State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
MEETING

Location:
Atwood Building
550 West Seventh Avenue
Anchorage, Alaska

MINUTES OF
September 20-21, 2018

Thursday, September 20, 2018

CALL TO ORDER

CHAIR ROBERT JOHNSON called the meeting of the Alaska Retirement Management Board (ARMB) to order at 8:59 a.m.

ROLL CALL

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

Board Members Present
Robert Johnson, *Chair*
Gail Schubert, *Vice Chair*
Gayle Harbo, *Secretary*
Tom Brice
Kristin Erchinger
Commissioner Sheldon Fisher
Norman West
Bob Williams - Arrived Late

Board Members Absent
Commissioner Leslie Ridle

Investment Advisory Council Members Present
Dr. William Jennings
Robert Shaw

Investment Advisory Council Members Absent
Dr. Jerrold Mitchell

Department of Revenue Staff Present
Bob Mitchell, Chief Investment Officer
Scott Jones, State Comptroller

Pamela Leary, Director, Treasury Division
Nicholas Orr, Manager of Real Assets
Stephanie Alexander, Board Liaison

Department of Administration Staff Present
Ajay Desai, Director, Division of Retirement and Benefits (DRB)
Christina Maiquis, Acting Chief Financial Officer, DRB (phone)

Consultants, Invited Participants, and Others Present
David Kershner, Buck Consultants
Craig Noble, Brookfield Private Advisors LLC
Richard Torykian, Brookfield Private Advisors LLC
Steve Center, Callan LLC
Paul Erlendson, Callan LLC
Andy Iseri, Callan LLC
Stuart Goering, Department of Law, Assistant Attorney General
Paul Burrastom, IFM Investors
Nick Moller, JP Morgan Asset Management
Jeffry Shields, JP Morgan Asset Management
Tony Dote Jr., Lazard Asset Management
Edward Keating, Lazard Asset Management
Ivy Flores, Legal & General Invt Mgmt America
Shaun Murphy, Legal & General Invt Mgmt America
Jim Chambliss, Pathway Capital
Canyon Lew, Pathway Capital
Kimberly Cook, State Street Global Advisors
Craig DeGiacomo, State Street Global Advisors
Karl Schneider, State Street Global Advisors
Chris Cunningham, The Townsend Group

PUBLIC MEETING NOTICE

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

APPROVAL OF AGENDA

MR. BRICE moved to approve the agenda. MR. WEST seconded the motion.

The agenda was approved without objection.

PUBLIC/MEMBER PARTICIPATION, COMMUNICATIONS, AND APPEARANCES

MS. ALEXANDER informed one communication is included in the packet and was provided by COMMISSIONER RIDLE. It is an email from the City Manager of Seward regarding a proposed amendment to the Public Employees' Retirement System (PERS) regulation.

APPROVAL OF MINUTES: June 22 - 23, 2018

MS. HARBO moved to approve the minutes of the June 22 - 23, 2018 meeting. MS. ERCHINGER seconded the motion.

The minutes were approved without objection.

STAFF REPORTS

1. RETIREMENT & BENEFITS DIVISION REPORT

CHAIR JOHNSON introduced Director AJAY DESAI, who provided the status report on the multi-year IT modernization project. The first step in the two-phase process is seeking an appropriate management firm that may have experience with public and private sectors' benefit plans, specializing in information technology and project management. The second step is utilizing the management firm to develop a Request for Proposal (RFP), to oversee the project process end-to-end, provide risk management, product verifications and validation. The budget has been appropriated in the FY19 capital budget. The initial public notice RFP was posted on the website on August 31, 2018, and closed in early September. The deadline for company selection is the first week in December.

Acting Chief Financial Officer CHRISTINA MAIQUIS advised the Membership Statistical Reports for FY18, through June 30, 2018, were included in the Board packet. She reviewed the decrease in active members by plan, the increase of retirements for PERS, and the decrease of retirements for Teacher Retirement System (TRS). MS. MAIQUIS presented the report on the actuarial expenses for the fourth quarter, ended June 30, 2018. The new items included in the report are the GASB 75 expenses, the increase between last year and this year, which she explained to be the difference in cost between GASB 74 and GASB 75. Requests and expenses for the miscellaneous House Finance Committee line item are covered under general funding.

2. TREASURY DIVISION REPORT

A. ARMB FY20 Budget - Action

CHAIR JOHNSON invited Treasury Division Director PAMELA LEARY to present the Treasury Division Report. MS. LEARY commented on the Treasury's level of involvement during the fall, including planning for the education conference, attending December meetings, and creating the proposed budget. The action item before the Board today was reviewed during the Budget Committee meeting. The proposed 2020 budget will be presented to OMB and the Legislature in 2019. Attachments to the memo contain 2016 through 2018 actuals compared to the budget for FY 2018.

MS. LEARY advised the personal services cost line item will request an expansion of $700,000 to accommodate a support position, as well as personal services increases. The

Salary Review Committee specifically discussed these changes, which were spurred by the resignation of two investment officers. MS. LEARY noted the investment management fees have decreased by $3.9 million and is a direct result of the move to more internal management of investments within the Treasury.

VICE-CHAIR SCHUBERT, as Chair of the Budget Committee, moved to adopt the Fiscal Year 2020 Proposed Budget as attached, with the understanding that components will be subject to appropriation by OMB and the Legislature.

VICE-CHAIR SCHUBERT reported an extensive discussion in yesterday's Budget Committee meeting. It was determined that staff will develop a compensation plan to establish peer-based salary ranges for each exempt position and for each level within each position. As Chair of the Committee, she requested the Commissioner of Revenue discuss the proposed plan with the Salary Review Committee prior to the December Committee meetings. Additionally, as Chair, she requested current furloughs be eliminated. A resolution is in draft to create an Operations Committee that combines committees, and adds responsibilities to the current Budget and Salary Review Committee relating to policy and procedures. VICE-CHAIR SCHUBERT commented on the discussions regarding the recent departure of two staff members. She noted the importance of remaining competitive to ensure excellent staff is recognized for their contributions and maintained.

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

COMMISSIONER FISHER informed action will be taken between now and the December meeting regarding immediate differences for some of the key employees. This will be in addition to and independent from the final comprehensive budget and salary proposal presented at the next Board meeting.

3. CALENDAR/DISCLOSURE

MS. ALEXANDER stated the disclosure memo is included in the packet and there are no transactions requiring additional review. The remaining 2018 calendar and the finalized 2019 calendar are also provided in the packet.

4. CIO REPORT

BOB MITCHELL, Chief Investment Officer (CIO), reviewed the report entitled Summary of Portfolio Moves. He apologized for not including the additional column referencing the authority for each transaction, as requested by CHAIR JOHNSON. MR. MITCHELL gave a general description and noted his intent to include explicit allocations in future reports. His authority for the transactions in this report comes primarily from three sources:

- Resolution 2017-05, Delegation of Authority to the CIO, which allows the CIO to adjust asset allocation within Board-approved parameters;
- Resolution 2012-07, Rebalancing Policy, which gives the CIO discretion to adjust the asset class weights within the Board-approved bands;
- Board actions and specific direction to staff.

MR. MITCHELL provided a summary of the 53 items contained in the report. There were a total of nine rebalancing transactions during the months of June, July, and August relating to liquidating assets to satisfy outflows for the Military Fund, equalizing the relative weights of all the plans, and receiving the annual additional State contribution. The collective amount received this year was about $268 million. Approximately $250 million of that was invested into fixed income to cover the underweight to fixed income.

MR. MITCHELL explained the next section; Futures Rolls and Adjustments. Items 2 and 3 were rolled future positions in the Cash Equitization Program. Items 3 and 4 were the corresponding rolls of the futures positions in the Portable Alpha Program. Items 6 through 8 are small adjustments to the hedging positions. Item 9 contains multiple relative small adjustments to the cash positions in the margin accounts required for the futures positions.

MR. MITCHELL characterized the impact of the rebalancing transactions. Items 10 through 41, under Investment Actions moved the broader portfolio closer to the strategic asset allocation. The investment manager liquidations are the continuation of previous Board decisions. MR. MITCHELL reported a net outflow during June through August of approximately $60 million, which was comprised of only employer contributions less benefit payments, and does not include the additional State contribution. MR. MITCHELL discussed the two asset classes that did not move closer to their strategic asset allocation during this period were private equity and international equities. Performance in private equity was greater relative to the rest of the portfolio and its balance increased over time. International equities were overweight the strategic target by almost 1% during June and were reduced. Subsequent to the reductions, the international market underperformed the broader portfolio, which resulted in the current underweight to international equities.

MR. WEST asked if there was a net movement from outside investment managers to internally managed accounts. MR. MITCHELL stated that movement was not specifically tracked. He did not recall any meaningful allocation to internally managed equity strategies during this period.

MR. WILLIAMS requested additional information regarding the approximations of the futures rolls and adjustments. MR. MITCHELL noted the approximations are representative of the values because of the nature of the executions. The Board can be provided with the exact data. The instructions for the Cash Equitization Program are more precise on the number of contracts in which to engage while the market is moving. The exact amount is known after-the-fact. The Portable Alpha Program has a long position in the S&P 500 E-Mini future and a short position in its corresponding small cap portion of the Russell 2000. The instructions are to trade those contracts based on a relationship between the two contracts. The execution is specified with the intent to manage the impact to relative performance.

CHAIR JOHNSON emphasized the importance for the Board to be aware of the level and amount of transactions that occur pursuant to Board delegations to Department of Revenue staff. CHAIR JOHNSON expressed appreciation to MR. MITCHELL for his explanation of the source of delegation, as well as the descriptions of the separate transactions.

MR. MITCHELL continued the presentation describing Items 42 and 43 under Watch List. He explained a manager can be terminated by the ARMB at any time. Staff diligently reviews managers on an ongoing basis. Placing a manager on the watch list is part of a disciplined process. The criteria considered are contained in resolution. The qualitative criterion centers around the departure of key personnel, organizational changes, change in ownership, or intensified legal issues. The quantitative criterion focuses on lagging performance. A manager will be recommended for the watch list based on performance if they underperform their benchmark and style by more than 1% over a six-year period, and if they underperform more than 65% of their peers.

MR. MITCHELL recommended Lazard Emerging Markets Equity be placed on the watch list for performance reasons. Staff believes the strategy has been out of favor in an extreme way and the magnitude of Lazard's underperformance has been significant, warranting a watch list recommendation. MR. MITCHELL informed the ARMB had three emerging market equity managers. One manager was terminated at the previous meeting and the remaining two are underperforming.

<u>MS. HARBO moved to place Lazard Emerging Markets Equity on the watch list. COMMISSIONER FISHER seconded the motion.</u>

COMMISSIONER FISHER expressed concern about the emerging market sector. He requested a future discussion by staff and Callan regarding the nature of the out-of-favor characterization and a suitable way to approach the sector.

VICE-CHAIR SCHUBERT inquired as to the possibility of termination of the mandate. MR. MITCHELL suggested emerging markets is in a unique time where a narrow component of the index, primarily Chinese internet platforms, is dramatically outperforming. Active management in emerging markets has been challenged over the past couple of years. Managers who are underweight the Chinese internet platforms will lag the benchmark. MR. MITCHELL described the long periods of narrowness in the market have historically corrected. MR. MITCHELL has no concerns regarding Lazard as an asset manager or the approach in the long-term. His bias is to give Lazard more time to let the market adjust.

CHAIR JOHNSON asked what makes putting Lazard on the watch list distinctive from the challenges the remaining manager is experiencing. MR. MITCHELL explained the other emerging market manager is underperforming, but does not have a six-year track record to trigger the quantitative criterion for the watch list. Staff is in the process of engaging in two manager searches, one for an emerging market growth manager to replace the firm that was terminated, and one for an emerging market China-only manager to diversify the exposure within China.

MR. WILLIAMS commented the plan is paying higher fees for active management of emerging markets and the managers are underperforming their benchmarks. He noted a passive indexing would be outperforming the current returns. MR. WILLIAMS requested the rationale for maintaining active management in emerging markets. MR. MITCHELL informed the plan currently has exposure to passive international equities, combined developed and emerging markets. He does not have the exact breakdown between passive and active, but will provide it at a later date. A presentation will be given today, as a result of discussion at the June meeting, to split the existing passive exposure in international equities to separate mandates for developed international and emerging markets. MR. MITCHELL believes emerging markets are less efficient and have a better chance of outperforming the benchmark with active management. STEVE CENTER of Callan LLC advised Callan typically recommends active management over passive management in emerging markets and Callan's research shows consistent outperformance by active management in this area.

MR. WEST requested further information on the next steps once the manager is placed on the watch list. MR. MITCHELL explained if subsequent developments are such that staff changes their view on the markets going forward or the ability of the manager to outperform, staff would come before the Board recommending termination. If the manager heals their performance, staff will come back before the Board and recommend the manager be taken off the watch list. There are currently four managers on the watch list. MR. WEST asked if staff provides regular reports to the Board showing who is on the watch list and for what period of time. MR. MITCHELL noted he would be happy to start providing a report as such.

MR. WEST suggested the watch list criteria need reasonable adjustment to accommodate for managers who do not have a six-year track record, rather than being exempt for six years. He noted the possibility of the ARMB refraining from investing with managers who do not have a history of at least six years.

CHAIR JOHNSON noted the Board previously has worked through issues relating to the application of the watch list criteria and he believes it may be time for staff to revisit the issues during a presentation to the Board.

MR. SHAW advised the watch list is a formal process of notification to the manager, as well as informing the Board regarding issues that have surfaced. The six-year performance cycle measurement is within the appropriate time period of a market cycle. MR. SHAW believes the emerging markets conversation is important. He agrees having some passive exposure in emerging markets makes sense. MR. SHAW commented emerging markets are hitting a point of pain in underperformance that may lead to desire to terminate a manager. He believes that could be a regrettable decision in the long-term. MR. SHAW gave the example that active large cap US managers in 1998 and 1999 were doing very poorly versus the index, and then three or four years later, most of those managers were strongly outperforming.

MS. ERCHINGER reiterated managers can be terminated at any time. She wanted to ensure it was clear that managers are not left to languish for six years after being placed on the watch list and then terminated.

A roll call vote was taken, and <u>the motion passed unanimously.</u>

MR. MITCHELL informed staff recommends placing Paamco Prisma on the watch list for qualitative reasons. The two co-CEOs of the business are stepping back and filling advisory roles, and a new six-person executive team will be running the day-to-day operations of the firm. Staff has conducted due diligence and there are no concerns that would warrant anything beyond a watch list recommendation at this point.

MS. HARBO moved to place Paamco Prisma on the watch list. MS. ERCHINGER seconded the motion.

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

MR. MITCHELL continued under Other Actions, and explained Items 44 through 49 reflect implementations of previous Board decisions. Items 50 through 52 relate to participant inquiries. Two of the participants inquired about the combination of the interest income and stable value fund into one stable value fund. MR. MITCHELL believes staff successfully answered all the questions.

