6.9% (300)
Pacific	5.2% (609) 7.4% (598)	6.8% (594) 9.3% (588)	9.0% (576) 8.7% (571)	21.0% (1779) 25.4% (1757)
Emerging	8.6% (967) 7.3% (920)	9.8% (990) 8.1% (944)	10.6% (947) 10.1% (922)	29.0% (2904) 25.4% (2786)
Total	27.9% (2172) 29.6% (2094)	31.2% (2231) 31.9% (2153)	40.9% (2145) 38.5% (2095)	100.0% (6548) 100.0% (6342)

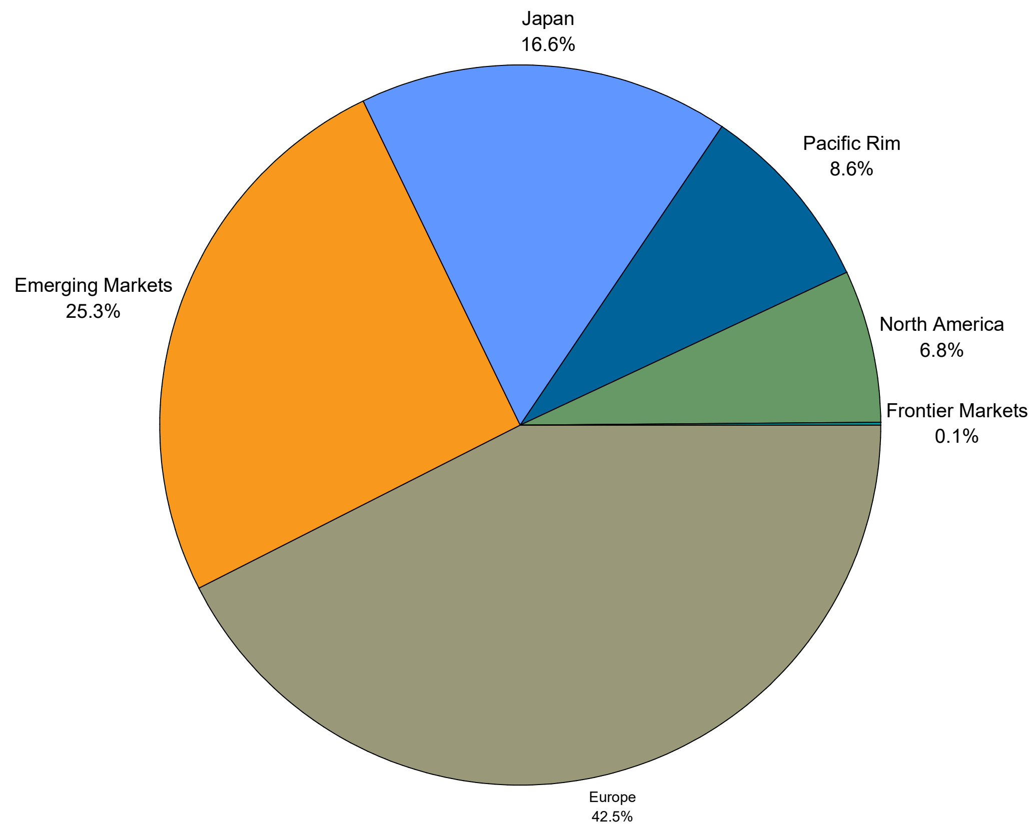
Total International Equity Regional Weights vs. Benchmark

For Quarter Ended June 30, 2019

Total International Equity

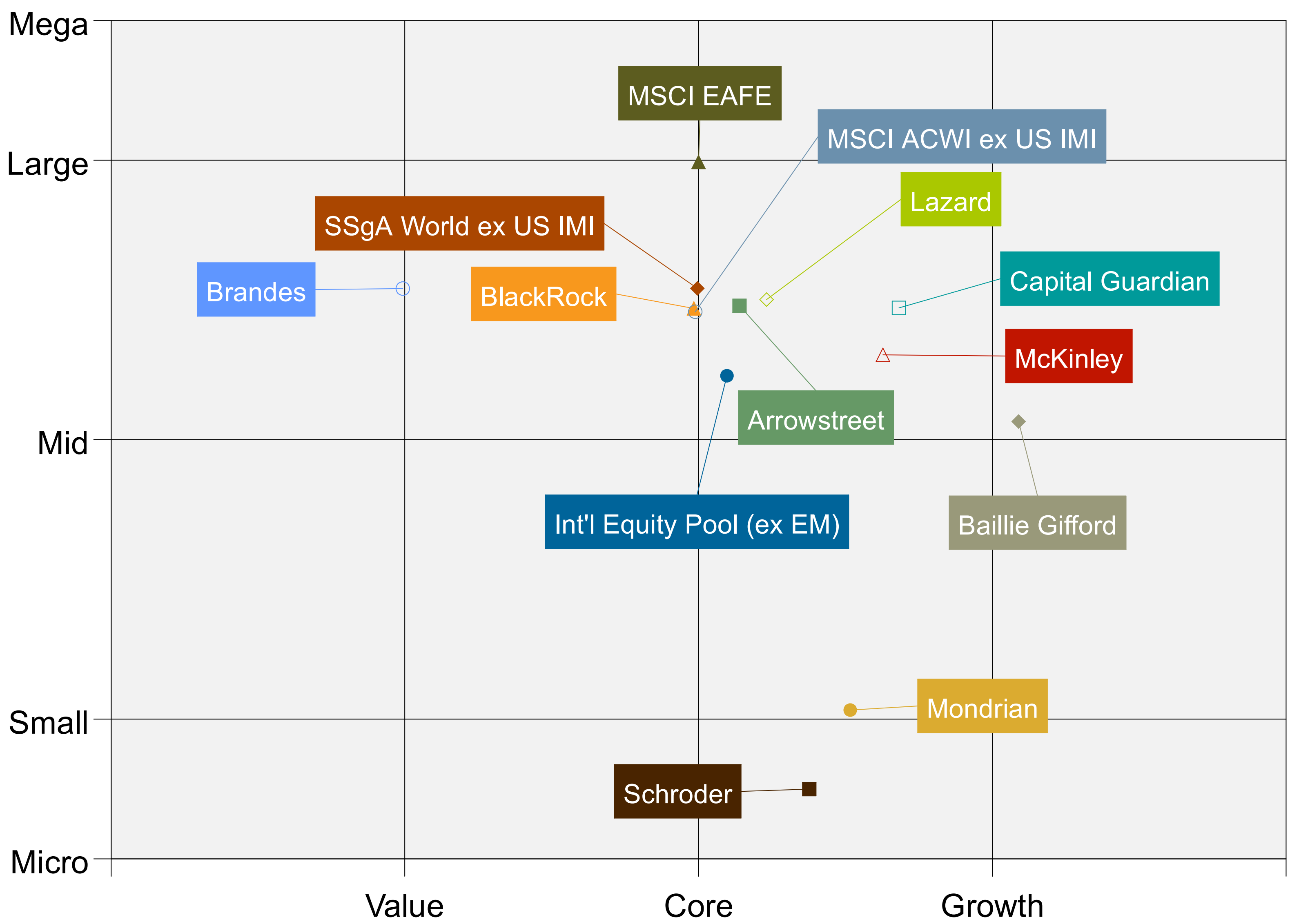


MSCI ACWI ex US IMI



Int’l Equity Pool (ex EM), Managers, and Benchmark Style Map

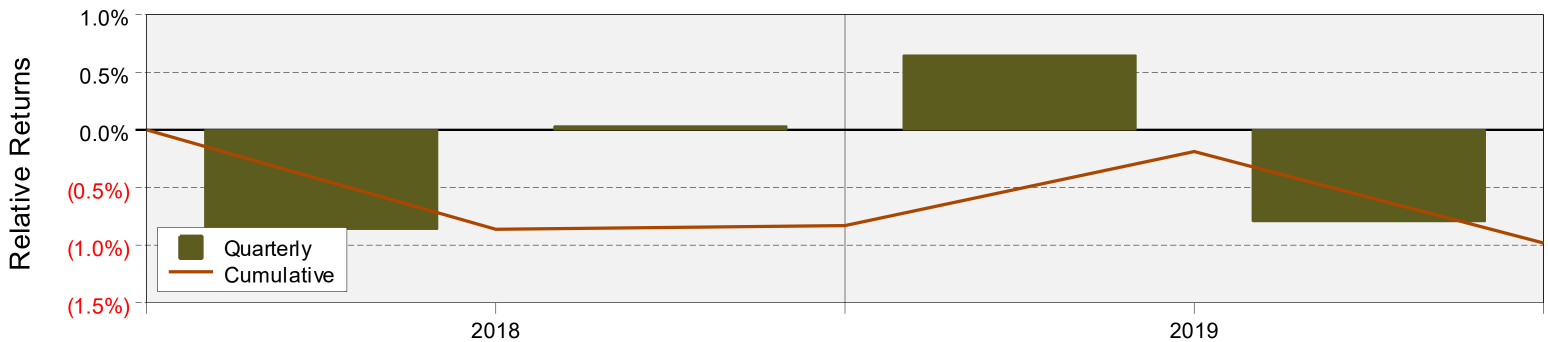
For 5 Years Ended June 30, 2019



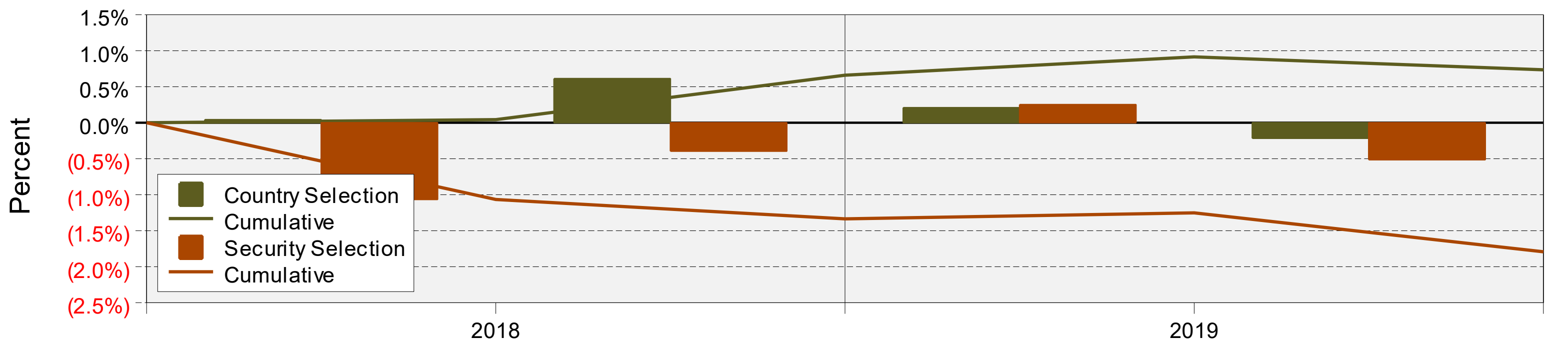
Int’l Equity Pool (ex EM) Attribution

For 1 Year Ended June 30, 2019

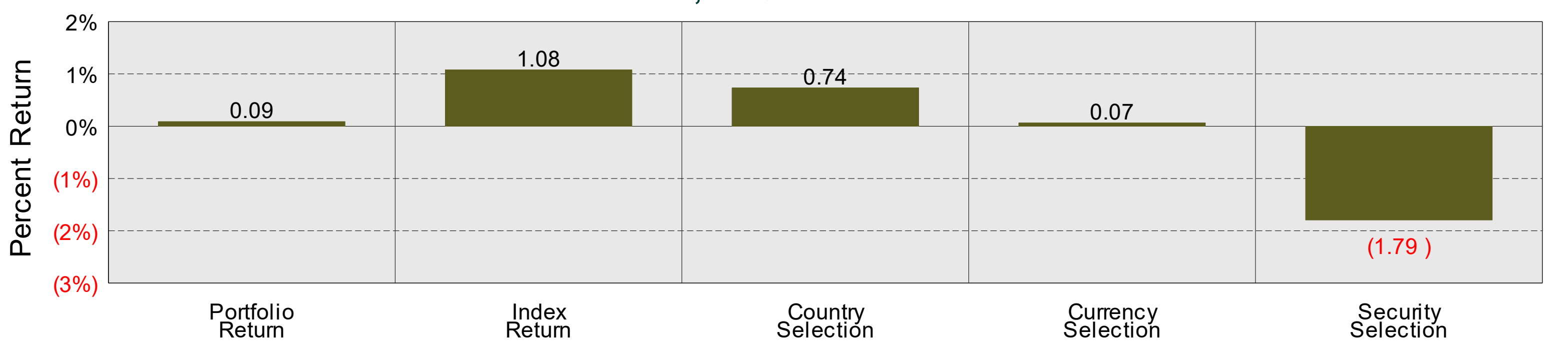
Cumulative and Quarterly Return vs MSCI EAFE



Cumulative and Quarterly Country Selection and Security Selection Factors

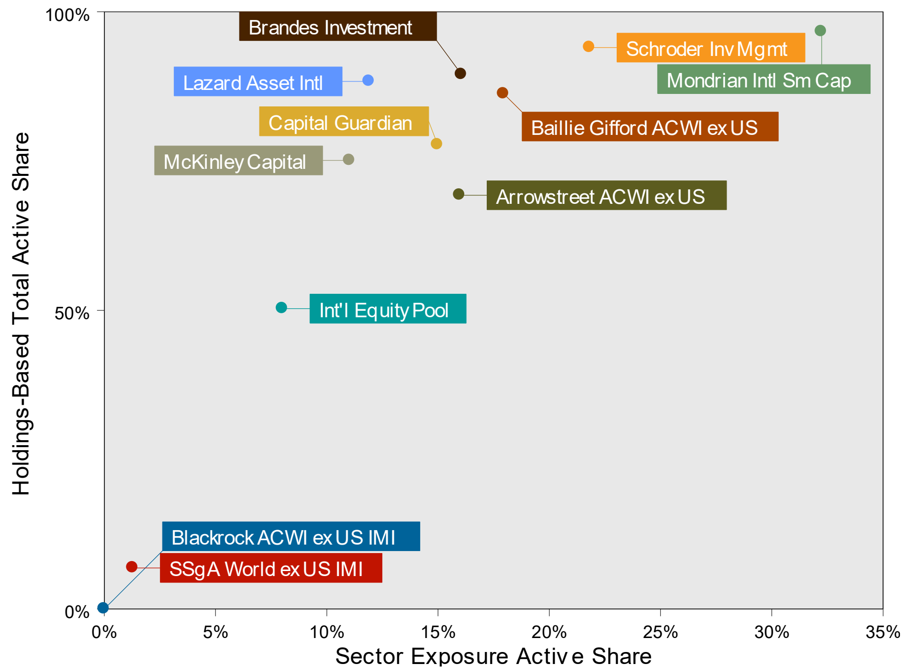


Attribution Factors for One Year Ended June 30, 2019



Int'l Equity Pool (ex EM) Active Share

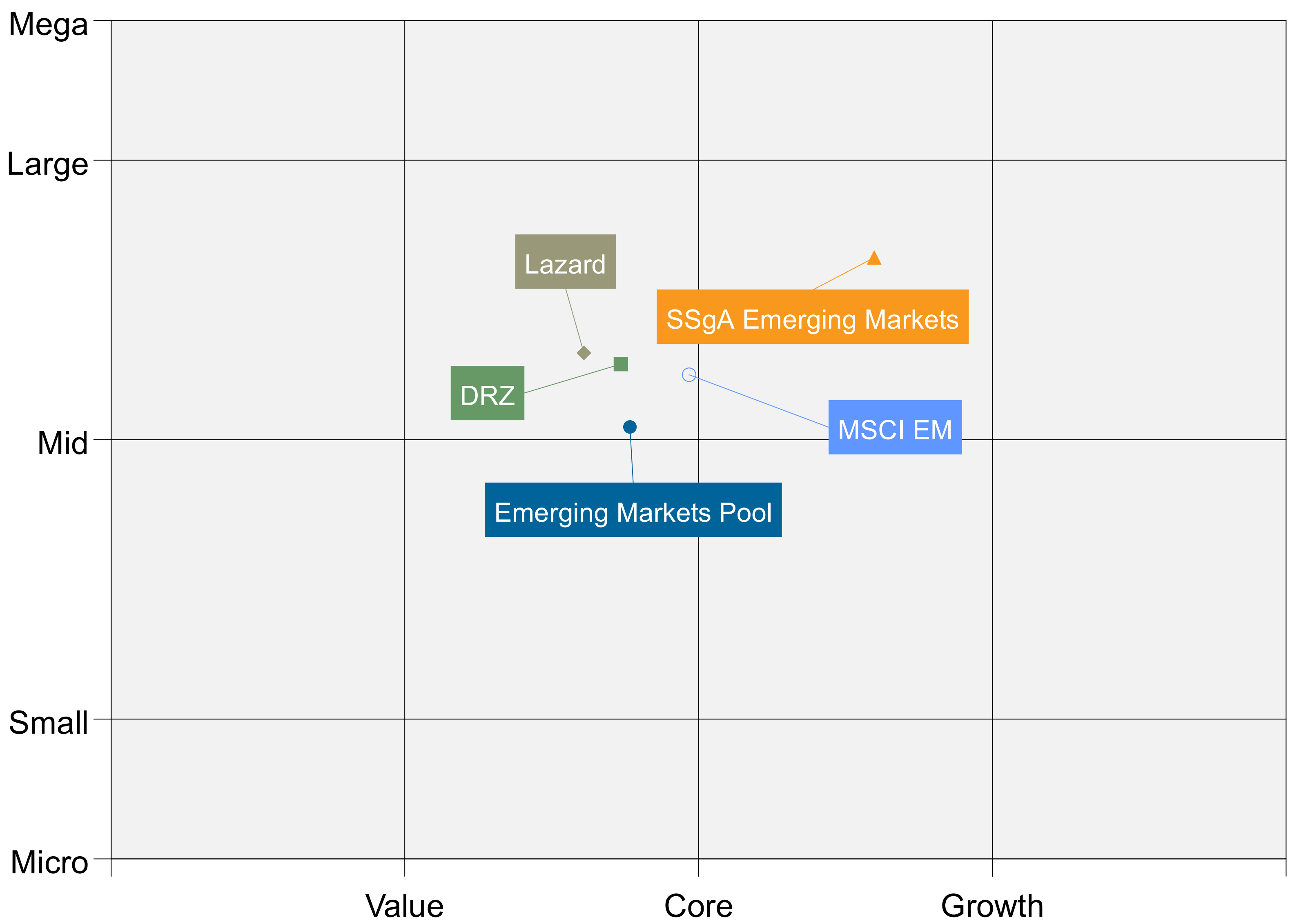
For Quarter Ended June 30, 2019



	Weight %	Index	Total Act Share	Non-Idx Act Share	Sector Act Share	Number Securities	Security Diverse
Arrowstreet ACWI ex US	8.60%	MSCI ACWIxUS Gross	69.28%	8.63%	15.98%	539	68.66
Baillie Gifford ACWI ex US	8.51%	MSCI ACWI ex US Growth	86.27%	13.30%	17.96%	77	25.04
Blackrock ACWI ex US IMI	11.69%	MSCI ACWI ex US IMI	0.00%	0.00%	0.00%	6377	250.49
Brandes Investment	20.00%	MSCI EAFE	89.48%	9.03%	16.06%	61	19.99
Capital Guardian	13.14%	MSCI EAFE	77.73%	12.76%	14.98%	166	28.56
Lazard Asset Intl	7.45%	MSCI EAFE	88.34%	23.21%	11.91%	137	29.16
McKinley Capital	7.68%	MSCI ACWIxUS Growth Gross	75.11%	13.98%	11.03%	70	24.62
Mondrian Intl Sm Cap	4.17%	MSCI EAFE Small Cap	96.65%	22.61%	32.24%	78	26.11
Schroder Inv Mgmt	4.14%	MSCI EAFE Small Cap	94.01%	17.50%	21.82%	173	50.11
SSgA World ex US IMI	22.00%	MSCI World ex US IMI	6.87%	2.48%	1.30%	3075	168.68
Int'l Equity Pool	**100.00%**	**MSCI EAFE**	**50.29%**	**16.78%**	**8.02%**	**6763**	**148.77**

