State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
MEETING

Videoconference

MINUTES OF
December 2-3, 2021

Thursday, December 2, 2021

CALL TO ORDER

CHAIR ROBERT JOHNSON called the videoconference of the Alaska Retirement Management Board (ARMB) to order at 9:01 a.m.

ROLL CALL

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

Board Members Present
Robert Johnson, *Chair*
Bob Williams, *Vice-Chair*
Gayle Harbo, *Secretary*
Lorne Bretz
Allen Hippler
Commissioner Lucinda Mahoney (late on 12/2/21)
Dennis Moen
Donald Krohn
Commissioner Paula Vrana

Board Members Absent
Commissioner Lucinda Mahoney (absent 12/3/2021)

Investment Advisory Council Members Present
Dr. William Jennings
Dr. Jerrold Mitchell
Ruth Ryerson

Department of Revenue Staff Present
Zachary Hanna, Chief Investment Officer
Pamela Leary, Director, Treasury Division
Scott Jones, Head of Investment Operations, Performance & Analytics

Michelle Prebula, State Investment Officer
Kevin Elliot, State Investment Officer
Casey Colton, State Investment Officer
Benjamin Garrett, State Investment Officer
Victor Djajalie, State Investment Officer
Shane Carson, State Investment Officer
Mark Moon, State Investment Officer
Sean Howard, State Investment Officer
Steve Sikes, State Investment Officer
Ryan Kauzlarich, Accountant V
Hunter Romberg, Investment Data Analyst
Grant Ficek, Business Analyst
Alysia Jones, Board Liaison

Department of Administration Staff Present
Ajay Desai, Director, Division of Retirement & Benefits
Jim Puckett, Deputy Director, Division of Retirement & Benefits
Kevin Worley, Chief Financial Officer, Division of Retirement & Benefits
Roberto Aceveda, Benefits and Counseling Manager,
Emily Ricci, Health Care Policy Administrator, Division of Retirement & Benefits
Amanda Pillifant, Department of Administration
Mark Rosier, Department of Administration

ARMB Legal Counsel Present
Benjamin Hofmeister, Assistant Attorney General, Department of Law

Consultants, Invited Participants
Steve Center, Callan
Paul Erlendson, Callan
Gary Robertson, Callan
Brady O'Connell, Callan
David Kershner, Buck
Scott Young, Buck
Tonya Manning, Buck
Melissa Beedle, KPMG
Elizabeth Stuart, KPMG
Paul Wood, Gabriel Roeder Smith
Bill Detweiler, Gabriel Roeder Smith
David Lebovitz, J.P. Morgan
Jeff Shields, J.P. Morgan
Deasee Phillips, J.P. Morgan
Dave Schiller, Summit
Peter Chung, Summit
Tony Salewski, Genstar
Carson Ewanich, Genstar

Others Present
Elaine Schroeder, Public
John Hudson, Public
Mike Vieira, Public
Doug Woodby, Public
Bob Schroeder, Public
Jim Simard, Public

PUBLIC MEETING NOTICE

Board Liaison ALYSIA JONES confirmed that public meeting notice requirements had been met.

APPROVAL OF AGENDA

MS. HARBO moved to approve the agenda. MR. WILLIAMS seconded the motion.

PUBLIC/MEMBER PARTICIPATION, COMMUNICATIONS AND APPEARANCES

CHAIR JOHNSON invited MS. SCHROEDER to speak.

MS. SCHROEDER said she was an Alaska State pension beneficiary that lived in Juneau. She reminded the Board that 350Juneau had previously testified before the Board and noted that they were part of a rapidly growing international movement of people who cared about the climate crisis and the financial solidity of the pension funds.

MS. SCHROEDER explained that the international fossil fuel divestment movement had grown to become a major global influence on energy policy, with 1,485 institutions publicly committed to some form of fossil fuel divestment, representing $39.2 trillion of assets under management.

MS. SCHROEDER noted that new divestment commitments from institutions such as Harvard University, PME and CDPQ, La Banque Postale, the City of Baltimore and the Ford and MacArthur Foundations. Other new commitments to divest included the cites of Rio de Janeiro, Glasgow, Paris, Seattle, Auckland, and Copenhagen, led by London and New York City pension funds.

MS. SCHROEDER said that they all want a healthy climate and healthy pension funds, that there were no contradictions between the two goals. She said they were asking the Board to conduct a transparent climate risk assessment and act on the findings.

MR. HUDSON spoke next stating that he was a state pension beneficiary and was a member of 350Juneau Climate Action for Alaska. He said the fossil fuel industry had argued that divestment from coal, oil and gas would cause financial harm to institutional investors, but recently, BlackRock had published a research report on the subject finding that investors had experienced neutral to

positive results after divesting from fossil fuels. He said that fossil fuel divestment options had outperformed all other options in the benchmark portfolio and fossil fuel investments had consistently underperformed the broader market over the past five years.

MR. HUDSON said the BlackRock report warned that fossil fuel reserves may become unusable in a low-carbon scenario where they would either face precipitous devaluation or become stranded. He said that evidence in the downward slide was seen in the market. He noted that in 1980, fossil fuel industries accounted for 28 percent of the stock market's value, where today, the share is less than 3 percent. He said that failure to recognize the industry's decline would be costly, that three major pension funds resisted the demands to divest and paid the price in billions of dollars over the last 10 years. He said the California State Teachers' Retirement Fund would have gained $5.5 billion if they had divested from fossil fuels and the California Public Employee's Retirement Fund would have gained $12 billion if they had divested.

MR. HUDSON said that investment managers had a legal responsibility to make the best financial decisions on behalf of the beneficiaries and with renewable energy growing faster than expected, and the demand for fossil fuels falling faster than expected, he said that it would be wise for the Board to consider divesting from fossil fuels and toward low-carbon energy industries.

MR. VIEIRA said that he was a teacher in the Sitka School District and currently serving as president of the Sitka Education Association and also as a member of the NEA-Alaska Saving Our Alaska Retirement Committee for several years.

MR. VIEIRA said that he was a member of the Tier 3 TRS system and was frustrated with the continued delay of the brokerage window option in the Tier 3 retirement system. He said they had been given only 32 options to invest in to take the risk and manage their entire success in retirement. He noted that the three-legged stool that most rely on is only two for them, with any option of Social Security being removed. He said the association in Sitka had been educating their members. He said they held an event in October where 40 percent of their membership registered to attend. They invited Empower to attend and presented information to help members begin to plan and be successful in retirement.

MR. VIEIRA said they had been promised that the brokerage window would be open by November 28th and promoted it and many people were eager to sign up for the state's 457 plan. He had checked with MR. PUCKETT on the date it was supposed to open, only to be told that it was not going to happen. He said that trust was broken between TRS members and the State Department of Retirement.

MR. VIEIRA said that he had friends around the country that also worked for public entities with Empower as their financial recordkeeper and they had access to brokerage windows. He urged the ARMB to have a sense of urgency to make it happen; MR. HIPPLER asked what percentage of teachers would use the brokerage window once it came online; MR. VIEIRA thought that five to 10 percent would immediately join and as the younger generation of teachers came in, he thought they would as well. He guessed that it would take three years and it would reach 50 percent.

MR. WOODBY said that he was a state pension beneficiary in Juneau and a member of 350Juneau

Climate Action for Alaska. He thanked the state's staff members for their response to his public records request in September asking for listing of all holdings in the nondirected funds at the end of the last fiscal year. He said they had gone above and beyond his request by also sending him a list of investments they classified as fossil fuel related.

MR. WOODBY explained that 350Juneau had, in September, conducted analyses of fossil fuel holdings in pension funds from 11 states with the assistance from Third Rail Economics, a financial analytics firm specializing in the energy sector. He said the data staff sent to him in September showed the proportion of fossil fuel holdings as 3.1 percent of the public equity and fixed income positions. He said that their analysis found over twice that amount at roughly 6.4 percent and the top 10 included producers in utilities such as Florida Power and Light, Berkshire Hathaway Energy, Shell International Finance, and Chevron USA. He said that 100 additional holdings that they identified were in companies on the global coal exit list. He then shared a quote from a Moody's research report released in October. He said "Across the G20, financial firms hold $22 trillion in loans and investments subject to carbon transition risk. Financial firms are under rising regulatory and commercial pressure to support the global sustainability drive. As the race to net zero emissions accelerates, banks, insurers, and asset managers will need to ramp up climate risk assessments and set clear goals for reaching net zero in their finance emissions."

MR. SCHROEDER said that he was a resident of Juneau and an early retiree, and that the state of Alaska fixed benefit and pension had provided him with financial stability for over 20 years. He said he had testified before urging the ARMB to examine its fossil fuel holdings and other investments that prop up the declining fossil fuel extraction industry. He said he had also urged the ARMB to evaluate the climate risk posed to its whole portfolio.

MR. SCHROEDER said his testimony focused on ARMB's use of private equity. He said that the ARMB has allocated 13 to 14 percent of the total funds to private equity. That his concern with private equity was that private equity investments were opaque since disclosure and reporting requirements were much weaker than market traded equities and bonds. He said that made it near to impossible for a pension holder to know exactly how the money was invested. He also noted that private equity holdings were of short duration. He said it often bolsters failing fossil fuel industries. He said according to the New York Times, private equity had invested at least $1.1 trillion in the energy sector with 88 percent of it going into fossil fuel companies

MR. SCHROEDER said that private equities may make money in the short term, but they were not likely to be sound in the long term as transition occurs from a carbon-based economy and society. He urged the ARMB to have staff look closer at private equity investments to see if they matched the transparency requirements, long-term investment strategy, and the emerging climate risk posture of the ARMB.

MR. SCHROEDER thanked the ARMB for providing data on investment holding and asked for similar cooperation in their examination of private equity holdings.

MR. SIMARD said that he too was a member of the 350Juneau Climate Action for Alaska, an Alaska state pension beneficiary, and a concerned grandfather. He said he had recently spoke with the Board

about the risks to the retirement fund investments posed by the climate-related litigation against the fossil fuel industry. He noted that the number of climate related suits had steadily increased. He said among the most promising were those filed by indigenous people with treaty rights to land and water resources that were impacted by climate disruptions.

MR. SIMARD said that in March, the Ontario Superior Court of Justice rejected a motion to dismiss filed by the province of Ontario in a suit filed on behalf of seven plaintiffs who alleged the provincial government violated the Canadian Charter of Rights and Freedom by failing to address climate change. He said one of the most interesting U.S. cases was brought by the State of Vermont against ExxonMobil and Shell and others, not asking for financial damages but to require producers of oil sold in Vermont to label their products as dangerous to the health of the global climate when used as they were intended. He said the suit contended that the oil producers had engaged in decades-long disinformation activities, depriving Vermont consumers of the information needed to make informed choices.

MR. SIMARD asked that the Board divest from risky and threatened oil stocks, and shift investments to renewable energy sources. He suggested that the Board be transparent about its moves, so that Alaskans could educate themselves about the economic risks.

CHAIR JOHNSON thanked the speakers.

APPROVAL OF MINUTES – 9/23-24/2021

MS. HARBO moved to approve the minutes of the September 23-24, 2021, meeting of the ARMB. MR. KROHN seconded the motion.

With no objections, the minutes were approved.

APPROVAL OF MINUTES – 10/11/2021

MS. HARBO moved to approve the minutes of the October 11, 2021, meeting of the ARMB. MR. KROHN seconded the motion.

With no objections, the minutes were approved.

ELECTION OF OFFICERS

CHAIR JOHNSON announced that he was stepping down from the office and would decline any nominations for any of the offices on the ARMB. CHAIR JOHNSON then asked for nominations.

MS. HARBO thanked CHAIR JOHNSON for his service noting that he had been a great chair. MS. HARBO nominated MR. WILLIAMS as Chair, MR. HIPPLER as Vice-Chair and herself as Secretary.

CHAIR JOHNSON said the slate had been proposed and asked if anyone else wished to step up and

if there were any other proposals for alternatives to the slate proposed by MS. HARBO; MR. MOEN said that there were no objections.

MR. BRETZ seconded the nominations.

CHAIR JOHNSON accepted the second and asked if the proposed members were all agreeable to serving if elected; MR. WILLIAMS, MR. HIPPLER and MS. HARBO all agreed.

CHAIR JOHNSON asked if there were any objections to considering the nominations as a slate as opposed to position by position; no objection was noted.

A roll call vote was taken, and the proposed slate of MR. WILLIAMS as Chair, MR. HIPPLER as Vice Chair and MS. HARBO as Secretary passed unanimously.

CHAIR JOHNSON said that he would hand off the gavel to MR. WILLIAMS.

STAFF REPORTS

A. Retirement & Benefits Division Report

1. **Buck Consulting Invoices**
2. **Member Statistics**

MR. WORLEY turned attention to pages 68-70 of the PDF Board packet which was the Summary of Monthly Billings from Buck. He said the summary was at the request of the Board and the information provided was for the quarter ending September 30 and the next report would be in March for the two periods ending September 30 and December 30.

MR. WORLEY said that pages 71 through 75 of the PDF was the quarterly report as of September 30, 2021, for membership of PERS, TRS, JRS, the National Guard, SBS and Deferred Comp. He noted that prior statistics for June 30, 2021 were included for comparison.

MS. HARBO asked about the 151 partial disbursements for PERS DC members and if it meant they were taking some of the money that was contributed out, and not the full amount; MR. WORLEY said they have some provisions about partials and that they could be hardship requests. He said it would be discussed in detail in the cash flow portion of the presentation.

MR. DESAI noted that the Division of Retirement and Benefits continued to work on hybrid schedules while maintaining member services. He said they currently had 33 staff members working in office with 58 staff members teleworking full-time and 29 staff members on a hybrid teleworking schedule.

B. Treasury Division Report

MS. LEARY noted that the budget was moving through the appropriate channels, they had met with the Office of Management and Budget and believed there were no issues with the budget going into the Governor's budget. She said they were expecting that the Governor's budget would come through by mid-December and would confirm at the March meeting where they were once the budget goes

through the Legislature.

MS. LEARY introduced MR. KAUZLARICH, assistant comptroller who would be providing the financial report to the Board.

C. Liaison Report

1. Disclosures Report

MS. JONES noted the first report was located on page 75 of the packet and was the third quarter financial disclosures report. She said for the third quarter there were no disclosures that required additional review or discussion.