MR. MITCHELL informed the third participant specifically requested the ARM Board divest of a handful of stocks that were benefitting or getting federal government business involved with separating families at the border. MR. MITCHELL explained staff contacted Assistant Attorney General STUART GOERING and received counsel on how to most thoughtfully and effectively respond. The summary of the response is included in the packet. Lastly, MR. MITCHELL announced Item 53 is the successful replacement of one of the two recent staff vacancies, filled by a member of the internal equity team.

CHAIR JOHNSON inquired regarding participant reaction to the manager change-over for the socially responsible fund. MR. MITCHELL stated he is not aware of any responses.

5. FUND FINANCIAL PRESENTATION

CHAIR JOHNSON introduced State Comptroller SCOTT JONES and MS. MAIQUIS to present the Fund Financial Report. MR. JONES advised the Fund Financial Report as of July 31, 2018, was included in the packet. There were no questions. MR. JONES noted as of August 31, 2018, the PERS plan was at $19 billion, TRS was at $9.2 billion, Judicial Retirement System (JRS) was at $218 million, National Guard and Naval Militia Retirement System (NGNMRS) was at $41 million, SBS was at $4 billion, Deferred Comp was at $972 million. The total nonparticipant-directed plans were at $27 billion and the participant-directed plans were at $6.5 billion, for a total of $33.5 billion. Year-to-date investment income was $991.5 million, with a net inflow of $37.5 million. The plans were up roughly 3.16%, and approximately 3% of that was due to investment income.

MS. MAIQUIS reported total contributions during the quarter for the funds were $359 million and expenses were $194 million. The State of Alaska column shows the additional contributions for PERS, TRS, and JRS, totaling $268 million. The NGNMRS received $851,000 in funding. There were no questions.

REPORTS

6. CHAIR REPORT

CHAIR JOHNSON reported on his significant interface with staff regarding the creation of the Operations Committee referenced earlier by VICE-CHAIR SCHUBERT. The proposal is to combine the responsibilities of both the Budget Committee and the Salary Committee, and add additional responsibilities regarding policies and procedures. The proposed charter is being drafted to ensure the existing resolutions from each of the committee are consolidated and adopted. A resolution proposing the creation of the Operations Committee is likely to be presented to the Board at the December meeting.

CHAIR JOHNSON expressed his great appreciation for the efforts of MR. MITCHELL and staff, particularly for applying review and compliance measures to ensure mandates are being followed.

7. COMMITTEE REPORTS

A. Audit Committee

CHAIR JOHNSON, as Chair of the Audit Committee, informed the Audit Committee met yesterday and heard presentations by KPMG and DRB. KPMG's DAN MITCHELL will be leaving and his colleague BECKY STUART from the Seattle office will become the ARMB's representative. KPMG reviewed their attentive and skeptical risk assessment process and all appears to be in order. A clean opinion is expected.

CHAIR JOHNSON noted DRB is engaged in various field audits among subdivisions and the process is advancing, as planned. An amendment is proposed to the Charter adding the sentence, "The Chair of the Committee shall be the primary contact with the external auditors between meetings of the Committee, if communications between the external auditors and the Committee are deemed necessary or desirable."

VICE-CHAIR SCHUBERT moved to amend the Audit Committee Charter Section 2B, adding the sentence, "The Chair of the Committee shall be the primary contact with the external auditors between meetings of the Committee, if communications between the external auditors and the Committee are deemed necessary or desirable." MS. HARBO seconded the motion.

The motion passed with no objection.

B. Actuarial Committee

MS. ERCHINGER, as Chair of the Actuarial Committee, noted the bulk of the report will be presented during agenda Item 9. She informed the proposed State assistance contributions for FY20 for PERS is $159 million and TRS is $141 million. Buck reported those contribution amounts are consistent with expectations. The PERS overall employer contribution rate for the DB Plan is 28.62% for FY20, compared with 27.58% for FY19. The TRS overall employer contribution rate is 30.47 for FY20, compared with 28.90% for FY19. The current assumption rates were used in the calculations for FY20. Beginning in FY21, the new assumptions rates, based on the most recent experience study, will be used in the calculations.

C. Defined Contribution Plan Committee

MR. WILLIAMS reported the Defined Contribution Committee met yesterday and heard a presentation by KATHY LEA, Chief Pension Officer, which included updates on effective plan communication and member engagement. MR. WILLIAMS informed the State's deferred compensation option, which is open now to school districts, municipalities, and others, has continued its slow response with only 10 signing up. MR. WILLIAMS believes additional work needs to occur to obtain higher participation rates for member access.

MR. WILLIAMS noted information was presented by MR. MITCHELL, SHANE CARSON, and representatives from T.Rowe Price exploring multiple strategies that could be provided as future options for DC members. Examples of the strategies included level income, staged graduated income, purchasing power preservation, maximum flexibility with liquidity and portability, and survivor benefit preservation. Discussion occurred outlining the differentiators between retail pricing and institutional pricing. MR. MITCHELL was encouraged with the level of discussion at this early stage.

D. Budget/Salary Committee

VICE-CHAIR SCHUBERT noted the report she provided earlier was complete. She reiterated a recommendation for the proposed Operations Committee will be brought before the Board.

MS. ERCHINGER commented on the concerns expressed yesterday regarding staff turnover and the consistent theme of needed support for sufficient incentives to attract and retain the high caliber key personnel in both the Department of Revenue and Department of Administration. She requested a future agenda topic to review best practices in other states regarding pension plan organizational structure, primarily with respect to salaries and the ability to attract and retain personnel. MS. ERCHINGER discussed a strict personnel payroll schedule based around a government structure may lack the flexibility that is necessary.

CHAIR JOHNSON agreed the subject warrants discussion. He referenced it would be helpful to review legislative archives, and specifically the proposed legislation to create a pension fund akin to the Permanent Fund, embracing the functions of DOA and DOR.

E. Alaska Retiree Health Plan Advisory Board

MS. HARBO, ARMB Advisory Board member, informed the August 29th Committee meeting was coordinated the day after Aetna's quarterly meeting in Juneau. The seven-member Committee maintains four meetings annually, and includes this one face-to-face meeting. MS. HARBO described the update Aetna gave on current claims, issues, and major cost areas. DRB provided the first of its Tele-Town Hall meetings in August and the second one is being held today. The topic in August addressed the Employee Group Waiver Program (EGWP). There were 4,000 retirees who registered and over 1,000 people participated. Retirees had to register using a land line phone. MS. HARBO commented the Division did an excellent job. A fact sheet about EGWP was provided prior to the meeting and Chief Health Policy

Administrator EMILY RITCHIE answered all the questions. The survey received after the first call was positive.

MS. HARBO advised the new pharmacy benefit manager OptumRx will continue to provide information to retirees over the next few months. An RFP will go out soon for the third-party administrator (TPA) and will be awarded the summer of 2019, to begin service in January 2020. The current TPA is Aetna. MS. HARBO informed MARK FOSTER chaired a subcommittee that is reviewing at the Department's modernization plan. He provided a report on the progress and impact on stakeholders. The subcommittee will continue its analysis.

MS. HARBO noted the afternoon was devoted to discussion of EGWP. The final action of the Board was passed with unanimous vote a resolution to adopt and implement an enhanced EGWP, as outlined in the proposal. Details are on the website. MS. HARBO expressed appreciation to the entire staff of the health care group, COMMISSIONER RIDLE, and a special thanks to MR. FOSTER for his positive and productive work. MS. HARBO noted his term was complete in October and unfortunately, he will not be returning. The next meeting is scheduled by teleconference in November.

8. LEGAL REPORT

MR. GOERING noted there are two items of litigation being followed that may potentially impact the funds. The first item regards the Metcalfe v. State litigation, in which former employees who cashed out of their DB plans are asking for reemployment rights and the ability to reinstate in the DB plans. The summary judgment was issued by the Superior Court on June 14th, and since then, the plaintiffs have filed a notice of appeal. The case is pending briefing in the Supreme Court.

MR. WILLIAMS inquired as to the number of people who are part of this litigation. MR. GOERING explained the difficulties in answering that question. He noted one reason the Supreme Court sent it back to the Superior Court is it had not yet been certified as a class. It was certified as a class in the Superior Court. The class of people is undefined and it remains a real ambiguity about the Metcalfe case because there is really no way for the State to know how many of those people are still in the workforce, how many are still alive, how many would want to be employed, or even how many are eligible for reemployment.

MR. GOERING described the second case involving retiree dental changes. MR. GOERING advised the State had a setback in the sense the Court ruled the dental benefits were potentially subject to the Constitutional diminishment provision and that it was a factual issue about whether diminishment had actually occurred. This was the subject matter of the trial and it is currently pending decision in the Superior Court. Depending on the outcome, there may be an appeal. MR. GOERING will continue to provide updates to the Board.

CHAIR JOHNSON recessed the meeting from 10:22 a.m. to 10:36 a.m.

9. 2014-2018 EXPERIENCE STUDY

Action: Relating to Acceptance of Experience Study Actuarial Assumptions Resolution 2018-19

MS. ERCHINGER, as Chair of the Actuarial Committee, reported the Committee met yesterday. MS. ERCHINGER explained the Committee did not take action on Resolution 2018-19 because the resolution accepts the Experience Study, as well as the assumptions and method changes recommended therein. Concerns were expressed specifically about the change in inflation assumption that was used for the purposes of moving forward with the analysis. No formal action by the Board has been taken to accept the inflation assumption change from 3.12% to 2.5%. The Committee requested Callan to opine before the full Board regarding the inflation assumption change.

PAUL ERLENDSON of Callan, LLC noted discussions occurred at the previous Board meeting suggesting Callan's 10-year and longer-term inflation outlook is 2.25%. The inflation expectation for 2018 could spike around 2.6%. MR. ERLENDSON discussed the uptick in energy prices are driving the Consumer Price Index (CPI) this year. He explained the macro-economic forces going forward are not expected to continue the wage growth that was seen this year.

MR. ERLENDSON explained the 2.25% is Callan's midpoint range for longer periods of time, even though over smaller segments of time, the inflation rate may deviate markedly from close to zero, as it was just a few years ago, to as high as 3.75%. For modeling purposes, the midpoint of 2.25% is used, but the range could be plus or minus 1.5% around that number. MR. ERLENDSON reported Callan utilizes a separate firm as a second opinion regarding their assumptions. That firm's projected 10-year inflation outlook is at 2.15% and the longer-term inflation outlook is at 2.2%.

COMMISSIONER FISHER commented on his recollection that Buck's summary of inflation assumptions contained a range of opinions with 2.25% at the low end and into the 3% range at the high end. COMMISSIONER FISHER indicated the 2.5% inflation assumption was in the middle of the range and that is part of the reason he was comfortable with change.

MS. ERCHINGER agreed the discussions at the previous meeting contained inflation ranges, which appeared to give comfort to moving in the direction of a 2.5% inflation assumption. The experience analysis was prepared using the 2.5% inflation rate. MS. ERCHINGER reiterated the real return assumption is not changing from the current 4.88%. The target return decreases from the previous 8% to the current 7.38%, because the inflation assumption decreased from 3.12% to 2.5%. The recommended economic assumption changes would go into effect in FY21 and would not impact the FY20 rates that will be approved later today.

MS. ERCHINGER summarized the additional recommended economic assumption changes contained in the Experience Study:

- Remove the administrative fees from the investment return target calculation and add them as an explicit cost to the normal cost each year;
- Reduce the payroll growth rate from 3.62% to 2.75%;
- Reduce the salary trend rates based on actual experience;

- Increase the ultimate trend rate from 4% to 4.5%;
- Increase real GDP growth rate expectation from 0.88% to 2%.

MS. ERCHINGER reviewed the recommended demographic assumption change contained in the Experience Study:

- Initiate use of the RP24 with MP 2017 generational improvement mortality tables for PERS and TRS.

MS. ERCHINGER reviewed the recommended funding method changes contained in the Experience Study:

- Replace the closed 25-year amortization period for the unfunded liability to a layered approach by reopening a new amortization period for each year's unfunded liability addition;
- Replace the level dollar amortization method for healthcare costs with the level percentage of pay method.

MS. ERCHINGER requested a written opinion from the Attorney General's (AG) Office through MR. GOERING regarding the proposed change in the amortization method of the unfunded liability, specifically addressing if the ARMB should make this change and if the ARMB is allowed to make the change.

<u>MS. ERCHINGER moved the Alaska Retirement Management Board approve Resolution 2018-19, the Public Employees Retirement System, Teachers' Retirement System, Judicial Retirement System, and Alaska National Guard and Naval Militia Retirement Systems actuarial experience analysis, as of June 30, 2017, and the assumption and method changes recommended therein prepared by Buck. MS. HARBO seconded the motion.</u>

MR. WEST noted the report includes the recommendation to use a layering amortization approach. MR. WEST believes the recommendation needs to be specifically excluded.

<u>MR. WEST made a motion to amend Resolution 2018-19, excluding the adoption of the proposed UAAL amortization methodology. MS. HARBO seconded the motion.</u>

COMMISSIONER FISHER commented his take-away from the meeting yesterday was the view that the real decisions underlying the Experience Study were to be left open for a future meeting. COMMISSIONER FISHER requested clarity on the motion before the Board because it seems to adopt the study and all of the assumptions within it.

MS. ERCHINGER noted she specifically remembers MR. WEST's comments with respect to the layered approach and agreeing to follow up through the AG's Office. She remembers discussing wanting to have Callan speak about the reasonableness of the inflation assumption before the vote today.

MR. WEST recollected discussing the impact of the timeframe for adopting the recommendations. He noted it was suggested the analysis could be accepted without accepting the assumptions. MR. WEST commented he understood MS. ERCHINGER wanted the Board to specifically agree to and adopt the 2.5% inflation rate as a separate and distinct motion, rather than combining the inflation rate with any other items to be approved.

MS. HARBO made a motion to table the adoption of Resolution 2018-19 to the December Board meeting.

A roll call vote was taken, and the motion to table the adoption of Resolution 2018-19 to the December Board meeting passed unanimously.

COMMISSIONER FISHER informed MS. ERCHINGER encouraged him to think deeply about his concerns and come prepared today to continue the discussion. COMMISSIONER FISHER provided a thorough description of his concerns. He referenced an answer given by Buck that a table in the document with a list of forecasted State assistance payments would not change at all if the layering amortization method was adopted. COMMISSIONER FISHER reflected and does not believe it is accurate that no change would occur, because the Experience Study would result in approximately $1.2 billion of a new unfunded liability, which would be layered over a 25-year period. COMMISSIONER FISHER requested Buck create the table using the inputs if the layering method was adopted and show the results to the Board.