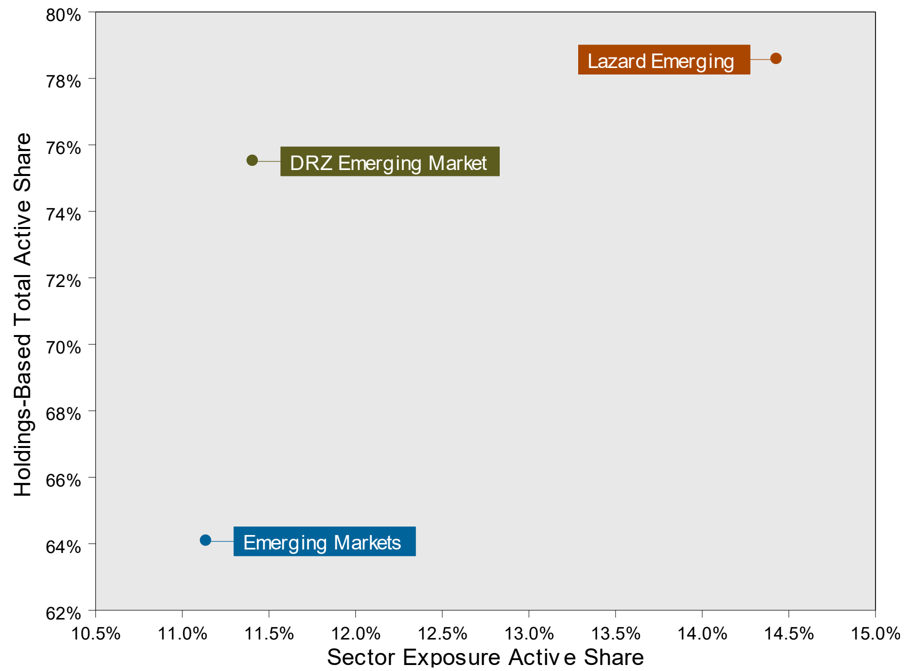
Emerging Markets Pool, Managers, and Benchmark Style Map

For 5 Years Ended June 30, 2019



Emerging Markets Pool Active Share

For Quarter Ended June 30, 2019



	Weight %	Index	Total Act Share	Non-Idx Act Share	Sector Act Share	Number Securities	Security Diverse
DRZ Emerging Market	30.09%	MSCI EM	75.50%	9.04%	11.41%	81	27.07
Lazard Emerging	36.18%	MSCI EM	78.57%	2.98%	14.43%	76	20.64
Emerging Markets	**100.00%**	**MSCI EM**	**64.07%**	**5.57%**	**11.14%**	**200**	**33.31**

Global ex-U.S. Equity Benchmark Policy

MSCI Benchmark Methodology – Gross and Net Indices

A Distinction Worth Understanding

MSCI calculates equity benchmarks in parallel versions based on whether or not the returns reflect local markets' taxation of dividends.

- ***Excluding*** the effect of taxation on dividends means the benchmark is called a "gross index." International gross indices are calculated assuming reinvestment of dividend distributions. The reinvested amount is equal to the total dividend amount distributed to persons residing in the country of the dividend-paying company. Gross total return indexes do ***not*** include any tax credits.

- ***Including*** the effect of taxation on dividends means the benchmark is called a "net index." International net total return indices are calculated with the reinvestment of dividends ***after the deduction of withholding taxes*** using a tax rate applicable to non-resident institutional investors who do not benefit from double taxation treaties.

Which is correct?

- Most US-based institutional investors are subject to withholding taxes on dividends paid by companies outside of the United States. Compared to the Gross versions of the MSCI indices, the Net versions have lower returns reflective of the statutory tax reduction.
- Net indices are more indicative of the performance available to US-based institutional investors.
- Most institutional investors and asset managers use the Net versions of MSCI's non-US and global public equity benchmarks for performance comparison purposes in those instances where the history of the Net index is sufficiently long.

Source: Morgan Stanley Capital International

Global ex-US Equity Target History

Gross Versions of MSCI Indices Used for Some Historical Time Periods

Start Date	End Date	Benchmark	Weight
12/31/1989	6/30/2006	MSCI EAFE ***NET***	100.0%
7/1/2006	6/30/2008	MSCI EAFE ***NET***	87.5%
		MSCI Emerging Markets ***GROSS***	12.5%
7/1/2008	6/30/2017	MSCI ACWI ex-US ***GROSS***	100.0%
7/1/2017	Present	MSCI ACWI ex-US IMIM ***NET***	100.0%

- The Global ex-US Equity Target in Callan's performance measurement system was configured to use the Gross version of the MSCI Emerging Markets index for the 2007 and 2008 fiscal years, and the Gross version of the MSCI ACWI ex-US index for the 2009 through 2017 fiscal years. The Total Fund Target also used the same Gross versions of these indices as part of its underlying constituent building blocks.

Recommendation:

- Callan recommends revising the Global ex-US Equity Target and the Total Fund Targets for PERS, TRS, JRS and Military to use the Net versions of the MSCI indices over all time periods.

Return Comparisons of the Gross and Net Global ex-US Equity Targets

Impact of Proposed Retroactive Revision

Returns for Periods Ended June 30, 2019

Total Plan Performance	**Last Quarter**	**Last Year**	**Last 3 Years**	**Last 5 Years**	**Last 10 Years**	**Last 27-3/4 Years**
PERS Total Plan	2.40%	5.99%	9.61%	6.27%	9.38%	7.73%
TRS Total Plan	2.39%	5.99%	9.61%	6.27%	9.43%	7.77%
PERS & TRS Total Plan Target						
Total Plan Target - Before Revision	2.92%	5.66%	9.01%	5.88%	9.10%	7.63%
Total Plan Target - After Revision	2.92%	5.66%	8.97%	5.81%	9.01%	7.60%
Target Difference	*0.00%*	*0.00%*	*-0.04%*	*-0.07%*	*-0.09%*	*-0.03%*

Global ex-US Equity Performance	**Last Quarter**	**Last Year**	**Last 3 Years**	**Last 5 Years**	**Last 10 Years**
Total Int'l Equity	2.62%	-0.09%	9.05%	2.64%	7.24%
International Equity Target					
International EQ Target - Before Revision	2.74%	0.26%	9.34%	2.33%	6.86%
International EQ Target - After Revision	2.74%	0.26%	9.17%	2.05%	6.48%
Target Difference	*0.00%*	*0.00%*	*-0.17%*	*-0.28%*	*-0.38%*

NOTES:

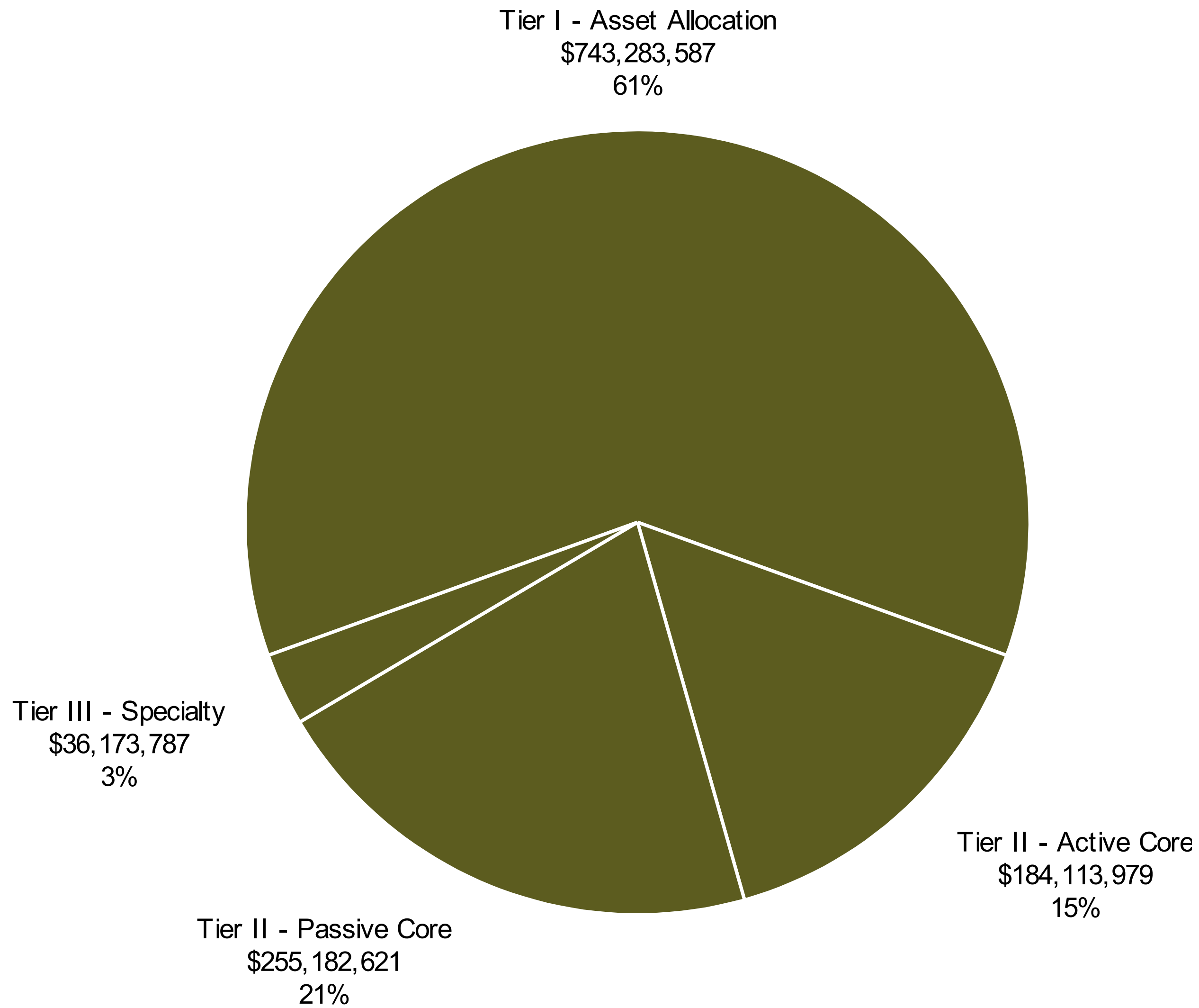
MSCI ACWI ex-US Gross replaced with MSCI ACWI ex-US Net from 7/1/2008-6/30/2017

MSCI Emerging Markets Gross replaced with MSCI Emerging Markets Net from 7/1/2006-6/30/2008