2. Communication Report

MS. JONES noted that on the communications report, the only change from what had been provided was an email she had forwarded on 11/29 to the Board from CHAIR JOHNSON and that it would be included in the revised version. She said there were communications sent on behalf of the Board and a summary of public records requests received between September 1st and November 30th.

3. Meeting Calendar

MS. JONES said the 2022 meeting calendar was approved at the June meeting.

MR. BRETZ asked what was the course of action if a Trustee was interested in moving dates around; CHAIR WILLIAMS said he could make a request; MR. BRETZ then requested that the September date be moved out one week; MS. JONES noted that APFC's meeting was the 21st and 22nd and the Board may want to take that into consideration as they try not to overlap due to the commissioners' schedule. MR. BRETZ asked if there was an alternative date a week later or a week earlier; MR. HANNA suggested to take the discussion offline as there was much to discuss. MR. BRETZ agreed.

MS. JONES then displayed page 79 which showed a timeline of contract and review deadlines for FY2022-FY2027. She said that it was a work in progress at the request of former CHAIR JOHNSON. She said it was designed to show what needed to be completed in what fiscal year.

MS. HARBO commented that it was very helpful and thanked MS. JONES.

MR. JOHNSON said it was terrific and suggested it be placed as page 1 of future Board packets as a reminder to everyone.

CHAIR WILLIAMS noted that it lays it out so they know what was coming and why so they could be prepared for it.

D. CIO Report

MR. HANNA noted that the third quarter had been relatively mild followed by a strong performance for October and most of November. He said the market was extremely volatile with several different things driving the markets. He said the new COVID variant, increasing concerns about inflation, the upcoming debt ceiling decision, rising interest rates, and the tapering Federal Reserve were some of the culprits.

MR. HANNA said that Callan would be giving a presentation on inflation, and J.P. Morgan would be presenting their guide to the markets. He said he was looking forward to both the presentations as they were particularly relevant with the fiscal year and actuarial experience study. He said he asked Callan to close the meeting with a presentation highlighting how institutional investors broadly think about reconciling capital market assumptions and actuarial assumptions, as food for thought for the March meeting where Callan will present on the next version of their capital market assumptions.

MR. HANNA said most of the rest of the agenda would be focused on private equity, that MR. HOWARD who manages the portfolio for the ARMB and MR. ROBERTSON from Callan would present that portion. He said that there would also be two private equity groups who would discuss how they approach growth equity and bio investing to provide more perspective on the asset class.

MR. HANNA said that item 2 of his report was the watch list. He said Man Group was the only manager currently on the watch list due to personnel changes. He said that it was expected to be resolved at some point during calendar year 2022. He noted a revision to the version of the watch list that was in the original ARMB packet. He said that Fidelity Real Estate High Income had just reached its six-year mark and had underperformed when compared to its benchmark. He said the net-of-fee performance had been 3.61 percent annualized, compared to the CMBS benchmark of 4.58 percent, a deficit of 123 basis points. He said they focus on commercial mortgage-backed securities which were debt instruments for commercial real estate. He said office properties in particular had been disproportionately impacted by COVID and most of the underperformance occurred during the March 2020 quarter. He said they were recommending the Board make a motion to put them on the watch list.

MS. HARBO so moved. MR. JOHNSON seconded the motion.

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

CHAIR WILLIAMS asked if there was any indication that the personnel changes at the Man Group were going well; MR. HANNA said that it was a thoughtful transfer within their organization. The CIO of the strategy retired and that they thought it was a significant enough of an event to put them on the watch list. He said they were not concerned about that aspect in the long run that they were being thoughtful about it.

MR. HANNA said that item 3 on the agenda included areas where he exercised CIO delegation for contracting. These included a $50 million private equity commitment to Summit XI, a private equity partnership that focuses on growth equity investments in technology, healthcare, life sciences, and growth products and services; a $50 million private equity commitment to Clearlake VII. He said they focus on middle market private equity and special situation investments in technology, industrials, and consumer sectors; and a contract amendment with Brandes that modestly reduced fees.

MR. HANNA said the last section of his report was a summary of the portfolio rebalancing that took place in September and October. He said it focused on risk management, bringing the portfolio back

on a quarterly basis to the ARMB's established asset allocation risk profile. He said during that period they sold $148 million in domestic equities, purchased $61 million in international equity and $87 million in fixed income. He said they continued to increase the active weight in international equity with additions to Baillie Gifford and Brandes. He said they also added $100 million to the internally managed multifactor strategy which balanced out some of what they had with Scientific Beta. He said they also conducted four internal rebalance transactions over the period to equalize relative allocations across plans.

MR. HANNA said that McKinley's Healthcare Transformation strategy continued to perform well, that the annualized net performance through inception was 19.7 percent compared to the benchmark of 16.3 percent.

E. Fund Financial Presentation

MR. KAUZLARICH noted that the financial report began on page 82 of the packet, and it was for the period ending October 31st, 2021. He said that as of November 30th, PERS assets were $25 billion, TRS assets were $11.7 billion, JRS assets were $295.4 million, NGNMRS assets were $50 million, nonparticipant-directed assets totaled $34.2 billion and fiscal year-to-date investment income for nonparticipant-directed funds was approximately $1.5 billion. He said fiscal year-to-date net withdrawals were $362.2 million and invested assets under internal management were $17.6 billion.

MR. WORLEY noted that the Division of Retirement and Benefits' supplement report to Treasury's presentation began on page 110. He explained that within Treasury's report there was a column called "Net Contributions/ (Withdrawals)" and that is the net number for DRB's trusts that they administer. He said that they provide the breakdown of the revenues collected as well as the expenditures incurred by each of those trust plans.

TRUSTEE REPORTS & LEGAL REPORTS

A. Chair Report

CHAIR WILLIAMS turned the Chair report over the MR. JOHNSON.

MR. JOHNSON said the decision to not seek further reappointment or nomination was one he took seriously. He said he had thoroughly enjoyed, appreciated and was very proud of his tenure as chair for four years.

MR. JOHNSON said that since the last Board meeting, he had been involved in matters that suggest a tension between what was discussed at committees and what was discussed at the Board. He said that he wanted to remind CHAIR WILLIAMS and the Trustees to be aware of those tensions.

B. Committee Reports

1. Audit Committee

CHAIR HARBO said the Audit Committee heard a presentation from KPMG but would not go into any details as KPMG would be giving the full report themselves. She said MR. WORLEY had given a report on GASB 68/75 PERS and TRS allocation schedules, which were a work in progress and

commented that they would most likely discuss them at a special meeting in mid-January.

CHAIR HARBO said that MR. WORLEY introduced MS. TRACI WALTHER, who was the new Accountant V and also the compliance officer for the Division of Retirement and Benefits.

CHAIR HARBO said that MS. HELMICK reported on audits to be completed by the Division, noting that they had audited 165 PERS employers and 58 TRS employers. She said they perform several audits each year but for FY2022 they have only one on-site audit of three employers in Fairbanks, and all other planned audits would be desk audits due to travel restrictions.

CHAIR HARBO said that MR. WORLEY spoke about the yearly financial report which was renamed the Annual Comprehensive Financial Report. She noted that there was a requirement under GASB Statement 98 that after December 15, 2021, all financial reports would have the new title.

CHAIR HARBO said they had a presentation from Maximus, a consulting firm that deals with federal funds allocated to the State of Alaska. She said the program required DRB and Treasury to indicate how federal funds were allocated to state programs.

2. DC Plan Committee

CHAIR WILLIAMS said MR. WORLEY discussed member services fees and the differences in the fees. He said the SBS, PERS DC and TRS DC all had a fee of 11 basis points where Deferred Comp had a fee of 17 basis points, which was 55.4 percent higher. He said a question was asked as to how the fees could be changed and what the impacts would be if they were changed.

CHAIR WILLIAMS said MR. PUCKETT presented a chronology of the brokerage window delays saying that there was a breakdown in the process and communication and issues with regulations. He said there was a desire to implement the portions as soon as they could be implemented, but it would be a recurring item on the agenda on the DC Committee until all employees have access.

CHAIR WILLIAMS said there was a report about educational outreach and Empower gave their update. He noted concerns about fee transparency on the website and making them more obvious so the price on what an option costs or what the fees were would be easy to see. He said that would be a recurring agenda item until that was updated.

CHAIR WILLIAMS said MS. RICCI presented on the DC Health Plan update. She had said that a lot of members were not aware that they had to retire directly into it and be employed the 12 months preceding going into it.

CHAIR WILLIAMS said MR. HANNA and MS. PREBULA had been negotiating with T. Rowe Price on ways to improve the target date funds fees and costs. He said most of the DC members were automatically put into a target date fund or were choosing a target date fund and that a large group of people were affected by it. He said T. Rowe Price gave a strong presentation about two options; one would be improving the quality with a slight reduction to fees and the other would be reducing the fees significantly. The staff was recommending Option 1.

CHAIR WILLIAMS made a motion on behalf of the Defined Contribution Committee who recommends the Alaska Retirement Management Board direct staff to amend the contract with T. Rowe Price to implement Option No. 1, the TRP BBT plus Active structure.

MR. HANNA explained Option 2 as providing the same suite of options at the lowest cost possible and using a set of T. Rowe commingled funds rather than the separate accounts currently set up for participants. He said T. Rowe had added a lot of value historically through the use of selective active management for some of the asset classes and in terms of progression through the glide path for participants, there were some asset classes not currently offered in the existing target date offerings that have particular utility at various points in the glide path.

MR. HANNA said the recommendation of Option 1 would include a couple of additional asset classes that they thought would be useful and T. Rowe thought were useful for the target date funds, along with selective use of active management. He said the existing options had a small amount of active management and had been able to overcome the fee load and add 7 or 8 basis points of additional value beyond those fees. He said the expectation was that with some additional tools, they would be able to increase that amount of potential outperformance moving forward.

MS. HARBO said she had remembered that about 10 years ago, people in the DC program had been enrolling in more than one of the target date funds and wondered if, through education with Empower, if that had become less of a problem; CHAIR WILLIAMS said it was something they could find out and that he had remembered the same thing. He said that he looked at the target date funds as something that was immoveable. He commended MR. HANNA and MS. PREBULA on the negotiation.

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

MR. BRETZ asked what the new anticipated date would be for the brokerage window; CHAIR WILLIAMS said there was a legal statutory issue.

MR. HOFMEISTER said overarching all of this was the diminishment clause in the Alaska constitution. He noted that the Alaska Supreme Court takes the diminishment clause in a liberal manner. He said that every lawyer in the Department of Law had looked at it and had concerns because the defined contribution plan replaces retirement income like Social Security. He said if a person decided to use self-directed brokerage account and loses all their money, there were no regulations in place that shows that they waived their ability to make those decisions and there would be diminishment claims in the future and that was what the Department of Law was concerned about, the liability with this option.

MR. HOFMEISTER explained that he was asked by the trustees to look back at SB 141, which was the creation of the Defined Contribution Plan. He noted a conversation between Senator Bunde and Senator Stedman where Senator Bunde asked what would happen if they provided the options through the ARMB and they lose all their money; Senator Stedman said it would be fine because they were

going to set up the system where they would have limited options.

MR. HOFMEISTER said with a self-directed brokerage account, the options would be infinite. He said the Empower documents he had seen had a requirement that the people who wanted to get into a self-directed brokerage account had to check a box that essentially says they have expertise in investment. He found that alarming.

3. Actuarial Committee

MR. HIPPLER noted that the Actuarial Committee meeting focused on the 2021 valuation results. He said an overview of the results indicated gains on asset returns due to outperformance of the market and liability gains on the pension and healthcare side. He said the pension side was due to PRPA and COLA increase variances from the projection, and on the healthcare side, the per capita claims costs were lower than expected. He said that the asset gains and the liability gains contributed to the funding ratios of the plans improving.

MR. HIPPLER said the liability gain involved a discussion of prescription incurred claims cost per member per month and that they were going to look for a more thorough explanation of the prescription claims, costs, and information as to why they spike and decline during certain times.

MR. HIPPLER said the second topic discussed at the meeting was the economic assumptions for the experience study the committee would be engaging in next year. He said the economic assumptions comprise expected nominal returns for various asset classes and projected inflation rates which would result in a real return for assets. He noted that the inflation rate was also important as they calculate the liabilities because it impacted the expected costs on the plans.

4. Operations Committee

MR. JOHNSON said MR. JONES presented an update on preparations of a SWIFT report, which reviews compliance and vulnerabilities on cybersecurity issues. He said the Department of Revenue and Treasury were embarking on a transfer of date to the Azure cloud.

MR. JOHNSON said MS. LEARY spoke of the budget which was in process and that they were searching for a comptroller. He said she also presented the recommendation from the committee to the Board to adopt some amendments to the policy and procedures manual which started on page 118 of the packet. He said the amendments were initiated by a proposal from MR. BRETZ to have a requirement for an annual review of travel costs and such. He said the specific amendment was on page 142 of the packet. He said other amendments dealt with more editorial issues.

MR. JOHNSON advanced what was approved by the committee as a recommendation to the Board to adopt the amendments to the policy and procedures manual as presented in pages 118 through 230 of the Board packet.

MR. JOHNSON advanced the motion on behalf of the committee.

CHAIR WILLIAMS noted that as a motion from the committee, it did not need a second.

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

5. Alaska Retiree Health Plan Advisory Board

MR. BRETZ noted that the retirees were seeing the additional preventive care and preauthorization of prescriptions with a target date of 2022. He said there were a lot of things that had to happen first, and had been happening, such as membership education and documents regarding the changes, training internally and externally for the members. He said telemedicine continued to be higher than prior to 2020. He said it was currently lower than 2020, but members were continuing to utilize that more than in the past.

MR. BRETZ encouraged the use of voluntary long-term care plan, that it was a good value. He said there were currently 12,000 annual claims with expenses totaling $20 million annually. He said the valuation on it showed that the plan was well funded. He said there had been no change in premiums since its inception in 1987.

MR. BRETZ talked about modernization of the healthcare plan and said the Division was looking at a list of items that included requests by advisors and membership. He said the Medicare Advantage plan continued to be a priority and the holdup had been the development of the network and that they hoped to have more progress on that in the new year.

MS. HARBO asked for clarification as to the long-term plan – that people had to sign up for that at retirement; MR. BRETZ said that was correct.

