ALASKA RETIREMENT MANAGEMENT BOARD

JUNE

15-16, 2023

BOARD of TRUSTEES MEETING

Alaska Retirement Management Board

Board of Trustees Meeting

Thursday, June 15, 2023

Location:	Atwood Conference Center Atwood Building Rooms 102/104 550 W. 7th Ave., Anchorage, AK	**Teleconference:**	**Call in #:** 1-907-202-7104 **Code:** 595 047 064#

I. **9:00 AM** **Call to Order**

II. **Roll Call**

III. **Public Meeting Notice**

IV. **Approval of Agenda**

V. **Public/Member Participation, Communications, and Appearances**
*(Three Minute Limit. Callers may need to press *6 to unmute.)*

VI. **Approval of Minutes – March 16-17, 2023**

VII. **9:15 AM** **Staff Reports**

A. Liaison Report
1. Disclosures Report
2. Communication Report
3. Meeting Calendars
4. Contract Review & Deadlines Timeline

Alysia Jones, Board Liaison, Treasury Division

B. Fund Financial Presentation
Ryan Kauzlarich, Assistant Comptroller, Treasury Division
Kevin Worley, Chief Financial Officer, Division of Retirement & Benefits

C. Retirement & Benefits Division Report
1. Legislative Update
2. Buck Consulting Invoices
3. Member Statistics
4. BEARS Project Update

Ajay Desai, Director, Division of Retirement & Benefits
Kevin Worley, Chief Financial Officer, Division of Retirement & Benefits
Kris Humbert, Business Integration Officer, Division of Retirement & Benefits

D. Treasury Division Report
Pamela Leary, Director, Treasury Division

E. CIO Report
Zachary Hanna, Chief Investment Officer, Treasury Division

F. Legal Report
Ben Hofmeister, Assistant Attorney General, Department of Law

VIII. 10:00 AM Statutory Investment Powers & Duties
Ben Hofmeister, Assistant Attorney General, Department of Law

BREAK @ 10:30 am (10 MINUTES)

IX. 10:40 AM Trustee Reports

A. Chair Report, *Bob Williams*

B. Committee Reports

1. Audit Committee, *Michael Williams, Chair*
2. DC Plan Committee, *Bob Williams, Chair*
   Action: *Discontinue JP Morgan SmartSpending*
   Action: *Fidelity Core Plus Option for Defined Contribution Plan*
3. Actuarial Committee, *TBD, Chair*
4. Operations Committee, *Dennis Moen, Chair*
   Action: *2024 ARMB Meeting Calendar*
5. Alaska Retiree Health Plan Advisory Board, *Lorne Bretz, ARMB Member*
6. RFS#2023-0400-0016 Procurement Evaluation Committee, *Bob Williams, Chair*

X. 11:15 AM Certification of FY2022 Review Reports & Valuations

Action: *Board Acceptance of GRS Certification for FY2022 PERS/TRS DB & DC Plan Valuations*

Action: *Board Acceptance of FY2022 Buck Valuations for PERS/TRS DB & DC Plan Valuations*

BREAK @ 11:25 am (5 MINUTES)

XI. 11:30 AM Presentations

11:30 – 12:30 **A. Performance Measurement – 1st Quarter**
Steve Center, Senior Vice President, Callan
Ivan (Butch) Cliff, Executive Vice President and Director of Research, Callan

LUNCH @ 12:30 pm (75 MINUTES)

1:45 – 2:25 **B. ARMB Private Debt Search Process & Current Environment**
Shane Carson, State Investment Officer, Treasury Division
Pete Keliuotis, Executive Vice President, Alternatives Consulting, Callan

2:25 – 3:05 **C. Ares - Pathfinder Core Fund**
Keith Ashton, Partner, Portfolio Manager, Co-Head of Alternative Credit
Juliette Schainuck, Principal, Relationship Management
David Walla, Vice President, Alternative Credit

BREAK @ 3:05 pm (10 MINUTES)

3:15-3:55 **D. Crestline – Blue Glacier Fund, Crestline Direct Lending Funds**
Doug Bratton, Founding Partner, CEO and Co-CIO
Keith Williams, Managing Partner and Co-CIO

XII. 3:55 PM Investment Advisory Council Perspectives
Dr. William Jennings
Dr. Jerrold Mitchell
Ruth Traylor

RECESS for the DAY @ 4:30 pm

NOTE: A blue box around presentation denotes educational session. All Times are approximate, every attempt will be made to stay on schedule; however, adjustments may be made.

Alaska Retirement Management Board

Board of Trustees Meeting

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XIII. 9:00 AM Presentations continued.

9:00-9:30 **A. Observations**
Dr. Jerrold Mitchell, Investment Advisory Council

9:30-10:05 **B. Multi-Asset Review**
Shane Carson, State Investment Officer, Treasury Division

10:05-10:40 **C. Man Group – Man Alternative Risk Premia**
Richard Barclay, Director, Man Solutions
Trey Heiskell, Managing Director

BREAK @ 10:40 am (10 MINUTES)

10:50-11:25 **D. PineBridge – Global Dynamic Asset Allocation**
Mike Kelly, Managing Director, Global Head of Multi-Assets
Joe Fague, Managing Director, Client Advisor

11:25-12:00 **E. Fidelity Signals**
Jordan Alexiev, Portfolio Manager
Kristin Shofner, Senior Vice President, Business Development
Melissa Moesman, Vice President, Account Executive

XIV. 12:00 PM Investment Actions
Shane Carson, State Investment Officer, Treasury Division
Action: *Crestline Direct Lending Fund IV*

Action: *Fidelity Signaling Portfolio Enhancements*

LUNCH @ 12:15 pm (75 MINUTES)

XV. 1:30 PM Presentations continued

1:30-2:00 **A. ARMB 2023 Asset Allocation Strategy**
Jay Kloepfer, Executive Vice President and Director, Capital Market Research, Callan

2:00-2:30 **B. Asset Allocation Discussion & Action Items**

Zachary Hanna, Chief Investment Officer, Treasury Division

Action: *Resolution 2023-02 Asset Allocation for Public Employees' Retirement System (PERS) Defined Benefit and Defined Contribution Plans, Teachers' Retirement System (TRS) Defined Benefit and Defined Contribution Plans, and Judicial Retirement System (JRS) Defined Benefit Plan.*

Action: *Resolution 2023-03 Asset Allocation for the Alaska National Guard and Naval Militia Retirement System (NGNMRS)*

BREAK @ 2:30 pm (10 MINUTES)

XVI. 2:40 PM Executive Session – RFS#2023-0400-0016 Investment Advisory Council Member

In accordance with Open Meetings Act, AS 44.62.310(c)

XVII. 2:55 PM Unfinished Business

XVIII. New Business

XIX. Other Matters to Properly Come Before the Board

XX. Public/Member Comments

*(Three Minute Limit. Callers may need to press *6 to unmute.)*

XXI. Investment Advisory Council Comments

XXII. Trustee Comments

XXIII. Future Agenda Items

XXIV. 3:15 PM Adjournment

NOTE: A blue box around presentation denotes educational session. All Times are approximate, every attempt will be made to stay on schedule; however, adjustments may be made.

ALASKA RETIREMENT MANAGEMENT BOARD
BOARD OF TRUSTEES MEETING
HYBRID/TEAMS

March 16 -17, 2023
9:00 a.m.