Participant-Directed Plans

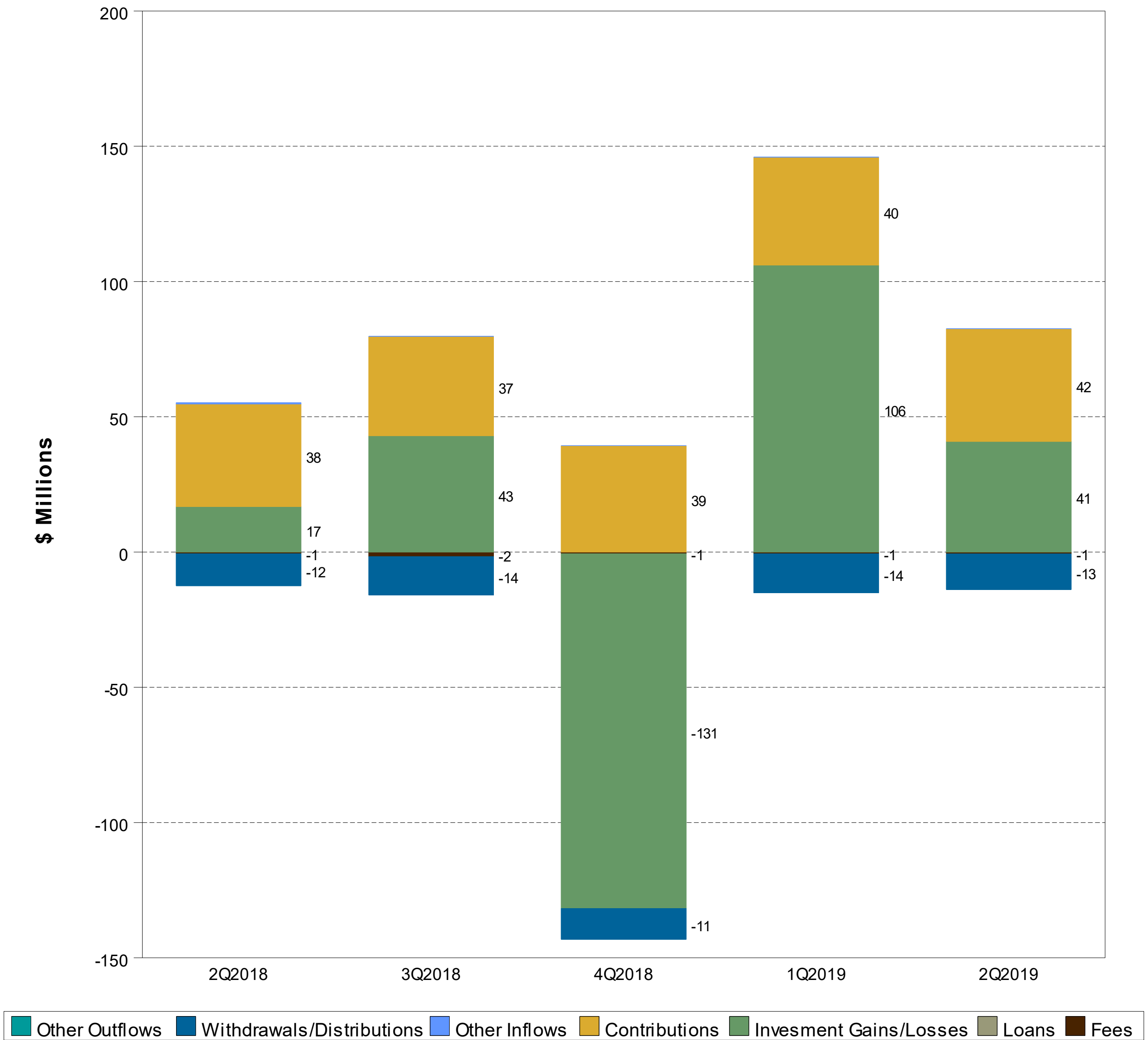
PERS DC Plan

June 30, 2019



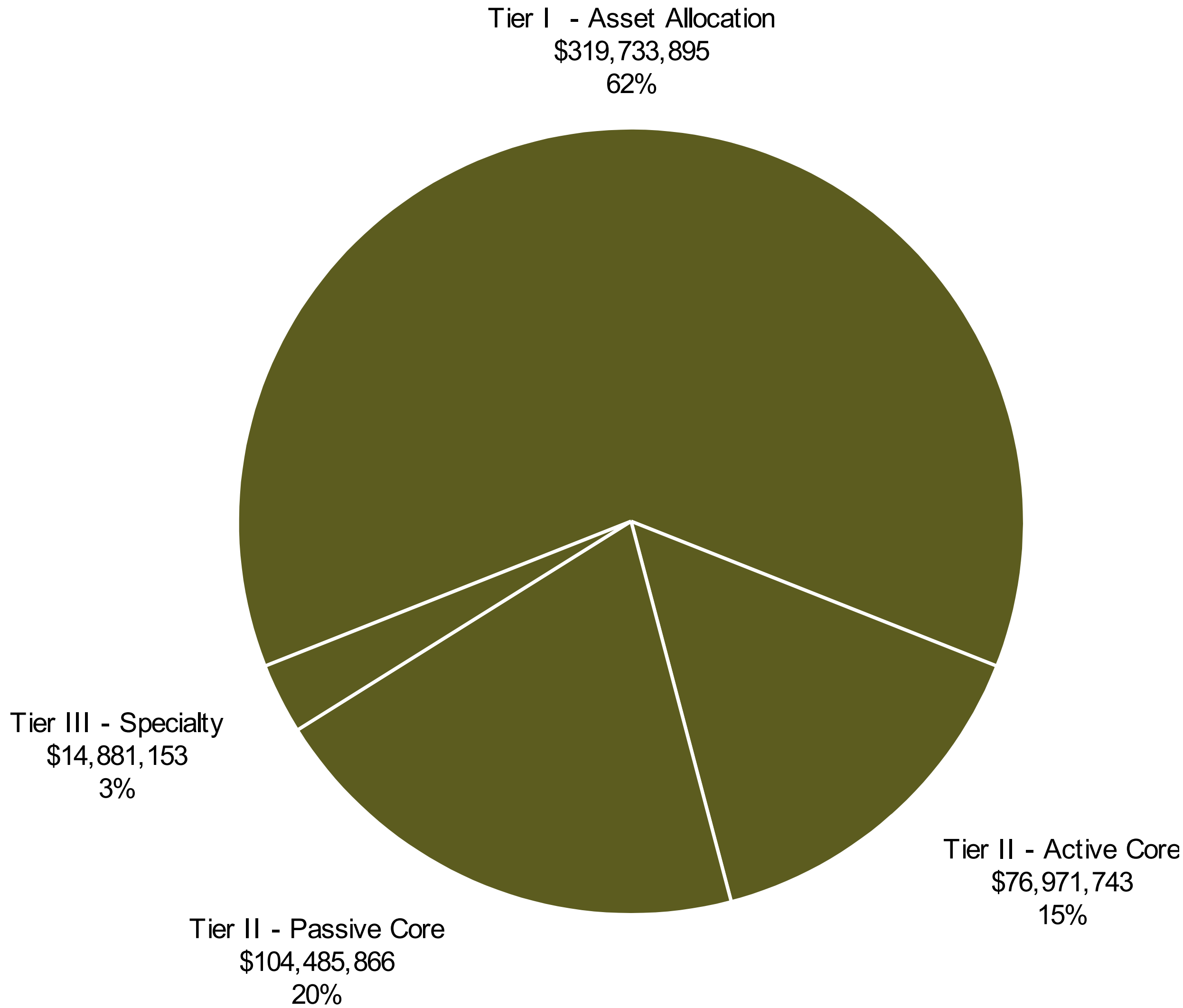
PERS DC Plan: Asset Changes

June 30, 2019



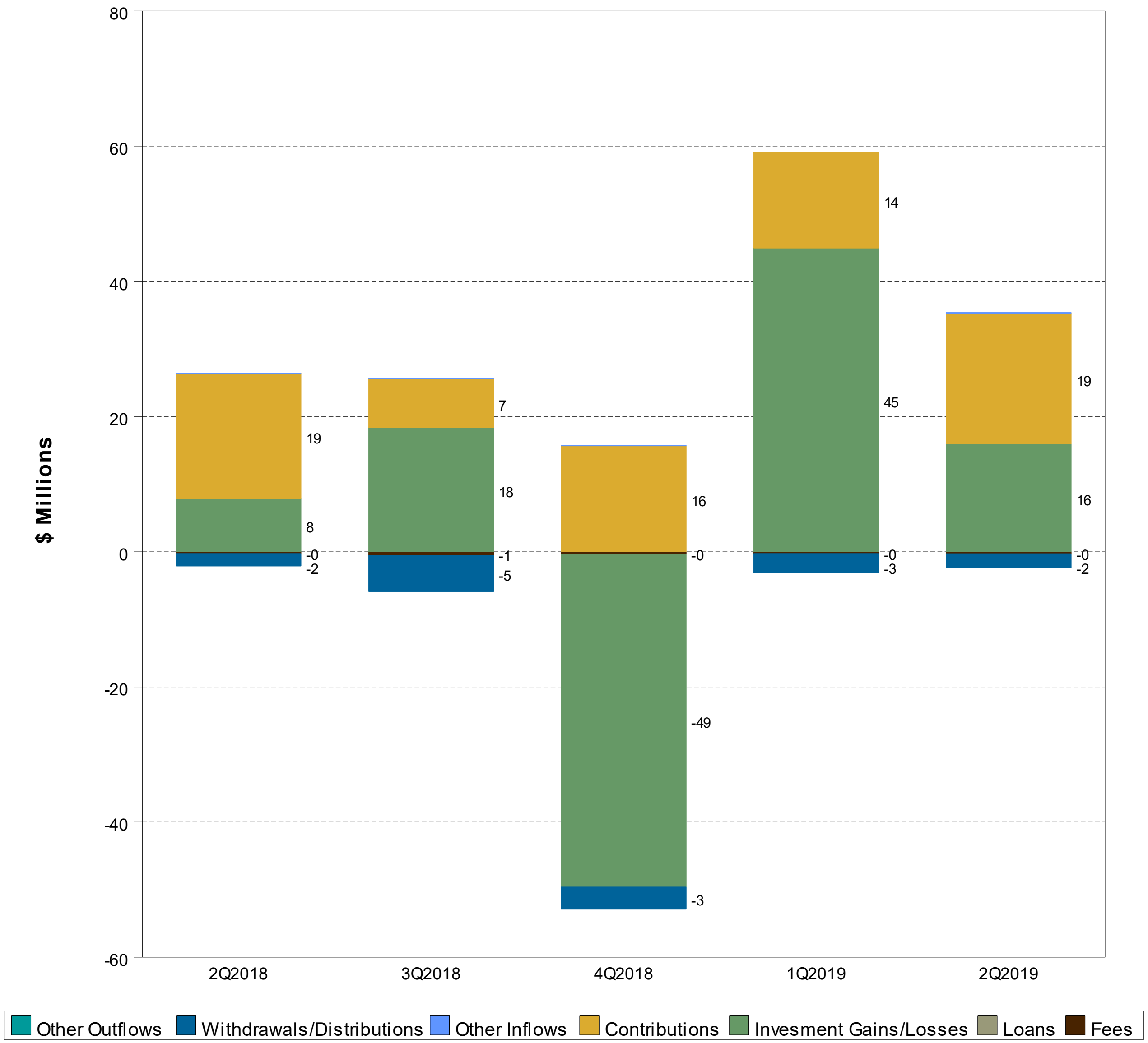
TRS DC Plan

June 30, 2019



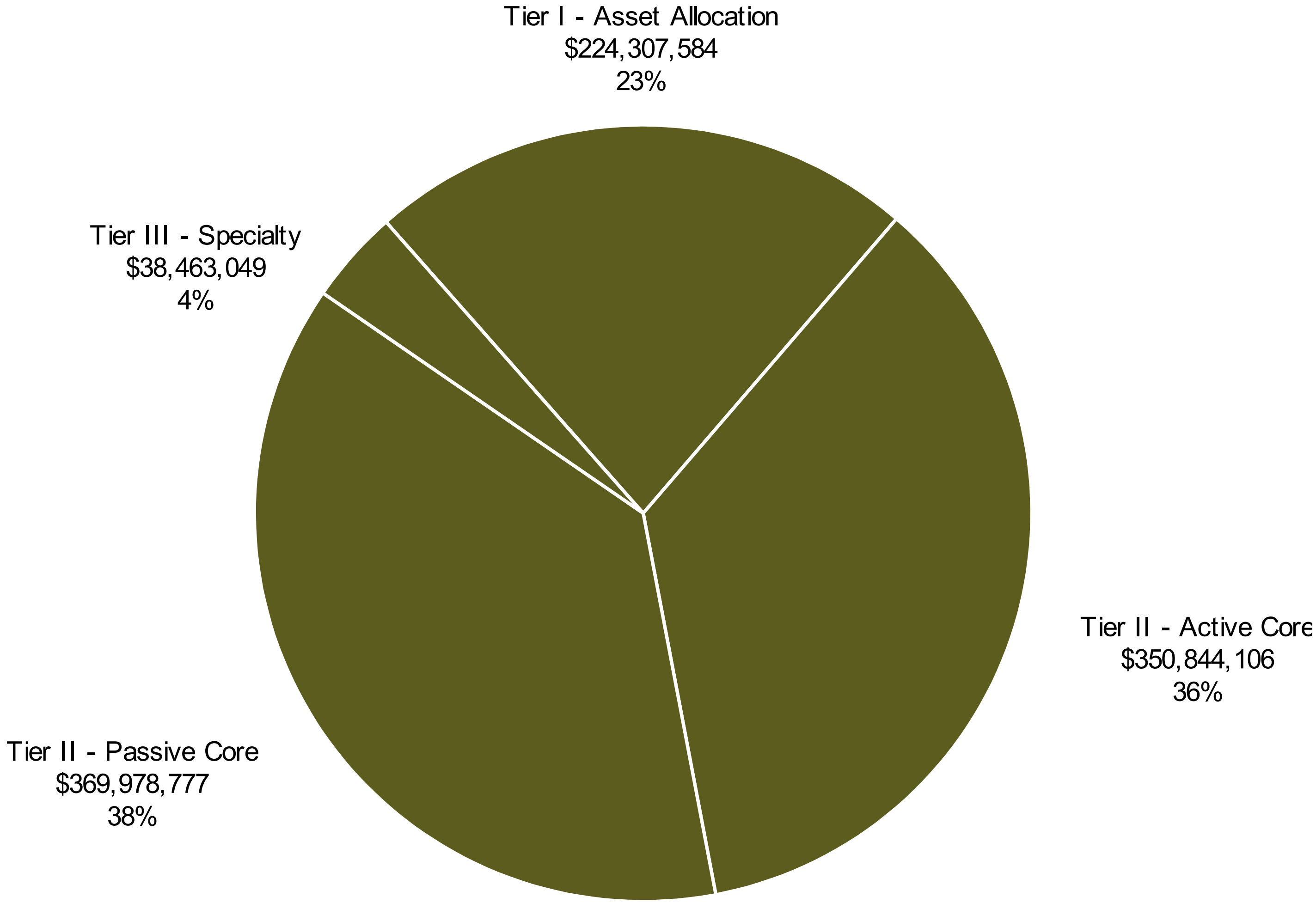
TRS DC Plan: Asset Changes

June 30, 2019



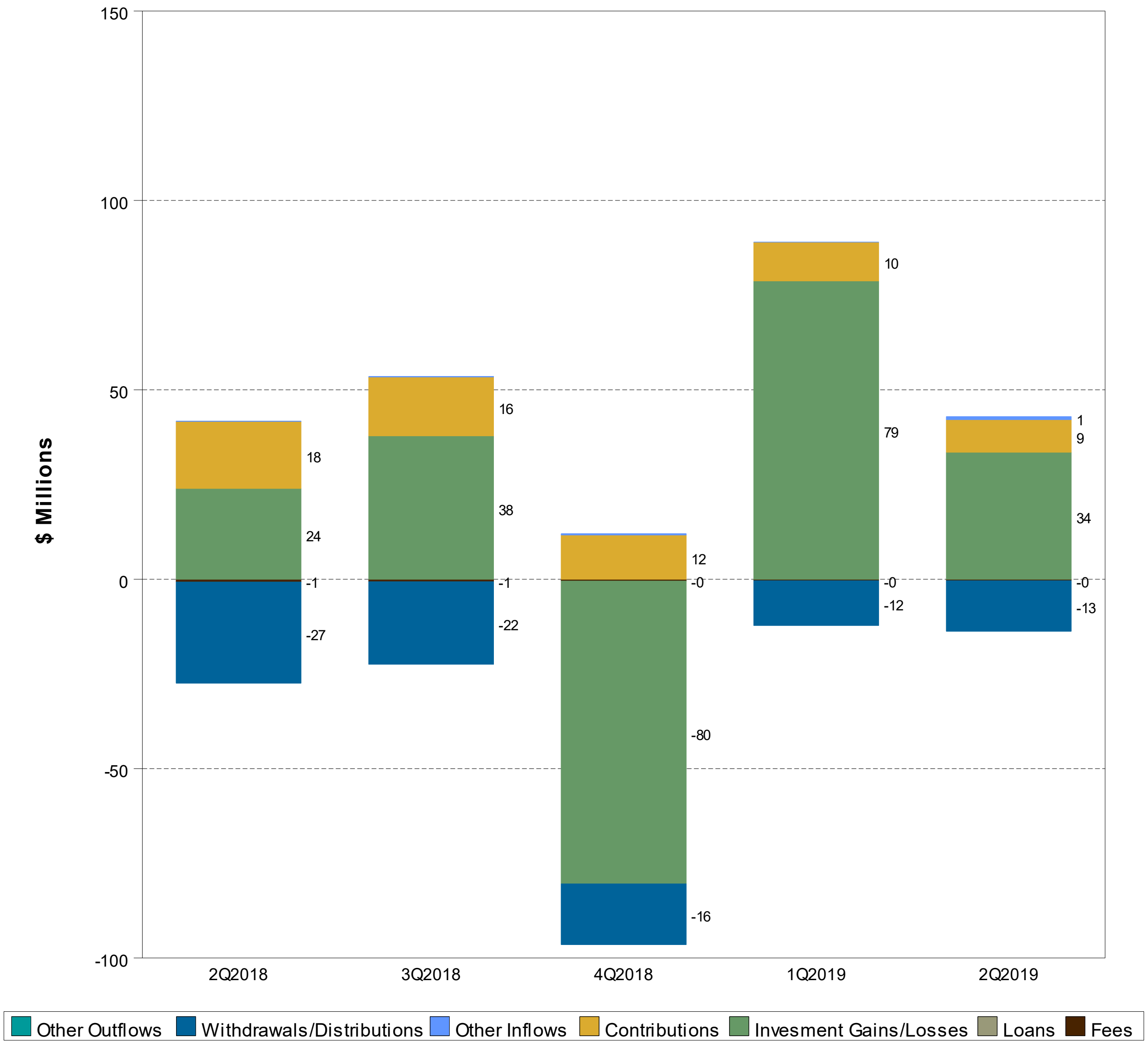
Deferred Comp Plan

June 30, 2019



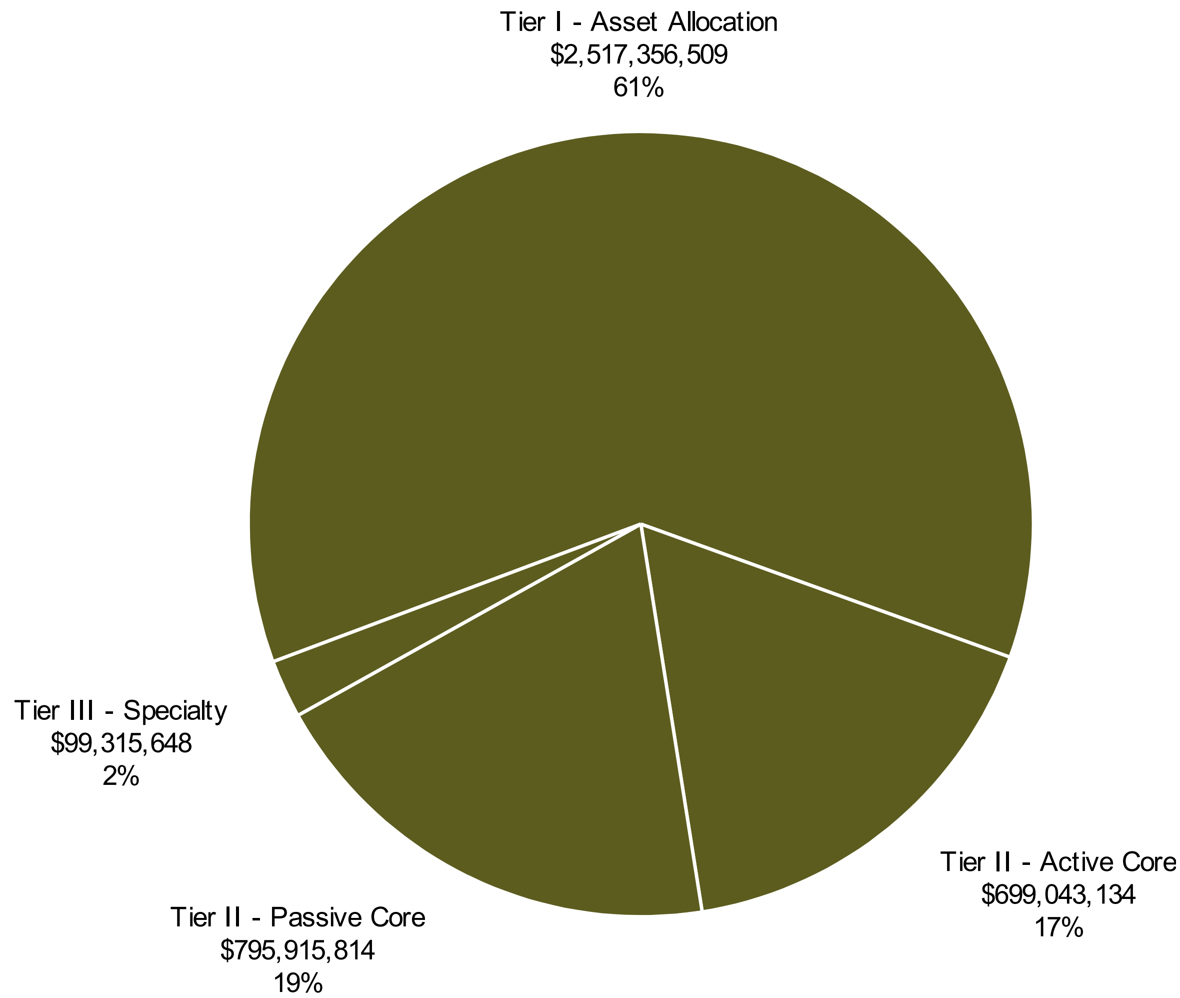
Deferred Comp Plan: Asset Changes

June 30, 2019



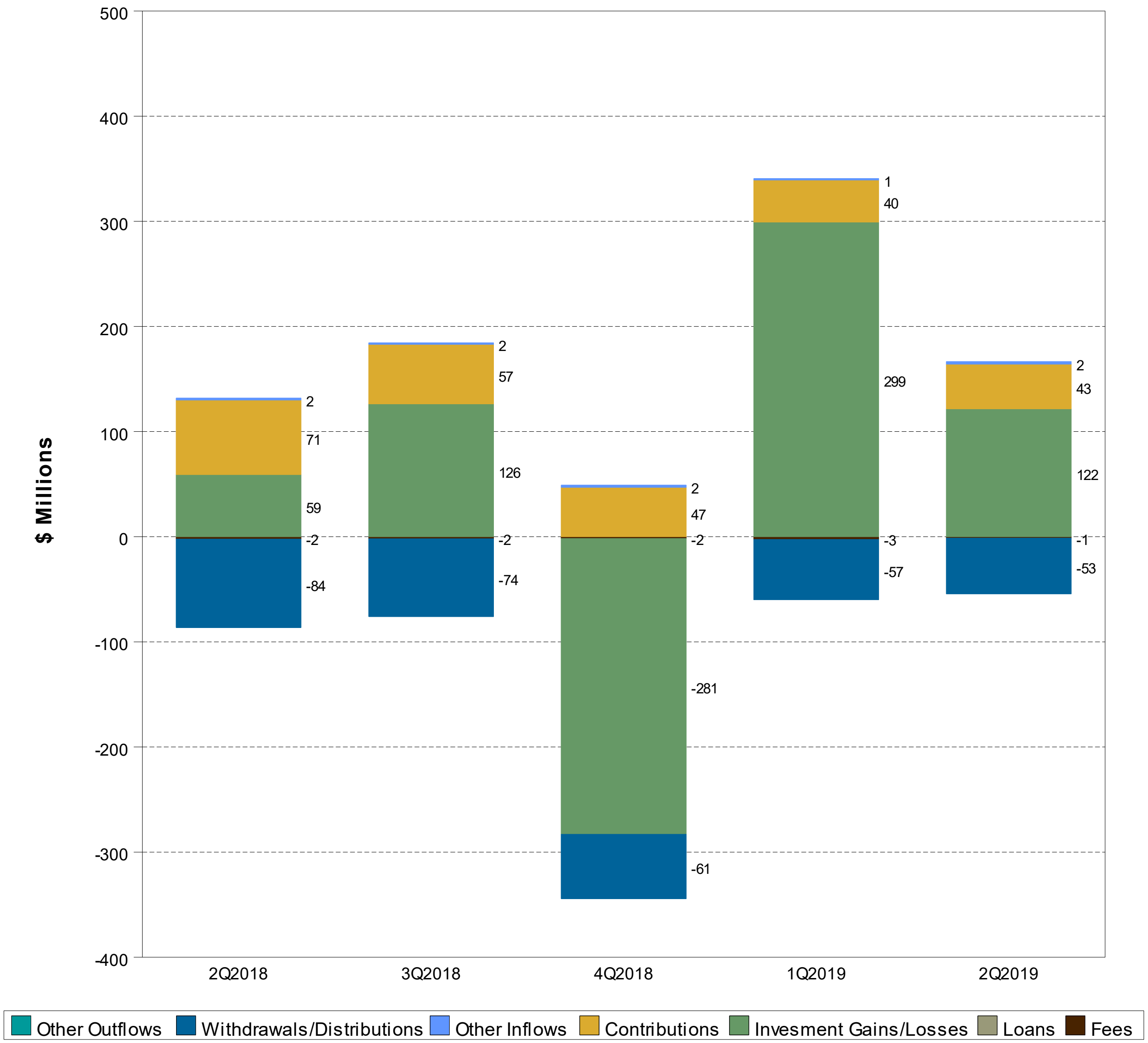
SBS Fund

June 30, 2019



SBS Fund: Asset Changes

June 30, 2019



Individual Account Option Performance: 6/30/19

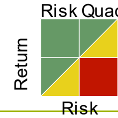
Balanced & Target Date Funds

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	5 Year Risk	5 Year Risk Quadrant	5 Year Excess Rtn Ratio	3 Year Tracking Error	5 Year Sharpe Ratio
Tier I - Asset Allocation										
Alaska Balanced Trust **CAI MA Tgt Alloc Cons MFs**	**2.7** 46	**6.5** 29	**5.7** 25	**4.4** 19	**5.7** 27	**4.1** 71		**-0.3** 61	**0.2** 100	**0.9** 34
Passive Target	2.9 28	6.7 25	5.9 19	4.4 16	5.7 28	4.2 63				0.9 38
Alaska Long-Term Balanced **CAI MA Tgt Alloc Mod MFs**	**3.1** 39	**6.7** 34	**8.3** 27	**5.7** 27	**8.1** 28	**6.6** 63		**-0.6** 79	**0.3** 100	**0.7** 46
Passive Target	3.3 29	6.9 26	8.6 23	5.9 24	8.2 28	6.8 59				0.7 46
Target 2010 Trust **CAI Tgt Date 2010**	**2.6** 79	**5.9** 59	**6.5** 39	**4.6** 41	**6.6** 21	**4.8** 63		**-0.5** 88	**0.2** 99	**0.8** 72
Custom Index	2.8 72	6.2 50	6.7 31	4.7 34	6.7 20	4.9 61				0.8 71
Target 2015 Trust **CAI Tgt Date 2015**	**2.8** 78	**6.2** 49	**7.5** 22	**5.2** 21	**7.6** 12	**5.7** 44		**-0.1** 49	**0.2** 99	**0.8** 64
Custom Index	2.9 60	6.4 48	7.6 19	5.2 21	7.7 12	5.7 41				0.8 66
Target 2020 Trust **CAI Tgt Date 2020**	**3.1** 55	**6.4** 45	**8.6** 9	**5.8** 7	**8.6** 7	**6.7** 25		**-0.0** 23	**0.2** 99	**0.7** 65
Custom Index	3.2 40	6.6 32	8.7 7	5.8 7	8.6 7	6.8 21				0.7 68
Target 2025 Trust **CAI Tgt Date 2025**	**3.3** 45	**6.6** 28	**9.4** 8	**6.3** 6	**9.4** 9	**7.6** 22		**-0.0** 23	**0.2** 100	**0.7** 64
Custom Index	3.3 29	6.8 19	9.6 7	6.3 6	9.4 8	7.7 18				0.7 67
Target 2030 Trust **CAI Tgt Date 2030**	**3.4** 30	**6.8** 17	**10.2** 13	**6.7** 9	**10.1** 9	**8.4** 24		**-0.2** 43	**0.2** 100	**0.7** 49
Custom Index	3.5 19	6.9 15	10.4 9	6.8 7	10.1 8	8.5 24				0.7 52
Target 2035 Trust **CAI Tgt Date 2035**	**3.6** 22	**6.8** 15	**10.9** 15	**7.0** 10	**10.6** 9	**9.1** 42		**-0.1** 37	**0.2** 99	**0.7** 39
Custom Index	3.6 17	6.9 11	11.1 11	7.1 9	10.7 5	9.2 34				0.7 41
Target 2040 Trust **CAI Tgt Date 2040**	**3.6** 17	**6.8** 11	**11.4** 11	**7.3** 6	**11.0** 6	**9.6** 41		**-0.1** 32	**0.3** 100	**0.7** 25
Custom Index	3.7 16	6.9 10	11.6 7	7.3 6	11.0 5	9.7 37				0.7 31
Target 2045 Trust **CAI Tgt Date 2045**	**3.7** 17	**6.8** 10	**11.6** 11	**7.4** 6	**11.0** 6	**9.9** 61		**-0.1** 29	**0.2** 100	**0.7** 23
Custom Index	3.7 15	6.9 8	11.8 5	7.4 5	11.1 5	10.0 44				0.7 24