C. Legal Report

MR. HOFMEISTER noted that there had not been much development in terms of the law in the last few months. He said the RPEA case involving the 2014, 2016, and 2018 amendments and changes to the health plan booklet, was ongoing in the Superior Court in Anchorage, that deadlines had been moved forward in terms of dispositive motions and discovery. He said that the intention was for a trial in late January or early February.

MR. HOFMEISTER commented on the Miller v. Division of Retirement and Benefits case which dealt with the jurisdiction of the Office of Administrative Hearings which makes final decisions that are adverse to the person seeking the decision. He said per the regulations of the Division, only adverse decisions are referred to the OAH. He said Miller had received massage therapy that was paid for under the plan, but there was a realization by a third-party administrator that the billing codes were improper. A dispute ensued over billing codes which went through several layers of appeal with the third-party administrator and then the Division finally got it and decided to pay the claims but provide the appellant a letter telling her that in the future the appropriate billing codes needed to be used if future therapy sessions were going to be paid for under the plan. Miller wanted to appeal to the OAH per part of the statute, but since the Division's position was not an adverse decision, there was no need to send it to the OAH. He said due to procedural errors that occurred the case ended up in the Superior Court who agreed with the Division and affirmed the Division's decision. The case then went before the Supreme Court on November 9th and there should be a decision in 2022.

MR. HOFMEISTER then discussed Graham v. State which involved a PERS member. He said a

firefighter won a jury verdict in the Superior Court for breach of contract with his employer. He claimed he should have been promoted sooner and the evidence included the increase in his PERS benefits if he would have been promoted. The jury awarded him $100,000 in past lost wages and $450,000 in future lost wages and benefits. The member asked the Division to have the entire $550,000 be considered compensation as part of one of his three years and award that to his PERS account. DRB only used the past lost wages of $100,000.

MR. HOFMEISTER said the decision was upheld by the OAH then went to the Superior Court which affirmed the OAH decision. The member appealed to the Supreme court who affirmed the Superior Court's decision.

MR. HOFMEISTER then discussed Best v Fairbanks North Star Borough. He said the issue was related to subrogation. He said there was a question as to whether the plan at the Fairbanks North Star Borough, which is a self-funded plan, was actually an insurance policy under Alaska law. He said the analysis the Supreme Court went through was whether or not a self-funded plan like that of Fairbanks North Star Borough was similar to an insurance policy. The Supreme Court found that the Fairbanks North Star Borough plan was not an insurance policy for two reasons: one, because it was self-funded and two, because it was bargained for.

CHAIR WILLIAMS recessed the meeting from 10:47 a.m. until 10:54 a.m.

PRESENTATIONS

A. KPMG Audit Report

MS. BEEDLE said slide 3 and 4 showed the summary of the required communications. She said they had not yet been able to complete the audit of the National Guard System related to the census information. She noted that there was nothing pending related to PERS, TRS, JRS, DCP, SBS or the ARMB invested assets reports and had issued unmodified audit opinions for those reports. She said that National Guard would receive a qualified opinion similar to last year related to the deferred vested population, the census data, of not being able to be supported.

MS. BEEDLE noted that during their audits they did not identify any significant unusual transactions. She said for financial presentation and disclosure omissions, there were not matters to report. For non-GAAP policies, there were no matters that resulted in a material error in the financial statements. She said they did not find any actual or suspected illegal acts or acts of fraud resulting from the audit, there were no noncompliance or significant difficulties.

MS. BEEDLE noted one uncorrected audit misstatement related to the invested assets report which was the lag of the timing of the valuations that came in. She said that between the time Treasury had closed their books, there was approximately $79 million of private equity valuations as of June 30 that were reported that did not make it into the financial statements. She said that it was consistent with past years due to the new procedures put in place by Treasury to record as much as they could.

MS. BEEDLE said there was a corrected audit misstatement during the review of the total pension liability for the National Guard System. She said they worked with management and the actuaries and found that the discount rate initially used of 7 percent for the accounting valuation was not

properly supported with the asset mix that the National Guard had and that resulted in lowering the discount rate to 5.75 percent which impacted the net contributed assets that National Guard had by $2.5 million.

MS. BEEDLE said that due to the error, they also looked to internal control deficiencies and the processes that management had in place to identify errors prior to the audit. She said they identified that there was not an adequate process in place to review the discount rate assumption for the National Guard System which resulted in a material weakness due to the size of the error. She noted that management was working with Buck and them to develop a process, so it does not happen in the future.

MS. BEEDLE said for significant accounting policies and practices, they were located in footnote 2 to the financial statements. She said there had been no changes to them over the last year and they are reviewed on an annual basis, and they found no indication that they were inappropriate during the audit.

MS. BEEDLE noted for the significant accounting estimates that they identify the total pension liability which resulted in the net pension liability or assets and the total OPEB liabilities as a significant accounting estimate due to the management judgment that was involved in determining the assumptions used to calculate the liabilities.

MS. BEEDLE noted they reviewed the assumptions, the underlying assumptions, the calculations, and the census data used to calculate them. She noted that they did find for PERS, TRS, and JRS that all of the assumptions were properly supported and reasonable.

MR. JOHNSON asked if they had run into any situations that fall outside the concept of material for the overall review that would be a concern going forward; MS. BEEDLE said they had not. She added that the data analysis they do pulls out outliers and sometimes they do a deeper dive and may expand their sampling.

B. Summary of Preliminary 2021 Valuation Results

MR. KERSHNER noted that their presentation started on page 251 of the Board packet and was the same presentation reviewed in detail at the Actuarial Committee meeting the day before. He said the June 30, 2021 valuation was used as a measurement of the plan's funded status, which compared the invested assets versus the actuarial liabilities. He said they also used the information for the most recent year to evaluate what happened during the year compared to what they expected to happen. Those results would be used to set the contribution rates for FY2024.

MR. KERSHNER said that slide 6 were the highlights of the valuation results for PERS and TRS. He noted that FY2021 was good to the plans from an asset and a liability perspective. He said the market returns were about 30 percent but did not anticipate such returns every year.

MR. KERSHNER said that because they try to minimize contribution volatility, they did not use market value of assets when they set contribution rates, instead they used a smoothed value (actuarial value) that recognized the market gains and losses over a five-year period.

MR. KERSHNER said that on the liability side they had gains for both pension and healthcare. He said pension had the largest source of gain from PRPA liabilities for those benefits. He said the change in the CPI used to generate PRPA benefits was negative, the PRPA benefits that went into effect July 1, 2021, were zero, where they would have expected those to generate additional benefits based on the inflation assumption of 2.5 percent. That gave rise to the gains.

MR. KERSHNER noted losses on the salary side which was the first year in several that they had a larger than expected salary increases and those generated some partially offsetting losses. He said the pension gains were 1 percent of the liability and 0.6 percent to TRS.

MR. YOUNG said that for the healthcare side, there were gains primarily due to the per capita cost assumption. He explained that the starting point for what the expected cost was during the current year that was used to project future costs. To calculate that they look at the most recent two years of prior experience, weight those equally and project them to the valuation year to come up with the starting point for future costs. He said this year they found the medical portion of benefits were coming in more favorably than projected in the prior valuation. He said claims were lower than expected due to COVID-19 and people avoiding care. He noted that even after including a 4 percent additional load to the claims they use to calculate the average cost, they were still seeing a 4 to 5 percent gain.

MR. YOUNG said the prescription drug claims were close to what was expected and within 1 percent of the projections. He noted the EGWP subsidy estimate was higher than expected with an increase of almost 16 percent from 2021 to 2022.

MR. YOUNG said there was going to be some preventative care benefits added for pre-Medicare members, that will increase costs slightly, but more than offsetting that was the prescription drugs/specialty medication prior authorization program put in place. He said the expectation from Optum was that would reduce costs in 2022 and in future years and would produce a liability gain.

MR. KERSHNER said that with the assets higher than expected and the liabilities lower than expected, that contributed to funded ratios that were higher than anticipated and higher than in the previous year, had resulted in contribution rates that would be less this year compared to last year.

MR. JOHNSON asked if they were to combine the funded ratios of the healthcare and the pension plan, what were the funded ratios for the reporting period of June30, 2021 for PERS and TRS; MR. KERSHNER said the PERS funded ratio at a year ago was 79.3 percent and had increased to 85.5 percent. He said for TRS, a year ago the combined funded ratio was 86.9 percent, and at 6/30/21 it was 92.5 percent. He noted those funded ratios reflected the smoothed value of assets, not the market value of assets.

C. Audit of State's Actuary

MR. WOOD explained that every four or five years there is an opportunity to load up all the benefits for every single participant in the Alaska plans and conduct a replication valuation, rather than just taking a small sample. He said they had looked at all the plans at June 30, 2020 to get the full valuation.

He said the first thing they looked at was the evaluation of the data that was available for the performance of the valuation, the broad data provided to Buck and the steps Buck goes through to get the final data used in the valuation. He said they also looked at the recommended economic and non-economic assumptions used in the valuation. He said when they look at assumptions, they put themselves in the spot Buck was at when the assumptions were adopted. He said in 2019 when the 2017 experience study was done, they moved from an 8 percent return to a 7.38 percent return and lowered the inflation to 3.12 percent. He said the things they considered were if it was done during a regularly scheduled experience study and was due diligence put into determining the rates. He said another thing they considered was using the assumptions, methodologies, and funding method used by the Primary Actuary in their performance of the valuation of the plans.

MR. WOOD said they also evaluate the valuation results and reconcile any discrepancies between findings, assumptions, methodology, rates, and adjustments of the Primary Actuary. He said they then assess the conclusions of the valuation report for completeness and accuracy, they discuss the peer review audit valuation results with the primary actuary, review the format of the valuation report and offer recommendations and provide a report of the work performed along with any opinions and recommendations for improvement, and present findings to the ARMB.

MR. WOOD explained that it is different from the review they perform every year because the annual review is a test life review, and the replication audit is a more in-depth study. He said they coded up all the benefits and replicated the present value of future benefits, the actuarial accrued liability, and the actuarial determined employer contribution. He said they also looked at the actuarially determined employer contribution.

MR. DETWEILER said they first looked at the valuation. He said as actuaries they do not have to audit the data that is provided, but they are required to review it to make sure it was appropriate, sufficient, consistent, and reasonable for its intended purpose. He said when they performed the annual test lives, they matched up all individual data fields that Buck used compared to the data that was provided from DRB. He said they made sure the averages and the totals of all different data fields were reasonable and consistent and then reviewed the data questions again. He said that was something Buck provided to them and they were seeing some inconsistencies from year to year, some salaries that were drastically changing, changes in service amounts. They made sure Buck was asking the appropriate data questions and doing their due diligence for that process.

MR. DETWEILER said they were very comfortable with everything they saw in all of the accounts and the data questions that Buck had asked. He said they also had to make sure their report had disclosed it all properly and that they say they were scrubbing the data, checking for consistency, reasonableness, and disclosing everything.

MR. DETWEILER moved to slide 7 and noted that as MR. WOOD had stated earlier, all the assumptions they reviewed for the June 30, 2020, valuations were based on the prior experience studies. He said they ensured the experiences studies were performed on a reasonable schedule, every four years. He said the healthcare assumptions were reviewed on an annual basis regarding the net gains and losses on the healthcare side and it was because healthcare was more volatile.

MR. DETWEILER said the inflation rate was 2.5 percent which had been adopted a couple of years ago and was reasonable at that time. He said Buck was recommending 2 percent which could be considered at the bottom range. He noted that the investment return of 7.38 percent was reasonable at the time of the experience study a few years ago and was getting towards the higher end of what they considered to be reasonable presently.

MR. DETWEILER said individual salary increases were typically tied to recent experience - what was expected to happen in the next few years. The total payroll growth of 2.75 percent was high compared to the experience they had seen, and Buck was recommending that it be lowered for the next experience study. He noted that the model Buck was using for healthcare cost trends was appropriate, that it was what a lot of large state plans used. He said one thing they had brought up previously was the EGWP assumption, that Buck was assuming that the subsidy would continue forever and stay flat. He said they believed that it could decline in the future and subsidies would not be as high as expected. He noted it as a risk associated with the assumption.

MR. WOOD said the risk happens if their payroll doesn't grow at 2.75 percent, and you end up with a percentage of pay that's increasing over time, putting pressure on the calculated rate that the state would have to make. He said Buck's recommendation of moving that down to 2.25 was going to change the pattern of future contributions, but that it helps offset some of that risk that is inherent in a level percent of pay funding situation.

MR. DETWEILER moved on to slide 9 to touch on the demographic assumptions, which showed what the chances are each year that participants would retire, terminate from employment, and death and disability. He said they were comfortable with the assumptions adopted a few years ago and they had not changed. He said the most important demographic assumptions was mortality which was based on the RP-2014 tables published by the Society of Actuaries. He said the Society of Actuaries had since finalized public-sector-specific mortality tables, which broke out several more categories -- teacher-specific tables, general-employee-specific tables, and public-safety-specific tables. He said they expected Buck to look at the tables compared to experience going forward to ensure they are appropriate for the ARMB.

MR. DETWEILER said slide 10 was the ARMB Replication Audit results for PERS DB and said the first numbers showed the present value of benefits, which was the complete liability, projected salaries, and service for active members – the total expected benefits to be paid broken out between pension and medical. He said below that was the actuarial accrued liability since the June 30, 2020 valuation date for each member. He said normal cost represented what was expected to be accrued in the next year. He said they subtracted AVA, which were the smoothed assets, to get the unfunded liability and funded ratio. He said the bottom showed the actuarially determined employer contribution which was the FY2023 rate recently adopted. He said Buck's numbers were on the left of the chart and GRS' numbers were on the right. He said the numbers represented how much money was needed in the plan to make sure it was properly funded. He said they were really happy to see the results as close as they were.

MR. DETWEILER explained that actuaries use different systems with slightly different programming which resulted in the numbers not matching up exactly. He said 5 percent or closer is considered a

reasonable and comfortable match.

CHAIR WILLIAMS said the numbers were not matching up exactly and asked if it was because they were applying slightly different assumptions or what was causing the differences; MR. WOOD said there could be minor differences in programming the benefits, or an ancillary benefit that they may have programmed differently, or there could be a different interpretation of the best way to value it. He noted that there could also be some slight differences in the timing of the assumptions.

MR. DETWEILER added differences in the timing of a small rounding in the calculation can change a number as much as a full percent.

MR. WOOD said the TRS DB had a very good match, that overall, the present value of benefits was less than 2 percent and the ultimate contribution rates was within 6 basis points.