COMMISSIONER FISHER referenced the discussion about EGWP and believes Buck suggested it could be an improvement to the unfunded liability of between $500 million and $700 million. COMMISSIONER FISHER requested the schedule be revised to show the benefits of EGWP. He believes this information will be helpful to policy-makers.

COMMISSIONER FISHER requested the history of layering utilized by the ARMB in the past be presented to the Board. This will be in addition to the layering opinion provided by MR. GOERING. COMMISSIONER FISHER requested the legal opinion include any legislative history as to whether or not this was a topic that was discussed.

COMMISSIONER FISHER described his last concern is with the healthcare trend assumption and it seems counterintuitive. He asked for additional explanation regarding the underlying elements to ensure the Board is comfortable that the trend assumption is reasonable.

MS. ERCHINGER expressed appreciation to COMMISSIONER FISHER and MR. WEST for refreshing her memory. She apologized for having forgotten the agreement yesterday was to table this issue.

MS. ERCHINGER explained she understood Buck's comments regarding the layered amortization approach for newly created unfunded liabilities was to use a new 25-year period to amortize just that year's unfunded liability. She commented continuing to amortize newly unfunded liabilities within the current 25-year closed period creates tremendous volatility. Reducing volatility in the final years of the plan is the reason for considering the layered amortization approach. MS. ERCHINGER requested additional information on best practices for amortization in closed plans.

MS. ERCHINGER suggested an explicit resolution regarding the inflation assumption change be brought before the Board at the December meeting. She agreed with COMMISSIOINER FISHER it is important to include EGWP in the estimation results to be reviewed at the December meeting. MS. ERCHINGER noted Buck informed a delay of accepting the assumption changes until December would not adversely affect their ability to provide rates to approve in time for the 2021 rate setting. She wanted to ensure the Board is aware of the challenges the delay is imposing on Buck.

MS. ERCHINGER requested MS. ALEXANDER to ask LESLIE THOMPSON of Gabriel Roeder Smith to reiterate her overall summary of their acceptance of the experience analysis and include it in the December meeting packet.

MR. BRICE requested Resolution 2018-19 explicitly state and define the assumptions and method changes recommended therein to clearly establish the record. CHAIR JOHNSON asked if an attached chart of critical changes would be appropriate. MR. BRICE agreed an appendix could be used.

DAVID KERSHNER, Buck Consultants, informed staff will prepare charts clarifying the trend rates, as requested by COMMISSIONER FISHER. MR. KERSHNER explained even though the inflation rate has lowered from 3.12% to 2.5%, the ultimate trend rate is increasing, but this is partly due to how the prior ultimate trend rate was set. There is inconsistency between how the trend rate was set and how it is being set now, based on the Getzen model. The 4.5% from the Getzen model is the proposed inflation rate of 2.5% and the assumed real GDP growth of 2%. MR. MITCHELL noted the trend rate converges to the GDP assumption over the longer-periods of time.

MR. KERSHNER clarified his comment yesterday regarding the layered approach having no impact because the change would be prospective only, starting June 30, 2018. The new layer would be created effective June 30, 2019, and any deviation from the expected change in unfunded liability that occurs between June 30, 2018, and June 30, 2019, would then be amortized on a layered approach. However, if the Board decided to implement the layered approach effective June 30, 2018, the projected additional State contributions would be impacted.

MR. KERSHNER commented that even though the DB plans are closed, there is a substantial amount of tail-end to the plan. The current benefit payments are about $1.2 billion. The expected benefit payments that are payable to existing retirees and future retirees from the current active population are expected to peak in 2039 at about $2.5 billion and decrease to about $2.2 billion by 2047. Under the current assumptions, the actuarial liability for PERS is just under $22 billion. It is expected to peak in 2039 at just under $27 billion, and then tail off by 2047 to about $17 billion.

10. ACTUARIAL RESOLUTIOINS - FY20 CONTRIBUTION RATE SETTING

Information: History of PERS/TRS Employer Contribution Rates

Action: Relating to FY20 PERS Contribution Rate
Resolution 2018-07

MS. ERCHINGER noted the Actuarial Committee did accept each of the next resolutions at the meeting yesterday and recommends them for approval by the full Board.

MS. ERCHINGER, as Chair of the Actuarial Committee, moved to accept Resolution 2018-07, relating to the FY20 actuarially determined contribution rate attributable to employers participating in the Public Employees Retirement System, with the rate set at 28.62%, composed of the contribution rate for defined benefit pension of 18.29%, the contribution rate for post-employment healthcare of 4.89%, and the contribution rate for the defined contribution pension of 5.44%.

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

Action: Relating to FY20 PERS RMMI Contribution Rate
Resolution 2018-08

MS. ERCHINGER, as Chair of the Actuarial Committee, moved to approve Resolution 2018-08, setting the FY20 employer contribution rate for the retiree major medical insurance for the Public Employees Defined Contribution Retirement Plan at 1.32%.

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

Action: Relating to FY20 PERS ODD Contribution Rate
Resolution 2018-09

MS. ERCHINGER, as Chair of the Actuarial Committee, moved to approve Resolution 2018-09, relating to the FY20 employer contribution rate for Public Employees Defined Contribution Retirement Plan occupational death and disability benefit rates, which would set the FY20 employer contribution rate for the Public Employees occupational death and disability benefit at 0.72% for peace officers and fire fighters, and at 0.26% for all other Public Employees Defined Contribution Retirement Plan employees.

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

Action: Relating to FY20 TRS Contribution Rate
Resolution 2018-10

MS. ERCHINGER, as Chair of the Actuarial Committee, moved to approve Resolution 2018-10, relating to the FY 20 employer contribution rate for the Teachers Retirement System, which would set the rate for FY 20 of the actuarially determined contribution rate attributable to employers participating in the Teachers Retirement System at 30.47%, composed of the contribution rate for the defined benefit pension of 20.71%, the contribution rate for post-employment healthcare at 3.91%, and the contribution rate for defined contribution pension of 5.85%.

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

**Action: Relating to FY20 TRS RMMI Contribution Rate
Resolution 2018-11**

MS. ERCHINGER, as Chair of the Actuarial Committee, moved to approve Resolution 2018-11, relating to the FY20 employer contribution rate for Teachers Defined Contribution Retirement Plan retiree major medical insurance rate, which would set the FY 20 employer contribution rate for the retiree major medical insurance for the Teachers Defined Contribution Retirement Plan at 1.09%.

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

**Action: Relating to FY20 TRS ODD Contribution Rate
Resolution 2018-12**

MS. ERCHINGER, as Chair of the Actuarial Committee, moved to approve Resolution 2018-12, relating to the FY20 employer contribution rate for the Teachers Defined Contribution Retirement Plan occupational death and disability benefit rate, which would set the FY20 employer contribution rate for the Teachers occupational death and disability benefit at 0.08% for all Teachers Defined Contribution Retirement Plan employees.

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

**Action: Relating to FY20 NGNMRS Contribution Rate
Resolution 2018-13**

MS. ERCHINGER, as Chair of the Actuarial Committee, moved to approve Resolution 2018-13, relating to the FY20 contribution amount for the Alaska National Guard and Naval Militia Retirement System, that the FY20 contribution amount for the State of Alaska Department of Military and Veterans Affairs to the Alaska National Guard and Naval Militia Retirement System be set at $860,686.

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

Information: JRS Contribution

MS. ERCHINGER advised the informational item of the JRS contribution of 74.42% is included in the Board packet. The action was taken by the Commissioner and does not require action of the Board.

CHAIR JOHNSON expressed appreciation to MS. ERCHINGER and the Actuarial Committee for their hard work.

11. REVIEW OF HEALTHCARE TRANSFORMATION STRATEGY

MR. MITCHELL introduced the subject matter noting staff began discussions about a year ago with McKinley Capital regarding their newly developed Healthcare Transformation Strategy. Staff conducted due diligence and came to the conclusion there was merit and warranted further consideration by the ARM Board. As a normal practice with a new mandate and a new active manager, it is appropriate for Callan to conduct a review of the strategy. Staff also believes additional scrutiny is deserved because the mandate is unfunded and ARMB would be the first investor.

MR. MITCHELL reviewed that McKinley presented the main features of the strategy at the last meeting with the anticipation to place the strategy within the global equity component of the portfolio. MR. MITCHELL noted the Board will hear today that Callan would prefer to place the strategy within the opportunistic component of the portfolio. After Callan's presentation, staff is prepared to recommend an action to invest $250 million in the Healthcare Transformation Strategy within the opportunistic asset class.

CHAIR JOHNSON commented Alaska recently lost an important figure, BOB GILLAM, the founder and CEO of McKinley Capital. MR. MITCHELL agreed the passing of MR. GILLAM was a significant event. He expressed no concerns regarding succession arrangements, as ROB GILLAM has been CEO for about a decade. Staff is monitoring the situation. MR. MITCHELL encouraged the Board to seek Callan's views on this occurrence.

MR. ERLENDSON commented succession planning of leadership, intellectual wisdom and ownership of the firm is important. He believes McKinley Capital's succession plan is extensive and deliberate for BOB GILLAM. MR. ERLENDSON noted the succession plan for ROB GILLAM, who is to become the new principal shareholder and thought leader, will have to be reviewed going forward.

MR. ERLENDSON described the critical evaluation considerations Callan used in its analysis process of the Global Healthcare Transformation Strategy:

- Soundness of the firm;
- Team structure;
- Investment premise and viability;
- Characteristics of the strategy;
- Potential merits and considerations of the strategy;
- Possible placement with the ARMB portfolio.

MR. ERLENDSON summarized the goal of the analysis is to provide a framework where a reasonable person could conduct the appropriate due diligence and reach a conclusion based on the set of criteria that people from different perspectives could determine if the strategy meets or fails to meet the critical evaluation considerations. MR. ERLENDSON introduced his colleague ANDY ISERI, who led the investigation. The report has additionally been reviewed by multiple personnel within Callan.

MR. ISERI gave a detailed description of Callan's assessment of each of the six critical evaluation considerations. Based on the findings from this evaluation process and materials provided by McKinley, Callan does not believe an allocation to the Global Healthcare Transformation strategy is appropriate for the global public equity portfolio because Callan does not typically recommend tilts for the public equity portfolio. Callan does, however, believe an allocation to the Global Healthcare Transformation strategy is viable as an opportunistic allocation within the defined benefit plans.

MR. ISERI conveyed the investment case is very compelling and Callan recognizes McKinley is well-aligned to capture this single-themed tactical strategy. MR. ISERI explained special attention should be given to idea-generation with the strategy as a signal of continued viability in investment opportunities in this single-themed strategy.

MR. MITCHELL informed McKinley offered ARMB benefits for being the initial capital investor. These were the subject of executive session at the last meeting.

MR. WILLIAMS requested additional information regarding Callan's opinion on McKinley's declining assets under management (AUM) since 2007. MR. ISERI explained declining AUM is a concern, but the fact that $4.6 billion AUM still remains is positive compared to other momentum managers.

MR. SHAW inquired as to Callan's opinion what metrics should be used for performance evaluation and the designation of an appropriate benchmark. MR. ISERI agreed evaluation will be difficult because there is no clear benchmark. He suggested using the ACWI IMI for evaluation. MR. ERLENDSON commented using the broad market benchmark will show if the strategy is outperforming and adding value. Using the ETF benchmark will show how well the strategy is being implemented.

VICE-CHAIR SCHUBERT moved to allocate $250 million amount to McKinley Global Healthcare Transformation Fund. MR. WILLIAMS seconded the motion.

A roll call vote was taken, and the motion passed, with CHAIR JOHNSON voting against.

CHAIR JOHNSON instructed staff to move forward with appropriate negotiations.

CHAIR JOHNSON recessed the meeting from 12:02 p.m. to 1:15 p.m.

12. A. Real Assets FY19 Annual Plan

EXECUTIVE SESSION: 1:16 p.m.

MR. WILLIAMS moved to go into executive session for the purposes of discussing matters, the immediate knowledge of which could have an adverse impact on the value of the funds. MR. WEST seconded the motion.

The motion passed with no objection.

CHAIR JOHNSON called the meeting back to order at 2:26 p.m., and informed no decisions were made during executive session.

B. Consultant Evaluation of Real Estate Plan:
Diversification, Compliance, & Performance Measurement

NICHOLAS ORR, Manager of Real Assets, introduced real estate consultant CHRIS CUNNINGHAM of The Townsend Group, who presented the real estate performance over the last quarter. MR. CUNNINGHAM began with an overview of the current market. Townsend expects global economic growth throughout various developed countries will continue. This is likely to fuel higher inflation and consequently, lead to higher interest rates across the globe. Higher inflation and growth should be positive for real estate. Fundamentals remain strong in the US and valuations are pretty full. It is critical to be very selective in identifying and investing in the right subsectors and submarkets. Transactions across the board, except in the industrial properties, have slowed in the last year.

COMMISSIONER FISHER requested discussion regarding the point at which rising interest rates dampen real estate investments. MR. CUNNINGHAM noted there is no simple answer or specific interest rate that would severely impact returns. He referenced the substantial interest rate increases experience in the ‘80s would be bad, but he does not anticipate a rise to 17% is likely. MR. CUNNINGHAM explained there are many different factors in the market that could adversely effect real estate investments.

MR. CUNNINGHAM reviewed the plan is currently about $300 million above its real estate target. Townsend is comfortable with the current positioning and expects it to even out over time as changes are made. The portfolio has performed very well over the last 12 months, outperforming the benchmark by 90 basis points, which is $16.7 million in additional value to the fund.

COMMISSIONER FISHER asked if the comparison of the portfolio to the benchmark was net of fees or gross of fees. MR. CUNNINGHAM discussed the comparison is a gross number because the current benchmark NCREIF Property Index (NPI) is not investable. MR. CUNNINGHAM informed Townsend planned to recommend later in the meeting changing the benchmark going forward to the Open-End Diversified Core Equity Index (ODCE) because it is technically investable. The underlying funds that comprise the index are investable.

MR. CUNNINGHAM described the public portfolio is essentially passively investing through internal means in the REIT market. The portfolio is tracking the overall index very well and has had a reasonable return of almost 5% for the last year.

MR. CUNNINGHAM conveyed the private portfolio drives the majority of the collective returns, being over 90% of the total real estate performance of the portfolio. The returns in the core sector and non-core assets had strong recent performance. The annualized income return for the last five years was robust at 4.5%. MR. CUNNINGHAM noted the annualized rates of return have been decreasing and moderating during the last four years, consistent with other asset classes. Overall, Townsend is very pleased with portfolio performance.

MR. CUNNNGHAM reported all of the funded investments are in compliance with the required components. Townsend feels the single manager limit which is set at 45% is high and could be considered for revision. The portfolio's exposure to UBS remains high, but has been decreasing. Townsend will continue to discuss with staff the concerns of having a 30-year portfolio exposed to one manager.