Returns:
- above median
- third quartile
- fourth quartile

Risk:
- below median
- second quartile
- first quartile

Risk Quadrant:



Excess Return Ratio:
- above median
- third quartile
- fourth quartile

Tracking Error:
- below median
- second quartile
- first quartile

Sharpe Ratio:
- above median
- third quartile
- fourth quartile

Individual Account Option Performance: 6/30/19

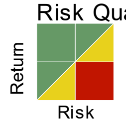
Balanced & Target Date Funds

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	5 Year Risk	5 Year Risk Quadrant	5 Year Excess Rtn Ratio	3 Year Tracking Error	5 Year Sharpe Ratio
Target 2050 Trust	**3.7** 20	**6.8** 8	**11.6** 10	**7.4** 7	**11.0** 8	**9.9** 66		**-0.2** 43	**0.3** 100	**0.7** 26
CAI Tgt Date 2050 Custom Index	3.7 15	6.9 7	11.8 6	7.4 6	11.1 7	10.0 54				0.7 29
Target 2055 Trust	**3.6** 21	**6.8** 8	**11.6** 15	**7.4** 9	**11.0** 11	**9.9** 75		**-0.1** 44	**0.3** 99	**0.7** 26
CAI Tgt Date 2055 Custom Index	3.7 19	6.9 7	11.8 10	7.4 8	11.1 9	10.0 64				0.7 27
Target 2060 Trust	**3.6** 30	**6.7** 11	**11.4** 24						**0.3** 99	
CAI Tgt Date 2060 Custom Index	3.7 24	6.9 8	11.8 13							

Returns:
- above median
- third quartile
- fourth quartile

Risk:
- below median
- second quartile
- first quartile

Risk Quadrant:



Excess Return Ratio:
- above median
- third quartile
- fourth quartile

Tracking Error:
- below median
- second quartile
- first quartile

Sharpe Ratio:
- above median
- third quartile
- fourth quartile

Other Options: 6/30/19

Passive Strategies

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	5 Year Risk	5 Year Risk Quadrant	5 Year Excess Rtn Ratio	3 Year Tracking Error	5 Year Sharpe Ratio
Index Funds										
SSgA S&P 500 Index Fund (i)	**4.3** 11	**10.4** 12	**14.2** 7	**10.7** 10	**14.0** 7	**11.0** 28		**-0.7** 7	**0.0** 78	**0.9** 10
Callan S&P 500 Index MFs										
S&P 500 Index	4.3 8	10.4 8	14.2 5	10.7 5	14.0 4	11.0 40				0.9 4
BlackRock S&P 500 Index Fund (i)	**4.3** 11	**10.4** 5	**14.2** 6	**10.7** 11	**14.0** 5	**11.0** 17		**-0.8** 8	**0.0** 77	**0.9** 12
Callan S&P 500 Index MFs										
S&P 500 Index	4.3 8	10.4 8	14.2 5	10.7 5	14.0 4	11.0 40				0.9 4
SSgA Russell 3000 Index Fund (i)	**4.1** 56	**9.0** 51	**14.0** 49	**10.2** 43	**13.8** 45	**11.4** 63		**0.2** 37	**0.0** 100	**0.8** 37
CAI Mut Fd: Large Cap Broad Style (Net)										
Russell 3000 Index	4.1 56	9.0 51	14.0 48	10.2 43	13.8 45	11.4 63				0.8 38
SSgA World Equity ex-US Index Fund (i)	**3.1** 57	**1.5** 35	**9.3** 34	**2.3** 50	**6.4** 67	**11.9** 77		**0.2** 36	**0.5** 99	**0.1** 50
CAI MF: Non-U.S. Equity Style										
MSCI ACWI x U.S. Index (Net)	3.0 63	1.3 35	9.4 33	2.2 50	6.4 73	11.9 77				0.1 50
BlackRock Passive US Bd Index Fund (i)	**3.1** 51									
Callan Core Bond MFs										
Blmbg Aggregate	3.1 50	7.9 39	2.3 77	2.9 37	2.6 69	3.2 32				0.6 50
SSgA US TIPS (i)	**2.8** 20	**4.8** 21	**2.0** 56	**1.7** 28	**1.1** 37	**3.5** 58		**-2.8** 98	**0.0** 99	**0.2** 21
CAI TIPS MFs										
Blmbg U.S. TIPS Index	2.9 19	4.8 19	2.1 47	1.8 18	1.2 27	3.5 58				0.3 15
SSgA US REIT Index Fund (i)	**0.8** 92	**9.7** 74	**3.6** 70	**7.4** 53	**8.2** 53	**13.4** 39		**-1.9** 100	**0.1** 99	**0.5** 54
CAI Mut Fd: Real Estate Database										
DJ US Select REIT Index	0.8 92	9.8 73	3.7 67	7.6 48	8.4 49	13.4 31				0.5 51

Returns:
- above median
- third quartile
- fourth quartile

Risk:
- below median
- second quartile
- first quartile

Risk Quadrant:

Excess Return Ratio:
- above median
- third quartile
- fourth quartile

Tracking Error:
- below median
- second quartile
- first quartile

Sharpe Ratio:
- above median
- third quartile
- fourth quartile

(i) – Indexed scoring method used. Green: manager & index ranking differ by less than +/- 10 percentiles; Yellow: manager and index ranking differ by +/- 20 percentiles; Red: manager & index ranking differ by more than 20 percentiles.

Other Options: 6/30/19

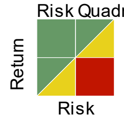
Active Equity, Stable Value, and Money Market

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	5 Year Risk	5 Year Risk Quadrant	5 Year Excess Rtn Ratio	3 Year Tracking Error	5 Year Sharpe Ratio
Active and Other Funds										
Northern Trust ESG Fund	**4.0** 61									
Callan Lg Cap Broad MF										
MSCI USA ESG	4.0 59	11.9 22	13.9 49	9.8 49	13.6 47	10.3 89				0.9 33
International Equity Fund	**2.7** 67	**-3.2** 69	**6.4** 82						**2.6** 78	
CAI Mut Fd: Non-U.S. Equity Style										
MSCI ACWI ex US Index	3.0 63	1.3 35	9.4 33	2.2 50	6.4 73	11.9 77				0.1 50
T. Rowe Price Small Cap	**5.8** 25	**11.0** 14	**16.8** 32	**10.6** 28	**14.6** 21	**14.4** 81		**1.0** 3	**4.4** 85	**0.7** 11
CAI Mut Fd: Sm Cap Broad Style										
Russell 2000 Index	2.1 70	-3.3 63	12.3 53	7.1 57	11.6 59	15.7 54				0.4 58
T. Rowe Price Stable Value	**0.7** 1	**2.5** 5	**2.4** 1	**2.4** 1	**2.5** 1	**0.1** 93		**11.1** 13	**0.1** 14	**23.6** 2
Callan Stable Value CT										
5 Yr U.S. Treas Rolling	0.5 90	1.8 82	1.5 84	1.4 66	1.5 50	0.1 84				5.9 42
SSgA Inst Treasury Money Market	**0.6** 14	**2.2** 11	**1.3** 10	**0.8** 11	**0.5** 14	**0.4** 8		**-3.3** 96	**0.0** 85	**-0.2** 10
Callan Money Market Funds										
FTSE 3 Mo T-Bill	0.6 2	2.3 4	1.4 4	0.8 2	0.6 2	0.4 2				-0.1 2

Returns:
- above median
- third quartile
- fourth quartile

Risk:
- below median
- second quartile
- first quartile

Risk Quadrant:



Excess Return Ratio:
- above median
- third quartile
- fourth quartile

Tracking Error:
- below median
- second quartile
- first quartile

Sharpe Ratio:
- above median
- third quartile
- fourth quartile

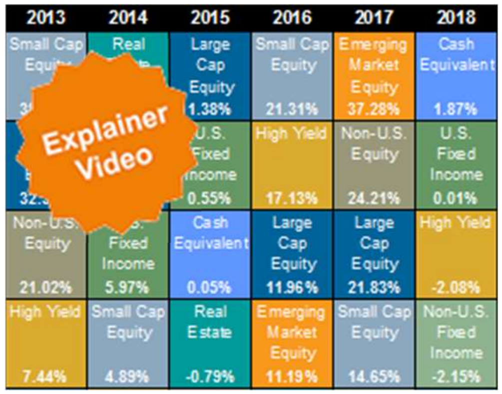
Callan

Callan Update

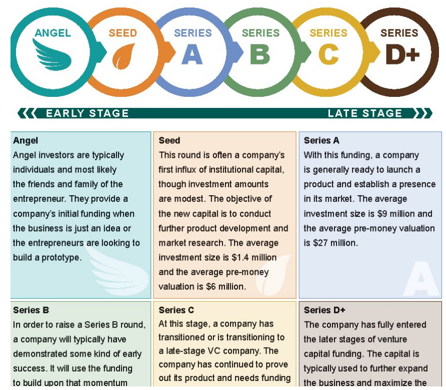
Published Research Highlights from 2Q19

The Cobbler's Shoes: How Asset Managers Run Their Own 401(k) Plans

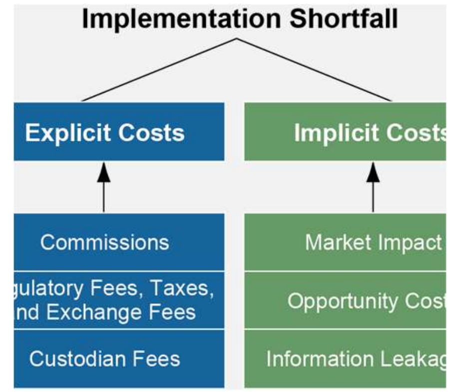
Callan's Periodic Table Explained



How to Distinguish Between Growth Equity and Late-Stage VC



Two Questions to Help DC Plans Save on Litigation Costs



Recent Blog Posts

How STRIPS Can Help Corporate DB Plans

Sweta Vaidya

A Primer on Interval Funds

Kristin Bradbury and David Welsch

Legislative Fixes for the Student Debt Tsunami

Jana Steele

Additional Reading

Private Equity Trends quarterly newsletter

Active vs. Passive quarterly charts

Capital Market Review quarterly newsletter

Monthly Updates to the Periodic Table

Market Pulse Flipbook quarterly markets update

Callan Institute Events

Upcoming Conferences, Workshops, and Webinars

“Callan College” on Alternative Investments

October 29-30, 2019 in Chicago

Dive into Alternatives!

Alternative investments like private equity, hedge funds, and real estate can play a key role in any portfolio. In this one-and-a-half-day session, learn about the importance of allocations to alternatives, and how to consider integrating, evaluating, and monitoring them.

3 Reasons You Should Attend

1 **Enhance** your knowledge to maximize your plan’s long term returns

2 **Learn** about new opportunities for greater diversification

3 **Prepare** your plan’s portfolio for market ups and downs

“This is a great opportunity for investors of all types to get a thorough introduction to alternative investments and meet the Callan team.”

— Pete Keliuotis, Executive Vice President

Upcoming Webinar

ESG

Webinars: On-Demand now available at https://www.callan.com/ondemandwebinar/

Regional Workshops

Denver, October 22, 2019

Chicago, October 24, 2019

40th National Conference

January 27–29, 2020

The Palace Hotel

San Francisco, CA

“Callan College” Introduction to Investments

Atlanta, October 8–9, 2019

Chicago, October 29-30, 2019

Callan Updates

Firm updates by the numbers, as of June 30, 2019

Total Associates: 194

Ownership

- 100% employees
- Broadly distributed across more than 95 shareholders

Leadership Changes

- No executive additions or departures
- No leadership changes this quarter

Total General and Fund Sponsor Consultants: more than 45

Total Specialty and Research Consultants: more than 60

Total CFA/CAIA/FRMs: more than 50

Total Fund Sponsor Clients: more than 400

AUA: more than $2.4 trillion

"The Callan culture that we have all built together over the years is the reason we like coming to work each day ... Our culture of supporting and caring about each other, of appreciating and respecting each other while still having some fun and good humor has been the key to our longevity and success. We never want to diminish it."

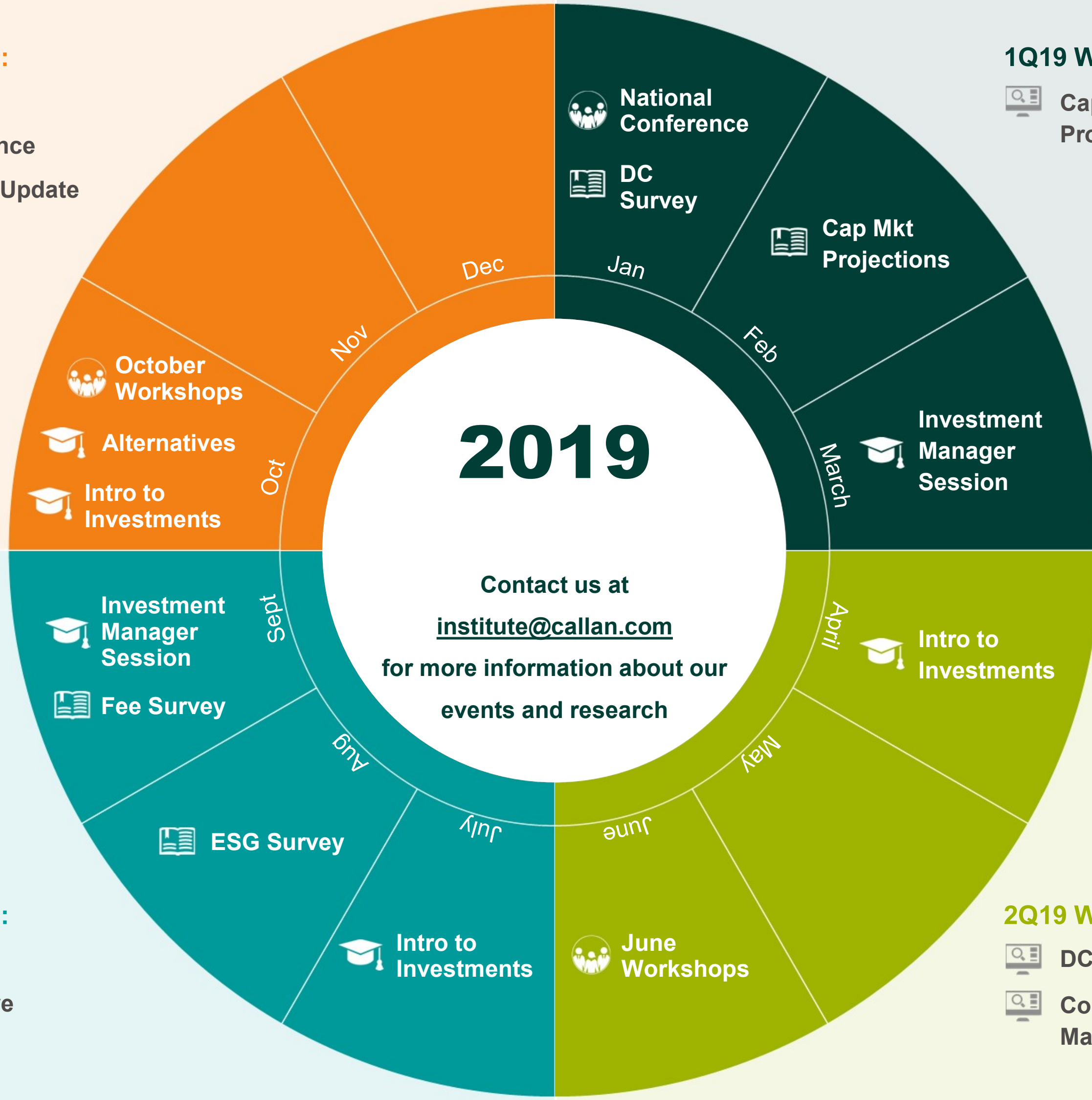
— Ron Peyton, Executive Chairman

2019 Content Calendar

Callan Institute

4Q19 Webinar Topics:
- ESG Survey
- Vendor Due Diligence
- Callan's Database Update

1Q19 Webinar Topics:
- Capital Market Projections



3Q19 Webinar Topics:
- Age of Illiquidity
- DC Index Deep Dive

2Q19 Webinar Topics:
- DC Survey
- Cobbler's Shoes: Asset Manager 401(k)s

"Callan College" | Conference/Workshop | Publication | Webinar

NEUBERGER | BERMAN

Risk Parity: Leveraging Effective Diversification

Prepared Exclusively for Alaska Retirement Management Board

September 20, 2019

Typical Starting Point: 60/40 Portfolios

While 60/40 portfolios are a common starting point for many investors, they may not be the most efficient way to achieve an investor's goals

Pitfalls of 60/40 Portfolios:

Target Return

- Most pension plans typically focus on hitting a return target (e.g. 7% per year)
- This is largely based on historic returns, financial forecasts and constraints

Forecast Returns

- Return forecasting is very difficult, if not impossible

Equity-Heavy Portfolios

- Return generation needs typically lead to equity-heavy portfolios
- Equity-heavy portfolios have imbedded "tail" risks that can really impair a plan's ability to meet obligations

Lacking Diversification

Traditional policy portfolios (i.e. 60/40) lack the necessary diversification to withstand difficult times

60/40 Portfolio: Worst 25 Months

			Return		Contribution	
	Date	60/40	Stock	Bond	Stock	Bond
Average		**-9.45%**	**-15.38%**	**-0.56%**	**-9.23%**	**-0.22%**
1	Sep 1931	-18.96%	-29.73%	-2.81%	-17.84%	-1.12%
2	Mar 1938	-15.07%	-24.87%	-0.37%	-14.92%	-0.15%
3	May 1940	-14.93%	-22.89%	-2.99%	-13.73%	-1.20%
4	May 1932	-13.93%	-21.96%	-1.88%	-13.18%	-0.75%
5	Feb 1933	-11.66%	-17.72%	-2.58%	-10.63%	-1.03%
6	Oct 1987	-11.03%	-21.52%	4.69%	-12.91%	1.88%
7	Oct 2008	-10.59%	-16.79%	-1.27%	-10.08%	-0.51%
8	Oct 1929	-10.31%	-19.73%	3.82%	-11.84%	1.53%
9	Apr 1932	-9.57%	-19.97%	6.04%	-11.98%	2.42%
10	Jun 1930	-9.55%	-16.25%	0.51%	-9.75%	0.20%
11	Dec 1931	-9.28%	-14.00%	-2.20%	-8.40%	-0.88%
12	Sep 1937	-8.24%	-14.03%	0.45%	-8.42%	0.18%
13	Oct 1932	-8.16%	-13.49%	-0.17%	-8.09%	-0.07%
14	Mar 1939	-7.53%	-13.39%	1.25%	-8.03%	0.50%
15	Sep 1930	-7.40%	-12.82%	0.74%	-7.69%	0.30%
16	Oct 1979	-7.30%	-6.56%	-8.41%	-3.94%	-3.36%
17	Aug 1998	-7.26%	-14.46%	3.54%	-8.67%	1.42%
18	Nov 1973	-7.22%	-10.82%	-1.83%	-6.49%	-0.73%
19	Mar 1980	-7.18%	-9.87%	-3.15%	-5.92%	-1.26%
20	May 1931	-7.09%	-12.79%	1.45%	-7.67%	0.58%
21	Mar 1932	-7.02%	-11.58%	-0.18%	-6.95%	-0.07%
22	Apr 1970	-6.99%	-8.89%	-4.13%	-5.33%	-1.65%
23	Feb 2009	-6.71%	-10.65%	-0.81%	-6.39%	-0.32%
24	Jan 2009	-6.67%	-8.43%	-4.04%	-5.06%	-1.62%
25	Jul 1934	-6.63%	-11.32%	0.40%	-6.79%	0.16%

98% Contribution of return from **stocks** during difficult economic environments

Planning for Shocks

- Diversification is key
- Historically, traditional 60/40 portfolio risk is dominated by stocks – they do not optimally solve pension fund needs
- Proper diversification can help mitigate losses

Source: Ibbotson, Bloomberg, Neuberger Berman, Federal Reserve (FRED database). Data from January 1, 1926 – July 31, 2019. Stocks are represented by the Ibbotson Large Stock Index and the S&P 500 Index post-2008; bonds are represented by the Ibbotson 20-Year Government Bond Index and the Bloomberg Barclays Long-Term Government Bond Index post-2008; 60/40 is represented by 60% stocks and 40% bonds. The use of tools cannot guarantee performance. Investing entails risks, including possible loss of principal. See Additional Disclosures at the end of this piece, which are an important part of this presentation.