MR. JOHNSON said that the previous slide showed PERS with a normal cost at 5.89 percent and TRS was only 1.99 percent. He then asked if that was one where there was more subjectivity in the assessment – were more factors involved that would suggest that kind of range; MR. WOOD said the normal cost could be very contentious. He said when they have decrement timing and they calculate the present value of future salaries, in the very last year, Buck assumes that everyone decrements or leaves the population at the very beginning of the year, but still allows for a full year of salary in that year, which creates a difference between the normal cost that GRS calculates, where they assume that the person did not leave until the middle of the year and only a portion of salary was included, as opposed to leaving immediately and a full year of salary being included.

MR. DETWEILER said the present value of benefits on the medical side, going from PERS to TRS DB had shrunk quite a bit. He said they could tell a very specific group that was causing the 2.83 percent – it was Tier 3 members with between five and 10 years of service and that was one of the test lives they were going to request from Buck to compare to make sure they were comfortable with how Buck was valuing them as compared to GRS.

MR. WOOD stated that for JRS their present value of benefits number was a bit lower than Buck's, but in the ballpark, and indicated that they were getting the right amount of contributions coming into the plan. He said NGNMRS was extremely well funded.

MR. DETWEILER said in summary, the results they would consider to be within a reasonable range. The match on the present value of benefits was within 1 percent, a very close match they considered as being highly successful. He said they believed Buck was taking the assumptions the Board had adopted and the benefits that were expected to be paid based on the statutes and creating liabilities that were appropriate to fund the plans appropriately.

MR. DETWEILER said they were in a unique situation where they were also the review actuary, and they get the present value of benefits per individual and were able to match up the individual present value of benefits person by person to what Buck got. He likened it to having all the participants in a giant football stadium and as they review each year, they select random people from different sections, but it's difficult with that many people to pinpoint where the differences might be. He said that's

when they go to Buck and request individual test lives, so they can see why some of the numbers were not at the 100 percent threshold.

MR. DETWEILER said slide 18 showed the evaluation of results of individual present value of benefits of every person Buck valued. He said the inactives and annuitants were easier to value because they knew exactly what they were being paid or expected to get pad going forward. He said with actives, they were further off.

MR. DETWEILER said they had performed both a test life audit in the past and a full replication audit. He said they believed their results were within a reasonable range of Buck and it was their opinion that the liabilities that Buck were calculating, based on the assumptions adopted and the statutes, that they were providing the Board with an accurate and reasonable contributions that need to go into the plan to ensure it was properly funded.

MR. DETWEILER said they had requested additional test lives form Buck and would be looking at those to try to pinpoint any issues to see if there was something in their report that they were not understanding about how they were valuing people or if it was just a slight difference in opinion about how they should be valued.

MR. JOHNSON asked about the range of reasonableness and if they were at a point where the ranges were so broad that they were not particularly useful; MR. WOOD said the ranges may be broad, but put in an exercise such as this, they know exactly what the assumptions were going to be. He said in terms of apples-to-apples comparison, there was no range, they did exactly what Buck did and were able to replicate it and align the replication. He said Buck's ranges came into play more in the assumption-setting process.

CHAIR WILLIAMS recessed the meeting from 11:50 a.m. until 1:22 p.m.

D. Performance Measurement, 3rd Quarter

MR. ERLENDSON started his presentation on slide 2. He said the upper left showed the real growth in GDP. He said two years ago the range would have been from plus 5 to minus 5 instead of from plus 40 to minus 40. He said they changed it because of the second quarter of 2020 when the real GDP collapsed by 30 percent within two months. He said the third quarter GDP increased 35 percent and is part of what was currently driving inflation.

MR. ERLENDSON noted the upper right panel showed the commodity-based portion of the PPI (producer price index). He said the PPI represented the cost of goods that go into the things people buy and the things people buy was reflected in the CPI (consumer price index) and wages. He said many sellers of goods and services had been restrained from raising their prices and passing through their costs. He said if people try to get in front of higher prices, they would drive prices up.

MR. ERLENDSON moved to slide 5. He noted that the stock market is not the economy but was a part of the economy that people could own. He said there were a lot of things in the private markets that normal people cannot buy, but institutions could. He said the economy seized up in March and April of 2020 when 22 million jobs were lost due to COVID. He said job growth needed to take place

because absent the stimulus, people needed to go back to work and much of the recovery of the stock market was because more people had more money than they had before.

MR. ERLENDSON said slide 6 showed the employment landscape and noted that leisure and hospitality lost the most jobs. He said that recently, people had been retiring and leaving the workforce entirely, that there were 10.4 million job openings at the end of September, 6.5 million people hired for new jobs, but 6.2 million people left, so only a net gain of 300,000 jobs. He said for the year ended September, there were 73 million people who were hired with 68 million who left.

MR. ERLENDSON said that during that time there was a lot of stimulus, both economic and medical support for people, that were no longer available. He said that as the supply of goods and services go up, that would moderate any potential future inflation.

MR. JOHNSON asked if the figures were reflective of different people moving in and moving out of the workforce or could it be five times more action going on than what was being reflected; MR. ERLENDSON said the separations of 6.2 million over the last year included people who had been laid off, decided to quit, take a new job somewhere else as well as people who decided they were done. He said 4.4 million of the 6.2 were people that permanently left the workforce. He said the participation rate of people from the age of 18 into the 60's as a workforce had been trending lower for years. He said some are either going to college or getting new training so they would be considered temporarily out of the workforce, but a number of people that were older had decided to leave permanently.

MR. ERLENDSON moved to slide 8 which showed what the Federal Reserve looked at when they decided to raise rates and when they thought inflation was a problem. He said the chart showed the personal consumption expenditures index that was the measure of inflation that was used by the Federal Reserve. He said there were different types of inflation, that medical inflation was different than housing, food or fuel and there were dozens of measures of inflation. He said part of the reason the Federal Reserve continued to say that they did not see a permanent increase in inflation was because their target, the dotted line on the chart, was at 2 percent. He said that over the last 13 or 14 years, it had rarely touched that level. He said the big spike on the right of the chart was due to supply chain disruptions, and fewer people in the workforce, which meant it was more expensive to buy goods and services. He noted the CPI-U was up 6.2 percent and a large part of that was driven by the composition of the index which was shown on slide 10.

MR. ERLENDSON said the categories shown on slide 10 were used within the measures of inflation calculated ty CPI-U. He noted that Food, Housing and Transportation were up. He said the driver for transportation was used and new cars. He said if a person was not buying a car their inflation rate was not 6.2 percent. He said they need to be mindful of what the metrics were actually measuring and why the Federal Reserve denies inflation is permanent. He said at some point, people will stop buying cars and prices would come down or the supply would increase, and the price will come down.

MR. ERLENDSON said the Federal Reserve thought it would take longer for prices to come down which was why they had been supporting the economy by buying $80 billion in Treasury securities every month for the last year or so, and then another $40 billion a month in mortgage-backed

securities. He said that was almost 8 percent of the GDP. He said they were going to start pulling back by $10 billion a month fewer in treasuries, and $5 billion in mortgages. He said one way to beat inflation was to drive up interest rates, that higher interest rates could squeeze inflation down as it would reduce economic activity.

MR. ERLENDSON noted that on slide 11 the categories listed on the left were the ones that drove 70 percent of what was happening in the benchmark, and the standout in the middle was private transportation – cars and gasoline, so as that moderates, inflation should go down.

MR. ERLENDSON then skipped to slide 16 – Callan Periodic Table of Investment Returns, which showed what was going on in the capital markets over various time periods. He said as of December 1st, REITs were up over 15.5 percent and large cap equities in the S&P 500 were up 21.7 Small cap stocks up 12.4 at the end of September and were still positive at about 9.5 percent. He said there were two things that were getting problematic, emerging markets, down over 3 percent year-to-date, part of which was inflationary forces in the markets which were more pronounced because greater portions of their economies were based on expenditures for food, housing and energy and part of it was due to inflation.

MR. ERLENDSON said the index took into account what had happened to returns in that market when it was a U.S. investor out to sell in the local currency. He said the majority of the decline was because of the strengthening dollar. He said other economies were looking at it so there could be a lot of potential inflation-dampening effects of rising rates and as rates start to rise, it would make the U.S. Treasury market less appealing. He said that part of the reason there had been such a great market in the U.S. was because there was a lot of foreign capital that was looking for higher returns and they win in the currency trade because the dollar increases in value, which meant when they sold their dollar assets, they would get more of their own currency units.

CHAIR WILLIAMS said he loved the Callan periodic table and asked if they had one for institutional investors that goes from July 1 to June 30th; MR. CENTER said they could create one.

MR. HIPPLER asked where China was listed on the periodic table; MR. ERLENDSON said it would be in emerging markets.

MR. ERLENDSON noted that China was the third largest economy and that a lot of the emerging markets were dependent on manufacturing raw materials, that commodities had been driven by China as a buyer of commodities as well as finished goods. He said that China was outsourcing to Indonesia and Vietnam, and they had been buying materials back and putting them into their own products to ship elsewhere.

CHAIR WILLIAMS asked it if was accurate that a lot of U.S. domestic companies still had a lot of exposure to China; MR. CENTER said that was true. He said when strategies were marketed as ex-China, what it meant was they did not participate in the Chinese stock market. He noted that it was nearly impossible to fully guard from any exposure to the Chinese market but avoiding direct investment in China was what strategies were targeting. He said it was popular 30 years ago to avoid Japan because the Japanese market was going to crash.

MR. ERLENDSON said it was almost 50 percent of the non-U.S. index and people were saying that they needed to be in Japan but instead of a cap-weighted index, they did a GDP-weighted index.

MR. CENTER said that while they had seen non-U.S., ex-China products come to market, they were not proposing or suggesting them to their client base, they did not believe it made sense as an institutional investor to exclude China from the opportunity set in the non-U.S. equities.

MR. ERLENDSON moved on to slide 26 which showed a chart that showed rolling 10-year returns for a broad universe of public pension funds. He said the gray area was measuring the rolling historical 10-year returns for public pension funds from the 10th percentile to the 90th, capturing the variability. He said the 10-year average return for public pension funds was around 10 percent. He noted that a lot of changes had been made with the program in terms of getting rid of strategies that were not adding value after fees, simplifying the structure, and putting more in the hands of the entities and strategies that would add value and reduce fees.

MR. ERLENDSON said their concerns going forward as a firm were that they believed that inflation was not sustainable where it was, but there were pockets of activity driving the measures and that interest rates would likely go up. He said that the fund had done well, and they did not see anything that was a matter of concern.

MR. CENTER said slides 28, 29 and 30 were performance dashboards that they had inserted as snapshots of the performance for the pension plans. He said the top left chart on slide 28 for PERS, TRS and JRS showed the performance was above median and ahead of the targe over all time periods for the pension plans and the top right chart showed the standard deviation, which was below median. He said the maximum drawdown at the bottom left-hand corner compared favorably versus other pension plans, meaning the largest loss over these periods was a lower percentage than what the typical peer pension plan experienced. He said the Sharpe ratio, a measure of risk-adjusted performance, was quite strong and in the top quartile across all time periods.

MR. CENTER said slide 29 was similar for the healthcare plans and slide 30 was for the military plan that had a unique asset allocation with historically higher allocation to fixed income, a lower allocation to alternatives which resulted in less risk.

MR. CENTER said slide 31 showed the new asset allocation targets as approved the beginning of the quarter, stating that asset allocation was in line with targets, slightly overweight to fixed income and slightly underweight to real assets.

MR. CENTER said slide 32 showed the real assets portfolio which was 12 percent of the portfolio as of the end of the quarter and was high relative to other public pension plans. He said the allocation to fixed income was below median but still higher that it had been previously. He noted that the key driver was the allocation to real assets and "other alternatives" which was mostly private equity.

MR. CENTER said slide 35 showed the maximum drawdown period, noting they looked at three-, five- and 10-year periods and all had the same maximum drawdown of 11.9 percent. He moved on to

slide 37 saying that it showed the drivers of relative performance over the last quarter and last trailing 12 months. He said the table at the top was for the last quarter and the key drivers of performance were the cumulative performance of the managers that added 82 basis points of performance relative to the target benchmark. He noted other drivers were the private equity portfolio and the fixed income portfolio. He said they had received additional return figures for the real assets portfolio, and it was higher than what they had included in the preliminary figures and expected the numbers to improve. He said given the team kept asset allocation close to targets, it was not much of a driver of the performance.

MR. ERLENDSON said that they used passive strategies, so the active managers run the rest of the money that contributed to the outperformance. He said they had gone through a big consolidation a while ago and kept the ones they had the confidence in, and the strong performance suggested that was a good plan.

CHAIR WILLIAMS asked if he was suggesting they move the return expectation to 70 percent; MR. ERLENDSON said no; CHAIR WILLIAMS said that it seemed odd to hear that they were still waiting for some things to come in from September 30, that it was like a late reaction; MR. CENTER said they report the private equity numbers on a lag and they do not get revised. He said they also report real assets portfolio on a lag. He said alternative investments take a while to report their performance. He said that as allocation to alternatives grows, the timeliness of the data that was used to create the reports was difficult to gather on a timely basis, so they had elected to report them on a lag.

MR. CENTER said slide 38 showed the PERS long-term total fund performance from inception to September 30, 2021, noting that the plan outperformed the target benchmark for the quarter and overall looked very good since inception.

MR. ERLENDSON commented that the charts show performance compared to peers. He said that over the 30 years, they were down in the third quartile but ahead of the benchmark which suggested that during that time, they were positioned more conservatively than most other funds.

MR. CENTER said that overall, the domestic equity portfolio was a blend of passive strategies and factor driven strategies and that over the past 12 months it did add value. He said slide 42 showed that they were ahead of Russell 3000 benchmark by 25 basis points, that it did lag its indices over longer time periods. He said much was driven by recent performance from factor-driven strategies. He said the bright spot in the public equity portfolio had been small cap shown on slide 47 – up 57 percent, with a 9 percent excess return relative to the index. He said it was a passively invested strategy invested in the S&P 600 index which outperformed Russell 2000 index over the last 12 months and over the long term ahead of its benchmark.

MR. CENTER said global equities on slide 49 were both developed markets and emerging markets and ahead of its benchmark over all time period, about 1.3 percent ahead of the index over the last 12 months, 30 basis points ahead over the last quarter.