Originating at:
State Office Building
Department of Administration
Large Conference Room, 10th Floor
333 Willoughby Avenue
Juneau, Alaska 99801

Trustees Present:
Bob Williams, Chair
Sandra Ryan
Lorne Bretz
Commissioner Adam Crum
Donald Krohn
Dennis Moen
Allen Hippler
Commissioner Paula Vrana

Department of Revenue Staff Present:
Fadil Limani, Deputy Commissioner
Pamela Leary, Director, Treasury Division
Sam Hobbs, Accountant
Ryan Kauzlarich, Assistant Comptroller
Shane Carson, State Investment Officer
Casey Colson, State Investment Officer
Stephanie Pham, State Investment Officer
Officer
Emily Howard, State Investment Officer
Kevin Elliot, State Investment Officer
Benjamin Garret, State Investment Officer
Victor Djajalie, State Investment Officer
Zachary Hanna, Chief Investment Officer
Scott Jones, Investment Operations, Performance & Analytics
Mark Moon, State Investment Officer
Steve Sikes, State Investment Officer
Cahal Morehouse, State Investment Officer
Hunter Romberg, Senior Compliance
Robyn Mesdag, State Investment Officer
Steve Sikes, State Investment Officer
Grant Ficek, Business Analyst
Alysia Jones, Board Liaison

Department of Law Staff Present:
Ben Hofmeister, Assistant Attorney General
William Milks, Assistant Attorney General

Investment Advisory Council Present:
Dr. William W. Jennings
Ruth Traylor
Dr. Jerrold Mitchell

Department of Administration – Division of Retirement & Benefits Staff Present:
Ajay Desai, Director
Mindy Voigt, Acting Chief Pension Officer
Eugenia Golofeeva, Internal Auditor
Brandon Roomsburg, Retirement & Benefits Specialist
Roberta Aceveda, Counseling & Education Manager
Kevin Worley, Chief Financial Officer
Betsy Wood, Chief Health Administrator
Kris Humbert, Business Integration Officer

Callan:
Steve Center, Senior Vice President

Ivan “Butch” Cliff, Executive Vice President, Director of Research
Jay Kloepfer, Executive Vice President and Director, Capital Market Research
Adam Lozinski, Assistant Vice President, Capital Market Research

Guests/ Presenters:
Tonya Manning, US Wealth Practice Leader & Chief Actuary, Buck
David Kershner, Principal, Consulting Actuary, Buck
Stephen Oates, Principal, Health Actuary, Buck
Paul Wood, Actuary, Senior Consultant & Team Leader, GRS
Bill Detweiler, Consultant, GRS
Marybeth Daubenspeck, Vice President, Government Markets, Empower
Liz Davidsen, State Director, Empower
Ashleigh Kester, Empower
Robyn Loftin, Empower
Ryan Taliaferro, Senior Vice President, Equity Strategies, Acadian Asset Management
Renee Hoffman, Senior Vice President, Senior Consultant Relation Officer,
Acadian Asset Management
Chad Gross, Head of North American Institutional Business Development,
First Eagle Investments
Alan Barr, Portfolio Manager, First Eagle Investments
David Barron, Head of US Equity Solutions, Legal & General Investment Management America
Melissa Ruffel, Client Strategist, Legal & General Investment Management America
David Lebovitz, Marketing Director, JPMorgan
Jeff Shields, Executive Director, JPMorgan
Jeffrey Moore, Portfolio Manager, Fidelity Tactical Bond
Beau Coash, Institutional Portfolio Manager, Fidelity Tactical Bond
Kristin Shofner, Senior Vice President, Business Development, Fidelity Tactical Bond
Melissa Moesman, Senior Account Executive, Fidelity Tactical Bond

Public Testimony
Doug Woodby, 350Juneau
James Simard, 350Juneau
John Hudson, 350Juneau

PROCEEDINGS

CALL TO ORDER

CHAIR BOB WILLIAMS called the Alaska Retirement Management Board meeting to order and asked for a roll call.

MS. JONES called the roll.

PUBLIC MEETING NOTICE

CHAIR BOB WILLIAMS asked if the public notice requirements were met for this meeting.

MS. JONES replied, yes, it had.

APPROVAL OF AGENDA

CHAIR BOB WILLIAMS stated that the agenda was before the Board and that there were a couple of minor changes: One was the action item for the managed account analysis under Item 10 was moving under the DC Committee report; the investment action, listed as No. 12, would move up; and the Investment Advisory Council Perspective would be the last item for the day. With those changes, he asked for a motion to approve.

> **MOTION:** A motion to approve the agenda was made by TRUSTEE RYAN; seconded by TRUSTEE KROHN.
>
> *There being no objection, the MOTION was APPROVED.*

APPROVAL OF MINUTES

CHAIR BOB WILLIAMS moved to the minutes of December 1 and 2, 2022, and asked for any corrections or additions. There being none, he asked for a motion to approve.

> **MOTION:** A motion to approve the minutes of December 1 and 2, 2022, was made by TRUSTEE KROHN; seconded by TRUSTEE MOEN.
>
> *There being no objection, the MOTION was APPROVED.*

STAFF REPORTS

CHAIR BOB WILLIAMS moved to staff reports and recognized Alysia Jones, board liaison.

MS. JONES stated that the liaison report included the fourth quarter financial disclosure memorandum. There were no disclosure transactions that required additional review or discussion. She continued that the communications memorandum listed communications directed to and sent on behalf of the Board since the December 2022 meeting, as well as a summary of public records requests received between November 16th and February 28th. She added that there were a few recent ones regarding Empower which would be added after this meeting. The 2023 meeting calendar, along with a proposed 2024 meeting calendar which was discussed at the Operations Committee meeting yesterday were included in her report. Additionally, there was the five-year contract review and deadline timeline that showed FY23 through FY28.

CHAIR BOB WILLIAMS added that there were some late additions to packet materials, and as a general policy, we are looking at holding firm to those deadlines so that the trustees have a chance to read, go through and process them. He stated that he had accidentally jumped around the Public/Member Participation on the agenda. He apologized and moved to Public/Member Participation.

PUBLIC/MEMBER PARTICIPATION, COMMUNICATIONS AND APPEARANCES

CHAIR BOB WILLIAMS stated he had a list of four people: Doug Woodby, Elaine Schroeder, James Simard, and John Hudson that had requested to speak. He asked if there was anyone online or in the room that would like to speak. He recognized Doug Woodby, but there was no response.

MR. HANNA stated that there was an audio issue, which has been fixed.

CHAIR BOB WILLIAMS apologized for the technical difficulties and recognized MR. WOODBY.

MR. WOODBY stated that he lives in Juneau. He continued that he is a PERS beneficiary and is with 350Juneau Climate Action for Alaska. It looked like a defined benefit program would be coming back to Alaska for new and existing employees. This new defined benefit program should remind all that the fiduciary responsibility of this board was more comprehensive than it may seem. There will be young families with spouses and dependents, and their future pensions are going to be really important; not just to those families, but also to the economy by way of retention of employees and families that would remain in the state. He pointed out the charts in the board packet that showed the declining demographics of the defined benefit program in the coming decades. They show that the old beneficiaries are dying out. If the new program is implemented, that will change dramatically. As fiduciaries, the board has the duty of impartiality with respect to the various beneficiaries of the trust, young and old, now and in the future. He stated that employment-related risk will affect the funds available for future beneficiaries more than the current ones. A lack of consideration of long-term, climate-related risk in the portfolio represents an unreasonable bias that favors short-term gain at the expense of long-term sustainability. Exiting from fossil fuels is a strategy designed to protect institutional investment funds from losses; protecting current and future beneficiaries. This is about the future of Alaska's families and the local economics. He thanked the Board.

CHAIR BOB WILLIAMS thanked Mr. Woodby and recognized Elaine Schroeder, hearing no response, he then recognized James Simard.

MR. SIMARD stated that he was a librarian, retired from the State of Alaska; a board member of 350Juneau Climate Action for Alaska; and is a concerned grandfather. He continued that there had been a lot of recent national news coverage about climate research that was conducted by Exxon scientists beginning in the 1970s. He added that he had spoken about the investment risk implications of the current industry research with this Board in the past. Instead of taking a leading role in the transition to lower carbon and energy sources, the dangerous expansion of fossil fuel production while conducting a public disinformation campaign about the known risks continues today. He stated that dozens of municipalities are bringing suits against energy companies in the United States and worldwide. In June, the U.S. Supreme Court will hear arguments in the case of Suncor and ExxonMobil versus Boulder County. The question for the Court is whether this and similar court cases were to be tried in federal courts or be remanded to state courts. However they play out, he added that the well-being of our children and grandchildren depends on the actions now. He stated that it is past time to exit fossil fuels and prioritize investing and transitioning to a clean-energy economy. He thanked the Board for their good work and for their attention.

CHAIR BOB WILLIAMS thanked Mr. Simard and recognized John Hudson.