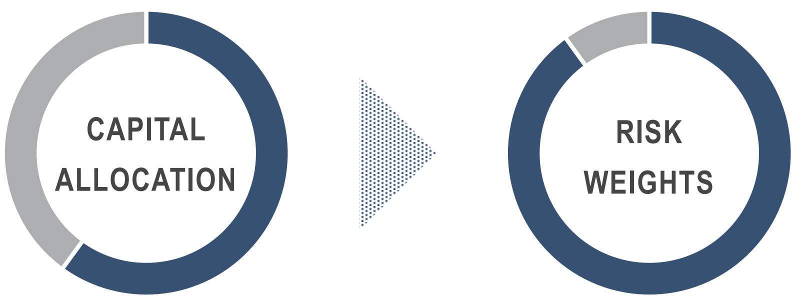
Introducing Risk Parity

Risk Parity is an alternative strategic asset allocation solution that aims to provide consistency in exceeding objectives by emphasizing effective diversification and holistic risk management

Traditional Approach

Allocate capital across assets that have the potential to meet goals

Capital allocation drives risk weights



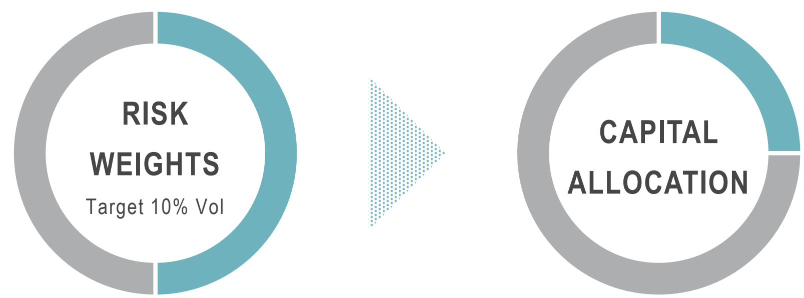
Equity Fixed Income

- Approach is widely used
- Requires forecasting of **returns**
- May be overly concentrated in equity risk

Risk-Balanced Approach

Allocate risk across diversifying sources of return and control total portfolio risk

Risk weights drive capital allocation



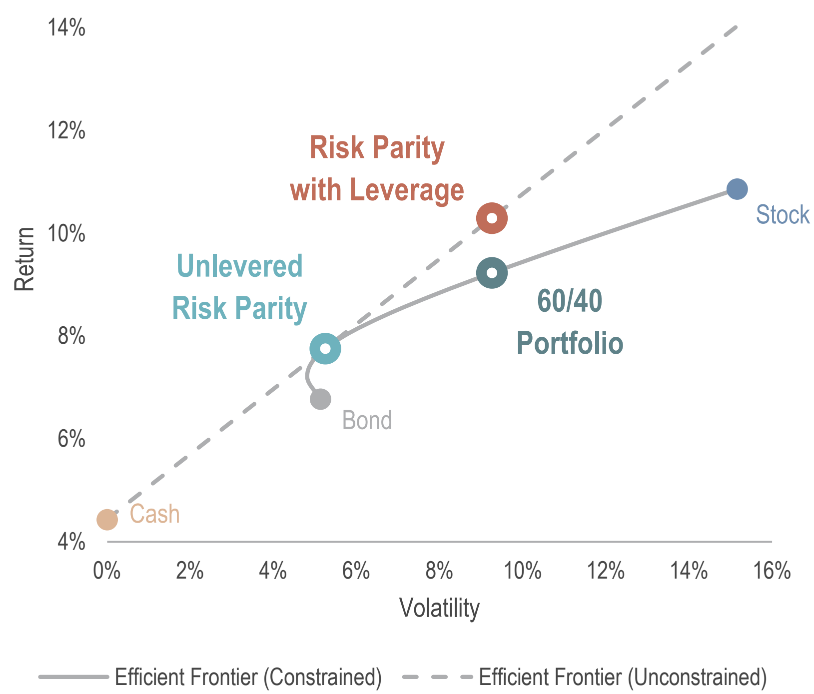
Equity Fixed Income

- Resulting risk is well diversified
- Requires estimation of **risk**, which is relatively easier than estimating return
- **Anticipated return may be too low without leverage**

A More Efficient Portfolio

Equal risk allocation likely results in a higher risk-adjusted return than an equity-heavy portfolio – leverage can then be applied to achieve desired return targets

Efficient Frontier



Summary Statistics

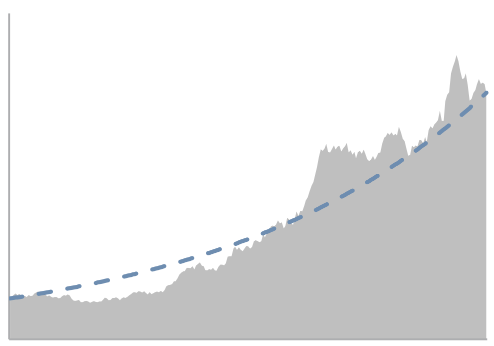
Allocation			Performance		
Stock	Bonds	Total	Return	Risk	Sharpe Ratio
0%	100%	100%	7.0%	5.1%	0.46
10%	90%	100%	7.4%	4.8%	0.57
20%	80%	100%	7.8%	5.0%	**0.63**
30%	70%	100%	8.2%	5.7%	**0.63**
40%	60%	100%	8.6%	6.7%	0.59
50%	50%	100%	9.0%	7.9%	0.55
60%	40%	100%	9.4%	9.3%	0.52
70%	30%	100%	9.8%	10.7%	0.49
80%	20%	100%	10.2%	12.1%	0.46
90%	10%	100%	10.7%	13.6%	0.44
100%	0%	100%	11.1%	15.2%	0.42
42%	**134%**	**176%**	**10.5%**	**9.3%**	**0.63**

RISK PARITY

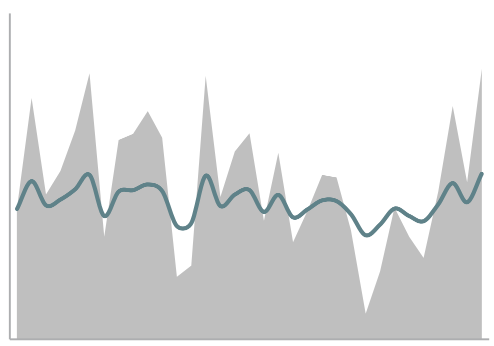
Source: Ibbotson, Bloomberg. Data from January 1, 1973 – July 31, 2019. Stocks are represented by the S&P 500 Index; bonds are represented by the Bloomberg Barclays U.S. Treasury Index; 60/40 is represented by 60% stocks and 40% bonds; cash is represented by 3-Month T-Bills. The use of tools cannot guarantee performance. Investing entails risks, including possible loss of principal. See Additional Disclosures at the end of this piece, which are an important part of this presentation

Objectives of Pension Plans and Risk Parity

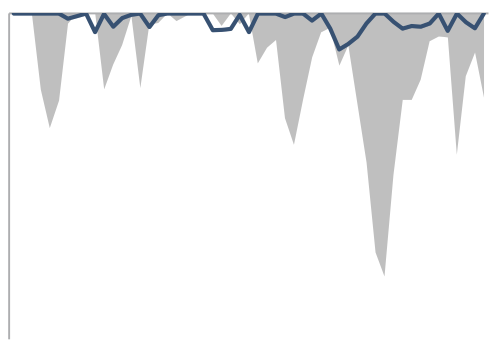
Risk parity is designed to help investors achieve return objectives with an emphasis on a smoother path



Achieve Objectives



Smoother Path



Minimize Drawdown

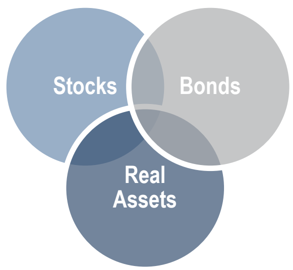
This material is intended as a broad overview of the Portfolio Managers' style, philosophy and process and is subject to change without notice. The use of tools cannot guarantee performance. Actual volatility may be significantly different than that forecasted. Investing entails risks, including possible loss of principal. Past performance is not necessarily indicative of future results. See Additional Disclosures at the end of this piece, which are an important part of this presentation.

How are Risk Parity Portfolios Constructed?

Risk parity seeks to increase the odds of hitting investment objectives by focusing on principles that are more predictable, stable and controllable

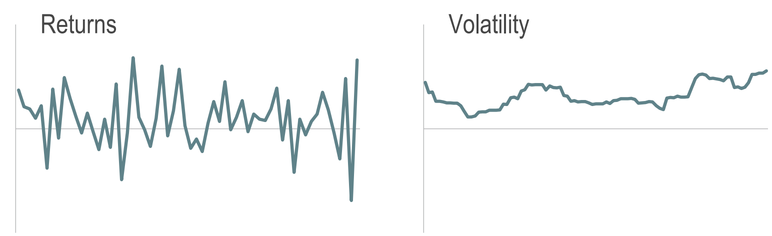
1. Choose a Multi-Asset Universe

with asset classes that naturally hedge each other



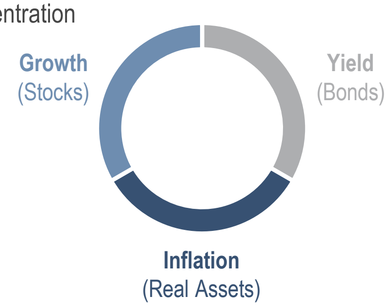
2. Focus on Quantifiable Risks

that are relatively more stable than returns



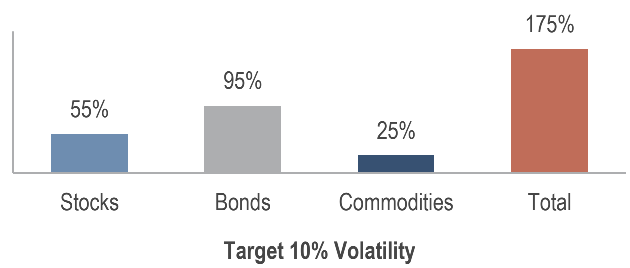
3. Access Risk Premia in a Diversified Manner

and avoid concentration



4. Apply Leverage to the Diversified Portfolio

to a level that is risk-tolerable



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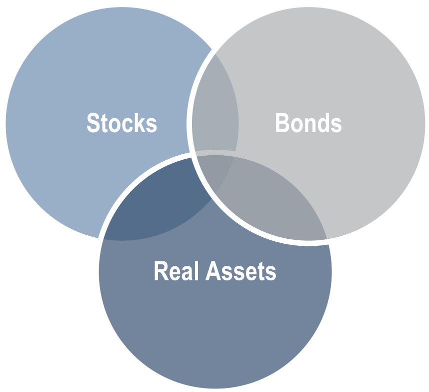
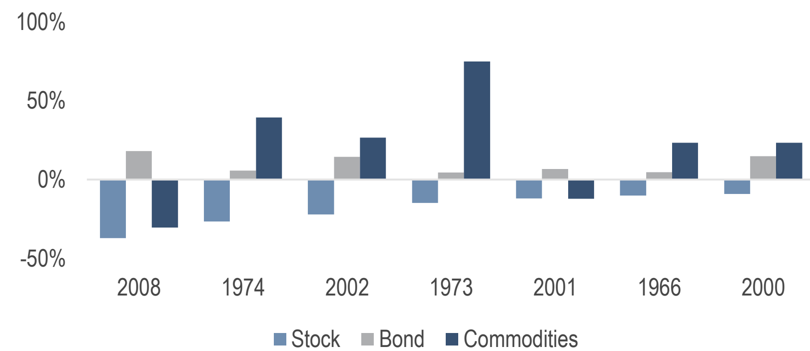
Choose a Multi-Asset Universe

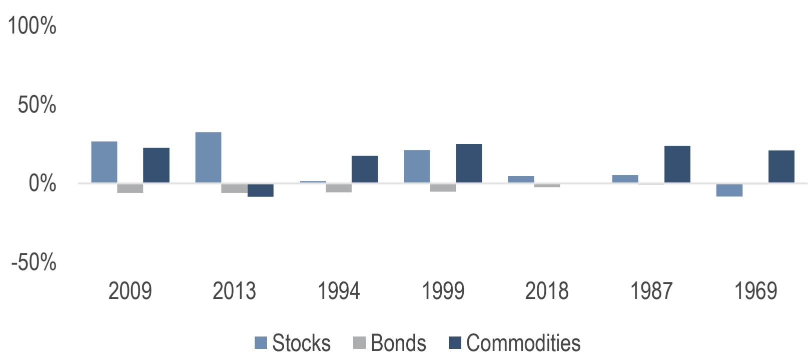
Principle 1: Choose diversifying investments that have the potential to hedge each other during their respective bad times



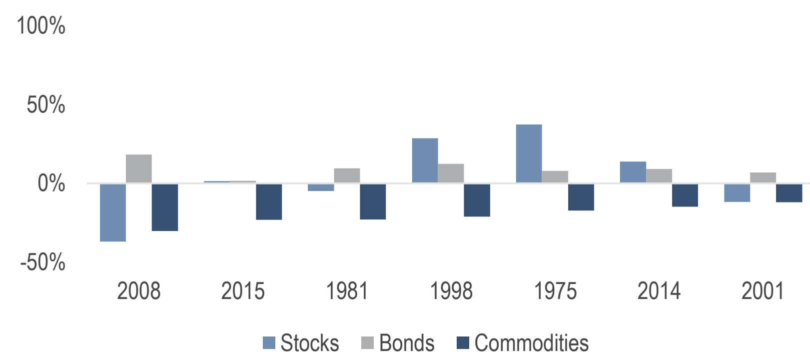
Worst Stock Returns



Worst Bond Returns



Worst Commodity Returns

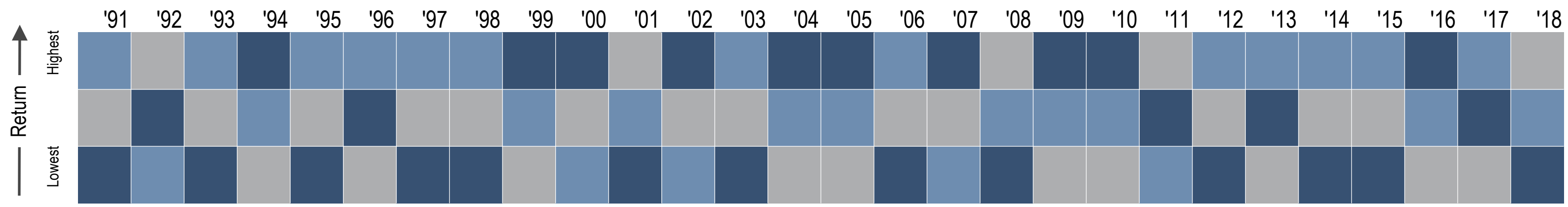


Source: Ibbotson Associates, Bloomberg. Data from January 1, 1991 to December 31, 2018. Bonds are represented by the Ibbotson U.S. Intermediate-Term Government Bond Index, equities by the S&P 500 Index and commodities by the S&P GSCI Commodity Index after 1970, and commodity futures data from Bloomberg pre-1970. This material is intended as a broad overview of the Portfolio Managers' style, philosophy and process and is subject to change without notice. The use of tools cannot guarantee performance. Actual volatility may be significantly different than that forecasted. Investing entails risks, including possible loss of principal. Past performance is not necessarily indicative of future results. See Additional Disclosures at the end of this piece, which are an important part of this presentation.