MR. CENTER said slide 50 was the cumulative performance of the developed market portfolio which

was 40 percent active, 40 percent passive and 20 percent factor-based, adding 3 percent over the last 12 months and outperformed its index for all time periods.

MR. CENTER said emerging markets on slide 52 was a blend of passive and factor-based strategies and outperformed its index and added 60 basis points relative to the MSCI Emerging Markets index.

MR. CENTER said slide 53 showed two emerging markets portfolios. The factor-based Scientific Beta portfolio that outperformed the MSCI Emerging Markets portfolio by 3 percent.

MR. CENTER said fixed income was on slide 54 noting that it was ahead of its benchmark over all time periods. He said the fixed income aggregate portfolio on slide 55 was down 90 basis points – right in line with the Bloomberg Aggregate index and 70 percent of the fixed income portfolio. He said the remaining 30 percent was divided between opportunistic, fixed income and alternative fixed income, which was private debt.

MR. CENTER said the opportunistic portfolio shown on slide 56 included alternative equity which was the McKinley Healthcare Transformation Fund, the tactical allocation strategies were about 60 percent of the portfolio which was made up of PineBridge and Fidelity which were up 20 percent over the last 12 months. He said the alternative beta program was 20 percent of the opportunistic portfolio and managed by Man Group which was designed to be a liquid substitute for hedge funds, and it was up 4 percent for the last 12 months.

MR. CENTER said slide 59 showed cash flow for the PERS DC Plan which was positive for the quarter. He said the TRS DC Plan on slide 60 showed 65 percent allocated to the asset allocation fund and ended the quarter with $80 million in assets and cash flow positive. He said the Deferred Comp Plan on page 63 was cash flow negative and had $1.2 billion in assets as of the end of the quarter with 23 percent of the plan invested in the asset allocation funds and the remainder split between the passive and active options.

MR. JOHNSON asked if the brokerage plan was in place, how would it affect the analysis; MR. CENTER said the charts would have another piece of the pie that would be allocated to self-directed brokerage. He said they don't track the performance of the self-directed brokerage window because the participants invest in eligible mutual funds or ETF and there would be no way for that to be tracked. He said they would track the percentage and dollar value allocated to them. He said that because there were so many options for the participants to invest in, there was no way for them to track the return.

CHAIR WILLIAMS said that there could be some sort of analysis; MR. CENTER said that may be something available from Empower because Callan does not track the individual purchases and sales, it would be something the individual participants would do.

MR. CENTER said that slide 66 and 67 looked at asset allocation options. He said the Target 2010 Trust was designed for participants that were retiring in 2021 and should be a fairly low-risk portfolio. He said it did have a negative return for the quarter and its benchmark was also down 0.2. He said asset allocation funds had all done well and that the more recent vintages as shown on slide 67, had

done very well.

MR. CENTER said slide 68 showed passive strategies overall and said the passive funds were all matched with their benchmarks. He said active options on 69 also had no areas of concern. He said the international equity fund, which was a blend of Brandes, and Baillie Gifford had a slight underperformance of the quarter, but very strong performance over the last three-year periods.

E. Private Equity Annual Plan

MR. HOWARD said slide 2 was a reminder of the primary role of the annual private equity review, which was to report on the status of the ARMB's private equity investments. He said slide 4 showed an overview of private equity investment and why fund sponsors invest in private equity. He said private equity as a whole has had a strong performance relative to public markets in recent years and over longer time periods.

MR. HOWARD said private equity had several unique characteristics. He said they were a larger and more diverse investment, but generally less efficient as companies but provided opportunities for value creation. He said most private equity groups aim to partner with their portfolio companies to create value by making operational and financial improvements and then sell the companies at increased valuations. He said that the main negative characteristics of private equity were illiquidity, fees were high relative to other asset classes, and market data was incomplete.

MR. HOWARD said slide 6 had information on the private equity structure. He said ARMB invested in private equity funds through two advisors, Abbott and Pathway. The investments were made through limited partnerships. He said the bottom diagram showed how private equity funds drawdown structure worked. He said at year zero, the ARMB makes a commitment of capital to a fund, the commitment is then drawn down when the general partner makes underlying portfolio company investments. He said the investment period was typically the first four to six years of the fund's life, the capital is returned as investments are sold. He said slide 7 gave a broad overview of the types of strategies included in private equity.

MR. HOWARD said slide 8 showed private equity, compared to other asset classes, had shown a wide performance dispersion response. He noted upper quartile funds had significantly outperformed lower quartile funds, that the dispersion made manager selection a critical component of implementation of the plan. He said diversification was also an important component. He said the goal was to build a well-diversified portfolio with high-quality partnerships.

MR. HOWARD said the next three market slides showed trends over time to get a sense of growth and health of the private markets. He said slide 9 reflected the amount of money committed to private equity funds by year. He said this year fundraising was on pace to return to the upper trajectory they had seen over the past decade, and they expected to see that trend continue as plans increased the allocations to private equity.

MR. HOWARD said slide 10 showed the number of investments and the amount of money invested in portfolio companies. He said the second half of the year had a strong recovery in deal activity. He

moved to slide 11, noting the exit activity showing a staggering amount of capital had been returned to investors.

MR. HIPPLER asked if the past performance of mangers have a correlation to future performance; MR. HOWARD said there was much more so in private equity; MR. HIPPLER then asked when they allocate a certain percentage of assets to private equity, how much additional off-balance-sheet commitments did they have; MR. HOWARD said the current unfunded commitment was about $1.6 billion. He said not all of that would be called, but what the model was trying to predict was when it was going to be called and predicting when they would receive the cash flows back.

CHAIR WILLIAMS asked was the estimated exit value like projecting out into the future – was it slow to capture; MR. HOWARD said those were the announced but not closed exits.

MR. HOWARD said slide 12 was the ARMB portfolio performance. He said overall the portfolio had performed well in the second quartile with a 13.6 percent IRR, compared to 12.2 for the Cambridge private equity median. He said the private equity policy had an expectation that the private equity portfolio would outperform the public equity blend by 2 percent net of fees. He said the ARMB's 10-year time-weighted return was 18 percent, compared to 11.1 percent for the benchmark blend, an outperformance of 6.9 percent. He noted that the chart showed within the last year, distributions surpassed contributions, which was reflective of the maturity of the program.

MR. HOWARD said slide 13 showed the public market equivalent returns (PMEs). He said a second way of measuring relative performance against public markets was by comparing against the public market equivalent returns. He said it was the best way to measure inception relative to performance. He said over the 10-year period, ARMB's portfolio had a 17.5 percent IRR compared to the PME IRR of 11.3 percent. He said since inception, the portfolio had outperformed the PME by over 5 percent, equivalent to $3.7 billion of additional fund value.

MR. HOWARD said slide 14 showed the ARMB's private equity cash flows. He said the strong exit activity has ARMB's portfolio on pace to return over $1 billion to the retirement systems. He said overall the portfolio had been a significant cash generator over the past five years providing net cash inflows of $429 million.

MR. HOWARD said slide 15 showed the portfolio was well diversified by strategy. He said the targets were 25 percent to venture capital, 45 percent to buyout and 30 percent to special situations. He said staff expected diversification to remain in line with long-term targets. He noted that the ARMB's private equity guidelines had a soft target of no more than 25 percent exposure to a given industry and software had exceeded the guideline for several years and was at 30 percent. He noted that software was viewed as being inherently diversified since it's exposed to the end market that it services rather than a narrow set of risk drivers. He said software had been a tailwind behind the portfolio over recent years, especially through the pandemic, but they did continue to monitor the exposure and, in the future, may recommend an increase to the industry guidelines for software.

MR. HOWARD said slide 17 showed the commitment target for 2020 was $600 million and during the year $571 million was committed to 59 investments, $176 million by Abbott, $195 million by

Pathway, and $200 million directly. He said the co-investment program that was started in 2016 had made 13 investments totaling $31 million and delivered strong performance and significant cost savings to the portfolio.

MR. HOWARD said slide 18 showed the pacing model that's purpose was to project forward commitments needed to achieve ARMB's targeted allocation to private equity. He said slide 19 showed the output of the pacing model and the recommendation for forward commitments. He said for 2021, staff was recommending a commitment target for the next year of $700 million, split equally between Abbott, Pathway, and staff.

MR. HOWARD said private equity played an important role in achieving ARMB's return target, that despite the increase in flow of capital into private equity, they still expected the asset class to deliver a meaningful return premium over public markets. He said as the asset class grows, they would continue to work with Abbott and Pathway to look for opportunities to drive performance and cost improvements. He said staff's recommendation was that the ARMB approve Resolution 2021-12, which adopts the Private Equity Annual Tactical Plan as presented.

MS. HARBO moved to approve Resolution 2021-12. MR. BRETZ seconded the motion.

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

CHAIR WILLIAMS recessed the meeting from 2:55 P.m. until 3:07 p.m.

F. Private Equity Manager Review

MR. ROBERTSON said the portfolio had increased 64 percent in the fiscal year, noting the Cambridge private equity index was up 56 percent and the Russell 3000 was up 44 percent. He said slide 2 was a timeline of the portfolio showing the progression of the 23 years the portfolio had been active. He noted the difference in how the IRR benchmarks compared to the return multiple (TVPI), stating the reason for that was the IRRs were very sensitive to what happened earlier in the portfolio's life.

MR. ROBERTSON said that they had been through a series of increases and each time they made an increase, there was a ramp-up period that diminished returns a bit, but they were currently at a 14 percent target. He said looking at the table in the middle of slide 3 that plan increased 26 percent over the fiscal year, up $7 billion. He said there was a 2 percent increase in the private equity target so between the total plan growth and the target increase, the target increased by $1.5 billion, or 47 percent.

MR. ROBERTSON referred to slide 4 showing that in a 12-month period in the total private equity line of the chart, the portfolio grew $1.8 billion or 53 percent over the year.

MR. ROBERTSON said with their model, they've discovered when a plan grows like yours and is at target, the model like to have about 50 percent uncalled relative to the private equity target. The plan is currently at 35 percent, so if you take the next year's $700 million commitment, it would get back

up to 50.

MR. ROBERTSON moved on to slide 5 stating that they were in a virtuous cycle of rising valuations and liquidity noting that any aspect of private equity, such as fundraising, investments, distributions, credit availably had been strong.

MR. ROBERTSON said they had two external mangers, Abbot and Pathway. He said the left table showed the position of last year by all key measures, cumulative cash flows and valuation and then where they were at the end of the fiscal year, then they subtract the changes.

MR. ROBERTSON said the distributed to paid in or DPI was 106. He explained they paid in $6.4 billion, they distributed $6.8 billion, then divide those two and for every dollar paid in they get $1.06 back.

MR. ROBERTSON said the RVPI was the residual value or net asset value of the portfolio, noting that comparing what was paid in, they've got 79 cents on the dollar of value that's unrealized in the portfolio and if they add those two together, for every dollar that was put in, they've gotten the dollar back with 85 cents of profit, both realized and unrealized together.

MR. ROBERTSON said the target for the committed column was 6, and they were a little over target, he said paid in was very close to the committed target. He said the during the course of the year, 41 percent was invested of what was started with uncalled. He said if they did not make another dollar, and in the next couple of years they did not make any more commitments, the managers would deploy that in about two years, so they needed to commit the additional $700 million this year to keep that going.

MR. ROBERTSON said the metrics chart on the right showed the portfolio had distributed almost a billion in cash back to the plan last year, stating that the distributions came from the starting NAV which was $3.3 billion. He said they got 29.3 percent of the NAV back. He said $985 million had to be reinvested during the year so $602 million went back in but they got to keep $383 million of net distribution.

MR. ROBERTSON said the NAV started at $3.3 billion, and went up to $5.1 billion, a 53 percent change over time. He said Abbot and Pathway were very close to that, Abbott was at 68 percent increase and Pathway had a 62 percent increase, and that showed a very good quality of earnings.

MR. ROBERTSON said bullet point 9 showed the IRR was 13.6 percent which was above the median of 50. He said the TVPI in bullet point 10 was 1.85, putting them at a 36th percentile.

MR. ROBERTSON moved to slide 6 showing the gross distributions for FY2021 as 909,784, the previous highest year of gross distributions was in 2018 and it was not quite 600 for a 52 percent increase. He said the net distributions were at 405,376, and the previous high was 202, so it almost doubled any prior year. He said the previous high NAV increase was 408,795 in 2017, but the current year was up to $1.7 billion with a 300 percent increase over any other NAV increase. He added that the total appreciation number, which was the net cash distributions plus the NAV increase was

effectively a 64 percent rate of return for the portfolio.

MR. ROBERTSON said the bottom table showed changes from previous highs. He said gross distributions were higher on a percentage basis in 2007, but the plan recycled almost all as paid-in capital.

MR. ROBERTSON said slide 7 showed the diversification. He said there was a fair amount of venture capital mostly coming from Abbot, and overall, the combined tech and software was 41 percent. He said the tech sector was driving a lot of the large gains and the international and geographic diversification reflected the opportunity set.

MR. ROBERTSON said that Abbot was changing their president, Jonathan Roth who would be retiring at the end of 2022 and Len Pangburn had been nominated to be the new president by the managing directors. He said they had discussed this with Abbot and were very comfortable with the change.

MR. ROBERTSON said that the total portfolio and both Abbott and Pathway were spot on as far as the paid in relative to uncalled for the year. He said all three were exactly 41 percent. He said their gross distribution yields were 31 percent and their net distributions were a little better. He said the total portfolio was 11 percent. He said the NAV increases were 55 percent and the portfolio was 53 percent. He said Abbot was looking like 68 percent and the total portfolio was 64 percent.

MR. ROBERTSON said looking at bullet 10 on slide 9 showed Abbott's IRR was 12, placing them at the 50th percentile, and slightly below the median by about 10 basis points, 12.2 percent. He said bullet 11 showed their TVPI multiple was at the 36th percentile versus the median of 1.53 and an upper of 2.12.

MR. ROBERTSON said slide 12 reflected diversification, where most of the venture capital appreciation was. He said it was NAV-based with lots of unrealized appreciation.

MR. ROBERTSON said slide 14 for Pathway was similar to the Abbott discussion. He said the paid-in rate off of the uncalled was 41 percent. He said the key metrics showed the total portfolio at 29 for both, with a net cash yield close to 13, the total portfolio was 11, but a little less of a NAV increase. He said they were at 50 versus 53 for the total portfolio and they ended up at 62 versus 64 for the total portfolio.