MR. HUDSON stated that he is a member of the Alaska Public Employees Retirement System and 350Juneau. He talked about some of the results of over 1500 institutions that pledged to divest more than $40 trillion from fossil fuels. Others viewed divestment as a financial no-brainer as fossil fuel demand peaked while market share continued a long-term slide downward. Colorado Public Employees Retirement Association published the result of a fossil divestment analysis. It simulated divestment from fossil fuel holdings of the association on total returns over a 10-year period, ending in 2022. Had they divested its fossil fuel stock and thermal coal, oil, and gas, it would have earned 22 percent or $2.7 billion. He talked about other states taking action and encouraged the Board to consider the fiduciary risks associated with fossil-fuel holdings in light of significant opportunity costs experienced by other pension funds. He thanked the Board for their time.

CHAIR BOB WILLIAMS thanked Mr. Hudson and asked if Elaine Schroeder was online. He then asked for anyone else online or in the room to testify. Seeing and hearing none, he closed the Public/Member Participation, Communications, and Appearances and moved to the Fund Financial Presentation by Ryan Kauzlarich and Kevin Worley.

FUND FINANCIAL PRESENTATION

MR. KAUZLARICH stated that he is an assistant comptroller for the Treasury. This was his first time presenting in person, and it was nice to be in the room with everyone. He pointed out a typo on the cover page. It should be total assets were up 2.86 percent, year-to-date. He then continued explaining the plan assets for PERS, TRS, JRS, NGNMRS, SBS and the deferred compensation plans. He also went through the updated figures as of February 28th. The year-to-date income was $1.1 billion, and year-to-date withdrawal was $901.6 million. He added that total assets were up by .59 percent; all from the updated figures as of February 28th. He stated that the financials were accurate, and they also were accurate in the presentation; the error was just on the cover page.

CFO WORLEY stated that he is the chief financial officer for the Division of Retirement & Benefits (DRB). He continued that Mr. Kauzlarich showed a net contribution and withdrawal column. DRB expanded on that and showed cash inflows and cash outflows that were collections of payrolls and payment of benefits and refunds for the seven-month period. He went through January's activity, all the same categories, but on a monthly basis, with a net outflow of $125.5 million. There was a new category which was for participant-directed disbursements by the plans for the defined contribution plans. Ben Hofmeister, legal counsel, reported on the Metcalfe case regarding a defined benefit plan after a June 30, 2010, cutoff. If they did not go back into their tier, they would have to start the defined contribution plan. That was determined to be incorrect, and a former defined benefit member currently in the defined contribution plan could go back into their prior tier. This item is called DCR to DB Conversion and was processed for that seven-month period. That would continue growing as this process is worked through. The following pages contained explanations and highlights of the inflows or outflows.

CHAIR BOB WILLIAMS thanked him for the report and moved to the Division of Retirement & Benefits report by Director Desai, CFO Worley, and Business Integration Officer Humbert.

RETIREMENT & BENEFITS DIVISION REPORT
LEGISLATIVE UPDATE
DIRECTOR DESAI began with the legislative updates for the 2023 session. He continued that there were a few bills that had been introduced and focused on HB22. It had been introduced by Representative Josephson and would open up a new PERS defined benefit tier allowing current police, firefighters, and peace officers to elect a new tier, or to remain under the DCR plan. He added that a companion bill, SB35, was introduced by Senator Kawasaki, and another bill, SB11, introduced by Senator Kiehl. This bill would open up DB tiers for all PERS and TRS defined contribution retirement participants, DCR members, to choose between DB and DCR. He continued that on March 13th a new bill was introduced, SB88, by Senator Giessel, and the cosponsors were Senators Bishop, Stevens, Kiehl, Kawasaki, Tobin, and Wielechowski, Gray-Jackson, Dunbar and Claman. This bill was heard by Senate Labor and Commerce. He added that the bill may merge with the other three bills mentioned, but he was not sure. SB88 had been in high focus and staff will continue providing requested information for the analysis.

COMMUNICATION REPORT
CFO WORLEY introduced the replacement of Emily Ricci, who had left the Division, Betsy Wood.

MS. WOOD stated that she is a lifelong Alaskan, born and raised in Juneau. She has a degree in history and political science from Portland State University, and a master's degree in public administration from the University of Alaska Southeast. She has been with the Division working on health plans for five years and has about 10 years of State service.

CHAIR BOB WILLIAMS welcomed Ms. Wood. He stated that Ms. Ricci raved about her and told him that they would be in good hands.

MS. WOOD replied that had been very kind of her, and that she was happy to be a part of it.

BUCK CONSULTING INVOICES
CFO WORLEY presented the standard staff report showing a summary of billings by quarter.

MEMBER STATISTICS
CFO WORLEY moved to the staff report for membership statistics and provided a report on the changes in activity for the membership counts for quarter to quarter. Overall, there was a net increase of 605 members; TRS had a net increase of 286. Retirees decreased for that timeframe. One item requested by the chair was the line item called Managed Accounts. That is the number of folks participating in managed accounts within the DCR plans, within SBS, and deferred comp plans, as well as the dollar amounts associated with those. The balances at the quarter end were the new line item.

CHAIR BOB WILLIAMS expressed appreciation for the additional information.

CFO WORLEY concluded his report and introduced Kris Humbert.

BEARS PROJECT UPDATE
MS. HUMBERT began with a brief overview of the progress of the BEARS IT modernization project over the last period. She stated that the last part of the design of modules was wrapping up, and that we are about 95 percent finished with design. The plan is to have the Pilot 3 demonstration in August, and to invite all to participate. She continued that the UAT, User Acceptance Testing, will begin later in the summer. One item had changed since the last report due to the extension of the implementation deadline, and the program management contractor, Linea, will be required to amend the cost amount. That is currently being evaluated, and we will report back to the Board when the final numbers are available. She added that it should still remain within the overall budget, but we would need an amended amount to cover the services for the extended period of time. She stated that she was pleased with the progress and had a lot of folks engaged in this. They were able to have all of DRB staff participate and look at what had been developed so far. There is an enthusiastic group looking forward to having this come online in the spring of 2024.

CHAIR BOB WILLIAMS thanked Ms. Humbert for her report. He moved to the Treasury Division report by Director Leary.

TREASURY DIVISION REPORT
DIRECTOR LEARY began with the legislative session and stated appreciation because Treasury and ARMB staff have been back and forth across the street quite a bit. One of the topics discussed was the budget, and we reported that the fiscal year '24 budget was presented in September and is moving along. She continued that the House passed the budget, and we are still waiting for the Senate. She added that the budget presented was $10.2 million for operating costs, and $35 million for the public costs related to custody and management of the funds. She moved to the staffing situation and stated that four new staff had been added to Treasury: Two investment officers, Robyn Mesdag and James Chang; an admin assistant, Robert Vicario; and we will welcome on Monday a new systems programmer, Keith Moniz. There will be a tour of the office for Treasury and for DRB on Friday morning, and we hope that the trustees will meet them.

CHAIR BOB WILLIAMS thanked her for her report and moved to the CIO report.

CIO REPORT
CIO HANNA stated that he would be covering the CIO report. He began talking about current events beginning with the failure of crypto exchange, FTX, that was discussed previously. He continued that this past week two regional banks failed, Silicon Valley Bank and Signature Bank. He noted that there was little direct exposure; similar to FTX: Less than $1 million in equity to each bank; less than a basis point to the whole portfolio. He added that we had no bond exposure to either bank, but we did have some operational exposure through the private equity portfolio to Silicon Valley Bank, which has been resolved. He explained what happened and found it interesting that the catalyst of the bank failures was not credit issues; but more asset liability.

There were technical difficulties, and a break was called.

(Break.)

CHAIR BOB WILLIAMS asked CIO Hanna to continue his report.