Focus on Quantifiable Risks

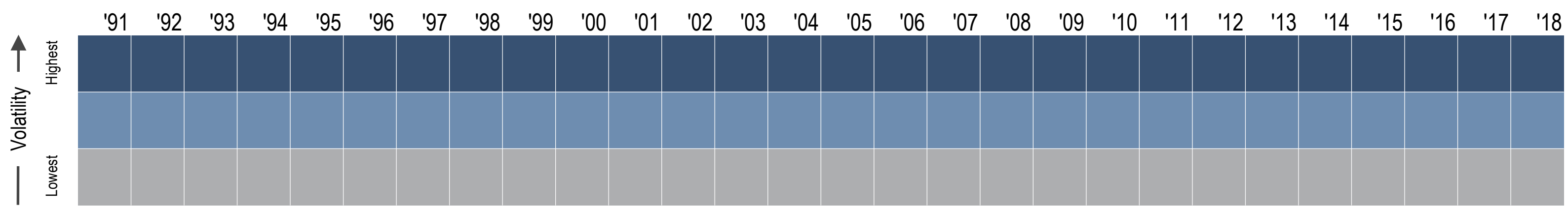
Principle 2: Focus on quantifiable risks by anchoring process on the relative stability of risks versus standard practice of forecasting returns

Relative Return Rank



Relative returns are **difficult to predict**

Relative Volatility Rank



Relative volatilities are **easier to predict**

Stocks Bonds Commodities

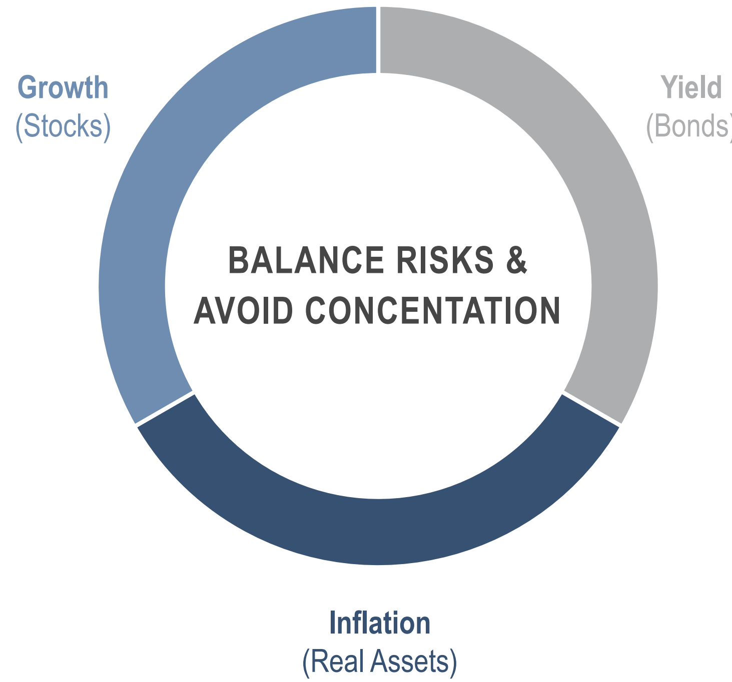
Risk Forecasting → Volatility Targeting → Drawdown Management → Higher Sharpe Ratios

Source: Ibbotson Associates, Bloomberg. Data from January 1, 1991 to December 31, 2018. Bonds are represented by the Ibbotson U.S. Intermediate-Term Government Bond Index, equities by the S&P 500 Index and commodities by the S&P GSCI Commodity Index after 1970, and commodity futures data from Bloomberg pre-1970. This material is intended as a broad overview of the Portfolio Managers' style, philosophy and process and is subject to change without notice. The use of tools cannot guarantee performance. Actual volatility may be significantly different than that forecasted. Investing entails risks, including possible loss of principal. Past performance is not necessarily indicative of future results. See Additional Disclosures at the end of this piece, which are an important part of this presentation.

Access Risk Premia in a Diversified Manner

Principle 3: Avoid concentrating risk in any one premia

- On average, each premia provides similar return per risk taken
- Market timing is almost impossible
- Avoiding concentration (being risk diversified) at all times is necessary for smoother paths



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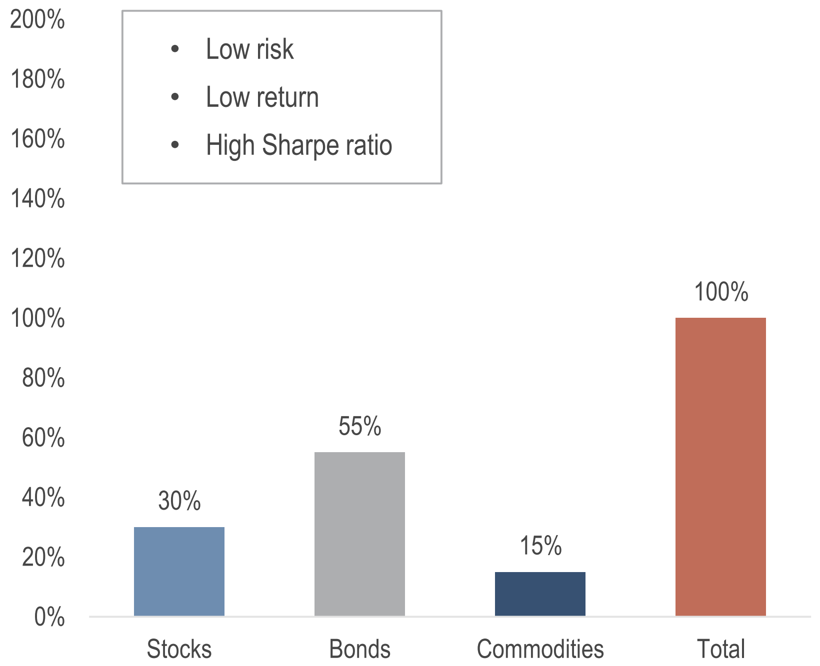
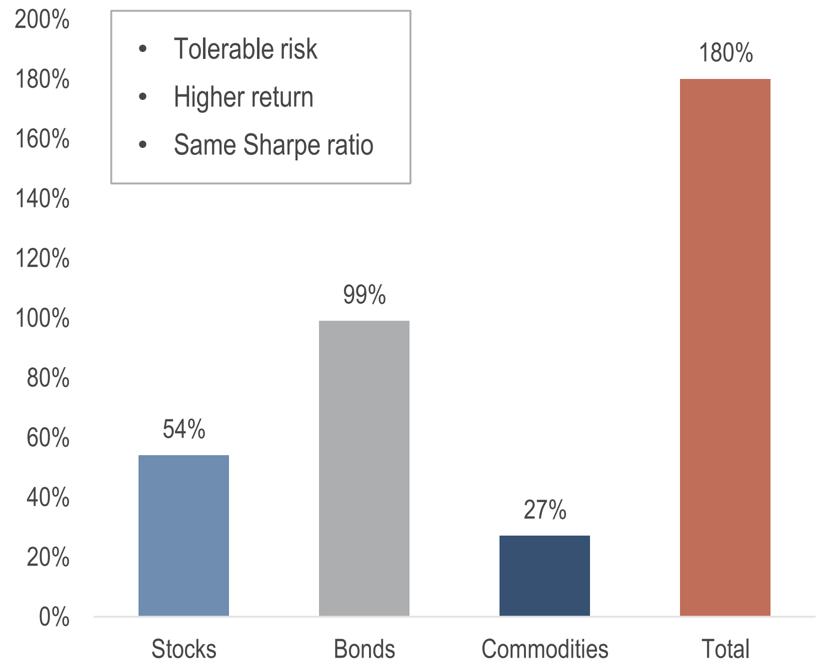
Apply Leverage to the Diversified Portfolio

Principle 4: Leverage the diversified portfolio—not just fixed income—to a level that is risk-tolerable

Unlevered Risk Parity: Sample Portfolio Weights



Risk Parity with Leverage: Sample Portfolio Weights

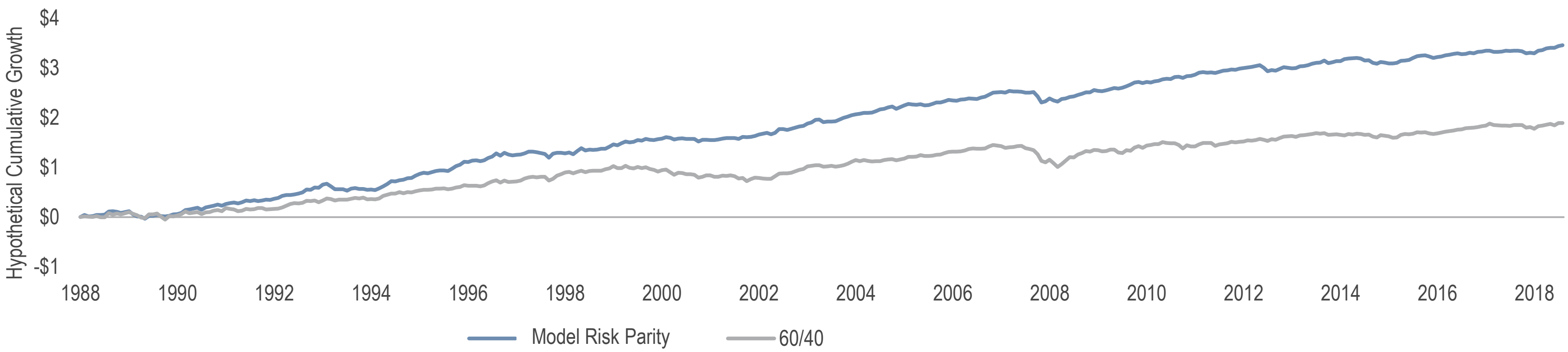


Apply leverage to reach volatility target of 10%

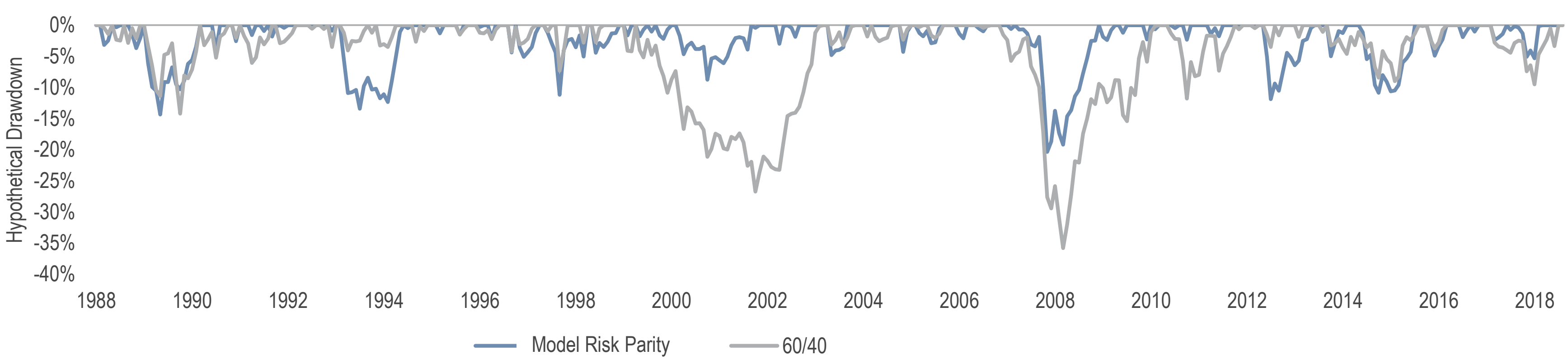
This material is intended as a broad overview of the Portfolio Managers' style, philosophy and process and is subject to change without notice. The use of tools cannot guarantee performance. Investing entails risks, including possible loss of principal. See Additional Disclosures at the end of this piece, which are an important part of this presentation.

Risk Parity Portfolio Characteristics

Risk-balanced portfolio has achieved higher returns than 60/40 with shallower, albeit more frequent, drawdowns



RISK PARITY TARGETED AT 60/40 RISK

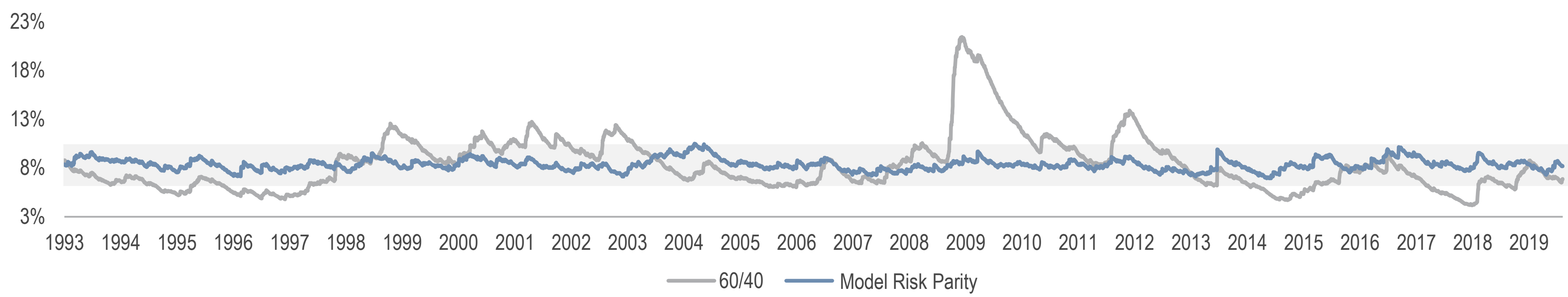


Source: Ibbotson, Bloomberg. The model risk parity strategy includes bonds, equities and commodities, with volatility contributions equally weighted based on two-year trailing realized volatility, and a target portfolio volatility of 10% annualized; bonds are represented by the Ibbotson U.S. Intermediate-Term Government Bond Index, equities by the S&P 500 Index and commodities by the S&P GSCI Commodity Index. Please see "Hypothetical Backtested Performance Disclosures" at the end of this material. **Past performance is no guarantee of future results.**

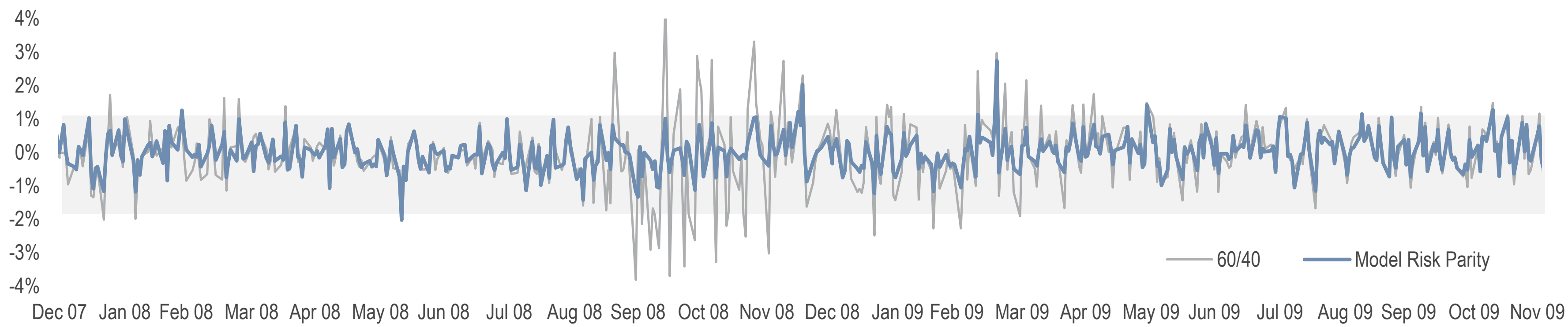
Realized Risk Consistency

Volatility targeting can lead to more consistent return streams with less surprises

Rolling 1-Year Volatility: Model Risk Parity and 60/40 Portfolio



Daily Returns: Model Risk Parity and 60/40 Portfolio



Source: Bloomberg. Data from January 1, 1993 to July 31, 2019. 60/40 is represented by 60% S&P 500 and 40% Barclays U.S. Treasury Bond Index.
This material is intended as a broad overview of the Portfolio Managers' style, philosophy and process and is subject to change without notice. The use of tools cannot guarantee performance. Investing entails risks, including possible loss of principal. Any target returns/risk referenced reflect client established return/risk objectives. There is no guarantee that any target returns/risk will be achieved or that an investment strategy will be successful. Actual returns and risk may vary significantly. See Additional Disclosures at the end of this piece, which are an important part of this presentation. Please see "Hypothetical Backtested Performance Disclosures" at the end of this material.
Past performance is no guarantee of future results.

Robust Performance

Risk parity has historically outperformed cash and a 60/40 portfolio across different economic environments and time periods

Period		Average Yield		Total Return		Sharpe Ratio		Volatility	
From	To	T-Bills	10Y U.S. Treasury	Model Risk Parity	60/40	Model Risk Parity	60/40	Risk Parity	60/40
1960	1970	3.8%	4.7%	7.0%	5.6%	0.33	0.23	9.7%	7.8%
1970	1980	6.1%	7.5%	10.2%	6.4%	0.40	0.03	10.3%	11.3%
1980	1990	8.6%	10.6%	14.8%	15.4%	0.65	0.55	9.5%	12.3%
1990	2000	5.4%	6.7%	15.7%	10.5%	0.98	0.55	10.5%	9.2%
2000	2010	2.8%	4.4%	14.0%	3.7%	1.11	0.09	10.1%	10.7%
2010	2019	0.5%	2.4%	10.2%	9.7%	1.26	1.33	7.7%	6.9%

In 5 out of 6 decades, a risk parity model portfolio produced better total returns.

In 5 out of 6 decades, a risk parity model produced better Sharpe ratios.

Source: Ibbotson, Bloomberg, Neuberger Berman, Federal Reserve (FRED database). The model risk parity strategy includes bonds, equities and commodities, with volatility contributions equally weighted based on two-year trailing realized volatility, and a target portfolio volatility of 10% annualized; bonds are represented by the Ibbotson U.S. Intermediate-Term Government Bond Index, equities by the S&P 500 Index and commodities by the S&P GSCI Commodity Index. Please see “Hypothetical Backtested Performance Disclosures” at the end of this material. **Past performance is no guarantee of future results.**

Allocating to Risk Parity

Risk parity can play a replacement role in almost all major asset class buckets with the potential to enhance the efficiency of the portfolio

		No Risk Parity	+5% Model Risk Parity	+20% Model Risk Parity
Fund From Stocks	Return	6.5%	6.8%	7.7%
	Volatility	14.9%	14.5%	13.2%
	Max Drawdown	55%	53%	49%
	Sharpe Ratio	0.30	0.32	0.40
Fund From Bonds	Return	5.5%	5.8%	6.8%
	Volatility	6.5%	6.4%	6.2%
	Max Drawdown	10%	9%	11%
	Sharpe Ratio	0.40	0.45	0.62
Fund From Hedge Funds	Return	4.1%	4.4%	5.5%
	Volatility	5.9%	5.9%	5.9%
	Max Drawdown	25%	25%	23%
	Sharpe Ratio	0.38	0.44	0.60
Fund From Pro Rata From 60/40	Return	6.4%	6.7%	7.5%
	Volatility	9.9%	9.7%	9.3%
	Max Drawdown	36%	35%	32%
	Sharpe Ratio	0.38	0.41	0.51

The addition of risk parity can increase return, reduce risk and potentially lead to a more efficient overall portfolio.

Risk parity is liquid, cost effective and accessible to pension funds.

Source: Bloomberg, Neuberger Berman. Data from January 1, 1989 – July 31, 2019. Stocks are represented by the MSCI ACWI Index; bonds are represented by the Citi World Government Bond Index; 60/40 is represented by 60% stocks and 40% bonds; hedge funds are represented by the HFRX Global Hedge Fund Index. The model risk parity strategy includes bonds, equities and commodities, with volatility contributions equally weighted based on two-year trailing realized volatility, and a target portfolio volatility of 10% annualized; bonds are represented by the Ibbotson U.S. Intermediate-Term Government Bond Index, equities by the S&P 500 Index and commodities by the S&P GSCI Commodity Index. Please see "Hypothetical Backtested Performance Disclosures" at the end of this material. **Past performance is no guarantee of future results.**

Recall Our Original Objectives

Achieve Returns

Risk parity may meet or exceed typical goals (e.g. CPI+5%) better than benchmarks…

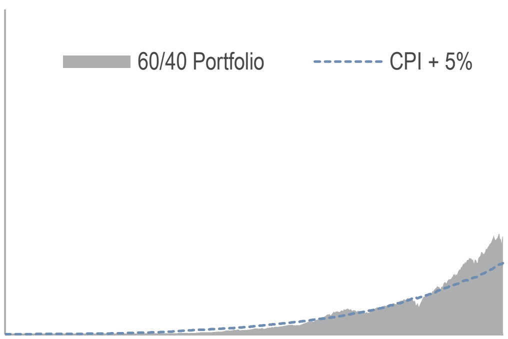
Smoother Path

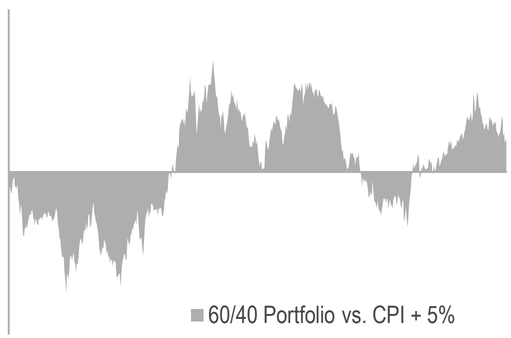
…with less deviation along the way…*

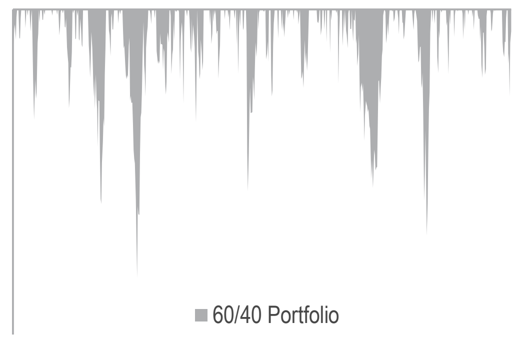
Minimize Drawdown

…and with less severe drawdowns.