MR. CUNNINGHAM reviewed the performance of the underlying separate accounts and the comprehensive core portfolio. He informed UBS Trumbull Property Fund has underperformed and is in the process of redeeming. LaSalle has underperformed the benchmark for all time periods. The remaining investments have performed reasonably well compared to the benchmark over all time periods. The recent investment in the BlackRock US Core Property Fund has been very strong for the quarter.

MR. CUNNINGHAM highlighted a chart showing most of ARMB's non-core commitments were made prior to the Global Financial Crisis and no investments were made during the recovery between 2009 and 2013, which means a large amount of capital was invested during an inopportune time. Townsend is advocating to consistently spread investments over all time periods and to be tactical with non-core investments, when appropriate. MR. CUNNINGHAM reported the plan is well-diversified within the real estate sector. Townsend agrees with the plan's current weightings; an overweight to apartments and industrial properties, and an underweight to office. The portfolio is well-diversified in geography, with a slight overweight to the Pacific Region.

MR. CUNNINGHAM informed Townsend agrees with the recommendations staff is making regarding the real estate portfolio. The recommendations are as follows:

- Decrease the core real estate allocation;
- Transition the separate account assets into open-ended funds;
- Increase the REIT allocation;
- Increase the non-core real estate commitments;
- Adopt a new investable benchmark to better reflect the overall peer set.

MS. ERCHINGER requested discussion regarding leverage now, as compared to before the Global Financial Crisis. MR. CUNNINGHAM explained the review of leverage includes multiple components such as availability, use, structure, covenants, interest rates, high loan-to-value ratios, prepayment terms, recourse debt, and cross-collateralization. Before the financial crisis, leverage use was excessive and there were non-real estate related reasons to hold a real estate asset, which were unfortunately driving decisions. MR. CUNNINGHAM believes the banks, other financial institutions, investment managers and investors have generally become more reasonable, conservative, and have heeded the lessons learned.

C. Adoption: Real Assets FY19 Plan & Policies
Board Discussion

MR. MITCHELL advised the ARM Board revisits its real assets plan each year and is manifested in a series of resolutions. MR. ORR described each of the recommended revisions for consideration.

The Real Estate Guidelines proposed to:

- Clarify that investment in private debt is permitted;
- Modify the total return requirements from 5% real return over rolling 5-year periods to a net-of-fee total return between public equities and fixed income over rolling 6-year periods;
- Change the benchmark from 90% NCREIF Property Index / 10% NAREIT Equity Index to 80% NFI-ODCE Index / 20% NAREIT Equity Index;
- Remove requirement for a minimum of three separate account managers.

MR. CENTER commented Callan is supportive of the recommendation by Townsend regarding the real estate benchmark changes.

MR. ORR continued his description of the recommendations.

The Farmland Guidelines proposed to:

- Modify the total return requirements from 5% real over rolling 5-year periods to a net-of-fee total return between public equities and fixed income over rolling 6-year periods;
- Change the allocation target from 80% row crop / 20% permanent crop to 50% row crop / 50% permanent crop;
- Allow for investments in OECD countries.

The Timberland Guidelines propose to:

- Modify the total return requirements from 5% real return over rolling 5-year periods to a net-of-fee total return between public equities and fixed income over rolling 6-year periods;
- Remove requirement for a minimum of two timberland advisors;
- Remove language indicating that all timberland investments will be managed via separate accounts.

The Infrastructure Guidelines propose to:

- Modify the total return requirements from 5% real return over rolling 5-year periods to a net-of-fee total return between public equities and fixed income over rolling 6-year periods;
- Remove language stating the "portfolio shall reflect the lowest expected risk profile required to achieve return objectives";
- Change benchmark to reflect the addition of CPI + 4 and the Alerian MLP Index to the Infrastructure benchmark composite and define inflation index as the CPI All Urban Index.

Action: **Real Assets FY19 Annual Plan**
Resolution 2018-14

VICE-CHAIR SCHUBERT moved to approve Resolution 2018-14, which adopts the Real Assets Annual Investment Plan for Fiscal Year 2019. MS. HARBO seconded the motion.

MR. BRICE expressed he will vote against the resolution. He appreciates the proposal and the suggestions, but is anxious about some of the big moves, including farmland offshore. MR. BRICE expressed concern at this particular time with the amount of information provided.

COMMISSIONER FISHER expressed strong support for the specific portfolio moves and the intent of increasing the returns closer to peer group return comparisons.

CHAIR JOHNSON requested staff to confirm the actual Investment Plan documentation that should be attached to the Resolution was complete. He asked for a motion to table this resolution until tomorrow to allow for clarification.

MR. BRICE moved to table Resolution 2018-14 until 9:00 a.m. tomorrow. MS. HARBO seconded the motion.

The motion to table Resolutions 2018-14 until 9:00 a.m. tomorrow passed with no objection.

Action: **Revised Investment Guidelines**
Resolution 2018-15 Real Estate
Resolution 2018-16 - Farmland
Resolution 2018-17 - Timber
Resolution 2018-18 - Infrastructure

VICE-CHAIR SCHUBERT moved to table Resolutions 2018-15 through 2018-18 until 9:00 a.m. tomorrow. MS. HARBO seconded the motion.

The motion to table Resolutions 2018-15 through 2018-18 until 9:00 a.m. tomorrow passed with no objection.

CHAIR JOHNSON recessed the meeting from 3:06 p.m. to 3:18 p.m.

13. PATHWAY CAPITAL

MR. MITCHELL informed Pathway Capital is one of the two gatekeepers for private equity utilized by the ARM Board. They were hired in 2002, and currently manage just over $1 billion in assets on behalf of the ARM Board. This represents approximately 43% of the $2.5 billion private equity portfolio. MR. MITCHELL introduced JIM CHAMBLISS, Managing Director of Pathway Capital. MR. CHAMBLISS advised he and his colleague CANYON LEW, Managing Director, will present to the Board today. MR. CHAMBLISS described Pathway as a private equity gatekeeper, who makes investments in the private equity marketplace through primary funds, secondary investments, and co-investments into companies alongside the general partners. Pathway was founded 27 years ago by four individuals, of which three of them remain active with the firm. The fourth individual retired about six years ago. Pathway has four offices around the world, and both MR. CHAMBLISS and MR. LEW work out of the headquarters in Irvine, California.

MR. CHAMBLISS informed Pathway has just over $50 billion in AUM, and has begun to branch out into private infrastructure and private credit. Pathway is 100% owned by its 19 partners. Growth of the organization continues. There is a particular focus on hiring at the junior analyst level and mentoring within the organization. Functional areas like legal, accounting, and compliance have also experienced recent growth. MR. CHAMBLISS noted a partner announced a few years ago his intention to retire, and that will occur at the end of this year. The transition should be seamless because the successor has been running the office for the last several years. There are no other significant departures to note. Stability is a hallmark of Pathway. There has been one promotion to partner and he is the head of the Hong Kong office.

MR. CHAMBLISS discussed private equity has experienced a sustained period of strong performance. The asset class has grown in size, become more efficient, and become more competitive. Prices are expensive. MR. CHAMBLISS explained private equity is a long-term asset class. The investments made are within partnerships that can remain up to 15 years. Consistency in investing capital in the asset class is important because market timing plays are very difficult. Pathway is focused on balancing strategies in the portfolio to capture opportunities and provide alpha. Pathway prefers managers who have experience through market dislocations because they will be better positioned

COMMISSIONER FISHER inquired as to expectations for returns since the sector has become more efficient. MR. CHAMBLISS believes the premium spread is decreasing and feels the outperformance to the public markets is closer to the range of 200 to 300 basis points over the long-term. MR. CHAMBLISS noted the managers are targeting gross returns of high teens. The one year net return for the period ended March 31, 2018, was quite favorable at 18.6%. This was an outperformance compared to the Russell 3000 by 480 basis points and an outperformance compared to the MSCI World Index by 440 basis points.

VICE-CHAIR SCHUBERT asked for Pathway's fee structure. MR. CHAMBLISS informed the fees are 18 basis points off of the committed capital to the underlying fund.

MR. LEW discussed the portfolio generated $300 million in gains and $500 million in distributions since Pathway was in front of the Board two-and-a-half years ago. The since-inception return increased to 13.8%. The portfolio will have reported 28 consecutive quarters of gains, when the June 30, 2018 performance numbers are finalized. MR. LEW reiterated the favorable market conditions will not last forever. Pathway is happy with the current portfolio composition.

MR. LEW described the portfolio is on track to reach the target tactical plan for 2018 of $210 million in commitments. Since the program's inception in 2002, $2.5 billion has been committed to 219 partnerships and co-investments from 73 different managers. The portfolio is just over 80% committed and has over 2,600 active underlying holdings. Seventy-nine percent of the commitments, which is $1.89 billion, have been contributed and those contributions have grown to a total value of $3 billion as of the June 30, 2018 performance numbers. A key milestone occurred since the last presentation; cumulative distributions now exceed cumulative contributions.

MR. LEW reviewed the portfolio's investment strategy diversification. The current allocation is 49% acquisitions, 26% venture capital, and 25% special situations. The portfolio remains comfortably within all of its long-term targets. It is well-diversified by strategy, industry, and geographic region. MR. LEW noted the second quarter ending June 30, 2018 numbers are close to being finalized and are coming in very strong. It will be the strongest quarter by gain since the program's inception, with an un-annualized quarterly return of 6.4% and $66 million in gains. MR. LEW highlighted the strong IPO and M&A activity within the portfolio.

MR. LEW explained the co-investment portfolio provides opportunities where equity investments are made alongside primary fund managers at a no-fee, no-carry basis. The co-investment portfolio was established in May of 2016. Currently, up to 15% of the annual allocation is reserved for co-investments, with a target of eight to 12 deals per year. Initial performance has been strong and additive to the portfolio's overall returns. MR. LEW reviewed the co-investment portfolio is well-diversified by region and industry, and is achieving its objectives.

14. ASSET/LIABILITY STUDY

MR. MITCHELL provided background regarding the asset/liability study. The previous asset/liability study was conducted in 2009. It was recommended by the process auditor for an asset/liability study to be conducted every four or five years. MR. MITCHELL explained he has been delaying the asset/liability study, while waiting for the resolution to the experience study. This would generate new actuarial assumptions that will be utilized. MR. MITCHELL noted Callan will conduct the study and is presenting today on the process that will be used and the decision variables to consider. Callan believes the study can be concluded in April. MR. MITCHELL noted a key benefit to the study is the consideration of the strategic asset allocation and its liquidity profile for the ARM Board as it interacts with the liability stream over time.

MR. ERLENDSON advised the scope of the project will be divided into segments, including review of the current investment program, setting of the portfolio assumptions, and integrating actuarial valuation and experience study information. MR. ERLENDSON believes the included timeline can still be met to be in a position to make a decision at the April meeting about the asset allocation going forward. MR. ERLENDSON discussed asset allocation decisions are influenced by people's perspectives on what they expect, time horizon, and other philosophical views. There is no one correct answer. All the data will be processed the same, but the evaluation is the primary driver. MR. ERLENDSON believes the most valuable part of this exercise is agreeing what the objectives are that the ARMB wants the portfolio to achieve.

MR. ERLENDSON explained the valuation will reflect the changes in regulations of GASB 67 and GASB 68. The three key policies that interact to govern assets are Investment Policy, Funding Policy and Benefit Policy. Investments focus on highest returning assets. The funding has to pay for the program, and the ability to make benefit payments in a timely manner is important. MR. ERLENDSON outlined the modeling process. The two main components are liabilities and asset projections. Determining the liability projections include considering the current valuation, assumptions, mortality rates, longevity rates, compensation rates, and building a year-by-year progression of the participants and the flows that will be coming out of the plan.

MR. ERELNDSON discussed the benefits are known in advance and can be closely matched to the actuarial projection. The most uncertainty is contained in the asset projections. The variables that have to be determined are; which asset classes are to be used, what sort of volatility to assume, what fee level is appropriate to pay? All of the projected rates of return will be shown net of investment fees. MR. ERLENDSON noted discussion at the April meeting will include the modeling of the portfolios based on different allocation levels to the various asset classes, overall funded status of the plan, and assumptions of investment returns to reach full-funded status.

MR. ERLENDSON reviewed the current PERS target and five alternative asset mixes. The 10-year geometric return is 6.6% and the current target is 8%. He noted any areas where the net-of-fee results are better than the benchmark will increase the 6.6% expected return. The portfolio's time horizon is important to determine when the money will need to come out of the program and the appropriate time period for evaluating the success of the program. The range of returns is defined by how much of the assets are in risk assets and how highly correlated they are. The projections use one-year, 10-year, 20-year, and 30-year horizons. The ultimate goal is to improve the financial health of the plan relative to the obligations. MR. ERLENDSON advised the process of implementation after the asset allocation policy is determined will be to maximize value and maintain liquidity needs.

MR. MITCHELL highlighted the analysis is operating under the assumption the contributions will be sufficient to fully fund the plans by FY39. One of the active components of the current analysis is to evaluate potentially moving to a layered approach addressing the unfunded liability, which may introduce additional complexity to the analysis. MR. MITCHELL requested Callan be given guidance at the December meeting on the structure of that paradigm.

COMMISSIONER FISHER expressed concern using 10-year assumption numbers when it seems the real stress and liquidity challenges are out beyond 10 years. MR. CENTER advised there is more confidence in the ability to predict capital market performance over the next 10 years. Capital market assumptions become less and less reliable, the longer the time period. COMMISSIONER FISHER inquired as to reconciling the disconnect between current assumptions at 6.8% and actuarial assumptions at 7.38%. MR. ERLENDSON suggested the modeling work assumptions will be adjusted in terms of the actuary's projections to maintain consistency across all scenarios. Variables will be normalized to create a common standardized set of assumptions for both sets of data.

MR. MITCHELL informed the action item related to this issue will be taken up tomorrow. He asked to provide a few comments regarding the real asset portfolio resolutions. There was no objection. MR. MITCHELL recommended moving the tabled resolutions from 9:00 a.m. tomorrow to 3:00 p.m. There was no objection to the agenda change.

MR. MITCHELL commented on his difficulty in gauging the level of desired Board participation in the staff deliberative process regarding the real assets recommendations. MR. MITCHELL suggested the Board consider either allowing staff to unpack the recommendations in a deep-dive review during meetings over the next year or to refer the process to a committee to interact with staff. This will provide staff with greater feedback and give the Trustees a better appreciation for the thought process behind the underlying recommendations. MR. MITCHELL posed the current process makes it difficult for the Board to make changes because it does not lend itself to deliberation necessary for changes to occur.

COMMISSIONER FISHER suggested the Board begin to think about the possibility of creating an investment committee. Determinations would have to be made regarding what categories are reviewed by the investment committee and what components come before the full Board. COMMISSIONER FISHER finds the manager presentations very interesting, but believes the full Board spends too much time with manager presentations. He feels the Board's time would be better spent on broader-brush issues, discussions and decisions suggested by MR. MITCHELL.