CIO HANNA continued that the banking issues were basic asset liability reserve management which had not been an issue for banks since the '90s. He explained that the current rate environment encouraged depositors to move funds into higher-yielding investments. Silicon Valley Bank ended up in a position where they had to recognize reserve losses to fund the natural outflows from the customer base. Initially, it was not a run on the bank; customers were simply spending down their deposits. The bank unsuccessfully tried to raise capital to address it, which spooked the market. This was a catalyst for an almost classic run on the bank. He added that regulators stepped in, took over the bank, and FDIC agreed to guarantee this set of uninsured depositors. This established a $25 billion emergency backup loan facility to help other banks shore up reserves, which affects the market more broadly. He touched on some meaningful failures that have economic impact and stated that the expectation is that it may cause the Fed to pivot from strictly fighting inflation. He added that the Board would be hearing more about this today and tomorrow. He moved on to the ARM Board meeting and stated that portfolio staff were completing their move towards having a more specific investment focus at each meeting. At the June meeting, asset allocation and multi-asset portfolio will be covered, which have a lot of asset-allocation-oriented investments. The September meeting will focus on real assets; and the December meeting will focus on private equity. This March meeting will focus on public market investments, equities, and fixed income. He moved to the watchlist and stated that there were four managers on the watchlist: One for personal turnover; and three for performance. There were no recommendations or deletions at this meeting. Fidelity Real Estate High Income performance improved, and it was the last reasonably illiquid fixed income strategy in the fixed income portfolio. The BlackRock real estate fund had a key portfolio manager depart a year ago, and staff thinks highly of the successor portfolio manager. The expectation is that they would likely remain on the watchlist until the September meeting. The last two equity managers, Brandes and Baillie Gifford, both had an increase in relative performance, and both are within 10 basis points of being in compliance. He then talked about the areas where he exercised CIO delegation for contracting. The last section is a summary of the portfolio rebalancing that took place between November and January. Rebalancing activity focuses on risk management and brings the portfolio back towards the ARM Board's established asset allocation and risk profile. He noted that this was IAC Member Mitchell's second-to-last meeting, and that there are a few months left to extract some additional wisdom from him.

CHAIR BOB WILLIAMS thanked CIO Hanna and recognized ARM Board Counsel Hofmeister's legal report.

LEGAL REPORT

MR. HOFMEISTER reported that he did not have any Alaska Supreme Court cases to report on, and that he was not aware of any cases in the pipeline. He continued that there were some administrative cases with OAH, but he is going to wait until there is a collection before reporting on them. He began with his attendance at the National Association of Public and Pension Attorneys' winter seminar, which was very interesting. He continued that there were three sections: Investments, governance, and benefits, which provided all sorts of information and educational items. He talked about the implementation of Metcalfe and stated that when the Supreme Court issued that decision, they did not give explicit instructions to the Division on how to implement it. He explained that it involves using different systems, different rule changes, and the Division has been strapped for labor. He shared his kudos to trustees and staff for testifying and the work they did representing and discussing what the ARM Board is and what they do. He talked about CIO Hanna's testimony in front of Senate Finance and the good job he did in representing both the Department and this board. He then moved to the Public Record Act and the Open Meetings Act. He noted that emails are public records, and board members all have State accounts, and all of you use them to conduct business. Everyone needs to be mindful of what they write in those emails, and that we also should not be conducting State business over email. Going back to the NAPPA seminar, there were a lot of examples of boards that did not follow the advice of counsel or follow the governance policies. He stated that this Board did, and he asked them to continue doing so. He moved to the Open Meetings Act and talked about going to Callan's conference. Board members are not prohibited from attending the conference but are prohibited from conducting business. They will be there for education, learning and relaxation, which is not against any of the ethical duties.

CHAIR BOB WILLIAM thanked Mr. Hofmeister for the report and for re-sharing the information right before the Callan conference. He moved to the Trustee Reports.

TRUSTEE REPORTS
CHAIR REPORT
CHAIR BOB WILLIAMS stated that there had been multiple meetings about the trustee training. He stated appreciation for the engagement and planning that went into it. He continued that there was a request for him to attend House Finance and Senate Finance. He thanked the staff that helped to prepare him and the Board for what was put together so he could go back and reference board packets and committee notes. He thanked Director Leary and Board Liaison Alysia Jones for being there. He added that he thought that the presentations went well, and he concluded his Chair report.

TRUSTEE RYAN stated that she watched both of those and agreed that everyone represented the ARM Board well and did a good job.

CHAIR BOB WILLIAMS thanked Trustee Ryan and moved to the Committee Reports.

COMMITTEE REPORTS
AUDIT COMMITTEE
CHAIR BOB WILLIAMS stated that Trustee Michael Williams was excused for spring break. He reported that the Audit Committee met on March 15th and had the GASB 68/75 final reports; the FY22 annual comprehensive financial reports for PERS and TRS; and employer audits reports. There was also the compliance report and update by Senior Compliance Officer Hunter Romberg. He stated appreciation for the introduction to some staff from Retirement & Benefits and Revenue. He added that the Social Security role was filled by Eugenia Golofeeva, the new Accountant 5 and compliance officer for the Division. He welcomed her and asked the trustees to welcome her aboard during the break. He continued that there was a discussion around reports of delinquent/late-filing employers, which is a level of concern and a very important issue. He added that the calendar and agenda items were reviewed.

DEFINED CONTRIBUTIONS PLAN COMMITTEE
CHAIR BOB WILLIAMS reported that there was an update on the recordkeeping fee reduction by Pension Manager Mindy Voigt and CFO Worley. The recordkeeping fee reduction will be implemented on July 1; a small reduction to members. There was an update by Appeals and Risk Mitigation Manager Larry Davis on the Metcalfe conversion, and CFO Worley gave an HRA arrangement update. He thanked CFO Worley for the information on the PERS employees in defined contribution that did not have SBS, but probably had Social Security. There was a

long discussion with Empower about some incorrect information, which was a big concern. There was a request for why that happened and how to make sure it did not happen again. He also talked about the concern from NEA Alaska about Anchorage teachers and their 403(b) plan, which is also handled by Empower. They will be looking into improving that, so people have accurate information. He moved to the action memo and brought it forward. He explained Callan did a review of the managed accounts in 2016. It is 2023, and it is time to have an additional review.

> **MOTION:** The Alaska Retirement Management Board directs staff to engage Callan to conduct a review of the managed account services, was moved by CHAIR BOB WILLIAMS.

CHAIR BOB WILLIAMS stated that there was no need for a second and asked for any discussion. He asked for the roll-call vote.

> *After the roll-call vote, the MOTION was APPROVED. (Trustee Krohn, yes; Trustee Moen, yes; Commissioner Crum, yes; Commissioner Vrana, yes; Trustee Ryan, yes; Trustee Bretz, yes; Trustee Hippler, yes; Trustee Mike Williams, excused; Chair Bob Williams, yes).*

CHAIR BOB WILLIAMS stated that they had the DC plan investment structure analysis presented by Callan, and he took additional time to go through that. Callan did a very good job. They produced different options that staff will go through and come back with some recommendations. There was a Treasury update from CIO Hanna and Stephanie Pham on public equity, and defined contributions.

ACTUARIAL COMMITTEE

TRUSTEE HIPPLER stated that the Actuarial Committee met March 16 and there was an announcement of a merger between Buck and Gallagher, which was greeted with enthusiasm by the employees of Buck. They believe that this would enhance their business and their abilities, and it seemed like a positive development. The June 2022 valuation results were reviewed. Those were the actuarial fundings that will be used to establish the contribution numbers that will be looked at later in the year. He talked about the discussion about aggregation of funded ratios, which combined pension and healthcare trusts into funded ratios. He reiterated a request to both trustees and employees to give him or Chair Williams feedback if there was something that was missed. He continued that the highlight of the meeting was the sensitivity analysis that was specifically focused on the healthcare plans. The ARM Board had recommended not funding normal cost in the most recent allocations of contribution rates. This sensitivity analysis is a way to measure the risk of specifically the healthcare trust in the event of some adverse events occurring simultaneously. The events were high inflation; low returns and nominal returns; and high inflation in the healthcare market. It was very eye-opening and showed how things could change in adverse circumstances. It was also reassuring because the Board will have several years to respond to changing circumstances. He added that GRS reviewed the valuation results and gave their comments.

OPERATIONS COMMITTEE

TRUSTEE MOEN stated that the Operations Committee met March 15th and had an update from Director Leary on the request for services for an Investment Advisory Council (IAC) member. There was a report on staff recruitment and retention. There were two things that moved out of committee. He continued that Scott Jones, Head of the Middle Office, gave an update on the migration to the Cloud. There was also a discussion on 2024 ARM Board meeting calendars and future training. They talked about locations and potential changes to days of the week, considering travel expenses and a Tuesday-Thursday meeting schedule for efficiencies. Also reviewed were the opportunities for future training. He appreciated all the effort put into the trustee orientation training. Everyone did a great job on the structural overview, the history, and the board composition. The role of the trustees and the different committees were reviewed, as well as their statutory investment powers and duties. It was a great training. He moved to the action items.