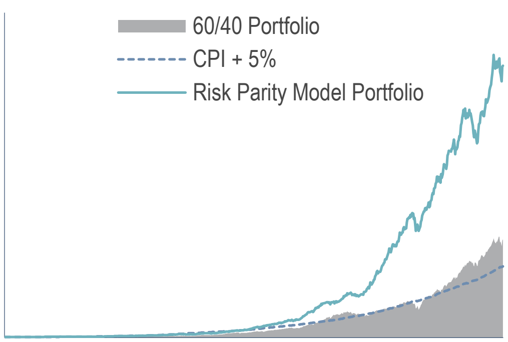
60/40 Portfolio

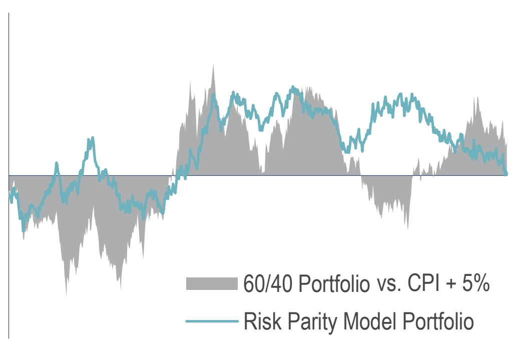


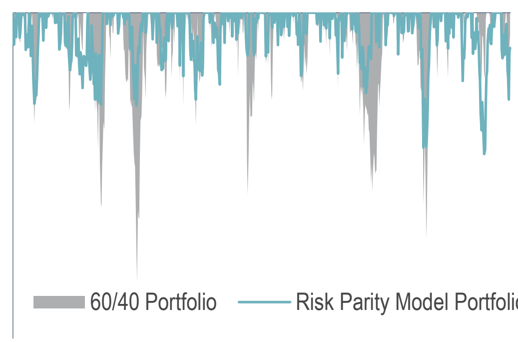




Simple Risk Parity Portfolio







* Rolling five year return vs. CPI + 5%.

Source: Bloomberg. Data from January 1, 1960 to December 31, 2018. Any target returns/risk referenced reflect client established return/risk objectives. There is no guarantee that any target returns/risk will be achieved or that an investment strategy will be successful. Actual returns and risk may vary significantly. Please see "Hypothetical Backtested Performance Disclosures" at the end of this material. **Past performance is no guarantee of future results.**

Risk Parity Summary

We believe risk parity is an effective strategic asset allocation solution that achieves objectives more consistently

Risk Parity

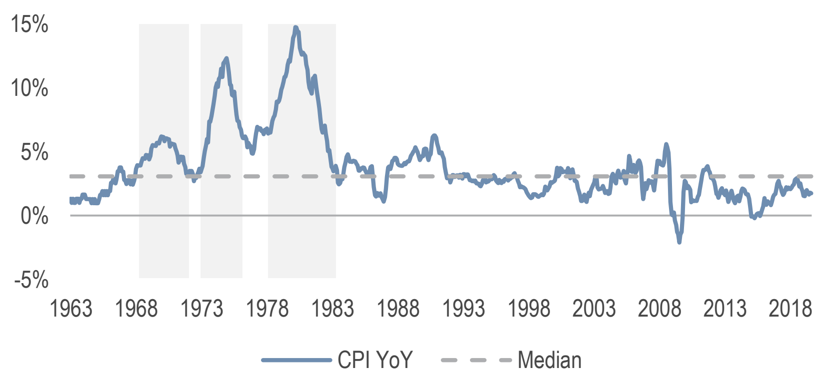
- Strategic, long-term asset allocation tool
- Explicit diversification across asset classes and compensated return premia
- Potential to help achieve return objectives
- Risk targeting allows for a smoother path
- Drawdowns have been generally less severe
- Accessible and impactful to pension funds, especially larger ones

Appendix

Economic Regimes Have Not Been a Determinant of Risk Parity Performance

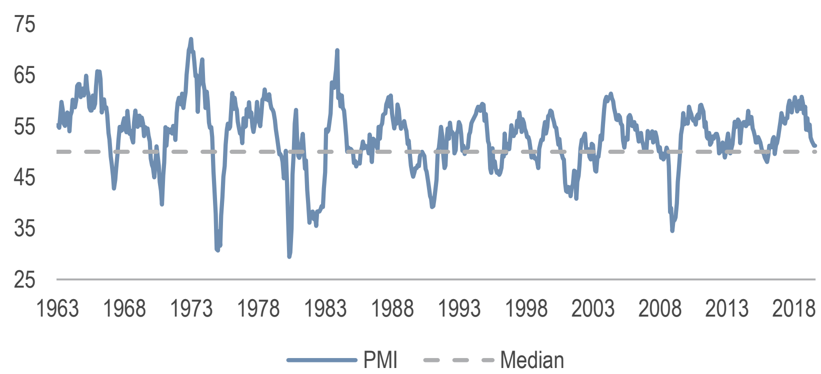
Except for in high and increasing inflation regimes, the macro environment did not materially impact risk parity's absolute and relative performance

Inflation vs. Median



	Regime Average				Excess Return		Sharpe Ratio	
	CPI YoY	IP YoY	Tbill1M Yld	10 Yr Tres Yld	RP*	60/40	RP*	60/40
High / Decreasing	5.7%	0.8%	7.2%	9.4%	9.22%	8.87%	0.97	0.79
High / Increasing	5.9%	3.2%	6.2%	7.3%	2.83%	-3.08%	0.26	-0.26
Low / Increasing	2.1%	4.9%	3.1%	4.6%	11.27%	5.70%	1.11	0.70
Low / Decreasing	1.8%	2.3%	3.5%	5.1%	8.91%	6.35%	0.89	0.64

PMI vs. Median



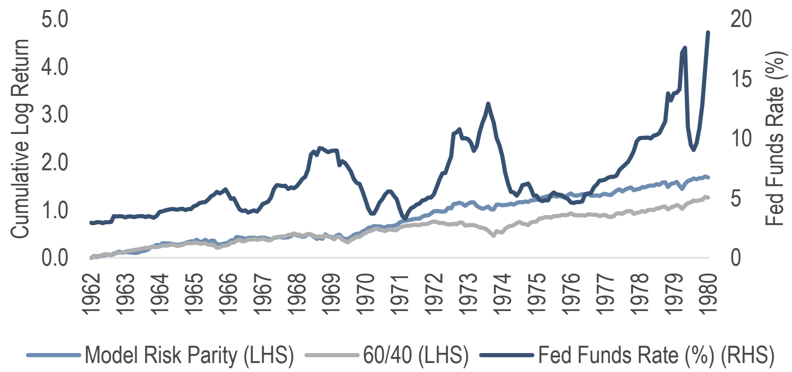
	Regime Average				Excess Return		Sharpe Ratio	
	CPI YoY	IP YoY	Tbill1M Yld	10 Yr Tres Yld	RP*	60/40	RP*	60/40
High / Decreasing	4.6%	5.4%	5.2%	6.1%	5.87%	0.02%	0.61	0.00
High / Increasing	3.5%	5.3%	4.4%	6.3%	6.19%	3.18%	0.65	0.35
Low / Increasing	3.7%	1.0%	5.5%	7.2%	9.09%	3.74%	0.99	0.36
Low / Decreasing	4.4%	0.3%	5.3%	6.5%	8.26%	4.19%	0.72	0.35

Source: Ibbotson, Bloomberg. Data from January 1, 1963 – July 31, 2019. High is defined as above median, low as below median, increasing as above one year ago, decreasing as below one year ago. Inflation is measured by the CPI year-over-year growth rate. Growth is represented by the U.S. ISM Manufacturing PMI Composite Index (NAPM) and inflation by the U.S. CPI YoY growth rate.

* The model risk parity strategy includes bonds, equities and commodities, with volatility contributions equally weighted based on two-year trailing realized volatility, and a target portfolio volatility of 10% annualized; bonds are represented by the Ibbotson U.S. Intermediate-Term Government Bond Index, equities by the S&P 500 Index and commodities by the S&P GSCI Commodity Index. Please see "Hypothetical Backtested Performance Disclosures" at the end of this material. **Past performance is no guarantee of future results.**

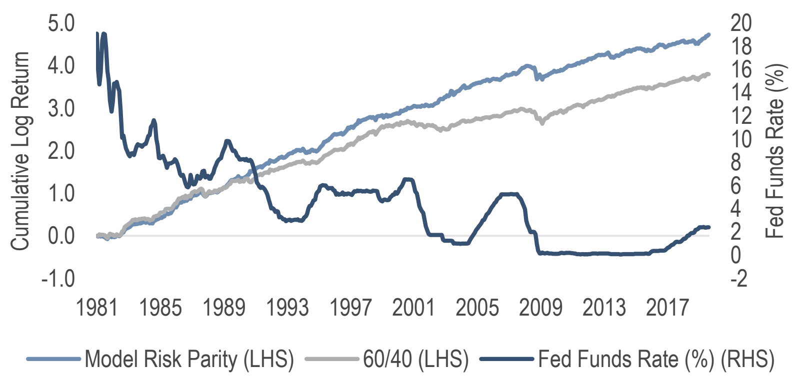
Risk Parity Can Thrive Even When Rates are Rising

Model Risk Parity & 60/40 While Rate are Rising



	Model Risk Parity	60/40	Stock	Bond	Commodity
Ann. Return	9.8%	7.3%	8.4%	5.0%	16.8%
Volatility	10.8%	9.3%	14.5%	5.4%	20.9%
Max Drawdown	14.0%	26.4%	42.6%	8.9%	37.5%
Sharpe Ratio	0.39	0.19	0.24	-0.13	0.57
Ann. Return / Max DD	0.70	0.28	0.20	0.56	0.45

Model Risk Parity & 60/40 While Rate are Declining



	Model Risk Parity	60/40	Stock	Bond	Commodity
Ann. Return	12.9%	10.3%	11.3%	8.1%	7.2%
Volatility	9.8%	9.3%	14.7%	6.6%	14.0%
Max Drawdown	27.4%	29.6%	50.9%	8.6%	59.9%
Sharpe Ratio	0.87	0.67	0.53	0.60	0.28
Ann. Return / Max DD	0.47	0.35	0.22	0.93	0.12

Source: Ibbotson Associates, Federal Reserve Bank of St. Louis (FRED database). The model risk parity strategy includes bonds, equities and commodities, with volatility contributions equally weighted based on two-year trailing realized volatility, and a target portfolio volatility of 10% annualized; bonds are represented by the Ibbotson U.S. Intermediate-Term Government Bond Index, equities by the S&P 500 Index and commodities by the S&P GSCI Commodity Index after 1970, and commodity futures data from Bloomberg pre-1970. Please see “Hypothetical Backtested Performance Disclosures” at the end of this material. **Past performance is no guarantee of future results.**

Biographies

Hakan Kaya, PhD, Managing Director, joined the firm in 2008. Hakan is a Senior Portfolio Manager on the Quantitative and Multi-Asset Class ("QMAC") team responsible for Global Risk Balanced Portfolios and Commodities. He contributes to asset allocation research with a focus on risk management and has a record of publishing research in both refereed journals and white papers on timely investment issues. Prior to joining the firm, he was a consultant with Mount Lucas Management Corporation where he developed weather risk and statistical relative value models for commodities investment. Dr. Kaya received BS degrees summa cum laude in Mathematics and Industrial Engineering from Koc University in Istanbul, Turkey and holds a PhD in Operations Research & Financial Engineering from Princeton University.

Doug Kramer, Managing Director, joined the firm in October 2015 as Co-Head of Quantitative & Multi-Asset Class Investments (QMAC). Doug is responsible for growing and expanding the firm's systematic and multi-asset class strategies. Prior to joining the firm, Doug was Chief Executive Officer at Horizon Kinetics, an investment management firm. While with Horizon, Doug's focus was engaging with clients, as well as building their successful options strategy. Previously, he was a Managing Principal of Quadrangle Group and a Partner of Goldman Sachs & Co. where he served as Chief Investment Officer and Head of the Global Manager Strategies Group. At Goldman, Doug was responsible for manager selection across all traditional asset classes as well as the strategic development of GSAM's Institutional Fiduciary Management business. Doug holds an MBA from Columbia Business School and a BS from University of Pennsylvania – Wharton School.

Paul Sauer, CFA, Managing Director, joined the firm in 2013. Paul is a Client Advisor who is responsible for West Coast Public Institutions as part of the North American Client Coverage Team. Prior to joining Neuberger Berman, Paul was a managing director and head of BlackRock's Endowment and Foundation institutional sales team, and began his financial services career at Goldman Sachs and Credit Suisse in the Equities Division. Paul also served 10 years in the US Navy as a Flight Officer deploying to Southwest Asia. Paul earned a BS from California State University at Northridge, an MBA from USC's Marshall School of Business, and has been awarded the Chartered Financial Analyst designation.

Hypothetical Backtested Performance Disclosures

Model Risk Parity

The returns presented reflect hypothetical performance an investor would have obtained had it invested in the manner shown and does not represents returns that any investor actually attained. Neuberger Berman calculated the hypothetical results by running a model portfolio on a backtested basis using the methodology described below. Certain of the assumptions have been made for modeling purposes and are unlikely to be realized. No representation or warranty is made as to the reasonableness of the assumptions made or that all assumptions used in achieving the returns have been stated or fully considered. Changes in the assumptions may have a material impact on the hypothetical returns presented.

Hypothetical Backtested Methodology:

The model risk parity strategy includes bonds, equities and commodities, with volatility contributions equally weighted based on two-year trailing realized volatility, and a target portfolio volatility of 10% annualized; bonds are represented by the Ibbotson U.S. Intermediate-Term Government Bond Index, equities by the S&P 500 Index and commodities by the GSCI Commodity Index after 1970, and commodity futures data from Bloomberg pre-1970. Hypothetical backtested returns have many inherent limitations. Unlike actual performance, it does not represent actual trading. Since trades have not been actually been executed, results may have under- or over-compensated for the impact, if any, of certain market factors, such as lack of liquidity, and may not reflect the impact that certain economic or market factors may have had on the decision-making process. Hypothetical backtested performance also is developed with the benefit of hindsight. Other periods selected may have different results, including losses. There can be no assurance that the Neuberger Berman will achieve profits or avoid incurring substantial losses. Neuberger Berman managed accounts in the manner reflected in the models during a portion of the backtested time periods shown.

Unless otherwise indicated, results shown reflect reinvestment of any dividends and distributions. Unless otherwise indicated, the hypothetical performance figures are shown gross of fees, which do not reflect the deduction of investment advisory fees, transaction costs and other expenses. If such fees and expense were reflected, returns referenced would be lower. Advisory fees are described in Part 2 of the advisor's Form ADV. A client's return will be reduced by the advisory fees and any other expenses it may incur in the management of its account. The deduction of fees has a compounding effect on performance results. For example, assume the advisor achieves a 10% annual return prior to the deduction of fees each year for a period of 10 years. If a fee of 1% of assets under management were charged and deducted from the returns, the resulting compounded annual return would be reduced to 8.91%. Please note that there is no comparable reduction from the indices for the fees. Indexes are unmanaged and are not available for direct investment. The use of tools cannot guarantee performance. Investing entails risks, including possible loss of principal. **Past performance is no guarantee of future results.**

Additional Disclosures

This material is provided for informational purposes only and nothing herein constitutes investment, legal, accounting or tax advice, or a recommendation to buy, sell or hold a security. Information is obtained from sources deemed reliable, but there is no representation or warranty as to its accuracy, completeness or reliability. All information is current as of the date of this material and is subject to change without notice. Any views or opinions expressed may not reflect those of the firm as a whole. Neuberger Berman products and services may not be available in all jurisdictions or to all client types. Investing entails risks, including possible loss of principal. Investments in hedge funds and private equity are speculative and involve a higher degree of risk than more traditional investments. Investments in hedge funds and private equity are intended for sophisticated investors only. Indexes are unmanaged and are not available for direct investment. **Past performance is no guarantee of future results.**

Firm data, including employee and assets under management figures, reflect collective data for the various affiliated investment advisers that are subsidiaries of Neuberger Berman Group LLC (the "firm"). Firm history and timelines includes the history and business expansions of all firm subsidiaries, including predecessor entities and acquisition entities. Investment professionals referenced include portfolio managers, research analysts/associates, traders, and product specialists and team dedicated economists/strategists.

Gross returns do not reflect the deduction of advisory fees and other expenses, which will reduce returns. Investment advisory fees have a compounding effect on cumulative results. For example, assume Neuberger Berman achieves a 10% annual return prior to the deduction of fees each year for a period of ten years. If an annual advisory fee of 1.00% of assets under management for the ten-year period were charged, the resulting annual average return after fees would be reduced to 8.90%. Performance results will vary based upon the period measured. Additional information regarding fees can be found in Neuberger Berman's Form ADV, Part 2, which is available upon request.

Leverage. Risk parity strategies employ the use of leverage, which involves the risk of loss greater than the actual cost of the investment, and also involves margin and collateral requirements. Leverage magnifies both the favorable and unfavorable effects of price movements in the investments made by an account, which may subject it to substantial risk of loss. In the event of a sudden, precipitous drop in value of an account's assets occasioned by a sudden market decline, it might not be able to liquidate assets quickly enough to meet its margin or borrowing obligations. Also, because acquiring and maintaining positions on margin allows an account to control positions worth significantly more than its investment in those positions, the amount that it stands to lose in the event of adverse price movements is higher in relation to the amount of its investment. In addition, since margin interest will be one of the account's expenses and margin interest rates tend to fluctuate with interest rates generally, it is at risk that interest rates generally, and hence margin interest rates, will increase, thereby increasing its expenses.

This material is general in nature and is not directed to any category of investors and should not be regarded as individualized, a recommendation, investment advice or a suggestion to engage in or refrain from any investment-related course of action. Neuberger Berman is not providing this material in a fiduciary capacity and has a financial interest in the sale of its products and services. Investment decisions and the appropriateness of this material should be made based on an investor's individual objectives and circumstances and in consultation with his or her advisors. This means that "retail" retirement investors are expected to engage the services of an advisor in evaluating this material for any investment decision. If your understanding is different, we ask that you inform us immediately.

Cybersecurity Overview

Corporate Information Security

Malcolm King
Managing Director

September 2019

STATE STREET.

Cyber Security

Managed Security Services Program

You trust us with your assets. When it comes to security, we use every tool at our disposal: **technology, employees, and external partnerships** to protect your assets so you can focus on what you do best – grow your business.