MR. WILLIAMS suggested the possibility of staff creating informational webinars for Trustees to review in advance of meetings that would deepen Trustee's understanding of the topics to be presented at the meeting. MR. WILLIAMS noted he has heard comments that the previous real assets committee added value to the Board.

CHAIR JOHNSON posed the real assets issues and investment issues could be added to the Budget, Salary and Operations Committee. He noted the Board decreased the number of Board meetings two years ago and there may be sufficient information now to return to the original number of annual Board meetings. CHAIR JOHNSON commented the plain fact of the matter is the Board's real input to staff can only come when the Board is gathered together collectively. He believes the broad-brush issues, discussions about real assets, plans and policies are critical.

CHAIR JOHNSON expressed the Board looks forward to hearing proposals and recommendations from MR. MITCHELL regarding the tabled motions tomorrow.

RECESS FOR THE DAY

CHAIR JOHNSON recessed the meeting at 4:34 p.m.

Friday, September 21, 2018

CALL BACK TO ORDER

CHAIR JOHNSON reconvened the meeting at 9:00 a.m.

Trustees Schubert, Harbo, Brice, Erchinger, Fisher, West, and Williams were also present.

15. IFM INFRASTRUCTURE

MR. MITCHELL informed the ARM Board has two private infrastructure managers and two public infrastructure managers. IFM Investors has been managing private infrastructure assets for ARMB since 2015. The allocation is just over $400 million. MR. MITCHELL introduced PAUL BURRASTOM, who is a Director at IFM. MR. BURRASTOM noted IFM began 23 years ago. He described IFM's Australian history and unique ownership structure comprised of 27 general partners. ARMB is a limited partner (LP). The ownership structure creates alignment with the LPs and provides benefits by reinvesting the profits into the firm directly to the investment staff to retain talent. It was also announced in June, IFM would return 7.5% of the fees paid by LPs from the last fiscal year.

MR. BURRASTOM explained IFM approaches infrastructure investing through an open-end construct. Asset management is a large component of the IFM business and sellers want the long-term partners to be good stewards of the assets. IFM has done well at enhancing and protecting the assets and service provided, which include water utilities, electricity, and toll roads. The open-end fund structure offers the option of quarterly liquidity. The investment lens for IFM is long-term, mainly 20 to 30 years. Some of the assets are in perpetuity. The Indiana Toll Road, for instance, has a 64-year concession, and $260 million worth of enhancements have been completed.

MR. BURRASTOM focused on the IFM team members who execute their business. The senior advisors are deeply seasoned from around the world. There are more than 70 investors located at the eight offices, with the main offices in Melvin, London, and New York. MR. BURRASTOM outlined the process taken for new projects. An independent risk officer is established to focus solely on the risks involved. A second deal team is created in a different geography to review the project merits and complete an evaluation and underwriting of the deal. Both visions are then compared.

MR. BURRASTOM explained the Global Infrastructure Fund targets core infrastructure in OECD countries that can return 8% to 12% net through the cycle. The three main sectors of IFM core infrastructure are transport, midstream energy, and utilities. The portfolio is diversified and healthy at $18.3 billion deployed in 13 main assets, comprised of 52 individual assets.

MR. ERLENDSON requested additional information regarding the currency effect in the portfolio for the limited partners. MR. BURRASTOM informed a hedged feeder is established in each country to reduce the currency risk as much as possible.

MR. MITCHELL requested explanation of why this is considered a core strategy as opposed to a core-plus strategy. MR. BURRASTOM explained core assets tend to exist already in place, a toll road, for example. Core-plus is a measure of a value-add to the infrastructure, an asset in the development phase that gets improved and sold. The risk profile of the current portfolio keeps it in the core category. He believes there are a few investments that could be approaching the fringe of core-plus. MR. BURRASTOM expressed the importance of the revenue drivers and concessions of the infrastructure asset.

COMMISSIONER FISHER congratulated IFM on its impressive performance. He inquired as to the large performance delta between the benchmark and the portfolio. He requested feedback from IFM, Callan, and IAC if the benchmark is appropriate for the portfolio. MR. BURRASTOM believes the outperformance is an anomaly. There has been a strong equity bull market since the Global Financial Crisis and principal values have increased. MR. BURRASTOM noted large amounts of funding from abroad have been chasing infrastructure. This has provided selling opportunities and created outsized performance. MR. BURRASTOM commented IFM considers itself to be a total return manager and there is not really a wholesome benchmark for infrastructure today.

MR. MITCHELL informed an action later in the meeting addresses the benchmark issue directly and asks the Board to consider changing the benchmark for private infrastructure to CPI plus four. Staff recognizes the current equity benchmark is not helpful when assessing performance of infrastructure managers. As private infrastructure benchmarks are developed, they will be evaluated by staff. MR. CENTER expressed Callan agrees with staff's recommendation. He acknowledged the difficulties in benchmarking private infrastructure. MR. CENTER stated infrastructure reflects more of an absolute return IRR focus than a market benchmark relative focus.

16. JP MORGAN INFRASTRUCTURE

MR. MITCHELL informed JP Morgan Asset Management is the second of ARMB's two private infrastructure managers. The allocation is about $113 million in the Infrastructure Investments Fund. MR. MITCHELL introduced JEFF SHIELDS, Client Advisor, and NICK MOLLER, Investment Specialist, of JP Morgan. MR. MOLLER discussed the strategy for the open-ended core private infrastructure fund focuses on diversification, inflation protection, and yield by investing in contracted and regulated assets in high OECD countries.

MR. MOLLER informed assets under management have grown to $10 billion, which has provided significant diversification of 16 companies, managing 310 underlying assets. The fund was started in 2007. The target net returns are between 8% and 12%. MR. MOLLER explained the expectation in the current market is an 8% net return with a 5% to 7% cash yield. The cash yield last year was about 7.5%. The strategy is highly focused on cash yield and aligns with the lower risk core-focused outcome.

MR. MOLLER described the governance aspect of the fund, taking control positions within the businesses, sitting on the Boards of Directors, and directing the strategies of the businesses toward a long-term contracted yield-focused outcome. In 2017, 86% of the portfolio company revenues were contracted or regulated. The goal is to be less sensitive economically to the downside and to the upside volatility of equity market environments. The diversified utility companies include water, gas, electricity, contracted power, wind, solar, and GDP-sensitive companies that include railcar leasing, liquid bulk storage, and airports. The 69 investment team professionals are solely dedicated to this fund and the leadership team has been in place for about five-and-a-half years. The vast majority of the 260 global investors are corporate, government or multi-employee union pension plans seeking inflation protection.

MR. MOLLER explained the businesses are typically in the middle market range between $100 million and $300 million. Operational and financial synergy is achieved by incrementally adding-on investments where there is an intrinsic advantage to merging with existing businesses. MR. MOLLER showed the breakdown of the portfolio by individual company. The largest single asset currently is NorteGas at almost 8%. The intent is to increase the size of the fund to further diversify the strategy, with the largest company holding at no more than 5%. MR. MOLLER advised the portfolio contains no emerging markets or periphery OECD and contains no telecommunications.

MR. MOLLER reviewed the history of being unhedged. An optional foreign currency hedging program for investors is being launched and investors can now choose whether they want to hedge or not to hedge going forward. The investment team will remain focused on managing the net local return currency aspect. The returns for the ARM Board portfolio are shown in US dollars and are net of fees. MR. MOLLER noted the current market environment with the potential of rising interest rates and inflation is positive for the asset class. Many of the regulated and contracted assets pass through inflation under their contract of regulatory structure.

MR. SHAW requested additional information regarding underwriting individual assets and determining the leverage profile. MR. MOLLER discussed the review is transaction-specific, as well as asset-specific. The general expectation return on assets or the discount rate ranges from 7.5% to 12%, with net expectation of 8%. The amount of leverage is dependent upon the risk profile on the underlying business, with a focus on shadow investment grade leverage. Leverage is an integral part of the total return and the approach is to take moderate levels of risk with moderate levels of leverage.

MR. MITCHELL asked what the impact of leverage has been on the performance of the fund since inception. MR. MOLLER noted the fund has never had any company bankruptcies. During the financial crisis, there were two companies retaining cash to pay down debt. No companies came close to imminent risk. The leverage was all investment grade. The contracting and regulated cash flows were consistent during the financial crisis, but lacked growth. The amount of leverage in the portfolio is slowly trending down over time because of the market environment and very attractive rates of leverage. The UK utilities tend to have higher leverage based on their regulatory structure. Adding different types of assets and extending maturities has consequently lowered the levels of leverage.

MR. ERLENDSON inquired as to the departure of the Director of Research earlier in the year, the importance and function of the role to the fund, and the plans to fill the role. MR. MOLLER informed the previous Director of Research had been with the fund about 10 years and decided to take a new role working with clients at a different strategy for a personal change of pace. Research is integral to the process. A person from the Municipal Bond Research Group at JP Morgan has joined the team to fill the role. The Head of Research, who sits on the Investment Committee, has not changed and continues to manage the Director of Research position.

17. BROOKFIELD LISTED INFRASTRUCTURE

MR. MITCHELL advised Brookfield Listed Infrastructure is one of the ARMB's publically listed infrastructure managers. They have been managing assets for ARMB since 2014, and currently manage an allocation of approximately $113 million on behalf of the ARMB. MR. MITCHELL introduced RICK TORYKIAN, Client Services, and CRAIG NOBLE, CEO, founder of Global Infrastructure Securities, and Portfolio Manager for Brookfield Investment Management.

MR. TORYKIAN noted Brookfield is one of the largest global leaders in real assets. The portfolio selection is bottom-up, driven by value and cash flows. The portfolio has an owner/operator mentality because the corporate parent owns and operates a significant amount of the assets globally. The companies tend to have a very monopolistic business with long-dated visible cash flows and very high barriers to entry. MR. TORYKIAN informed the diverse team of 12 investment professionals are based in Chicago and have experience including private market infrastructure, public market infrastructure, and regulatory expertise.

MR. NOBLE described the investment approach focuses on owning hard assets including, toll roads, airports, oil and gas pipelines, and communication towers that offer attributes such as stable cash flows, predictable growth, good income and high barriers of entry. There are 48 holdings in the portfolio. MR. NOBLE believes this size provides the intersection of high conviction, concentration, best ideas and beneficial diversification. The investment philosophy is active management focused intensely on research and generating excess returns over the long-term. The longer-term perspective in the public markets and the approach to value leads the portfolio to being somewhat contrarian, while maintaining a respect for diversification and a macro overlay of the global trends.

MR. NOBLE believes there is a heightened geopolitical uncertainty, domestically and around the world today, that includes the risks surrounding trade wars. Negative or zero interest rates pose a concern because it is not prudent to make investments where the thesis hinges on interest rates staying artificially low in areas like continental Europe and Japan. The portfolio has a fair amount of exposure in the North American energy space and US pipelines.

MR. NOBLE informed the portfolio does not invest in master limited partnerships (MLPs) by design and mandate. There are other mandates that have the ability to invest in MLPs. MR. ERLENDSON requested Brookfield's view on MLPs since they are utilized in other mandates. MR. NOBLE noted Brookfield has a dedicated North American energy MLP investment team based in Houston. He believes MLPs are cheap now and there is a bifurcation in the market between companies who have simplified their capital structure and more importantly their governance structure, and companies who are externally managed and continue to be penalized.

MR. MITCHELL noted there is a fair amount of capital available in the private equity side awaiting investment. He requested Brookfield's views on whether publically listed pipeline companies are at a competitive advantage or disadvantage versus privately owned pipeline companies. MR. NOBLE described publically listed pipeline companies, whether they are MLPs or corporations, are at a disadvantage compared to their private counterpart, in terms of cost and capital. The stock prices are really cheap compared to the private market value of the exact same types of assets. MR. NOBLE explained the public pipeline companies are having a difficult time issuing fresh equity or have chosen not to issue fresh equity at these depressed prices and are cutting their dividend instead to fund the capital expenditure programs.

MR. NOBLE continued the presentation discussing the portfolio seeks to pay the right price for an asset and then it is focused on risk mitigation. The bigger risks include changes in regulation, changes in the political environment that could impact the companies, and then the rare specific catastrophic operational events. The portfolio experienced two of the rare events this year; the horrific bridge collapse in Italy and the Columbia utility gas explosions. The bridge was owned by Atlantia and the Columbia utility was owned by NiSource. The portfolio had a very small position in each of these companies.

COMMISSIONER FISHER inquired as to the level of control over the assets Brookfield maintains. MR. NOBLE explained the investment team is actively selecting the assets, but does not manage the assets and does not have a seat on the Board of Directors. This is different from the private equity direct investing counterparts where there is actually control of the operations of a company. MR. NOBLE discussed the investment process for public markets reviews quality of the asset, valuation of the asset, and quality of the company, which specifically and separately includes quality of the management team, operations, capital structure, and strategic corporate governance.

COMMISSIONER FISHER asked if Brookfield believes the two issues that arose this year were the result of failure of management. MR. NOBLE noted these issues are not supposed to happen. He thinks there were many factors and quality of management was one of them. He does not think they were negligent. The root causes of the issues with Columbia are yet to be determined. Atlantia had wanted to spend more capital on the bridge, and the government and regulators were resistant because it would cause the tolls to increase and shut down the bridge for a period of time.

MR. NOBLE described the portfolio positioning by sector and by region. The account was funded in March of 2014. Energy infrastructure exposure is at 32% and is divided into pipelines and midstream. There are no commodities in the portfolio. However, the unforeseen collapse of the energy prices beginning in November 2014 from $100 a barrel of oil down to $27 a barrel had a much bigger negative impact than expected on absolute performance and relative to the indexes. The portfolio was down 16% in 2015, but has since had a good recovery. The 2016 return was up 13%, the 2017 return was up 15%, and year-to-date is doing fine. Production volumes and fundamentals of the portfolio's energy companies are strong.

MR. MITCHELL asked if Brookfield feels the S&P Global Infrastructure is an appropriate benchmark comparison, and MR. SHAW asked if there were any companies in the S&P Global Infrastructure benchmark this portfolio would not own. MR. NOBLE believes the three best indexes for portfolio comparison are the Dow Jones Brookfield Global Infrastructure, the FTSE Global Core Infrastructure 50/50, and the S&P Global Infrastructure. He noted none of them are perfect, but provide a fair representation of the portfolio's universe. MR. NOBLE described the characteristics of each benchmark and noted there are two small companies in the S&P Global he does not agree belong in infrastructure, specifically an airline meals catering company.

MR. NOBLE discussed infrastructure as an asset class has underperformed the broad equity market for the last few years mainly because of rising interest rates and the strong equity impacts of vogue technology stocks. He feels the market has absorbed the continued expected rise in interest rates and that the broad equity market is now expensive. Infrastructure assets are relatively cheap and there are many opportunities to maintain a balanced approach.