CHAIR BOB WILLIAMS stated that Chair Moen brought forward two action items from the Operations Committee report, and a second was not needed. The first item was the general consultant contract.

> **MOTION:** The Alaska Retirement Management Board directed staff to exercise the second of the two one-year contract extensions to extend Callan's general consulting contract until June 30th, 2024, was moved by CHAIR MOEN.

CHAIR BOB WILLIAMS asked for any discussion. There being none, he asked for a roll-call vote.

> *After the roll-call vote, the MOTION was APPROVED. (Trustee Ryan, yes; Commissioner Vrana, yes; Trustee Hippler, yes; Commissioner Crum, yes; Trustee Bretz, yes; Trustee Krohn, yes; Trustee Mike Williams, excused; Trustee Moen, yes; Chair Bob Williams, yes.)*

CHAIR BOB WILLIAMS stated that the action item passed, and he moved to the second item, the real assets contract.

> **MOTION:** The Alaska Retirement Management Board directs staff to exercise the second of the two one-year contract extensions to extend Callan's real assets consulting contract until June 30th, 2024, was moved by CHAIR MOEN.

> *After the roll-call vote, the MOTION was APPROVED. (Trustee Krohn, yes; Trustee Bretz, yes; Trustee Hippler, yes; Trustee Ryan, yes; Commissioner Crum, yes; Commissioner Vrana, yes; Trustee Moen, yes; Trustee Mike Williams, excused; Chair Bob Williams, yes.)*

TRUSTEE MOEN concluded his report.

ALASKA RETIREE HEALTH PLAN ADVISORY BOARD

TRUSTEE BRETZ stated that he had submitted a written report and went through the highlights. He continued that there were three proposals that they were considering on the lifetime maximum section of the plan. The lifetime maximum initially consisted of a quarter-million limit, which increased to $1 million in 1985, and then $2 million in 1999. It had been 20 years since the lifetime maximum limit was changed. If this had changed according to the inflation of medical, it would have been at $4 million. Staff had presented three things to consider: Going to $4 million annual maximum; or increasing the lifetime maximum to $8 million; or removing the lifetime maximum. He added that it had not been decided and would be discussed at the May 4th meeting of the advisory committee. He concluded his report.

CHAIR BOB WILLIAMS thanked Trustee Bretz for representing this board and for his report. He stated that it was time on the agenda for Empower. He continued that all trustees and IAC members received an email. Because there had been a managed account report with inaccurate information, a level of concern was raised, and he wanted to make sure that Empower could share how that was not happening again and answer trustee questions. He asked for a quick summary of what happened, why it happened, and why it would not happen again.

MANAGED ACCOUNTS DISCUSSION
MS. DAUBENSPECK extended her apologies in submitting a report that had erroneous information in it. It was never their desire to give anything misleading. She took full ownership of why and how it happened. The request was received just prior to Thanksgiving and the meeting was just post-Thanksgiving, and she pushed the organization to get the report done. The quality control (QC) was done on the raw data, and everything within the raw data was correct. When the data was transposed into a boardroom-ready report, the wrong line was pulled in, and erroneous information was provided for managed accounts. To make sure this would not happen again, Morningstar, our independent investment advisor, was engaged in working on methodology and to make sure that the right controls were in place and that this could be programmed. What had been produced was an ad hoc report, a customized report that had not been run before. She continued that their commitment to the ARM Board was to develop the methodology. Callan will be doing a review of managed accounts. She stated that they would take the feedback from Morningstar, take the data, and get that programmed into the system so that the controls within the system make sure that the report is correct. When that output is received, there will be a further QC of that report.

TRUSTEE RYAN stated that her concern was the timing of the information received directly before yesterday's meetings. That made it impossible to go over it with any depth and any consideration. If there is updated information, there is a need to make sure everyone was aware of it well before so it can be checked, and to give an opportunity to be prepared.

MS. DAUBENSPECK provided reasons for the report not being given earlier and agreed that it should have come sooner. Once this is programmed in, it will absolutely be here sooner.

CHAIR BOB WILLIAMS stated that he had found Empower to be very opaque over the years, and he gave examples. He continued that they have to be able to compare to see if the ARMB is competitive and to understand how managed accounts work. He did not want CFO Worley's or Commissioner Vrana's jobs to be harder. He added that he wanted to see Empower perform and solve these issues at a lower level before the board heard about it. He stated that the 45 basis points is high, and we had tried for two years just to have it say "managed fee" on one side. He continued that he saw that update yesterday and liked it. He said he would like Empower to seriously think about lowering the fee that they charge our members. He would like them to consider cutting it in half. He shared some of the feedback he heard from trustees, which was not positive. He also stated that the deadline for a packet was the deadline, and to get it in. Receiving materials yesterday, the trustees felt like they were dumped on, causing confusion. He wanted to see some improvement and a fee reduction consideration for the management fees.

CFO WORLEY stated appreciation for the comments and added that the deadline issue would be on him. It was his responsibility to make sure that they were there in the timeframe. He is the contract administrator, and items like that were his fault. In regard to the fee, that would be an administrative thing and he would need to talk to and work with Empower on that. There is a two-year extension and there are a number of projects going on, which was the impetus for that extension. It was on the Division and not on Empower.

TRUSTEE HIPPLER stated that personal finance is very personal, and it was possible to pay a fee and get a lower return and still have the person investing feel more at ease with their own finances. He asked if there is higher satisfaction for managed accounts because of the interaction with Empower. How often did Empower actually interact with the person on managed accounts? He continued that he would like to know what value was being provided for those 45 basis points. He would like to quantify if that worst-of-all scenario was happening, and to what extent.

TRUSTEE RYAN moved back to the issue yesterday which was the unfortunate position that the TRS were in concerning Social Security. She stated that it would be beneficial if someplace on Empower the TRS folks understood that, not only do they not contribute to Social Security, but they were also potentially impacted with Social Security already done. She continued that this is a federal issue. She added that being a better information source would really be appreciated.

CFO WORLEY talked about the discussion at the Defined Contribution meeting. He stated that both he and Empower have the notes, and we will be meeting and then circling back with the committee in June. They will also be responding to a complaint brought in the other day. He appreciated that Trustee Hippler talked about managed accounts.

TRUSTEE BRETZ stated that there was a report on Empower about the call volume, the nature and length of the calls. He asked when the next one was due to come out.

MS. DAUBENSPECK replied that they are produced quarterly.

TRUSTEE BRETZ asked for one outside the board meeting.

MS. DAUBENSPECK replied that a report could be published as of the end of March.

CFO WORLEY asked Mr. Hofmeister if the information could be sent to MS. JONES and distributed to the board.

MR. HOFMEISTER replied as long as it was a public announcement.

CHAIR BOB WILLIAMS thanked Empower for coming before the Board and expressed appreciation for the response. He continued that next on the agenda was Buck/Gallagher.

BUCK/GALLAGHER ANNOUNCEMENT

CFO WORLEY introduced David Kershner, Stephen Oates, and Tonya Manning. He stated that Ms. Manning would talk about the announcement of the acquisition of Buck by Gallagher. Then there would be a brief update from yesterday's Actuarial Committee.

MS. MANNING talked about the upcoming change in ownership for Buck. The anticipated transaction at the end of the month would be Buck's ownership transitioning from a private equity firm, HIG, to be owned by a large Fortune 500 company called Arthur J. Gallagher and Company, referred to as Gallagher. She explained that this was a milestone for the Buck firm that had been around for over 100 years, with different types of ownerships. This was seen as something that would be very long term and was well aligned with what was wanted. It will be a very slow transition. She gave a brief history and information about Gallagher and stated that the addition of the Buck team would increase the head count by 50 percent. That is a pretty sizable impact and was important in having a big influence on how things would go forward. She added that she was happy to say that she would be helping manage the integration of services. She emphasized that there would be continued support and investment in the actuarial services, with no change in the team, no real changes through 2023. In fact, they would be keeping the Buck name and would be "Buck, a Gallagher company." There will be more expanded technology and engagement services.

DRAFT JUNE 30, 2022, ACTUARIAL REPORTS

MR. KERSHNER stated that they met with the Actuarial Committee yesterday and went through the results of the 2022 valuations in more detail. He provided the highlights of what occurred in the measurement of the assets and liabilities as of June 30, 2022. The main takeaway was that it was a reversal of what happened in FY21 on the assets side. Assets did not earn the expected return, and those losses would be made up and recognized under the asset smoothing method over the next five years.