MR. ROBERTSON said the benchmarking showed the IRR was at the 44th percentile, above the median. He said the vintage chart on slide 15 showed a steady performance with three first quartile years very strong, 15 years for the second quartile with nothing below median years.

MR. ROBERTSON said slide 16 showed the strategy benchmarking. He said slide 17 showed more of a buyout orientation. He said software and technology combined was the biggest total tech exposure, that Abbot was at 40.

MR. ROBERTSON moved on to slide 18 which showed the Treasury portfolio. He said it had been

going for about 14 calendar years, invested in 12 vintage years. He said committed changes were less than 200 and paid-in was 28 percent. He said in the last five years, over 51 percent of the capital commitments had been made and had not been paid in yet. He said the amount paid in versus committed was 64 percent. He said in the total portfolio, the other two managers were over 80 percent.

MR. ROBERTSON said the portfolio had gross distributions of 27 percent, slightly less that the total portfolio's 29 percent. He said the NAV increase was 56 percent with an overall uplift of 61 percent versus 64 percent for the total portfolio. He said they had the largest NAV increase, noting that the largest from Pathway or Abbott was 56 percent. He said they also had the largest TVPI gain, up 32 percent.

MR. ROBERTSON moved to bullet point 11 stating that the goal was to gradually increase the number of partnership investments within a vintage year to five or more. He said from a benchmark standpoint, the portfolio was above median IRR, 48th percentile, and the TVPI was 44th percentile.

CHAIR WILLIAMS said the total portfolio appreciation was $349 million, 61 percent, up from 4 million, 1 percent last year and asked if it was because it was at different spots on the J-curve; MR. ROBERTSON said that as he had mentioned, it was a young portfolio and the shifts in cash flows were very dynamic from year to year and to keep in mind that the total portfolio was only up 10 percent last year.

MR. ROBERTSON moved to slide 19 showing the Cambridge Vintage Year Peer Group Benchmark. He said there were two years below median. He noted that they had a bit more volatility in the historical portfolio and he expected that to smooth out. He said in 2014 there were only two funds and one of them was a distressed-related fund in the middle of a bull market, the opportunity set did not really develop. He said in 2015 there was an energy fund in that time frame, but the majority of it was due to large senior debt credit fund that was place in there.

MR. ROBERTSON moved to slide 20 commenting that it was all second quartile and he had broken out the percentage that added up to 72 percent. He said there were a lot of different kinds of return drivers helping it along. He said they had very good diversification – software technology driving the good returns and write-ups, and the opportunity set was going to be a little more domestic for the portfolio.

MR. ROBERTSON then moved to slide 22, the summary. He said the portfolio was mature, it had a very good performance and a strong cash flow. He said overall they were at the 36th percentile, they had very high-quality general partners across the board. He said they were very well-positioned for the future with a lot of depth spread across different industries and geographies. He said it was a unique period of time where valuations were at the end of a business cycle, but given pent-up demand, cash in people's hands and all the large stimulus projects, it was like they were at the beginning of a business cycle in an economic regard.

G. Cybersecurity

MR. WOOD noted that they put the highest level of importance upon data security and started his

presentation on the policies that they had in place – disaster incidents, training, monitoring and access controls.

MR. WOOD said that that when they talk about assets and data, they think of infrastructure assets, and they divide assets into different classes. Class 1 assets – their policies are defined by assets that contain confidential participant data and class 2 assets do not have confidential client data. He said they also had standards and procedures they go through when assets reach their end of life. He said they also have types with their change management – type A changes would be something that would be a routine change, such as Microsoft releasing patches. Type B would be nonroutine service such as a switch that failed in their Chicago office that had to be fixed. He said they took an assessment of the hardware across the firm and took a proactive stance and changed the switch in the Denver office.

MR. WOOD said that they have a matrix that lays out the risks such as a data security breach to a piece of paper with a social security number on it left on a desk. He said they try to think of every instance that could lead to problems in the future.

MR. WOOD said that in terms of configuration standards, that applied to how they configure their workstations. He said they have PCs in their office and also have access to virtual machines, so if they cannot access a PC, they still have access to the virtual files.

MR. WOOD said the main goal of their disaster recovery was to support the continuation for services for their clients and to ensure they have an organized approach to address any issues that may come up. He said they maintain a business resumption plan that would support continuation of services to GRS clients and provide for an organized approach to addressing and managing a security incident, natural disaster, or infrastructure failure. He noted that when the pandemic hit and things shut down, they focused on how to continue to provide services to their clients, they followed their plan to a "T", and it worked. Their plan allowed for them to be successful during a trying period.

MR. WOOD said they had a disaster recovery plan for all infrastructure, so if something happened to the infrastructure necessary to a server, or a breach of data they had a set standard on how to deal with those issues. He said their headquarters in Michigan and their office in Florida both serve as a redundant backup for each other. He said they also have two colocation sites that are secured 24/7 with generator backups and employees working remotely run backups as well.

MR. WOOD said that every one of their employees, during the onboarding process were trained in several security policies which is a condition of employment. He said they also have to attend training each year on the GRS consulting policies and information security policies. He said they have online data security training, HIPAA training, employee acknowledgments, and ad hoc training as needed where they will discuss an issue and figure out the best way forward and how to keep it from happening again.

MR. WOOD said they have third-party monitoring by a security operations center (SOC) that provides vulnerability management. He said they monitor their systems on a 24/7 basis and if they discover any sort of issue, they are immediately notified of it and the issue would be dealt with immediately.

MR. WOOD said they also perform a third-party network penetration test and a social engineering assessment to see if outside people can get into their network. He said they had been testing them for years with phishing attempts. He said if someone does click on a phishing link, that person would then get additional counselling and training. MR. WOOD said they have firewalls and antivirus software that is monitored by a third party and notifies them if there is any sort of event or equipment failure.

MR. WOOD said they have access controls such as strong passwords, auto locking of personal computers based on user activity. He said individual computers do not contain confidential data, and all their network equipment was physically secured as well through standard controls and permissions.

MR. WOOD said they hired a firm for a SOC 2 Type II report, entitled "Suitability of the Design and Operating Effectiveness of Controls Relevant to Security Availability, and Confidentiality. He said they had received their third annual SOC 2 Type II report and it reported zero deficiencies.

MR. WOOD said their client portal is set up with everything being encrypted using SSL certificates and very strong passwords with a minimum of 15 characters and access is limited to U.S. and Canada only. He said if anyone outside those two countries tried to access the site, GRS would immediately be notified and locked down so they would not have any breaches.

MR. WOOD said their client portal GRS Advantage contained GRS publications like news scans where a research group scans all the news articles that pertain to the public sector and aggregates them into a single publication. He said that their research articles could be found under Insights and Perspectives. He also noted they added a benchmarking software, GRS Trend Line, so if someone wanted to look up what the average inflation rate was across the public sector, the information would be there.

CHAIR WILLIAMS asked if that was something that was available to the Trustees; MR. WOOD said they could set that up.

MR. WOOD said that every GRS team member had the ability to work remotely which allowed for uninterrupted service to clients. He said the ability to work remotely had been in place for several years and transition to full remote work through the pandemic was seamless. He said they have security protocols set up such as two-factor authentication and VPN's through either a virtual machine or remote desktop directly to a PC at the office.

MR. KROHN asked if the server locations were also used by other people putting their servers in the buildings; MR. WOOD said he thought that was the case; MR. KROHN asked if the people who build the servers were employees or contractors; MR. WOOD said they were employees of GRS; MR. KROHN asked if there was a separate security system on the outside perimeter of the cage that the servers were in, outside the building that the servers were secured in; MR. WOOD said that he would find out.

MR. JOHNSON asked what the percentage of overhead costs was attributed to the IT side for security issues and what did he think the percentage component of a bid for services of IT cybersecurity protection was attributed to that; MR. WOOD said he was not sure, but the SOC audits were not cheap. He added that he has noticed an extreme focus on policies and insurance in a lot of the bids they had been responding to.

H. Executive Session

CHAIR WILLIAMS said there was a request to go into Executive Session and asked for a motion to go into Executive Session to consider the matter related to a specific manager. He said the request for the Executive Session included all Trustees, IAC members, MR. ERLENDSON, MR. CENTER, MR. HANNA, MS. LEARY, MS. PREBULA, MR. MOON, MR. KAUZLARICH, MR. HOFFMEISTER, MR. JONES, and MS. JONES. CHAIR WILLIAMS then asked if there was anyone opposed. With no response, he said that after the break, they would go into Executive Session, and this would be the close of the public portion of the meeting. The public session would resume at 9:00am tomorrow morning.

CHAIR WILLIAMS recessed the public portion of the meeting at 4:32 p.m.

Friday, December 3, 2021

CALL BACK TO ORDER

CHAIR WILLIAMS reconvened the meeting at 9:00 a.m. He said that the Executive Session concluded at 5:02 p.m. and no action was taken.

I. J.P. Morgan Market Insights

MR. HANNA invited DAVID LEBOVITZ and JEFF SHILEDS with J.P. Morgan to present highlights from their Guide to the Markets.

MR. LEBOVITZ shared slide 3 which was their PMI heat map which takes into account both manufacturing and services and where green meant good and red meant not so good. He said with headlines around Omicron and concerns about another round of the virus, there have been concerns where to go from here. He said that no one knows how effective vaccines would be and how virulent the virus actually was. He said they would learn that in the coming weeks and that would help to broaden the direction of travel for the global economy. He said the underlying fundamentals of the global economy were solid and that any pause caused by the virus would be just that, a pause rather than a broader pullback. He said the reason for that was the consumers' financial position remained very solid. He said that manufacturing activity which was low would continue to grow as supply chain issues were sorted out. He said the third thing was business investment, he believed that business investment spending would continue to grow in 2022.

MR. LEBOVITZ commented on inflation. He said that the fed had finally admitted that inflation was not as transitory as they once thought. He said he thought they would go through a period that was stickier than expected, but not similar to the 1970's which was characterized by structurally higher inflation. He said that inflation was being driven by the parts of the economy that were hit the hardest

during the pandemic, like hotel room prices, air fares, car prices. He said they don't believe that inflation was going to be a long-run problem because of forces they view that have weighted on inflation over the past 35 years remain in place, such as globalization, technological adoption, income inequality and demographics. He said as long as those forces remain in play, they believed it would be difficult for inflation to accelerate over the course of the longer term.

MR. LEBOVITZ said the things to watch when it came to gauging inflation was home prices in the U.S. and how the prices were on fire, that homes were not on the market long and were sold at well above asking price. He said housing tends to show up in the official inflation statistics with a bit of a lag. He said the next issue was the supply chains, that delivery times continued to sit near an all-time high which has corresponded with a substantial increase in input prices, and raw material costs. He said that companies were passing along higher costs to the end consumer in the form of higher wages and higher transportation costs.

MR. LEBOVITZ moved to slide 6. He said payroll growth was disappointing, that unemployment rate fell to 4.25 percent and wage growth had accelerated to its fastest since the early 1980's. He said the thing that was impeding the labor market supply was that people were not being forced to go back to work, that they were still sitting on elevated cash balances, so until they run out of cash, they will stay on the sidelines. He said skill mismatch was a problem, 80 percent of the jobs in the U.S. labor market were in services and 20 percent were in manufacturing. He said you can't put a bartender in an assembly line job. He said childcare was also an issue.

MR. LEBOVITZ said the Fed interest rate forecast on slide 7 was a bit too friendly, that the idea that headline PCE was at 2.2 percent by the end of next year was a stretch. He thought it would be closer to 2.5 or 3 percent. He said they thought inflation would come back down closer to 2 percent by the end of 2022. He said chairman Powell announced that inflation was not transitory and would taper faster by the end of the year and conclude sometime around the middle of next year. MR. LEBOVITZ said they would find it difficult to raise rates if that happened. He said he believed that the feds would be able to hike the rate by late 2022 or early 2023 but the idea that they finish tapering and then immediately hike the rates – he did not think they would move that quickly.

MR. LEBOVITZ said they thought the short end would remain anchored but believed that as global growth improved it would allow the long end of the curve to drift higher. He said a key element to the curve was the continued rise in vaccination rates and broad immunity to the pandemic. He said as long as there was a large population globally who were not vaccinated, there would be more mutations of the virus. He said they believe that over time we would move past the virus, but the reality was that it would continue to evolve and continue to mutate as long as it had hosts to infect with no immunity or vaccination against the virus. He said they were looking at higher long rates next year -- 2.25 on the 10-year by the end of 2022 was a reasonable assumption.

MR. LEBOVITZ moved to slide 10. He explained the position of the diamonds relative to the X axis represented the correlation of each of the sectors to the S&P 500 and the position of the diamonds relative to the Y axis represented the average yield over the past 12 months.

MR. LEBOVITZ said when it came to navigating the traditional bond market, if it's about having a

core allocation, they think moving away from U.S. Treasuries makes sense and they see opportunities to invest in things like investment grade corporates. He said they were comfortable going into high yield and EM debt, but they want to maintain a higher quality bias. He said he did not believe in silver bullets, but if there was a silver bullet from an income generation perspective, it would be core real assets. He said the green diamonds in the center of the chart were real estate, infrastructure, and transportation on the top left. He said core real assets were for clients who want something like a high yield bond but don't want to take on that amount of equity risk.

MR. LEBOVITZ moved to slide 11 and said the chart on the left-hand side showed that cap rate spreads remained above their long-run average, that some of it had to do with the level of Treasury yields but core real estate looked cheap. He said the chart on the right showed that not all sectors had been created equal in the wake of COVID. He said in terms of sectors, the industrial sector had continued to plumb new lows from a vacancy rate perspective, multi-family housing had gone full circle, office space shot higher, and retail moved higher as well but appeared to be turning around.

MR. JOHNSON asked if there was a wave of long lease terminations coming for office spaces as leases expire; MR. LEBOVITZ said that there were lease terms coming up for expiration, but they did not see it as a repeat of what was seen during the financial crisis. He said the office was not going away, but the nature of office needs has changed. He thought that offices were going to transition into a place where people go to collaborate. He said there was a tremendous amount of new business formation during the pandemic and those new businesses would need homes.

MR. LEBOVITZ said that the nature of offices was changing as well as the nature of retail and those changes lent themselves to more opportunistic value-added approach to real estate investing.