18. LAZARD LISTED INFRASTRUCTURE

MR. MITCHELL advised Lazard is the second of the ARMB's publically listed infrastructure managers. They manage approximately $151 million in assets on behalf of ARMB. MR. MITCHELL introduced TONY DOTE, Managing Director, and ED KEATING, Portfolio Manager, of Lazard Asset Management. MR. DOTE informed the publically traded infrastructure strategy began about 11 years ago and currently has $13 billion under management. The strategy was closed to new investors three years ago. The investable universe for the strategy is narrow and represents preferred high quality companies that tend to function more like monopolies. The companies are cash flow generative with good management. The intent is to have a defensive performance in down markets with a predictable outcome. The strategy is global, with no emerging market stocks in the portfolio.

MR. DOTE discussed the investment team is based in Sydney, London, and New York, and they work very closely together. The strategy is expected to outperform inflation by 5%. The benchmark was changed in June. The strategy is unhedged and has outperformed over the last three years by 650 basis points. The compounded return since inception has been a little over 10%. MR. KEATING explained the portfolio is comprised of 27 value-focused companies that have positive absolute expected returns. A large allocation is in the top 10 investments of the portfolio. The managers invest with a bottom-up style. There are no sector calls and no top-down calls in the portfolio.

MR. KEATING showed value graphs of the preferred infrastructure universe of stocks ranked by sector and ranked by country. US businesses are highly attractive from a management and quality standpoint, but are too expensive to own now. The portfolio has a small 20%

allocation to US for this reason. MR. ERLENDSON asked how much of the expensive valuation is a result of the underlying currency asset to a dollar-based investor. MR. KEATING noted the valuation is fully based on the asset and there is no currency implementation. The portfolio is invested as a local investor strictly on the fundamentals and valuations of the assets and not on currency direction. MR. KEATING explained the stocks that are attractive today are predominantly in Europe. They have predictable assets with stable businesses and valuations have been kept low because of the stressful political uncertainty.

MR. KEATING discussed the top 10 positions and noted the top five stocks represent about 8% of the equity in the portfolio. He highlighted the fourth largest position is the Italian toll road company Atlantia, which owns the Morandi Bridge that tragically collapsed in Genoa. The position has fallen about 30% since August. The portfolio remains owners. The company has been adamant and public with respect to its ability to prove it maintained the asset according to the concession agreement. The portfolio managers have updated their model and believe the worst case scenario for Atlantia is still attractive. The managers have added to the portfolio position.

MR. ERLENDSON asked if the investment decision process includes an on-the-ground evaluation of the asset. MR. KEATING explained the majority of the work is on the financial side and meeting with management to understand their plans of capital commitment. The process does include visiting the assets.

CHAIR JOHNSON inquired if the Morandi Bridge collapse was likely to be an existential threat to Atlantia. MR. KEATING discussed Lazard does not believe so, but the real cause of the bridge collapse has not yet been determined. MR. KEATING provided a background of Atlantia, noting it is effectively an infrastructure holding company that owns 88% of the Autostrade, which is the concession deed that covers 3,000 kilometers of roads within Italy, including the Morandi Bridge. Atlantia has an investment in Rome Airport and is in the process of buying a large Spanish company called Abertis. It has several very attractive other investments in Latin America. MR. KEATING discussed the possibility of the government removing the concession from Atlantia's power, but not without compensation. The Italian government would have to compensate Atlantia on the present value of the future cash flows of the next 24 years, which would be billions of dollars, and is highly unlikely.

MR. KEATING highlighted specific transactional activity in the portfolio. He reviewed the since inception performance has been 10.5% per year, which is in excess of infrastructure equities and compares well against other major asset classes. The 2018 returns have been quite volatile and are down about 2% over the short-term. He believes the objective of 5% in excess of inflation is still very achievable over five-year periods, given valuations today and the portfolio's style of management. The benchmark for this portfolio was changed in July from the FTSE Infrastructure Index, the FTSE 50/50 Index to the MSCI World Core Infrastructure Index. The portfolio is benchmark unaware and this change will be referenced in paperwork, but will not impact or change the portfolio investments.

CHAIR JOHNSON asked if the benchmark change would create a contractual imposition. MR. MITCHELL was not sure about the contractual benchmark. He discussed evaluation compares against the benchmark the portfolio is using, as well as the S&P benchmark for the asset class. There is a fair amount of dispersion because this portfolio is relatively concentrated and is not benchmark-aware.

MR. WILLIAMS asked for more information from Lazard regarding due diligence of monitoring or training to ensure a catastrophic failure with Atlantia does not occur again. MR. KEATING noted asset failures are rare, but when they do happen they are incredibly impactful and watched boldly. The Morandi Bridge was going through the process of being maintained and repaired in accordance with civil servants and authorities. No one predicted the bridge was going to fall during the powerful storm that day. Lazard believes there are political effects around the asset, as well, that will be highlighted in Genoa and on a national level. There was a planned bypass for the Morandi Bridge which was going to be funded by the European Union during the time of bitter populism and nationalism, and Italy effectively rejected the asset. MR. KEATING informed there are many different elements regarding the asset. Political and regulatory risks are key risks to investing in infrastructure assets around the world. The portfolio mitigates these risks by maintaining the highest quality infrastructure companies within the universe, being brutally conservative in the valuation of the businesses, and diversifying the portfolio sensibly.

COMMISSIONER FISHER commented to staff and consultants regarding the four presentations today, and how two of them contained the same asset that suffered from the bridge collapse. He noted the use of different managers is probably in the hopes to get more diversification, and in fact, the risks may not be as diversified as expected. COMMISSIONER FISHER requested in the future to block out time for staff and consultants to provide their views on the managers individually, the collection of managers, and the correlation to the portfolio.

19. PASSIVE CAP WTD. NON-US DM AND EM

MR. MITCHELL informed the ARM Board accepted a staff recommendation in June to change the way passively international equities are managed. There is currently about $1.6 billion with two managers in broad international exposures, which include developed and emerging markets. Staff recommended separating passive investments in the developed markets from passive investments in the emerging markets. This will provide staff with additional levers to make adjustments to the international equity asset allocation.

Staff engaged a number of firms to ascertain their ability to manage passive indices against the developed and emerging markets. The evaluation criteria included track record, team experience, cost, and tracking error. Staff is prepared to bring forward later in the meeting a recommendation to engage State Street Global Advisors (SSGA) to manage the two mandates. SSGA is next to present to the Board.

CRAIG DEGIACOMO, Head of Public Funds and Taft-Hartley, introduced KIM COOK, Senior Relationship Manager, and KARL SCHNEIDER, Portfolio Manager within Global

Equity Beta Solutions (GEBS) of SSGA. MR. DEGIACOMO expressed appreciation to the Board for its broad relationship since the early '90s. He noted the length of the relationship and stated he will forego updates on the company and get right into the investment portfolio presentation. If the Board has questions regarding the organization or structure, he is happy to answer those at any time. There were no questions.

MR. SCHNEIDER described the differentiators in evaluating index providers and why SSGA is the best partner for ARMB. The investment team is experienced and highly tenured with an average experience of 18 years. There are approximately 60 portfolio managers worldwide and approximately 27 portfolio managers at the headquarters in Boston managing equity index assets. Index tracking is the main goal of an index manager and the portfolio has consistently delivered on that objective. The process does not just replicate the index. The executions are traded in a more thoughtful manner to take advantage of possible opportunities that add incremental value in the portfolio to potentially negate some of the transaction costs that inevitably come with managing an index mandate.

MR. SCHNEIDER discussed SSGA is client-focused and has resources available for staff to utilize. The SSGA research function is comprised of a core indexing research group within the portfolio management team and a smart beta research team that evaluates strategies from third-parties or within SSGA's proprietary strategies. SSGA takes asset stewardship seriously as the holders of capital and managers on behalf of the ARMB. SSGA engages directly with companies and takes opportunities to effect change from an asset stewardship perspective. MR. SCHENEIDER reviewed the organizational chart of the company, including portfolio managers, systems team, research team, and trading team.

MR. SCHNEIDER explained the size and scale of being a large index manager helps with efficiencies and keeping costs down. The breadth and diversity of the asset base is also a large component of making the efficiencies possible. This allows for internal liquidity and crossing between different portfolios without having to go to the market, without the market impact of commissions, spreads, or trading costs. CHAIR JOHNSON asked if the number of internal trades could be quantified by month. MR. SCHNEIDER noted he does not have that specific information with him today, but directed the Board's attention to the slide with the case studies showing between 2015 and 2017, SSGA traded approximately $31 billion internally without transaction costs, providing a savings of $71 million. The EAFE trading costs are 30 basis points in the open market. A benefit of being a comingled vehicle is one participant is buying and another participant is selling. This is an accounting transaction and provides an additional layer of crossing and cost savings available to participants. The Department of Labor exemption allows cross securities to be implemented at the closing price.

MR. SCHNEIDER discussed the broad categories of the portfolio managers' daily decisions and duties to ensure the indexes are tightly tracked without giving up unnecessary wealth in the portfolio. Index reconstitutions occur daily, along with demanding liquidity events. He explained how it may be better tactically to pre-trade securities ahead of an index event or to post-trade securities after an index event, and other times it actually is best to trade the securities on the index event, market-on-close. The evaluations are balanced and on a case-by-case basis. Some of the index changes are pretty small and do not impact the overall tracking and risk/return characteristics of the portfolio. MR. SCHNEIDER highlighted the importance of SSGA's expertise in index reconstitution, portfolio rebalancing, index events, and core beta research.

20. SCIENTIFIC BETA MF NON-US DM AND EM

MR. MITCHELL provided background and informed staff were given authority by the ARM Board in June of 2016 to begin managing smart beta indices in domestic equity, benchmarked against the Scientific Beta Multi-Beta, Multi-Strategy Four Factor Equal Weight Index. In April of 2017, staff requested permission to invest in international equities developed markets. Staff is still studying and the plan is to come back to the Board in June 2019 with an assessment of feasibility, in terms of the complexity for internal staff. In June 2018, staff presented a plan that included recommendations for restructuring the international equity portfolio. One element was to introduce smart beta passive investment for developed markets and emerging markets, very similar to what is being implemented on the domestic side.

MR. MITCHELL informed staff received the ARM Board's approval to engage external management. After appropriate due diligence, staff is prepared to recommend Legal & General for those mandates in an action later today. A component of the understanding with Legal & General is if staff should ultimately come to the conclusion to manage the developed portion of the international equity portfolio internally, staff would take over the component from Legal & General. There is also an emerging markets element that is being contemplated.

MR. MITCHELL introduced IVY FLORES, Senior Investment Director, and SHAUN MURPHY, Head of US Index, of Legal & General. MS. FLORES gave a history of Legal & General that began in the UK in the 1830's by a group of lawyers. It was first an insurance company and the insurance service was rolled out to the general public. Legal & General has been managing index assets since the 1980's, is the largest index provider in the UK, and the fifth largest institutional asset manager globally, with $1.3 trillion of assets under management across multiple asset classes. MS. FLORES showed a list of representative clients in the US, including other public funds.

MS. FLORES stated Legal & General's goal is to meet the objectives of the mandates and also be a value-added partner over time. During the course of conversations with staff, Legal & General is willing and able to be an extension or staff's resources, and to assist staff in the possibility and process of taking the developed ex-US assets in-house.

MR. MURPHY informed most of the client experience outside of the US focuses on UK and European pension funds and sovereign wealth funds. The two management capabilities are separately managed accounts and pooled funds. The ARMB is considering one of each today; a separately managed account for the developed ex-US portfolio and a comingled pooled fund for the emerging markets account. As a public plan, the pooled fund will be in the collective invest trust (CIT) aspect of the pooled funds for emerging markets. The team consists of 18 consultants, 11 investment professionals, including five portfolio managers, two strategists, and one software developer. The intent is to keep the number of accounts per portfolio manager to less than 10 in order to ensure the portfolios get the attention they need in tracking the risk and return characteristics of the index and finding ways to add value.

MR. MURPHY explained Legal & General's success is due to the transparency of the philosophy, process, and construction of managing the funds, an operating model that is aligned with investors, the relationship between the trustee of the pooled fund and the affiliated service providers, the overall value proposition, and client engagement and training. MR. MURPHY provided historical information on the CIT fund structure developed in the 1930's. CITs started getting traction in 2000 when they were added to the NSCC clearing platform. CITs tended to be useful to DC plans because they were better value for the money, less expensive to run and maintain, and more flexible. CITs were closely followed by DB plans, public plans, and Taft Hartley plans. CITs are built on a collective bank trust structure with a trustee who is the fiduciary of the fund and hires service providers, including asset managers, custodians, and lending agents. The company or trust bank will usually hire themselves in as many capacities as possible for ease and efficiencies in scale.

MR. MURPHY described some CITs did poorly during the financial crisis because of the structure of the governance and securities lending. The securities lending portion of the offering was increasing the risk profile of the lending agreements. As a result, there were big issues with the lending crisis and some funds were essentially closed to investors to leave. Liquidity was impossible to seek and many lawsuits were sought. The lessons the industry learned surrounded the decisions of a trustee can be opaque if they are also looking at the amount of revenue and profits the affiliated service providers could make from a certain function. Dodd-Frank changed the ways fees and costs were disclosed to the client after the financial crisis. The CIT fund costs include management fees, administration fees for the trustee, fund accounting, safekeeping, audit, legal, and other costs that fall within the fund itself. MR. MURPHY noted staff has performed their due diligence regarding costs and the total expense ratio.

MR. MURPHY continued the presentation focusing on philosophy and process. The philosophy for all index managers should be to match the risk and return characteristics of the index itself. The detractors to this include transaction costs and tracking error. Time is spent in the portfolio to add very small fractions of basis points to offset some of the fees and costs of trading. The process begins with understanding, defining, and controlling risk and cost. Both of the portfolios Legal & General are proposing will be fully replicated because they are big enough, liquid enough, and narrow enough to provide for replication.

MR. MITCHELL asked for an estimation of the cost of engaging in a trade in the US in large cap developed international and emerging market international. MR. MURPHY likened costs to an iceberg. There are the above the waterline costs that are transparent and easy to define, such as commissions, taxes and fees. Below the waterline, they are called implied costs or implicit costs, and include costs of the bid/ask spread, opportunity costs, and market impact. The US equity market is the most liquid and well-covered. It is the cheapest from a commission standpoint to trade. It costs about one basis point to trade in the US marketplace. Less liquid securities will have a little higher cost. The costs in developed international are the taxes for buying and selling securities overseas. In UK, the stamp duty for every security is 50 basis points. In Ireland, it is 45 to 100 basis points for every security bought. In Hong Kong, it is 12 basis points.