MR. OATES stated that the EGWP performed better than expected. This was an area of risk that had been shared before. The Inflation Reduction Act was expected to have some meaningful impact on that program in 2025. The financing of how it goes had been rearranged, and the plan would be responsible for more of the cost. There was an update on regulatory guidance, with information expected by the end of this year.

MR. KERSHNER stated that the last item is the experience study that was concluded last year, and the board adopted new assumptions at the June meeting. Those new assumptions were first reflected in these 2022 evaluations. He talked about the sensitivity analysis and then commented on the aggregation of the pension and healthcare results. He stressed that those were provided for informational purposes only. Per Alaska statutes, all of the contribution rates were determined separately by pension trust and healthcare trust.

ACTUARIAL REVIEW OF JUNE 30, 2022, VALUATIONS

MR. WOOD shared a short presentation to cover a couple of the highlights of their review. He stated that he and Bill Detweiler are the review actuaries, and they review the work that Buck does. One of the key areas of focus is the new assumption set that was adopted by the Board in 2022, first effective with this valuation. He wanted to make sure that the decisions made as a board and as committee were implemented properly in the valuation. The gain/loss analysis in Buck's full report was still based upon the assumptions which will be changed at the end of the year. Those gains/losses were still helping to determine the reasonability of the results. He explained that one minor finding related to the assumption set was identified, and a couple minor findings related to the data used and the underlying valuation of the benefits as part of the model. They were immaterial according to the guidance of the Standards of Practice. He went through a quick review of the five findings. He then moved on to the recommendations in the full report. The recommendation to Buck was to track closer the EGWP assumption and whether that would be around in perpetuity. This year there was a rather sizable increase in that EGWP subsidy. Also recommended was implementing those five findings.

CHAIR BOB WILLIAMS thanked them for their report. He asked Callan to cut their presentation in half and do the other portion tomorrow.

PERFORMANCE MEASUREMENT 4TH QUARTER

MR. CENTER stated that they would be happy to break it into two.

MR. CLIFF reported that stocks and bonds both posted some positive returns, especially the equities; still, pretty dismal for the year. He stated that in 2022, stocks and bonds both went down drastically, and bonds dramatically. This is only the second time it has happened for a full year going back as far as the data shows. He moved to inflation, which was still very high for CPI. He talked about the decline of the dollar and the big global equity returns. Diversification was still down, but it kind of worked. He then talked about the yields. These Treasury bonds had inflation protection built in because the coupon goes up as inflation goes up. He talked about real estate, and then concluded his report.

MR. CENTER covered the participant-directed plans and would continue with the defined benefit plans tomorrow. He talked about the target date funds and the balance funds and looked at risk statistics relative to both the benchmark and the peer group. He went through the explanation each quarter to help to understand that the charts help focus on where it makes more sense to pay more attention to options within the plan. He explained all in more detail as he went through his presentation. He also talked about the active options. He added that the remainder of the presentation would cover the defined benefit plan.

CHAIR BOB WILLIAMS called a lunch break.

(Lunch break.)

CHAIR BOB WILLIAMS called the meeting back into session and asked CIO Hanna to make the introduction.

PUBLIC EQUITY

CIO HANNA stated that it was his pleasure to reintroduce Mark Moon, who heads up the public equity research and portfolio management team. He added that Mr. Moon was to discuss the manager hiring.

MR. MOON began with starting premises, that were considered on a daily basis on the work in public equities. He talked about the existing structure; performance related to 2022; and then addressed some of the recent activities that he and the team had been working on to enhance the internal equity management efforts. There would be an update on the search that Callan had been helping with for a few quarters with respect to finding a couple of managers in the active equity/ex-U.S. space. He added that there would also be a recommendation regarding enhanced indexing. There would be a recommendation that a mandate related to enhanced index be added as well. Representatives from the three managers being recommended were present to make individual presentations. He stated that the starting point was the assumption that the market tended to be pretty efficient when talking about public equities. He went through the other points that were looked at regarding the assets under management. He explained that in the substantial reworking of the public equity portfolios in 2019, the active strategies on the domestic side were eliminated.

CHAIR BOB WILLIAMS stated that there was evidence that active management outperformed a passive index internationally, but not domestically.

MR. MOON stated that there were a lot of different strategies and managers, with some of them duplicative. There was also an effort at bringing overall fees paid for investment management down. He talked about the domestic equity portfolio and that, overall, the domestic equity exceeded the benchmark performance. He then talked about the recent activities in public equities and internal equity enhancement. The takeaway on all was that wider tracking error risk budgets around passive strategies may enhance long-term returns, and we are currently working on ways to operationalize the ideas discussed. He moved to the custom portfolios, passive portfolios, and stated that equal weighted portfolios could enhance returns in more normal environments than seen in the past 10 years. He talked about the micro-cap strategy and defined micro caps as small-sized stocks, small capitalization, that tend to go with less liquid stocks. He stated that it may be hard to find external managers with an interest in managing micro-cap strategies because they are not scalable. He continued to the active ex-U.S. manager search that was approved at the June 2022 board meeting. The search process consisted of a number of filters of a large number of managers down to a more manageable number. The efforts led to the recommendation to add Acadian, a Boston-based manager with a very quantitative orientation. Also, First Eagle, which was New York-based, with a very fundamental and discipline value approach. The third recommendation was that the ARM Board add to the developed markets segment of the ex-U.S. portfolio, an enhanced index mandate. The idea would be utilizing a small risk budget, low tracking error, that would allow for some trading differentially from the strict indexer. The goal is to exploit idiosyncratic opportunities. This was envisioned being structured with a very low base management fee and a performance fee to the extent that performance exceeds the benchmark index. Also, a recommendation to substitute this strategy for a portion of the current SSGA passive developed markets mandate for the ARM Board. He concluded his presentation.

CHAIR BOB WILLIAMS thanked him for the presentation and stated that the strategies and tweaks on a passive index make sense. State Investment Officer Mark Moon would make the next introductions.

ACADIAN ASSET MANAGEMENT

MR. MOON introduced the representatives from Acadian and stated that they were fortunate to have folks from the research and portfolio management side, as well as client servicing. Both had been there for quite a long time.

MS. HOFFMAN stated that they were delighted to be there and excited to share information about their firm and their approach. She introduced herself as Renee Hoffman, senior member of the global client group. She then introduced Ryan Taliaferro, a member of the senior investment team, a member of the senior investment leadership team and the executive committee. She began with a brief overview of the firm and then moved through their investment philosophy and process. She stated that they were based in Boston and were a global equity firm with offices in Boston, London, Singapore, and Sydney. There were about 308 people across the firm, with 120 of those focused on investments.

MR. TALIAFERRO stated that his team was the equity portfolio management which had the most direct and immediate views into the portfolios and were responsible to the firm and clients;

people interested in the performance and positioning of the portfolios; and they oversee the daily trading.

MS. HOFFMAN stated that they had performed well over the years through many different market cycles and regimes, and making sure that they were enhancing what was provided for the clients was what they were looking for. She mentioned that about a third of their clients were public fund clients, and they would be honored to include the ARMB on the list.

MR. TALIAFERRO talked about the process and shared their investment philosophy. In the end, they pick stocks because they believe they can be mispriced with implications for future returns. He stated that they set out to organize a process that was very rigorous, very tested and was hypothesis driven. The aim is to implement it in the most systematic way and they want to look at the full universe of stocks for the research and the investing. Then the strategy is fundamentally driven with a good forecast model to form a good, fundamental analysis. He continued that the view was that it was a better platform for research, investing, giving more opportunities of finding good combinations of risk and return. He continued to explain the process and their philosophy. He finished the overview and then moved to the model.

CHAIR BOB WILLIAMS asked how confident they were on having a high-quality risk model.

MR. TALIAFERRO replied that they were pretty confident because they make their own risk model and that was what was used in production. Also maintained were off-the-shelf, third-party models that give some points of comparison to make sure things were not wildly different. He added that the portfolios were put on a proprietary model that was built using their own proprietary risk model machine developed by them, which was rigorously tested. It is something that is paid attention to. He moved to an overview of viewing stocks and talked about the three main categories: First was a stock-specific model; growth was about the future; and technical is the one thing that was not about the fundamental business, but about price action. He went through them in more detail. He continued that they were very vigilant about a number of different types of risks that were observed, monitored, and controlled. Their strategy had potential in about every sort of market environment to perform well for the ARMB.