MR. LEBOVITZ moved on to slide 12 saying that infrastructure had long been the darling of the European institutional investment community and was gaining traction in the U.S. He noted the chart on the right showed household utility spending, that households in the U.S had 2.5 percent of their total spending going to utility bills. He said those were usually the last bills that stop being paid when you fall on hard times and that the pandemic confirmed that.

MR. LEBOVITZ moved on to slide 13 and explained that transportation was a big focus for J.P. Morgan and their clients, especially shipping. He said he thought about the orderbook as a share of the total fleet, that it was back down below 10 percent after being north of 50 percent in 2008 and 2009. He said transportation was one of the few asset classes that had benefited from the pandemic and everything that had gone on from a supply chain and a shipping perspective. He said the ships were getting older and in need of replacing which was representative of a fairly significant investment opportunity going forward.

MR. LEBOVITZ moved on to the next slide regarding private credit. He said that there was a lot of cov-lite issuance, and EBITDA adjustments – very borrower-friendly behavior. He said he saw a chart the other day that looked at the share of cov-lite issuance for middle market direct lenders versus broadly syndicated leveraged loans and the spread between the two was 80 percent points – 7 percent of middle market direct lending was cov-lite and 90 percent of broadly syndicated leveraged loans are cov-lite. He said the quality of loans had improved since late 2019, early 2020 and that during

periods of market stress, private credit, and direct lending, performed more like investment grade as opposed to high yield or leveraged loans.

MR. LEBOVITZ said the next slide showed the equity side. He said earnings growth had been spectacular, that they had accounted for all the return seen as multiples, have actually declined year-to-date. He said they estimate, for calendar year 2021, S&P 500 earnings per share would grow by close to 70 percent for the year as a whole. He said that two-thirds of the earnings growth seen this year was driven by margin expansion.

MR. LEBOVITZ moved to slide 17. He said he believed capital spending would accelerate and be focused on things such as automation. At some point companies would get rid of some of their employees and put an iPad in their place. He said that there would be increased focus on productivity, efficiency, and automation and in conjunction with pass-through of higher input costs, that would allow companies to defend their margins.

MR. LEBOVITZ said that for the portfolios, they want to own the part of the market where earnings could do all the heavy lifting, those sectors and industries that have earning streams that were most sensitive to the underlying pace of economic growth. He said what the chart showed was the correlation of each sector's earnings to the pace of real GDP. He said the five most sensitive sectors were a blend of value and growth, such as industrials and financials, traditional value sectors, then there was tech, healthcare and communication services, traditional growth sectors. He said it was not about value or growth, but value and growth.

MR. LEBOVITZ said he believed that private equity should be a structural allocation in portfolios because it provided different underlying exposures when compared to the public markets. A greater orientation towards technology and healthcare. He said to help clients achieve their long-run return goals, they thought that allocating growthier parts of the capital markets has transitioned from being optional to being essential. He said he thought there would be an emerging opportunity in some of the more cyclical parts of the private markets going forward.

MR. LEBOVITZ said that the U.S. was a net borrower of dollars from the rest of the world and that had actually gotten worse during the pandemic. He said he believed that next year would be more about global growth, that they would see emerging markets come online and more synchronized global growth environment and that the dollar could trend lower over the course of 2022.

MR. LEBOVITZ said the next chart on slide 21 was international equities, he said he thought there was a structural opportunity in places like the emerging markets. He said one of the things he liked to tell clients was when it came to the United States, we like the idea of owning growth and renting value and when we think about international markets, we like the idea of owning the United States but renting markets like Europe and Japan, he said he believed that from a tactical perspective they could do well in 2022.

MR. LEBOVITZ moved to the chart on slide 23, he said the red dots represented the peak-to-trough decline for the S&P 500 each year back to 1980 and the gray bars were the full calendar year return. He said the peak-to-trough decline in 2021 had been 5 percent or a third of the average drawdown

that had been seen over the course of the past four decades. He said the volatility had come back and that was normal, the environment seen for the better part of 2021 was not normal. He said they thought the volatility could persist but that the markets were resilient, that 75 percent of the time since 1980, despite falling by more than 14 percent during the course of the year, the S&P 500 had gone on to finish the year in positive territory.

MR. LEBOVITZ moved to slide 24 and said the most intelligent thing he's heard anyone say about crypto was that if you're going to own it, you need to be prepared for the price to go to zero. He said it was not clear what the role of crypto plays in a portfolio and it was incredibly difficult to size given allocation. He said Bitcoin was only worth what somebody was willing to pay for it, so he had no idea what the expected return for that asset should be. He said the correlations were very unstable over time, that sometimes it acts like risk assets and sometimes it acts like more defensive assets and that made forecasting to correlation or covariance effectively next to impossible. He said the volatility of Bitcoin was multiple times that of the S&P 500, very unstable. He said that even if they were to use historical data to size the allocation, they would end up with wildly different recommended allocations, depending on the look-back window used.

MR. ERLENDSON asked if they could give a sense of J.P. Morgan's view about the use of artificial intelligence when it came to investment management of institutional money; MR. LEBOVITZ said that there were things that could be automated and things that cannot. He said he's skeptical of the robo advisor phenomenon. He said that most individuals want a one-on-one conversation. He said a human element is extremely important. He said when it came to underlying technicals of money management, they had success automating things such as trading treasuries. He said they found that it was possible to do it in a relatively frictionless way with a higher degree of accuracy than a human trader could do. He said he did not think that computers would be able to make portfolio management decisions or discuss the strategies and help people think about the way that they fit to portfolios, but he did see room for continued growth in terms of automation and technology in the investment management space.

MR. SHIELDS said that they were predicting they would get back to the historical million people visits per day and most likely would break through that number. He said they were now one of the largest Fintech businesses in the world and were balancing the act every day using new technologies but also remaining true to the person-to-person discussions that are still important to consumers.

MR. HIPPLER referred to slide 10 and asked how would they reduce volatility to offset the volatility in equities and other assets, given that the interest rate or the yield of those assets was so low. MR. LEBOVITZ said he thought of treasuries as a hedge rather than an investment at this point, that in order to maintain some defense in one's portfolio, we see opportunity in things like scrutinized paper. He said one could pick up a little bit of incremental yield without adding significantly to your overall duration or your portfolio's overall duration,

J. Private Equity/Growth Equity: Introduction to Summit Partners

MR. SCHILLER said that he was the Chief Investor Relations Officer at Summit. He introduced MR. CHUNG, the Chief Executive Officer of Summit and said he would be presenting.

MR. CHUNG gave a brief overview of the firm through slides and explained that it was started in 1984 with a foundational belief in profitable growth as the most reliable source of superior risk-adjusted returns through market and economic cycles. He said since inception they had a 32 percent net IRR to investors over 38 years and a 2.4 times cumulative multiple money on their mature funds. He said that track record had allowed them to develop deep sector expertise in their three key industry sectors – technology, healthcare and growth products and services which included business services, financial technology, financial services, and high-growth consumer.

MR. CHUNG said another of their competitive advantages was their ability to create proprietary investment ideas. He said they were known as a pioneer and innovator in the direct sourcing of investments which meant they do not rely on investment bankers or other intermediaries to bring them investment ideas.

MR. CHUNG said they had the ability to improve the performance of their companies and enhance the value of those investments. They achieved that through their platform of four teams, which were built to serve the needs of growth companies. He said profitable growth was the driver of their returns and everything they do as an organization was focused on that belief on behalf of their investors.

MR. CHUNG explained that growth equity was an investment category that sits between early-stage venture capital and traditional private equity or leveraged buyouts. He said when they find companies, they look to protect their investors capital by investing in a senior equity security and exercising governance rights through a board seat. They take control and minority positions, but when they buy control, they are prudent in the use of leverage to finance those transactions. He said that process is made more intelligent and automated through their technology platform called Alpha5. He explained that it was a cloud-based, 21st century enterprise software platform that they built and maintained with their staff of software developers used only for their purposes.

MR. CHUNG said they look for profitable, category-leading companies with strong teams and when they find those companies, they are in a privileged position to create investment opportunities, which they structure carefully using senior equity securities and controlled leverage.

MR. CHUNG explained that they work actively to enhance the value of those companies through their value enhancement platform and as they see the opportunity to realized gains, they do so on a regular and disciplined basis. He said that almost 90 percent of the companies they invested in were profitable at the time of their initial investment. He said they were a lead investor in 93 percent of the investments and serve on the board of almost every company they invest in. He said that in terms of capital preservation, almost 80 percent of the investments that they've made from their funds were structured with a preferred equity instrument. He said that had allowed them to protect their investors' capital even in situations where the investments do not perform as planned.
MR. CHUNG said that 45 percent of the deals in their recent funds had no leverage at the time of their initial investment and noted the average senior leverage ration was just over three times trailing EBITDA.

MR. CHUNG said their teams were designed to support the needs of growth companies and they

believed those resources were integral to their investment and value enhancement processes. He said they had an in-house operations team, an in-house talent and recruiting team, they recently built a technology and data science team and an in-house capital markets team which executes capital markets transactions on a turnkey basis for their portfolio companies.

MR. CHUNG noted that they had recently hired subject matter experts in fields like digital marketing, revenue optimization, and data science who were all involved in their due diligence process all the way through the life cycle of their investments.

MR. CHUNG explained that slide 9 showed the global investment team totaling 44 people, with 13 managing directors in the growth equity fund, averaging 17 years with Summit, a very stable and tenured partnership.

MR. ERLENSON asked what their view was of private equity – was it a fool's errand or stroke of genius for DC pension plans; MR. CHUNG said there had been such a heightened level of interest in private equity. He said that was something they did not control. He said if they do their jobs well and put together a highly curated portfolio of category-leading, profitable companies, they would deliver on their promise to their investors to do their best to create superior risk-adjusted returns.

MR. HOWARD asked if they could talk about how their process had changed with the growth of capital in private equity and how that affected their sourcing; MR. CHUNG said that the influx of capital into their asset class was not a new thing, that it happened in the late 90's and in the mid 2000's and was happening today as well. He said one of the ways they've had to adjust their process was to become more agile, so they operate a 24/7 investment committee operation. He said that allowed them to assemble deal-by-deal investment committees that were gathering the best minds in the firm around each investment opportunity. He said ten years ago they adjusted their sourcing model and moved to thematic idea generation and the Alpha5 technology platform. He said today, their sourcing idea generation was as or more productive than it had ever been. He stated 95 percent of investments made in 2021 were sourced directly by a Summit professional. He said they've found that the innovations and investments made in their sourcing and idea generation were serving them well in terms of creating truly differentiated idea generation.

MR. JOHNSON asked what controls they would have as a public pension board with respect to investments in private equity firms where at least the ideas being generated going forward would be similar to what their proxy policies might be on the public side – was there any measure of control that they could expect to have; MR. CHUNG said the typical avenue for those types of controls were through side letter agreements as part of the subscription documents in each fund. He said the other control would be to conduct due diligence on Summit and for them to be transparent about the categories that they were targeting.

CHAIR WILLIAMS asked how they decide when to apply leverage or not, what were the determining factors, and being the lead investor, having board representation, was that something that has wide open opportunities or did they have to hunt to find them; MR. CHUNG said that as far as board representation was concerned, it typically was not an issue, more often than not, they were being invited into the companies.

MR. CHUNG said the if the business was an attractive candidate but was not growing organically fast enough to produce the return, they may use leverage to enhance the return from the equity, or they may use the leverage to finance acquisitions to provide the extra layer of growth to get to the target returns.

MR. HANNA asked MR. CHUNG to take them through the lifecycle of one of their investments – starting with idea generation, sourcing, and value creation, and ultimately exit. MR. CHUNG shared several examples with the group.

CHAIR WILLIAMS recessed the meeting from 10:43 a.m. until 10:55 a.m.

K. Private Equity/Buyout: Introduction to Genstar

MR. SALEWSKI explained that Genstar was founded in 1988 and was based in San Francisco, it started out as a holding company in the 1970's and 1980's that focused on the building material space. he said that company sold, and the co-CEO's kept the name and launched one of the early West Coast private equity funds and firms.

MR. SALEWSKI said they were a middle-market-focused private equity firm and defined that as companies with $50 million to $100 million of cash flow, of EBITDA, where they can write checks from $200 to over a billion dollars of equity. He said they look for strong businesses where they think they can upgrade the management teams and support them. He said they feel that if they have a great company with an outstanding management team, they could drive scale through new go-to-market sales strategies and through acquisitions. He said they double or even triple the size of the companies they invest in over a three-to-five-year period and those companies go on to bigger and better things after their ownership.

MR. SALEWSKI said they focus on four sectors - financial services, software, industrials, and healthcare. He said that the multisector approach was important because there were different times in a cycle where they want to be overweighted or under weighted in sectors and that gives them the flexibility to do that. He said they also partner with about 30 former C-level executives and CEO's who sit alongside of them to help identify companies – they sit on the board, and they introduce them to executives. He noted that they are a control investor which allowed them to be the majority shareholder so they could move quickly and drive the changes they identify. He said they've had a strong consistent profile of returns; six out of their seven funds were in the top quartile, and they had been rated one of the top three fund complexes in the world by HEC-Dow Jones measurements on an annual basis. He said they were a very focused firm, they do one private equity fund at a time, one buyout fund at a time. He said they were 100 percent owned by active partners in the firm.

MR. SALEWSKI moved to slide 3 which showed the five partners of the firm. He said slide 4 showed the entire investment team.

MR. SALEWSKI moved to slide 5 that showed the strategic advisory board and explained that they were the 30-former c-level executive and CEO's he mentioned previously. He said they had been with the firm anywhere from eight to 10 years and they were on two to four companies. He said they

were a key part of their value creation model as they introduce them to executives and help develop themes, they sit on boards and were a great interface between the management teams on the board and the financial investors.

MR. SALEWSKI explained their investment model located on slide 7.. He said they start with a thesis within their four main sectors, they identify all the companies they think would be interesting and track them over a long period of time. Then they engage with those leadership teams and ask them if Genstar came in, what would they do differently, would they hire more salespeople, would they execute on more acquisitions, would they change their board and what types of activities would they have on their wish list to help accelerate growth; He said they find that there would be more value that they believe they could create with the infusion of Genstar and the expertise and talent that they bring. He then explained a few of the companies they bought, such as Mercer Advisors, a wealth management platform with $40 billion of assets that started out with only $4 billion of assets. He said Cetera was an independent broker/dealer which focused on serving wealth managers that doubled in size over the last three years since they owned it.