MR. MURPHY described the emerging markets commissions tend to be a lot higher, at around 12 basis points, and there are many explicit costs in emerging markets that are not seen in developed markets. The foreign exchange dynamic in developed markets freely trades currencies across nations and recognizes an execution at the benchmark point of 4:00 p.m. WM/Reuters rate. Most of emerging markets, 70%, do not allow free trade of currencies and a transaction must occur through a sub-custodian, which requires a physical certification that the trade occurred. This results in opportunity costs that can either work positively or negatively. There are also capital gains taxes in certain emerging market countries, even for tax-exempt institutions. This affects the performance of the fund relative to the benchmark.

MR. MITCHELL asked for an explanation of the distinction between the capital gains taxes being referenced and the MSCI gross and net index. MR. MURPHY explained index providers are referencing taxes on income related to the dividend and not taxes on capital gains. The index treats taxes on dividends three different ways. The price-only benchmark return excludes dividends all together, and assumes they are not even paid. The gross return assumes there is a zero tax on dividends, no matter what country. The net return is effectively taking the worst case tax scenario in the world, which is Luxembourg at 30%, and paying that tax. The US has a reciprocal tax agreement, tax reclaims, with every developed country to get all or part of the dividend taxation back, resulting in a US tax exempt fund immediately outperforming the net return of the benchmark. MR. MURPHY discussed how the optimizer is applied to the portfolio and how futures are traded in the efficient portfolio management process.

MR. ERLENDSON requested discussion on how to minimize the frictional costs and timing decisions to accommodate corporate actions within the index. MR. MURPHY explained the management team determines if the event's impact will change the risk profile of the portfolio relative to the index. The team reviews corporate methodologies and decides on ways to avoid wealth erosion by trading before the close, at the close, or after the close.

21. PERFORMANCE MEASUREMENT - 2ND QUARTER

CHAIR JOHNSON introduced MR. ERLENDSON and MR. CENTER of Callan, LLC to present the 2nd Quarter Performance Measurement for the quarter ending June 30, 2018. MR. ERLENDSON discussed real GDP growth is the actual growth in the economy minus the rate of inflation. Real GDP growth has been generally positive. The second revision of the GDP numbers for the second quarter came in at 4.2%. This is dramatic because inflation has been increasing.

MR. ERLENDSON informed the major driver in the growth of the economy was the acceleration in exports and the one-time uptick in GDP due to the threatened trade policies and sanctions. The US is essentially at full employment and the unemployment rate has been improving. The challenge going forward is finding the available skill sets required in the current economy. Wage growth has not been as strong as it has out of other recoveries. MR. ERLENDSON reviewed a chart showing the strength of economic expansions. The length of the recovery since the second quarter of 2009 has been fairly long and has been at a lower rate of recovery. MR. ERLENDSON discussed a chart from JP Morgan and the IMF showing GDP would decrease 1.4% across the US, Europe, and China if a 10% increase in tariffs occurred. In the capital markets, small caps stocks showed a significant uptick in performance about the time trade sanctions were being discussed. MR. ERLENDSON noted small cap companies are generally more immune to trade issues because they are typically more domestically oriented in their business. Over half of the earning of the S&P 500 companies come from outside the US, making them more sensitive to the impact of trade sanctions.

MR. ERLENDSON reviewed the periodic table of the different benchmarks ending June 30th for the 20-year, 10-year, 5-year, 3-year, 1-year, and last quarter time periods. Over the last 20 years, emerging markets had the highest return at 8.9%. This time period is capturing two macro events, the global financial crisis and the telecom bubble bursting. The shift of domestic stocks performing better is when the timeline gets shortened. The S&P 500 has performed best over the last three and five years, followed by the Russell 2000 small cap stocks. As of September 30th, the Russell 2000 was up 13% year-to-date. Treasury bills were at 1.2% for the first six months, which is a significant increase from a zero-base for the last eight years.

MR. MITCHELL commented the allocation balance between US stocks versus international developed and emerging market stocks over long periods of time can significantly impact the overall portfolio performance. He requested discussion regarding what allocation is recommended for US stocks and what allocation is recommended for international developed and emerging market stocks. MR. CENTER noted the typical recommendation is a baseline allocation that is similar to the capitalization of the US versus non-US and emerging markets versus developed. There is no strategic overweight position necessarily to emerging markets versus US, unless the return goals are such to warrant a higher level of return volatility.

MR. ERLENDSON reviewed the concentration of index returns and noted the four FANG stocks, Facebook, Amazon, Netflix, and Google, have a market cap of $2.3 trillion. Across the MSCI Index of market cap weightings for countries, those four stocks would be the fourth largest market in the world, behind US, England, and Japan. A portfolio without a market weight of these stocks will deviate from the benchmark return. MR. ERLENDSON showed the top 10 contributors to the S&P 500 return for the first six months are over 120% of the index return.

CHAIR JOHNSON commented the five FAANG stocks, Facebook, Amazon, Apple, Netflix, Google, are so powerful that the industry must be spending time trying to assess what influences could impact those companies. He asked if Callan views a particular set of trends that are unfavorable and should be watched. MR. ERLENDSON believes the huge moves toward passive management and factor-based investing are reactionary.

MR. ERLENDSON discussed yield curve changes. In 2007, cash was returning almost 5%. The yield on bonds decreased dramatically when the financial crisis hit in 2008. This has held yields down for quite some time. Longer-dated bonds have not increased in interest rate. Short-term bonds have increased in interest rate. The yield curve has flattened. The common interpretation is when short rates are the same as long rates, there is no benefit for taking additional risk. MR. CENTER advised the yield curve directly impacts the ARMB's internally managed bond portfolio. The upward movement in the yield curve in the short to intermediate term has resulted in a slightly negative performance in the internally managed portfolio. MR. ERLENDSON commented the last five years have proven to be a great market environment for taking risk. Callan has seen signals that taking additional risk is starting to get less certain, in terms of the payoffs going forward.

MR. ERLENDSON noted the next portion of the presentation will review the current positioning of the portfolio and how that performance has accrued to the benefit of the trust. MR. CENTER focused the Board's attention to the asset allocation versus the target allocation. The PERS plan is used as an illustrator for all the plans. The actual asset allocation is within the stated guidelines of the target, with a slight overweight to real assets, a slight underweight to fixed income, opportunistic equity, domestic equity, and non-US equity. As compared with Callan's database of public funds, PERS has a lower allocation to fixed income than most peers and a higher allocation to both real assets and alternatives than most peers. The differences drive performance at times.

MR. CENTER reported the PERS performance versus peers was above median over the last one year, three years and five years. The PERS performance versus peers over the last 10 years was below median and was driven mostly by performance in 2009, coming out of the global financial crisis when the private assets, consisting of real assets and private equity, struggled. MR. CENTER explained the returns for private assets did not decrease in the 2007/2008 period like the public markets. There was an echoing effect and the returns decreased in 2009, and then recovered. COMMISSIONER FISHER asked if it was reasonable to view the values as high going into the financial crisis and the portfolio may have overpaid for those real assets. MR. CENTER agreed and believes it can be viewed as implementation cost of real assets going into the financial crisis.

MR. MITCHELL believes two dynamics occurred in 2009. The first was the underperformance of the alternative illiquid assets. The second was the lag compared to peers recovering with a higher weight in public markets. COMMISSIONER FISHER requested additional information because his mindset has been having an overweight to illiquid assets benefits the portfolio long-term, and what the numbers are reflecting is the overweight has not benefited the portfolio. MR. CENTER stated real assets have had a negative impact on the total plan performance for the 10-year period. Private equity has had a positive impact on the total plan performance for the 10-year period.

COMMISSIONER FISHER requested insight as to how to allocate going forward, given corrections will occur again. MR. ERLENDSON expressed some of the impact was because of the unfortunate timing when the portfolio was implemented. The shorter time periods show the success of the program going forward. MR. CENTER added one of the changes the

ARMB and staff have made is to continue to invest in the alternative asset classes, the private market asset classes, on a systemic basis to diversify away from having an investment period that hits on the top of valuations. Callan also agrees the recommended changes to the real assets portfolio that were discussed yesterday make sense.

MR. CENTER reported the PERS Sharpe ratio ranked above median versus peers over the last three years and five years, and slightly below median over 10 years. The standard deviation of the plan over the last three years and five years exhibited a slightly higher risk profile than peers, and a lower than median standard deviation over 10 years. This is due to the peers having a higher allocation to publically traded equities and PERS having a higher allocation to private market assets, which tend to exhibit a lower standard deviation.

MR. CENTER advised the preliminary numbers for the quarter ending June 30th show the PERS plan trailed its benchmark by 25 basis points. The key drivers to the underperformance were non-US equity managers and private equity. COMMISSIONER FISHER asked if the reported numbers were gross or net. MR. CENTER noted most of the private assets are reported net and the publically traded assets are reported gross. He realized the net return for the fiscal year-end should have been provided and will send the numbers to the Board members. The PERS plan outperformed its benchmark by 75 basis points for the one-year. This was driven by a strong performance from private equity and the real assets portfolio.

MR. CENTER informed both PERS and TRS outperformed their target with second quartile performance over the last one, two, three, five, and seven-year periods. The 10-year performance underperformed the median and the benchmark. Both PERS and TRS outperformed the benchmark by approximately 10 basis points over the long-term of 26 ¾ years. MR. CENTER reviewed PERS asset class performance versus each benchmark. The total domestic equity portfolio outperformed the benchmark for the last quarter and last year, and has slightly trailed the benchmark over the last three, five, six, and 10-years. The active large cap allocation trailed the benchmark during the quarter. There were quite a few changes during the quarter with the removal of Barrow Hanley, QMA, and Alliance active large cap strategies. This makes the large cap equity portfolio almost all passively managed now.

MR. ERLENDSON explained tracking error is a measure of the variability of the returns above or below the benchmark. Lower tracking error suggests greater consistency relative to the benchmark. Higher tracking error suggests a greater uncertainty relative to the benchmark. MR. CENTER discussed the large cap equity portfolio had a low tracking error over the last five years. MR. MITCHELL noted the passive mandates are not managing explicitly against the Russell 3000, and he expects some measure of tracking error as a result. MR. CENTER informed the small cap portfolio has performed well versus the benchmarks over the last year and last five years with low tracking error. The micro cap exposure has performed well and has been additive to the portfolio over the last 5 years.

MR. WILLIAMS commented the small cap domestic equity numbers are shown gross of fee and he would like to include the net of fee numbers for a benchmark comparison. MR. CENTER explained he will include the net of fee performance for the small cap pool in the next quarter's report in a table format. The net of fee performance information for the peer group is unavailable and is why gross numbers are compared to the peer group distribution.

MR. CENTER advised the performance of the international equity portfolio has outpaced the benchmark over all time periods. One strategy was exited in the international equity portfolio. There was strong performance from the developed market portfolio, all outperforming their indices. MR. CENTER focused on the emerging market portfolio. The newly funded DePrince, Race, and Zollo (DRZ) emerging market strategy that replaced the Parametric Eaton Vance strategy was off to a bumpy start, down 10% during the quarter. Lazard continues to struggle because their contrarian value style is substantially out of favor. In 2017, the rally was driven by growth and value underperformed by 20%. Additionally, Lazard is underweight China and since it is a value strategy, the portfolio cannot allocate to two of the best performing growth stocks, TenCent and Alibaba. In the last year, Lazard basically returned zero-percent and the index returned 8.5%. Lazard has remained consistent with their philosophy and staff feels they continue to be a good choice for a value-focused manager. Staff believes replacing Eaton Vance with another growth manager will add value to the overall emerging market portfolio.

MR. CENTER discussed the total fixed income portfolio over the last year was down 70 basis points, which was due to movements on the shorter end of the yield curve. The overall opportunistic portfolio has performed well over the last year, at a positive 5.25%. Both tactical and municipal fixed income have performed well. Emerging market debt portfolios have struggled due to the impact of the strength of the US dollar. MR. CENTER noted real assets performance was discussed in detail yesterday. The preliminary numbers for the absolute return portfolio shows performance was below peers.

MR. CENTER gave an overview of the Defined Contribution (DC) plans. PERS and TRS CD plans continue to experience net positive flows on a quarterly basis. The Deferred Comp plan has experienced net negative outflows on a quarterly basis for the last couple of years. MR. CENTER described the stoplight charts for the investment options. Overall, performance was positive, with very good performance from the active side. There was an error in reporting the Alliance Socially Responsible Fund and should be corrected from the one-month return number of 0.4% to the one-quarter return number of 2.4%. As a result, the one year changes to 15.7%, and the three-year changes to 10.7%. The passive funds showed minor deviation from a couple of the index funds on the positive side with better risk numbers than the benchmark. The TIPS market has been notoriously difficult to manage on a passive basis because the benchmark has no trading costs. There are only 30 securities in the portfolio and passive replication consistently lags the benchmark.

CHAIR JOHNSON recessed the meeting from 2:36 p.m. to 2:42 p.m.

22. INVESTMENT ACTIONS

MR. MITCHELL addressed many of the following action items have been the focus of presentations and have been discussed. For those action items, staff will provide the recommendation and additional examination will occur, as desired by Trustees. The action items that have not been reviewed will be described fully.

A. Scientific Beta Non-US Manager Selection

MR. MITCHELL stated staff recommends the Alaska Retirement Management Board direct staff to contract with Legal & General to manage a passive mandate benchmarked against the Scientific Beta Developed Ex-US Multi-Beta Multi-Strategy Four-Factor Equal Weight Index and the Scientific Beta Emerging Multi-Beta Multi-Strategy Four-Factor Equal Weight Index, subject to successful contract and fee negotiations.

MR. BRICE moved to direct staff to contract with Legal & General to manage a passive mandate benchmarked against the Scientific Beta Developed Ex-US Multi-Beta Multi-Strategy Four-Factor Equal Weight Index and the Scientific Beta Emerging Multi-Beta Multi-Strategy Four-Factor Equal Weight Index, subject to successful contract and fee negotiations. MR. WILLIAMS seconded the motion.

CHAIR JOHNSON requested the amount proposed for this recommendation. MR. MITCHELL advised the initial investments will be in the range of $100 million to $200 million each.

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

B. Non-US Cap Weighted Manager Selection

MR. MITCHELL stated staff recommends the Alaska Retirement Management Board direct staff to terminate the existing mandates with SSGA and BlackRock benchmarked against the MSC All Country World Ex-USA IMI. Additionally, ARM Board direct staff to contract with SSGA to manage a passive mandate benchmarked against the MSCI World Ex-USA Investable Market Index and a passive mandate benchmarked against the MSCI Emerging Markets Index, subject to successful contract and fee negotiations.

MR. WEST moved to direct staff to terminate the existing mandates with SSGA and BlackRock benchmarked against the MSC All Country World Ex-USA IMI. Additionally, ARM Board direct staff to contract with SSGA to manage a passive mandate benchmarked against the MSCI World Ex-USA Investable Market Index and a passive mandate benchmarked against the MSCI Emerging Markets Index, subject to successful contract and fee negotiations. MS. HARBO seconded the motion.