CHAIR BOB WILLIAMS commented that the universe of this search was very large. Callan narrowed it down, and you made that cut. Then, the staff narrowed it down further, and you made that cut. This is the top of a large pyramid. He thanked them for their presentation and for thoughtfully answering the questions that came before them today. He asked State Investment Officer Mark Moon to make the next introduction.

FIRST EAGLE INVESTMENTS

MR. MOON stated that they were pleased to have First Eagle from New York and the Denver area. He continued that the approach would be different from the quantitatively focused approach heard from Acadian. These folks have a much more value fundamental stock picker-ish way of approaching what they do, and they have a lot of experience doing that. This is a nice complement to the rest of what is being recommended.

MR. GROSS thanked Mr. Moon and stated that he is the head of the North American institutional business development for First Eagle. He is located in the Denver area. He introduced his colleague from New York, Al Barr, a portfolio manager for their international equity strategy. He began with some brief information about the firm and then moved to some high-level information about the strategy. He continued that First Eagle was an old firm that had been around since the 1860s, and from the beginning were globally oriented in how they invest. They always viewed the world through a global lens. He added that there are very deep roots in value investing; so, a lot of history with global and value. He talked about the size of the firm and added that their headquarters were in New York. With regard to international equity, the goal is to deliver sound real returns over a market cycle, while avoiding the permanent impairment of capital. Avoiding the permanent impairment of capital is the primary way risk is observed. They are measured against a benchmark, but are focused in terms of the mindset that is delivered. The strategy is diversified, and he explained how that worked. He pointed out that Christian Heck and Al Barr were two portfolio managers who also maintain some sector coverage. They are both analysts and portfolio managers. He asked Mr. Barr to get into the specific philosophy and process.

MR. BARR stated appreciation for the opportunity to talk to the board. He continued with a broad overview of what was done in the portfolios. They are very focused on valuation and the effectiveness of the market changing over time. He added that they focus on companies that have scarce assets, whether they were tangible or intangible assets. They were a fundamental, bottom-up investment firm. They look at individual securities and recognize that there can be a bad economy and a poor economy, but one which has a lot of value offered in individual securities. He then delved into a couple of the concepts and stated that a lot of time was spent trying to analyze and understand that whole process. And he also spent a lot of time looking at the models that businesses had applied and whether those models would change over time. Then, they look at the financial statements to get to what the economic earnings of the company are. He stated that, periodically, the market would give an opportunity to invest in something that would mitigate the downside risk and offer the potential for upside return in the portfolio.

MR. GROSS put that into perspective and stated that it was not unusual for them to buy maybe two stocks a year.

MR. BARR moved to distressed business and stated that they did not have a lot of interest in those types of companies. They like some other businesses; some mundane business that could compound value over time. He gave a few examples. He added that they avoid high valuations and high levels of leverage, and they do not like aggressive management behavior. He explained in more detail the interest in scarce assets, tangible assets, and they equally liked intangible assets where there was a franchise that could not be easily usurped by the competition. Their ownership is very long term, and they have been invested in it for very long periods of time.

MR. GROSS summarized the stability of the firm. They had been around a long time and continue to be stable. The team has over 15 years of experience for the analysts, and four portfolio managers had worked with each other for over a decade. They also have a lot of confidence, having been through a number of market cycles. He thanked all for their time and for their consideration.

CHAIR BOB WILLIAMS thanked them for their presentation and stated much appreciation for it. He commented on how different they are. He called a break.

(Break.)

CHAIR BOB WILLIAMS stated that they would move forward, and asked State Investment Officer Mark Moon to make the introduction.

LEGAL & GENERAL INVESTMENT MANAGEMENT AMERICA

MR. MOON stated that this was completely different from the previous two managers, both of whom were managers that were recommended to be added to the active ex-U.S. portfolio. In contrast to that, the next presenters are from Legal & General America out of Chicago. They are being recommended for a different kind of mandate, which is an enhanced-indexing-developed-markets mandate. This is a very interesting strategy that could be complementary to the developed markets ex-U.S. portfolio, particularly on the passive side of things. He pointed out that these same people are managing two accounts for the ARM Board in the factor-tilted space, developed markets, and emerging markets. He continued that staff had been working with them closely for several years and have had a very positive experience. That is a big part of why they are here.

MS. RUFFEL stated that she is the senior client strategist on the ARM Board account at Legal & General. She began with a brief overview of the firm, Legal & General Investment Management America, also known as LGIMA. It is the American investment arm of a UK-based investment management company, Legal & General Investment Management. Their client base is primarily corporate DB pension plans and public pension plans. She continued that the relationship with the ARM Board goes back to December of 2019 when they funded two mandates that were benchmarked to scientific beta factor strategies. She stated appreciation for the relationship and continued that they had worked with staff on the equity side on an opportunity in the index-plus space and enhanced indexing. She recognized her colleague, Dave Barron, who runs the index solutions team at Legal & General. In talking about index-plus it is an extension of their passive management that seeks to exploit idiosyncratic market opportunities within a very tightly controlled risk budget to add value.

MR. BARRON stated that the exciting part of what they do is watching the growth in passive assets and the simplification of how other investment managers respond to the growth in assets. Index 101, the index methodologies that all these assets track, have to be transparent and investable. That is Requirement 101. To do that it is required that everyone who is buying and selling the same securities do so at the last point in time on a given trading day. He explained how this happened in more detail while going through his presentation. He walked through a couple of the strategies and highlighted where he thought the indexes went wrong and where some of those details could be exploited. Then he talked about this from a market context perspective. He added that they were not an active manager. The index tells them what to hold, and then they observe what happened to the holdings in their index. He stated that they are excited about this opportunity to grow this business.

MS. RUFFEL thanked all for their time.

CHAIR BOB WILLIAMS thanked them and moved to the investment actions, recognizing State Investment Officer Mark Moon.

INVESTMENT ADVISORY COUNCIL

MR. MOON stated that there were three action items covering recommendations to approve mandates with each of the three managers. He pointed out that it was important to understand that there are two very different buckets that they are talking about. He added that the Legal &

General folks were last to speak, and they were envisioned as maybe a smarter, more efficient way to go about some of the otherwise passive investments in public equities. In contrast, the first two managers are viewed as very complementary to the existing managers in the existing ex-U.S. active portfolio. The two managers are really different, each doing very, very different things. That was found to be exciting, as well, because they were specifically viewed as complementary to the overall portfolio. The first recommendation was for the hiring of Acadian Asset Management.

> **MOTION:** <u>The Alaska Retirement Management Board directs staff to contract with investment manager Acadian Asset Management to manage initial investments of up to $350 million in an ex-U.S. equity strategy, subject to successful contract and fee negotiations. The motion was made by COMMISSIONER CRUM; seconded by TRUSTEE KROHN.</u>

TRUSTEE HIPPLER began the discussion and stated he was supportive of the other two motions. This one introduced a new factor like race and sex in personnel decisions or investment decisions, which is an important move. A new factor could be a fad, and a lot of us come from industries with lots of fads in them. Race and sex were new factors, and he would like to see the data to support including those factors in decision-making. Past results do not guarantee future results, and there is the need to do the obvious work of filtering out low-quality factors. He asked to obtain more information on this before approving this mandate. He would also like to see information that supported the idea that their racial and sexual preferences for investments and hiring yield long-term, sustainable results.

TRUSTEE BRETZ asked if they, as an organization, could pick the factors to be applied to the investments and selection.

MR. MOON replied not for this strategy. He stated, from his perspective, that all they were interested in were the ex-ante prospects of how the strategies ought to unfold going forward, combined with how they fit in with the existing structure of the other investments.

TRUSTEE HIPPLER asked if it would be appropriate for the Chair to entertain a motion to amend this to defer the decision to the next meeting.

TRUSTEE MOEN stated that it would have to be a friendly amendment.

> **MOTION:** <u>TRUSTEE HIPPLER made a motion to postpone this vote until the next meeting; seconded by TRUSTEE KROHN.</u>

TRUSTEE HIPPLER spoke to the motion.