Three teams proactively manage threats:

- **Security Operations Center** – monitoring, altering, and remediation
- **Cyber Security Center** – deep data analysis of anomalies and potential threats
- **Intelligence Support Function** – responsible for the collection, analysis and reporting of cyber threat intelligence across the company

By The Numbers

24x7x365 monitoring

5% Of $1 billion + technology budget invested in cyber security

---

Covering
115,000+ data sources

STATE STREET

Cybersecurity / Our Approach

Security as a Driving Design Feature

Defensibility

Resiliency

Identify → **Protect** → **Detect** → **Respond** → **Recover**

Identify

- Identity and Access Controls
- Information Security Governance
- Threat Intelligence
- Third-party Risk Management Program (TPRM)
- Application Security Assurance Program (ASAP)

Protect

- Access Management
- Vulnerability Assessments
- Information Security Risk Management Program (ISRMP)
- Data Loss Protection
- Remote Access Controls
- Application Code Testing
- Info Security and Privacy Training
- PhishMe Social Engineering Awareness

Detect

- Privileged Access Monitoring
- Security Operations Center
- Controls Assessment & Threat Team (CATT)
  - ‘Red Team’ Operations
  - ‘Blue Team’ Assessments
- Threat & Vulnerability Intelligence Team (TVIT)
- Network Intrusion Detection Systems
- Endpoint Security

Respond

- Cybersecurity Incident Response Team (CSIRT)
- Security Incident Management
- Cyber Playbooks
- Analysis and Mitigation
- Communications

Recover

- Global Business Continuity Programs
- Remediation Verification
- Restoration of Managed Devices
- Recovery Planning

Closely aligned to NIST Cyber Security Framework (CSF)

Cybersecurity / Identify Threats

Threat Intelligence Inputs

- Info Sharing Groups
- Threat Intelligence Vendors
- Cyber News Sources

CIS Intelligence Support Function

Threat Intelligence Outputs

- Situation Reports: Produced to generate awareness of an impending security event or incident.
- Intelligence Information Reports: Provides information about a particular event or incident for awareness or action
- Tactical Intelligence Reports: Produced when event or incident warrants action. Typically contain indicators of compromise or tactics, techniques, and procedures of the adversary.

Examples of threat intelligence sources we utilize

Information Sharing Groups

- Financial Systemic Analysis & Resilience Center
- Financial Services Information Sharing and Analysis Center
- Homeland Security Information Network
- FBI Flash Alerts
- National Cybersecurity Center

Threat Intelligence Vendors

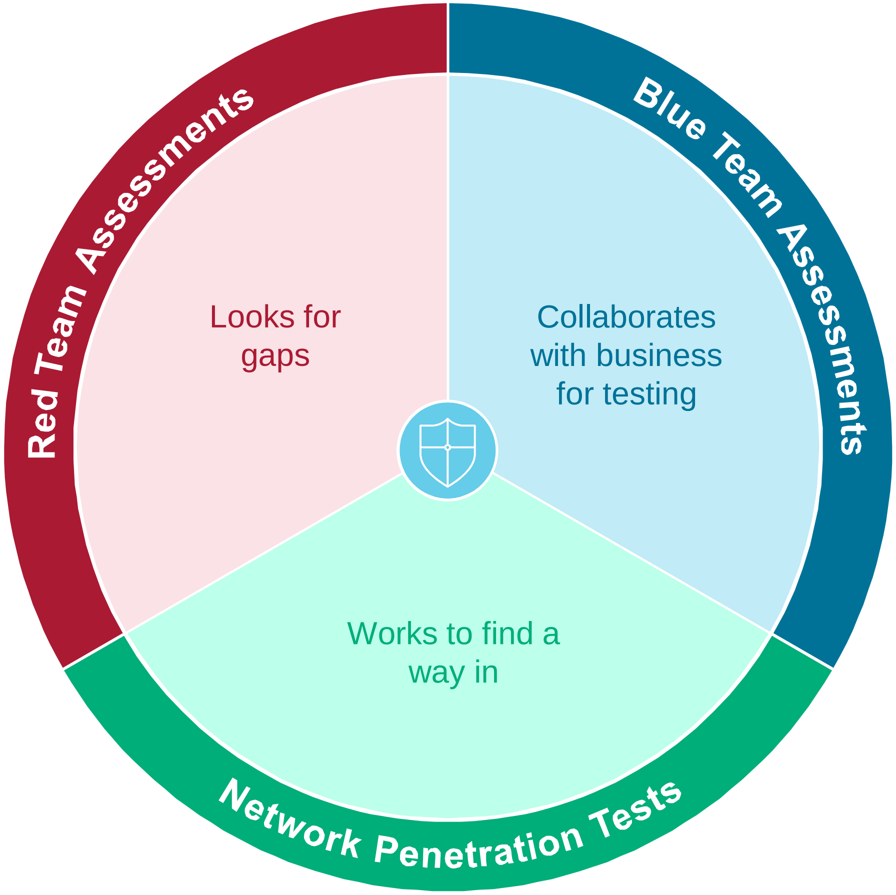
- iDefense
- FireEye iSIGHT
- Anomali ThreatStream
- RiskIQ

Cyber News Sources

- FlashPoint
- Recorded Future
- Symantec
- IBM
- ArsTechnica
- Security Week
- Dark Reading

Cybersecurity / Protect Against Threats

- Our team of **“ethical hackers”** tests our systems and evaluates exposure of our sites
- Develops **risk profiles** for users and systems
- Assists CIS and SSC in **identifying issues** that attackers might be able to leverage
- **Operates independently** and without advance warning to internal audiences



- Collaborative manual **security testing** for internal and external systems
- Fully **integrated testing** with application owners, IT and CIS
- Can perform **deep security** engineering **reviews**
- **Multiple tests scheduled** throughout the year to test various systems

- Ethical hackers test internet and intranet accessible systems
- Evaluate exposure

STATE STREET

Third Party Penetration Testing

- Third party **external penetration tests are conducted annually** and have been in place since 1999 **- *External Resources***
- Working closely with our internal security teams, **ethical hackers use adversary tools and techniques to assess our exposure to attack and exploitation**. The objective is to determine how easily an intruder could move through the organization in the event of a compromise **- *External Resources***
- **Red Team operations** are authorized internal activities that test the effectiveness of our security program by emulating attacks and attempting exploits; and **Blue Teams assessments** are conducted by internal security teams to analyze our resistance to attack and help build defenses against threats **- *Internal Resources***
- ASAP Application Security Assessment Program includes application specific manual penetration tests, dynamic scanning, and source code analysis - ***Internal and External Resources***

STATE STREET.

Cybersecurity / Detect Threats

System Messages
Individual log entries from devices monitored via security tools

~5,000 Confirmed Security Alerts
Requiring further action by State Street Security Operations

77%

Potential Misuse / Non-malicious Events: Any intentional or unintentional act or event, potential policy violation or potential misuse of privileged access, requiring further evaluation.

16%

Malware Threats: Any attempt to deliver malicious software, script, or code to run on a device that could alter its state or function without the owner's informed consent.

7%

Hacking Attempts: All attempts to intentionally access or harm information assets without authorization by circumventing or thwarting logical security mechanisms.

Source: State Street Security Operations - A representative view of the average number and types of security alerts detected during a typical quarter in 2018

Cybersecurity / Detect Threats

The Entire Workforce Plays A Role

Security & Privacy Training

- Annual **mandatory information security and privacy training** on safeguarding information
- **Role-based training** delivered annually to privileged access users, help desk and developers

Information Security Awareness Programs

- **Annual Information Security Forum** brings together more than 180 employees and usually between 5–10 clients for day-long session on trends, regulations and new developments in information security
- Year-long **CIS awareness program** to keep workforce educated

Phishing Simulations

- Approximately 18 times a year, we **simulate spear phishing attacks** against our organization. We include both permanent and contingent workers in these simulations

STATE STREET

Cybersecurity / Financial Services Threat Landscape

Over the past year, a surge in attempts to attack banks across both existing and new vectors:

- Targeting major bank transfer platforms (SWIFT, SPEI, etc.)
- Phishing email and phishing websites to steal credentials (customer and employees)
- Mobile malware and fake mobile applications
- DDoS campaigns

- Attacks against consumer e-banking interfaces
- ATM scamming methods (cashing out – Jackpotting)
- ATM and POS attacks

Typically Targeting Retail Banking vs. State Street

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Cybersecurity / Financial Services Threat Actors

Several known actors from the following countries are targeting the U.S. financial industry. All actors are believed to be continuing activity:

- **China** – motivated mostly by political and military advantage, financial information, and sensitive information like PII or IP
- **Iran** – typically interested in sensitive information for political, military, and financial advantage; though there has been discussion of new destructive motivations for political means
- **Russia** – mostly interested in sensitive information for political or military advantage
- **North Korea** – interested in destruction, financial theft, and sensitive information for political, military, and financial advantage

A number of non-state-affiliated actors have also been targeting the financial industry:

- **FIN6** – interested in payment card fraud and direct financial theft
- **FIN7 / Carbanak** – conducts payment card fraud, SWIFT-related fraud, and ATM operations
- **Cobalt Gang** – participates in payment card fraud, SWIFT-related fraud, and ATM operations

Third Party Risk Management

- **Heightened focus** in the financial services industry on Third Party Risk Management (TPRM).
- A "third party engagement" is defined as a **distinct arrangement in which a third party is contracted by State Street** to provide a business product or service to support its business activities.
- The **regulatory guidance extends beyond traditional vendors to all third parties** inclusive of affiliates and joint ventures. The regulators stress the importance of a risk weighted approach to the efforts involved with TPRM.
- TPRM is a **global cross-functional activity**, inclusive of all Business Units and Legal Entities.
- The program **requires significant involvement** at the first line of defense (business) with governance, oversight and advisory services in the second line of defense (TPRMO, ERM, SMEs).
- The TRRM approach **covers the vendor life-cycle** including planning, due diligence, contract negotiation, ongoing monitoring and termination.

Risk Domains

- Credit / Financial
- Reputational
- Business Continuity and Resiliency
- Country
- Information Security
- Compliance

Cybersecurity / What We're Doing

Areas of Focus 2019

Program	Description
Data Loss Prevention	Provides tools, technology and processes to effectively inspect, monitor, escalate and prevent unauthorized disclosure of client data.
Network Segmentation	Enhanced Network Segmentation solutions and processes.
Information Security Officer (ISO) Program	ISO program design enhancements include improved governance structure, performance metrics and refinement of roles and responsibilities.
NIST Conversion	Transitioning current CIS controls to align with the National Institution of Standards and Technology Cyber Security Framework (NIST 800-53).
Security Operations	Completing migration to a new vendor and driving enhancements to our security monitoring, security analysis, and cyber threat intelligence functions.

Cybersecurity / Security Resources

Our Client Assurance Team Provides Support Through a Variety of Resources

Demand for RFPs and DDQ Response Increasing

- Significant increase in client requests for presentations, RFIs and Due Diligence Questionnaires

Standardized Information Gathering (SIG) Questionnaire

- A **compilation of questions** used to determine how information technology and data security risks are managed across a broad spectrum of risk control areas
- With over **1,600 questions,** the questionnaire addresses **16 different risk control areas**

Direct Access to Resources at https://my.statestreet.com – Cybersecurity Information Folder

- Annual Information Security Client Guide
- Quarterly Newsletters
- Tips for Staying Safe Online
- Cyber Threat Updates

STATE STREET

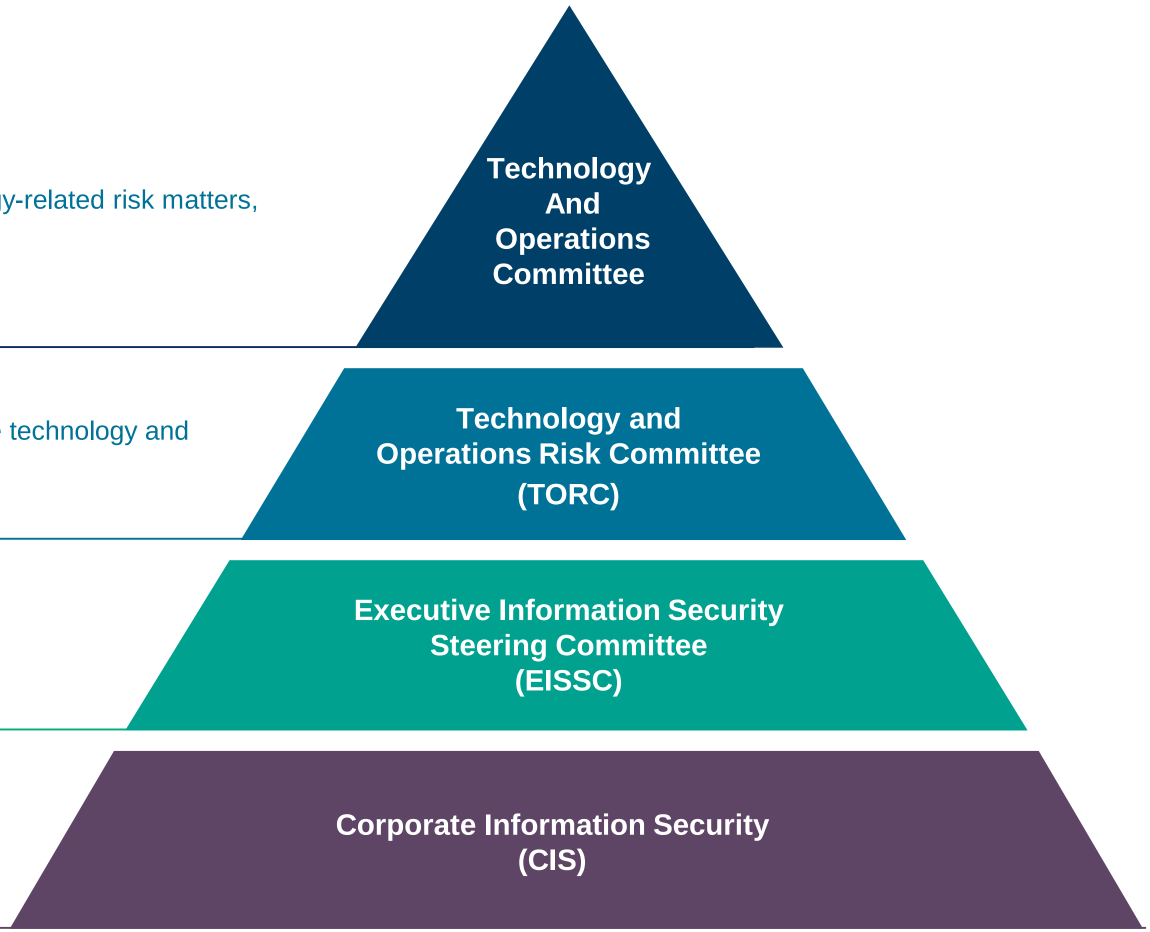
Cybersecurity / Program Governance Structure

- Makes recommendations regarding technology-related risk matters, including information and cybersecurity
- Approves CIS Program annually

- Assesses the effectiveness of enterprise-wide technology and operational risk management programs

- Provides oversight of the Program to ensure controls are measured and managed

- Implements and maintains the Program; and ensures the Program aligns with company's strategic goals



Cybersecurity / Organizational Structure

Chief Information Security Officer

Corporate Information Security Team

CIS Chief Technology Officer

- Emerging Technologies
- Data Loss Prevention

Deputy Chief Information Security Officer

- Regional CIS Director EMEA
- Regional CIS Director APAC
- Governance & Program Management
  - Policy & Controls
  - Business Support
    - Information Security Officer (ISO) Network
  - Client Support
  - Third-party Risk Assessment

Security Operations & Threat Intelligence

- Managed Security Services
- Cyber Incident Response
- Security Analysis
- Threat Intelligence

Security Engineering

- Security Engineering
- Access Management
- Vulnerability Management
- Red/Blue Test Teams

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: Investment Advisory Council
Member Appointment

ACTION: X

INFORMATION: ________

DATE: September 20, 2019

BACKGROUND:

AS 37.10.270 provides that the Alaska Retirement Management Board (Board) may appoint an investment advisory council (IAC) composed of at least three and not more than five members. Members shall possess experience and expertise in financial investments and management of investment portfolios for public, corporate, or union pension benefit funds, foundations or endowments. The IAC members are under contract to provide advisory services to the board and its staff. The current three advisory positions are designated by areas of expertise specified by the Board: an academic advisor, an advisor with experience as trustee/manager of a public fund or endowment, and an advisor with experience as a portfolio manager. IAC members currently attend Board meetings, an annual manager review meeting, and the annual education conference (when this event is hosted).

At its April 5th meeting, the Board directed staff to initiate a solicitation for applications for a position on the IAC. The term of IAC member Robert Shaw expired June 30, 2019. Staff advertised the IAC position in Pension & Investments magazine (print and online), the DOR Treasury and Board websites, and the State of Alaska Online Public Notice System. Nine applications were received from qualified applicants. A selection committee was appointed by the Chair to review the applicants and make a recommendation of top applicants for the Board to interview and potentially select from. Trustees Tom Brice, Bob Williams, and Gayle Harbo were appointed to the committee.

STATUS:

Seat One which has the following description and is the seat to be filled: *The candidate shall possess experience and expertise in financial investments and management of investment portfolios for public, corporate or union pension benefit funds, foundations or endowments. Preference will be given to candidates with a minimum of ten years' experience as a manager/director or trustee of a pension or public fund of $10 billion or more in market value.*

The IAC selection committee met by teleconference on July 17, 2019. The individual committee members provided their scores for each applicant, and engaged in discussion of individual scoring, rationale and recommendations. Today, he three applicants interviewed by the Board received the highest scores.

RECOMMENDATION:

That the Board appoint ________________________ to a three-year term on the IAC, commencing after the acceptance of the position by contract and based on the terms and conditions set forth in RFS 19-009.

PUBLIC COMMENT LETTER:

Attached is a letter from Mr. Nils Andreassen, Alaska Municipal League Executive Director. There was a staff communication error and Mr. Andreassen was present at the meeting in Juneau, AK, but unable to give his testimony. He was gracious enough to send it as a letter for the ARMB Trustees and it has been added to the September Board of Trustees packet.

ALASKA MUNICIPAL LEAGUE

ONE SEALASKA PLAZA, SUITE 200 • JUNEAU, ALASKA 99801
TEL (907) 586-1325 • FAX (907) 463-5480 • WWW.AKML.ORG

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September 19, 2019

Public Testimony

Thank you to the ARM Board for its continued good work on behalf of public employees in Alaska, and for working to fulfill the constitutional obligations of the State in support of public pensions. I would like to offer the following testimony on behalf of the Alaska Municipal League, a membership organization for local governments in Alaska, many of whom participate in PERS.

To begin with, and to speak from an operational perspective: this week's meeting packet wasn't available until the day before the meeting, from what I can tell, which made it difficult to review prior to the meeting and limited the public's ability to prepare more complete comments. Second, the meeting was scheduled at the same time as the Board of Education meeting in Anchorage, which makes it difficult for some PERS employers to participate. In fact, the period for public testimony occurred at approximately the same time.

I cannot comment on the proceedings of this current meeting, but did have a chance to review the June meeting minutes, and would offer the following:

- AML is concerned that Senate Finance presentations were paid for out of pension funds, and will request that in future years these be paid from either legislative or department budgets. Costs not directly attributable to management of plan assets or administration of the plan should not be a shared cost of plan employers.
- AML believes that good questions were raised during the June meeting about comparing and evaluating the management fees related to State investment portfolios (pension funds relative to the Permanent Fund, for instance) – and that accounting for cost vs. return – isn't unreasonable. We are also concerned that incentive-based components are not reported by the ARM Board and believe that this should be addressed.
- AML expresses concern that auto-escalation or any additional requirement of an employer contribution as part of the DC plan would be unreasonable given current past service rates and requirements that limit employer options in their contribution.
- AML is supportive of the conversations this board is having about when is an appropriate time to engage managers, especially if asset allocation is really what drives returns.
- AML is looking forward to resolution in December of the question that arose in June about the 350 basis points as a benchmark for private equity.

Finally, we support the continued expectation that the State of Alaska make an additional contribution on behalf of all employers and the sustainability of the pension system, including on behalf of non-State employers whose contribution is 22%.