MR. SALEWSKI said that despite their growth in fund size and small growth in terms of firm size, they had been able to continue to deliver repeated strong performance with a very simple model that all came down to execution and the people who execute on it.

MR. HOWARD asked if he would take them through an example of the different verticals for a couple of the investments in sourcing all the way through to exit; MR. SALEWSKI reminded them that he had mentioned that Genstar had started in the building materials and industrial space. He said the first sector was the industrial vertical in 1988. Then in the mid 90's one of the team members mentioned that industrial space was interesting, and they could apply some of the same change management themes to healthcare. He said for them, healthcare was drug discovery and they looked at companies that provided drug trials or centralized data collection in drug trials.

MR. SALEWSKI said they joke about a parallel across their sectors. He said it was the classic picks-and-shovels approach to the gold rush where they were not betting on gold, but the people that would need blue jeans, picks, and axes to find the gold. He said the tools and services approach really exists across all of their sectors.

MR. SALEWSKI then walked through an example.

MR. HOWARD asked if he would talk about how the top-level decision was made as far as allocating to those sectors; MR. SALEWSKI said it was a bottoms-up process that they fund, since when they invest in their funds, they are 10-to-12-year closed-end vehicles. He said they were long-dated funds, so in spite of micro cycles within each of the sectors, they look to underwrite the companies for three to seven years, knowing that as they deploy the capital, it would be a 10-year journey.

MR. SALEWSKI said they look at each of the sectors, they have equivalent efforts in each and see what the best opportunities were. He said unless there were more liquid funds, they could not tweak that allocation forward and backward over the course of a fund, so they look at balanced funds within them. He said they do regression analysis and all of their sectors performed equally.

CHAIR WILLIAMS asked if the defined exit vision was on a timeline; MR. SALEWSKI said that they underwrite for a five-year plan which contains what the organic growth would look like, what the acquisition growth could look like, what the profile looked like in terms of how it was valued in the marketplace. He said they look to accelerate growth which leads to higher exit multiples. He said they steer them into higher value parts of their marketplace to steer for a higher exit value and then they look to build an organized and an inorganic plan, and an acquisition plan for that. He said in that five year period, there was an 18-month window of true value creation out of the gate and they pushed the teams to hit the accelerator hard and drive the change levers, and hire the talent needed within the first 18 to 24 months; CHAIR WILLIAMS asked if they adjust their timeline a bit based on things that happen within that time frame if they see a way to get a lot more value; MR. SALEWSKI said that was correct, that every quarter, alongside of their mark-to-market valuation analysis, they do a different analysis for their internal purposes that they do not share externally.

MR. SALEWSKI said their management team sees external validation of their value creation, they will tell them that it may be early in the hold period, but it's a good time to exit, so they exit, but other times they may hold longer. He said when they hit the return goals, that is when they have the exit discussions.

MR. HOWARD asked how they were able to maintain the process as the fund sizes grew; MR. SALEWSKI said it was something they monitored closely. He said their team had gotten a little bigger with a few more advisors which works out to an equation that they back into the fund size that they think makes sense for the team that they have. He said they will only raise a fund that they believe the team they have could manage.

L. Understanding Returns for Public DB Plans

MR, HANNA explained that Callan recently released a white paper that was in the Board packet that bridged the gap between actuarial assumption and the capital market assumptions. He then invited MR. O'CONNELL of Callan to explain.

MR. O'CONNELL said that during his investment consulting career, at only one point in his career was the average funded status near or above 100 percent. He said the average funded status for public pension plans had been below 100 which made room for improvement in terms of having assets on hand to pay liabilities.

MR. O'CONNELL said that people often point towards disappointing investment returns as the reason for most public pension plans being underfunded which was the case in 2008. He said that slide 1 of the presentation was the range of returns that Callan's peer public pension plans had returned historically over the long run. He said it showed a distribution of returns for the 10th percentile down to the 90th percentile over three different time horizons - 10, 20 and 30 years. He said over the long periods of time, public pension plans had been able to exceed the actuarial discount rate and often exceeded the return forecast that Callan had projected at the beginning of those periods. He said that looking at the 10-year period, it looked really good, it did not include the Global Financial Crisis, but when looking back at the 20-year time horizon, it included the COVID market downturn as well as the Global Financial Crisis, so the returns look more modest.

MR. O'CONNELL said the 30-year time horizon that is commonly used as a minimum time period for a long-term investor included the three major market disruptions – the dot-com bubble, the Global Financial Crisis and the COVID disruption. He said the historical picture from the return standpoint of what public plans had experienced, the range of returns was narrow, but all relatively good, and the median public plan had produced returns that had exceeded common actuarial discount rates.

MR. O'CONNELL noted they had a good asset return experience for public pension plans but faced challenges going forward, such as what did they expect from the future. He said they assumed that the public pension plan would invest 60 percent of assets in global equities, 25 percent in fixed income, 10 percent in real estate, and 5 percent in private equity. He said Callan's best forecast over the next 10 years was that creates a median expected return of about 6 percent. He said they showed that in good outcomes, they expected a return of twice that, 13.4 percent at the 10th percentile and in a very bad set of outcomes over a 10-year time horizon, an average return that could be negative. He noted that it was a modest return forecast because interest rates were low, equity valuations were high and there had been a lot of liquidity in the market that had driven up prices on a lot of assets and that made it harder to achieve the returns experience in the past going forward.

MR. O'CONNELL said the past presents a very different picture from what they expect in the future and that FY2021, which a lot of public plans use to measure their financials, was one of the best they had seen in a long time and had done a lot to improve public pension plan funded status. He said a lot of stakeholders and people involved in the public pension world were taken aback when they raised the issue of the kind of tough sledding that may be ahead for public plan fiduciaries. He said the graph on page 3 was a good illustration of the challenge faced over time by public plan trustees and stakeholders of how to justify the difference between the two lines. He said the dark blue line was data they got from NASRA which represented the public plan median discount rate over time. He said they started tracking that information in 2000 when 8 percent was the standard discount rate. He said the green line was Callan's estimate of the return forecast for the typical pension plan at each given time period and was down to 7 percent.

MR. O'CONNELL said the graph on page 4 was a histogram where they plotted the median public plan return for different fiscal years going back to the mid 70's. He said it showed that in 2021 the median public plan was up over 25 percent, that returns like that had not been seen since the mid 80's. He said those returns were driven by public pension plans being invested largely in bonds, more so than today and the bonds benefitting from interest rates coming down in a steep manner.

MR. O'CONNELL said there was great variability in the returns seen from year to year and the experience in any given year was going to be vastly different from the actuarial discount rate and the return forecast that Callan expected for a 10-year time horizon. He noted that it was important when digesting results in any fiscal year to put it in the broader context of what the long-term experience had been.

MR. O'CONNELL said that if they were to look at other consultants or use an average of return forecast for the coming 10 years, there would be a similar phenomenon, where the forecast for future returns was more modest than what the discount rate was. He said slide 5 showed different factors

that they thought public plan fiduciaries and stakeholders should consider when trying to understand the how to reconcile the differences between the two. He said the issue of time horizon, when actuaries discuss the return on asset discount rate assumption, they viewed that as a long-term assumption, and their time horizon tends to be longer than what Callan uses. He said actuaries typically operate for 20-year time periods and often 30-year periods. Callan's forecasts are the 10-year time horizon and is the best time period for fiduciaries to make decisions because it is more reflective of current market conditions.

MR. O'CONNELL said he looked at the long-term averages – how public plans had done over very long time periods and how they had done in exceeding their actuarial discount rate. He said because the median was much better on average than the actuarial discount rate, most public plans would be able to look at a higher historical return.

MR. O'CONNELL said they should look at inflation expectations used by consultants and actuaries. He noted that actuaries over the past several years had brought their inflation expectations down, that in the past they had used long-term averages of inflation. He said it would be interesting to see how actuary and consultant inflation forecasts change now that there has been an increase. He said that historically, actuaries had higher inflation expectations than consultants and that going forward, inflation would be what it is, and that the best way to reconcile the numbers would be to look at real or after-inflation returns and try to bridge the gap between the actuary's real discount rate less their inflation assumption against the consultant's return forecast above inflation so they eliminate the difference in the two numbers that comes from having inflation forecasts differ.

MR. O'CONNELL said that they did think it was important to make changes to the actuarial assumptions based on advice from the actuary, but infrequently and not making significant changes if possible. He said the assumptions the actuary used in valuing the liabilities could have a big impact on the overall financial picture. He said the investment consultant forecast takes into consideration market conditions that are more relevant and up to date, reflecting current market conditions. He said they want to avoid trying to move either the discount rate to match the consultant forecast or set the asset allocation so that they can reach the actuarial discount rate.

MR. O'CONNELL said the last factor was how they use active management in particular in the publicly traded asset classes. He said Callan's capital market forecast for public market asset classes did not include a premium for value added from active management. He said for alternatives they do private equity, real estate, and hedge funds and incorporate some value added from active management. He said for most public plans, over 50 percent of their assets were invested in non-U.S. equities and fixed income, so they do not factor into the 6 percent forecast how well or poorly they would do implementing with active management.

MR. O'CONNELL said one way to justify the difference between the 6 percent forecast and the 7 percent discount rate was to understand how they used active management in the past and how much active management the plan had in publicly traded asset classes and what the history had been of adding value with active management. He said the average investor should expect the index minus actively managed fees, so the best investors could expect to achieve a premium from active management, or alpha. He noted that they had incorporated alpha estimates into Callan's return

forecasts. He said that it had never been an objective to make the actuarial discount rate and the consultant return forecast match. He said they were two different numbers with two different functions.

CHAIR WILLIAMS said that he thought MR. O'CONNELL was saying not to give any indication of what they should expect for returns for next year, but what kind of climate and what they should expect over the next 10 or 12 years; MR. O'CONNELL said that was correct; CHAIR WILLIAMS asked if he were to sum up in a few sentences why they should be less optimistic over the future than what they had in the past; MR. O'CONNELL said they need to find new ways to achieve the success that they had experienced in the past. He said they must work a bit harder to find investments that are less transparent, less liquid, and harder to understand that might play a bigger role in the portfolio going forward.

MR. JOHNSON asked if there were any takeaways from the high volatility this week to go into the longer-term forecasting – were there lessons to be learned; MR. O'CONNELL said that he thought the big lesson would be that it was impossible to forecast, with any degree of accuracy, how assets would perform over a short period of time. He said he also thought that public pension plans had the benefit of being long-term investors so the liability stream was long and there was a big pool of assets that could be invested in a way where they could ignore the short-term market disruptions.

MR. HIPPLER asked him to clarify if he thought of 6 percent return was a nominal return rather than a real return; MR. O'CONNELL confirmed that was the case; MR. HIPPLER asked if the average 10-year return for public fund assets over the last 40 years 9 percent and was expected to go down to 6 percent; MR. O'CONNELL said the average median return for their clients was 8.65 for 30 years and that they thought the average public plan, based on generic asset allocation would be close to 6 percent going forward.

UNFINISHED BUSINESS - None.

NEW BUSINESS – None

OTHER MATTERS TO PROPERLY COME BEFORE THE BOARD - None.

PUBLIC/MEMBER COMMENTS - None

INVESTMENT ADVISORY COUNCIL COMMENTS
DR. MITCHELL commented that the presentations over the past two days were enlightening, and he particularly liked the presentation from MR. O'CONNELL. He said that they were not going to radically change their market manager lineup just because of a one-year, two-year or even three-year forecast. He said that private equity had done very well for the fund and congratulated the Board for allowing it to evolve and the staff for doing such a great job in choosing managers, monitoring them, and staying on top of private equity.

CHAIR WILLIAMS said that MS. RYERSON could not be with them but did email some comments. He said she congratulated the new Board leadership and echoed many of the comments about CHAIR

JOHNSON running the meetings so efficiently. She said she also very much appreciated his thoughts about spreading leadership responsibilities around to more Trustees. She said that in the long run, it made the Board a much stronger one overall to have more Trustees involved in leadership, both of the Board and of the Committees. She gave kudos to the format of the Summit presentation, she thought that better information was exchanged thought the Q & A session and open discussion rather than simply reviewing a slide deck.

DR. JENNINGS said he thought it was a good meeting, that the educational sessions marked in blue on the agenda were useful things to make efforts to include. He said he found the manager perspectives useful. He said he thought there was a need for dialogue and discussion, interaction on the actuarial assumptions and encouraged working through staff to the leanings and insights to the various actuaries ahead of time might expedite the process.

CHAIR WILLIAMS said that the determinations would be made by June and asked if DR. JENNINGS felt that it had to be addressed earlier; DR JENNINGS said he felt like it needed more than one discussion, that there would be multiple iterations as opposed to waiting to see what would be presented in March. He said he thought some conversations prior to March might facilitate the process.
MR. HANNA said that he fully agreed. He said the experience study that was performed every four years was a significant amount of work for Trustees and the actuaries. He said they had a tentative meeting scheduled in April that was always on the schedule, and that staff was more than willing to firm up those dates.

TRUSTEE COMMENTS
MS. HARBO gave thanks to MR. JOHNSON for his service to the members and beneficiaries, first as legal counsel to the PERS and TRS Boards and the Alaska State Pension Investment Board, then the ARMB and finally as a Trustee and then chairman of the Board. She noted that she was happy he was going to remain as a Trustee on the Board. She also thanked the staff at Treasury and DRB for their service.

MR. MOEN also thanked MR. JOHNSON for his service and congratulated CHAIR WILLIAMS.

MR. JOHNSON said that he looked forward to the future of the ARMB under the leadership of CHAIR WILLIAMS, VICE-CHAIR HIPPLER, AND MS. HARBO as Secretary. He said he had enjoyed his time as chair and vice-chair two years prior and was very proud to have served with the Board. He said it was critical to maintain focus going forward.

CHAIR WILLIAMS said he had always found the Board to be one of the most competent, thoughtful, and professional boards with deep, important issues, important discussions, and was honored to get to work with great staff.

FUTURE AGENDA ITEMS - None.

ADJOURNMENT

There being no objection and no further business to come before the board, the meeting was adjourned at 12:27 p.m. on December 3, 2021, on a motion made by MS. HARBO and seconded by MR. JOHNSON.

Chair of the Board of Trustees
Alaska Retirement Management Board

ATTEST:

Corporate Secretary

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