COMMISSIONER FISHER inquired if deliberations were considered from both BlackRock and SSGA for the new mandates. MR. MITCHELL agreed.

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

C. Analytic Treasuries

MR. MITCHELL provided background information regarding the next action item. The ARM Board manager Analytic manages a Buy-Write strategy. Components of the strategy include the purchase of a passive S&P mandate, a set of derivative option overlays, and equity futures, which require margin cash and buffer cash for the derivatives. The current investment guidelines do not allow for the investment of that cash and it is sitting uninvested. Staff recommends the Alaska Retirement Board direct staff to modify the contract with Analytic to allow investment in US Treasury positions with maturities up to 12 months, and that the US Treasury positions count toward the existing 10% limit on cash equivalents in the portfolio.

MS. HARBO moved to direct staff to modify the contract with Analytic to allow investment in US Treasury positions with maturities up to 12 months, and that the US Treasury positions count toward the existing 10% limit on cash equivalents in the portfolio. MS. ERCHINGER seconded the motion.

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

D. Asset Liability Study

MR. MITCHELL recalled in March of 2003, Independent Fiduciary Services presented a fiduciary audit report to the ASPIB, which included a recommendation to conduct an asset liability study for the portfolio every five years, as best practice. The ARM Board conducted its most recent asset liability study in 2009. Staff believes it is appropriate timing to conduct the next liability study, particularly in light of the experience study process and revision of actuarial assumptions. The asset liability study will more explicitly combine the assets and liabilities and forecast of how the potential portfolio performance, using the Monte Carlo analysis to identify the risk profile of the portfolio with respect to paying the liabilities in the future. Staff recommends the Alaska Retirement Management Board authorize an asset liability study to be conducted by Callan.

MS. HARBO moved to authorize an asset liability study to be conducted by Callan. MS. ERCHINGER seconded the motion.

MR. WEST inquired regarding the cost of the study and the timing of the study; why it was not pursued every five years, as recommended. He believes the liability study would be a more valuable tool on a continuing basis creating a comparison track record of studies. MR. MITCHELL stated the cost will be $105,000, and noted the concerns of MR. WEST.

MR. WEST suggested the liability study could be embedded in Callan's contract in the future.

MR. CENTER acknowledged corporate pension plans conduct asset liability studies on a more frequent basis, every three to five-years, than do public funds. He agreed the asset liability study for the portfolio should be performed more often.

CHAIR JOHNSON asked for the expected completion date of the study. MR. MITCHELL noted Callan is optimistic the April Board meeting timeline can be reached, even with tabling the Experience Study assumptions resolution until the December meeting.

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

E. RFP for General Consultant

MR. MITCHELL described the last two action items relate to a request to conduct an RFP for the two consultants; general consultant and real estate specialist consultant. Staff recommends the scope of the specialist consultant be expanded to include the entire real assets asset class. MR. MITCHELL believes having a specialist consultant is advisable. Staff recommends the Alaska Retirement Management Board direct staff to issue an RFP for a general consultant in a timeframe that will result in a general consultant contract being in place by July 1, 2019. The performance period of the contract will be for three years, with two optional one-year extensions.

MS. HARBO moved to direct staff to issue an RFP for a general consultant in a timeframe that will result in a general consultant contract being in place by July 1, 2019. The performance period of the contract will be for three years, with two optional one-year extensions. MS. ERCHINGER seconded the motion.

CHAIR JOHNSON inquired if one or more of the ARM Board members are involved in the review stage of the contract. MR. MITCHELL agreed.

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

F. RFP for Real Assets Consultant

MR. MITCHELL stated staff recommends the Alaska Retirement Management Board direct staff to prepare and issue an RFP for a real assets consultant for the Board in a timeframe that will result in a real assets consultant contract being in place by July 1, 2019. The performance period of the contract will be for three years, with two optional one-year extensions.

MS. HARBO moved to direct staff to prepare and issue an RFP for a real assets consultant for the Board in a timeframe that will result in a real assets consultant contract being in place by July 1, 2019. The performance period of the contract will be for three years, with two optional one-year extensions. MS. ERCHINGER seconded the motion.

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

C. Adoption: Real Assets FY19 Plan & Policies
Resolution 2018-14

VICE-CHAIR SCHUBERT moved to take from the table Resolutions 2018-14 through 2018-18. MS. HARBO seconded the motion.

A roll call vote was taken, and the motion to take from the table Resolutions 2018-14 through 2018-18 passed unanimously.

VICE-CHAIR SCHUBERT withdrew her previous motion to adopt Resolutions 2018-14 through 2018-18. MS. HARBO withdrew her second.

CHAIR JOHNSON informed no vote is need for a withdrawal of a motion by the maker and the second. CHAIR JOHNSON opened the subject matter for discussion and requested MR. MITCHELL to proceed. MR. MITCHELL expressed appreciation to the Board for their patience and indulgence in these matters. He apologized for the lack of coherence in the presentation of the previous request to approve Resolution 2018-14. The primary exhibit was presented during executive session. MR. MITCHELL noted the members have received a presentation staff created, which is the Annual Real Assets Investment Plan. The Board will be asked to adopt the annual plan, which is the provided presentation. A vote to adopt the resolution will keep the existing resolutions in force until they are changed, will eliminate the TIPS portfolio, will adopt the changes included in the plan, as presented, and will accept the information regarding staff's recommendations on real estate and infrastructure for informational purposes only. The Board will take action on real estate and infrastructure separately. It is staff's intent to present to the Board in December regarding the timberland and farmland subcomponents.

MR. MITCHELL reviewed the highlights of the Annual Real Assets Investment Plan. Staff proposed changes to the approach involving language, objectives, strategy, and return expectations. Staff recommends termination of the TIPS portfolio. MR. ORR discussed the major elements of the recommendations in the real estate infrastructure investment guidelines includes reweighting the real asset portfolio that would decrease the allocation to core real estate and private core real estate, and increase the REIT allocation and the non-core allocation. Within each of the private core real estate allocation, staff is recommending a shift from separate accounts to open-ended core comingled funds. The UBS account would be used as a source of liquidity to fund the increase to the non-core allocation. The LaSalle account would sell assets that are currently being prepared to market and transfer two assets to the BlackRock US Core Property Fund. The requirement for a minimum of three separate account managers will have to be removed.

MR. ORR continued to describe the plan and noted the recommendation to invest the non-core space in a more even way going forward, both in pace and in size. Staff recommends changing the guidelines to make it explicitly clear investments in private debt can be executed. The recommendation for infrastructure is to change the benchmark to be more reflective of what is contained in the portfolio. Staff recommends the ARM Board approve Resolution 2018-14, which adopts the Real Assets Annual Investment Plan.

MS. HARBO moved to approve Resolution 2018-14, which adopts the Real Assets Annual Investment Plan. MS. ERCHINGER seconded the motion.

MR. WILLIAMS requested additional information regarding what is being represented on the TIPS slide. MR. MITCHELL explained the slide is demonstrating the real yields have fallen over the past 10 years and are at low levels. It has a fair amount of interest rate risk and it is not really generating a return that is sufficient to warrant keeping it in the real assets portfolio.

MS. ERCHINGER requested staff's view on the impact of the move from private core real estate to non-core on the decision regarding comingled funds and separate accounts. MR. MITCHELL noted it has been 10 years since the portfolio experienced any difficulty in the real assets portfolio. The recommendations to move to comingled vehicles are driven by the anticipation of better prospects for performance, better quality attention, and more diversified portfolios. MR. MITCHELL expressed concern both comingled funds and separate accounts would have liquidity issues in another event like the global financial crisis.

CHAIR JOHNSON requested clarification if the Real Estate Recommendations Core section regarding the transfer of Sentinel's separate accounts are contemplated in this action before the Board and would constitute delegation. MR. MITCHELL informed staff's intent is to bring those recommendations before the full Board for consideration prior to making any changes.

A roll call vote was taken, and <u>the motion passed unanimously.</u>

Action: Revised Investment Guidelines
Resolution 2018-15 Real Estate

MR. MITCHELL related a second packet has been provided to Board members, which is an action item detailing the proposed changes to the real estate and infrastructure portfolios. Also included in the packet is the red-lined version of the changes to the underlying investment guidelines. Staff recommends the ARM Board approve Resolution 2018-15, which adopts the Revised Real Estate Investment Guidelines.

<u>MS. HARBO moved to approve Resolution 2018-15, which adopts the Revised Real Estate Investment Guidelines.</u> <u>MS. ERCHINGER seconded the motion.</u>

A roll call vote was taken, and <u>the motion passed unanimously.</u>

Resolution 2018-16 - Infrastructure

MR. MITCHELL stated staff recommends the ARM Board approve Resolution 2018-16, which adopts the Revised Infrastructure Investment Guidelines.

<u>MS. HARBO moved to approve Resolution 2018-16, which adopts the Revised Infrastructure Investment Guidelines.</u> <u>MS. ERCHINGER seconded the motion.</u>

COMMISSIONER FISHER requested additional explanation for the proposed benchmark for infrastructure set at CPI plus four. This is below the target for the fund. MR. MITCHELL explained the CPI plus four was chosen because it is consistent with the current Callan capital assumptions for the asset class. The broader role of the real assets portfolio is to have returns between equities and fixed income. COMMISSIONER FISHER referred to the presentations given regarding the targets the managers expect are within the range of 8% to 12%. This is materially higher than CPI plus four. He believes this benchmark change is setting a low bar compared to what the managers believe they can achieve. COMMISSIONER FISHER noted an under-allocation to infrastructure could occur because the return is expected to be between 6% and 10%.

CHAIR JOHNSON requested Callan and IAC members comment on the reasonability of the resolution. MR. ERLENDSON noted a target of 10% to 12% nominal rate of return assumes an 8% to 10% real return, which he believes is aspirational. He feels to plan on those returns occurring is a set up for disappointment. MR. ERLENDSON agrees the proposal brought forth by staff is reasonable and the return for this asset class falls between stocks and bonds. MR. SHAW commented each asset class has some level of normalized real return assumption. He believes 4% is reasonable for real returns on infrastructure assets. DR. JENNINGS concurred the return for this asset class is between stocks and bonds. He noted the aspirational rates of return are assuming a project is successful. In two presentations the Board heard today, catastrophes occurred, which will affect the realized results below the 8% to 10% range.

MR. WILLIAMS inquired as to the possibilities of changing from CPI plus four to CPI plus eight or CPI plus 4.5. MR. MITCHELL informed CPI plus four is a general number. The exact Callan number was not used.

MR. WEST commented the possibility of allowing the managers to underperform by using a CPI plus four benchmark is unadvisable. If the managers returned a CPI plus 4.5 for the next 10 years, it is above the benchmark, but not near the returns promised. He feels the benchmark should be what the managers are telling the Board they expect and would be in favor of CPI plus six.

A roll call vote was taken, and <u>the motion passed, with COMMISSIONER FISHER, MR. WEST, MR. WILLIAMS voting against.</u>

CHAIR JOHNSON expressed appreciation to MR. MITCHELL, staff, and Board members for their indulgence in these complex matters.

UNFINISHED BUSINESS

MS. ERCHINGER stated for the record the Actuarial Committee deliberated on the actuarially-determined recommended contribution amount for the National Guard and Naval Militia Retirement System (NGNMRS) that exceeds the funded ratio. The legislative intent language in House Bill 286 requests the Board take into consideration the funded status of NGNMRS when setting the contribution rate. The plan was funded in excess of 100%. The reason for accepting the actuarially-determined contribution amount is the uncertainty of the historical data received from employers in the plan that does not identify all of the potential retirees who could be eligible for benefits. The plan beneficiaries receive a set dollar amount and the plan is not subject to inflationary pressures. To the extent the plan has under-identified potential retirees, they are not fully accounted for when setting the actuarial required contributions.

NEW BUSINESS

CHAIR JOHNSON noted the record will reflect the items to be brought before the Board at the December meeting.

OTHER MATTERS TO PROPERLY COME BEFORE THE BOARD
None

PUBLIC/MEMBER COMMENTS
None

INVESTMENT ADVISORY COUNCIL COMMENTS

DR. JENNINGS commented there was much information received regarding infrastructure and he anticipates more being discussed at the upcoming education conference. DR. JENNINGS believes there are good reasons to have infrastructure in the portfolio, above and beyond the return numbers, including the importance of the liability hedging and the inflation sensitivity. He provided a few comments to frame the thinking during the conference. Public infrastructure feels like a sector fund and much of what is discussed sounds like essentially a fundamental governmental function.

DR. JENNINGS noted he was not ready to respond adequately to the previous question from COMMISSIONER FISHER regarding manager structure. DR. JENNINGS reminded the Board that a $250 million allocation is only about 1% of the portfolio size. Manager risk and manager confidence are two considerations necessary in determining the amount of the allocations for different managers. DR. JENNINGS expressed the tendency is to want to split the allocation and have two managers. He argued for resisting the general temptations to split. Cross-referencing to other parts of the portfolio is advised when considering allocations. On the private side of the portfolio there are typically smaller manager allocations for private real estate and private equity that may lead to multiple managers in small positions in private infrastructure. If the view is taken that public infrastructure is another active manager in public equities, the conclusion may be that $100 million is a small allocation in public equities, whereas $100 million on the private side is a large allocation.

MR. SHAW announced BOB GILLAM's funeral service will be held at the Hotel Captain Cook, Sunday at 2:00 p.m.

TRUSTEE COMMENTS

CHAIR JOHNSON expressed appreciation to the staff in their efforts providing presentations and being responsive to inquiries and questions, particularly with the tabling of the real assets policies and procedures and the reconsideration today. CHAIR JOHNSON expressed appreciation for COMMISSIONER FISHER for his questions and comments. He believes today showed the process of deliberation at work. CHAIR JOHNSON urged staff to proceed with caution and pay special attention to the contract drafting and details during negotiations with the McKinley Capital mandate. CHAIR JOHNSON voted against the investment because of the cautionary comments from Callan regarding being the first investor and considering the significant passing of MR. GILLAM. He believed it was an appropriate time to go slowly.

MR. WILLIAMS expressed particular appreciation to staff, MR. MITCHELL, and IAC members for their patience in taking the time to explain and frame issues in a way that help him become more effective and competent as a Board member. He found the presentations to be very informative and thoughtful.

FUTURE AGENDA ITEMS

CHAIR JOHNSON suggested some of the items discussed as new business may appropriately relate to future agenda items. A review of the record will show what items are being carried forward to December and otherwise.

ADJOURNMENT

There being no objection and no further business to come before the Board, the meeting was adjourned at 3:50 p.m. on September 21, 2018, on a motion made by MS. HARBO and seconded by MS. ERCHINGER.

Chair of the Board of Trustees
Alaska Retirement Management Board
ATTEST:

Gayle Harbo

Corporate Secretary