A discussion ensued.

> *After the roll-call vote, the MOTION FAILED. (Commissioner Crum, no; Trustee Hippler, yes; Trustee Krohn, no; Trustee Ryan no; Commissioner Vrana, no; Trustee Michael Williams, excused; Chair Bob Williams, no.)*

CHAIR BOB WILLIAMS moved back to the original motion, which was to hire Acadian Asset Managers for an investment of $350 million. There being no further discussion, he asked for a roll-call vote.

> *After the roll-call vote, the MOTION was APPROVED. (Trustee Krohn, yes; Trustee Moen, yes; Trustee Ryan, yes; Commissioner Vrana, yes; Trustee Bretz, yes; Trustee Hippler, yes; Commissioner Crum, yes; Trustee Mike Williams, excused; Chair Bob Williams, yes.)*

MR. HANNA stated that, on that motion, for trustees just to be aware, they would gather the data.

COMMISSIONER CRUM thanked the staff for defending their work. This was not easy, but it showed that you put in the time which helped sway him on his vote on that one.

MR. MOON replied thank you, and he moved to the next motion.

> **MOTION:** The Alaska Retirement Management Board directs staff to contract with investment manager First Eagle Investments to manage initial investments of up to $350 million in an ex-U.S. equity strategy, subject to successful contract and fee negotiations. The motion was made by TRUSTEE HIPPLER; seconded by COMMISSIONER CRUM.

CHAIR BOB WILLIAMS asked for discussion. He noted that it appeared that there was support for them with enthusiasm. He asked for the roll-call vote.

> *After the roll-call vote, the MOTION was APPROVED. (Commissioner Vrana, yes; Trustee Ryan, yes; Trustee Moen, yes; Trustee Krohn, yes; Trustee Bretz, yes; Commissioner Crum, yes; Trustee Hippler, yes; Trustee Mike Williams, excused; Chair Bob Williams, yes.)*

CHAIR BOB WILLIAMS moved to the next motion.

MR. MOON moved to the enhanced index manager motion recommendation.

> **MOTION:** The Alaska Retirement Management Board directs staff to contract with LGIMA to manage an initial investment of up to $800 million in an ex-U.S. developed markets enhanced index strategy, subject to successful contract and fee negotiations. The motion was made by TRUSTEE RYAN; seconded by TRUSTEE KROHN.

CHAIR BOB WILLIAMS asked if this went through a Callan review, and asked what was the review process to select them.

MR. MOON replied that they had been speaking with them about this strategy for about nine months and then asked Callan to weigh in. They had discussions with us and with Legal & General about it, and they gave their feedback to us about it.

MR. CENTER stated that this strategy did not come from a search process from Callan but is a strategy with which we are familiar. We were asked for our opinion and agreed that it ultimately does make sense within the context of the existing portfolio.

CHAIR BOB WILLIAMS asked for a roll-call vote.

> *After the roll-call vote, the MOTION was APPROVED. (Trustee Bretz, yes; Commissioner Crum, yes; Trustee Krohn, yes; Trustee Hippler, yes; Trustee Moen, yes; Trustee Ryan, yes; Commissioner Vrana, yes; Trustee Michael Williams, excused; Chair Bob Williams, yes.)*

CHAIR BOB WILLIAMS stated that the motion passed, and asked Mr. Moon if that was the conclusion of the motions.

MR. MOON replied, yes, and thanked the board very much.

INVESTMENT ADVISORY COUNCIL PERSPECTIVE

CHAIR BOB WILLIAMS asked for Dr. Mitchell's video to go up on the full screen. He continued that he brought an American U.S. Lock Company lock and asked Trustee Ryan to confirm that it was locked, which she did. He had five keys, and one of them would open the lock. Trustee Hippler picked the orange key, which did not open the lock. As a board, there are keys that do not unlock the potential, or the returns wanted. One of the things that do not unlock our potential as a board is not valuing, listening, or respecting the guidance received from IAC members. He continued the exercise to the next key, which did not open the lock. He asked Dr. Jennings to share one of his ideas on what is a key that does not unlock the potential for the board.

DR. JENNINGS was attracted to the shiniest: the bright and shiny key of innovation. He said to be aware of the allure of innovation, which sells. It is usually sold in a bull market and tested in a bear market. Innovation is often just disguised leverage.

CHAIR BOB WILLIAMS stated that innovation without other vetting of it could be the wrong key. He moved to the next key and asked Ms. Traylor to share another wrong key.

MS. TRAYLOR stated that inadequate education for the DC members could lead to some very inadequate retirement income. Selling low and buying high was a good way to not have appropriate retirement.

CHAIR BOB WILLIAMS moved to the next key that did not open the lock and moved to the ARM Board treasure, Dr. Mitchell. He acknowledged Dr. Mitchell's 30-year history with the board.

DR. MITCHELL recited a story that he wrote about 1972 when President Nixon made his famous trip to China. 1972 also marked his first visit as an investment manager to Japan. He was amazed at what he saw; the people were bright and hardworking; they were loyal to their employers. The yen was cheap; exports were booming. Everything except the stock market. It was still very fair value and did not reflect the anticipated growth of the country and its companies. When he returned to Boston, he told his colleagues that they had to buy Japanese stocks. Over the next 17 years, the Nikkei rose from 5,207 to 38,957, and he was a hero. His clients were happy; he was bringing in new business; and his portfolios were outperforming. The next year Tokyo began declining. He held to his conviction that Japan was still to be. His older and wiser colleagues told him that it was time to take the profits; and with pressure and reluctance, he did. Japan did recover but has yet to get back to that 38,000 level of 35 years ago. The moral of the story: the wrong key was that no stock, no market, no asset class goes straight up forever. Do not fall in love with your investments. In the life cycle of every investment, there has to be a time to say, “That’s enough,” and put your winnings in your pocket.

CHAIR BOB WILLIAMS thanked him for that wrong key and noted that we were down to one key. The yellow key opened it. He asked Dr. Mitchell to close out by sharing the right key for the ARM Board to ponder when going out this evening.

DR. MITCHELL stated that the three presentations by the IAC revealed three wrong keys, three mistakes that should be avoided as staff members, as IAC members, and as board members. He continued that, to him, the right key was moderation, and whatever they did, with some moderation they would be living up to the fiduciary responsibilities and protecting the assets. Moderation encourages the search for new opportunities and new ways of doing things, but always with an eye toward risk and a careful measurement of one’s commitments.

CHAIR BOB WILLIAMS thanked Dr. Mitchell for sharing the right key for this board. He closed out the first day of the Alaska Retirement Management Board meetings.

(Alaska Retirement Management Board recessed at 4:41 p.m.)

March 17, 2023

CALL TO ORDER
CHAIR BOB WILLIAMS welcomed everyone back and asked CIO Hanna to do the introductions.

JPMORGAN GUIDE TO MARKETS
CIO HANNA stated that JPMorgan takes the ARMB through their latest guide to the markets about annually. It used to be a quarterly guide, and it is now quite an institution with monthly and even daily equivalents. He asked Mr. Shields to begin.

MR. SHIELDS thanked all for the invitation and stated that he is a client advisor at JPMorgan Assets Management. He has the privilege of serving and working with the ARMB and thanked them for the long-term partnership and the opportunity to manage assets on behalf of the Board. He introduced David Lebovitz, a senior member of the guided market insights team. Mr. Lebovitz is not only involved with the development of guided markets, but also several of the other guides, including guides to alternatives. The intersection between public/nonpublic markets is also a real expertise of his. He asked Mr. Lebovitz to continue.

MR. LEBOVITZ began by talking about the risk of recession, and then moved to inflation and the key drivers of inflation. He reminded all that 50 was the key level that separated expansion from contraction in the economy. He moved to the medical care services. The numbers were coming down, and the comparisons were becoming more favorable; but healthcare is struggling. They cannot find labor, which pushed the prices higher. On the other hand, there was the return of elective procedures and a more diversified mix of medical care and healthcare services. He continued that part of what was going on was the sector is beginning to normalize in terms of the work being done. He added that there is an aging demographic in the United States. People are living longer and taking better care of themselves. An upward pressure on healthcare prices will continue over time.

MR. SHIELDS stated that the price of labor was stabilizing, but still elevated. A lot of healthcare organizations were creating training programs to bring on new nurses, new labor. The costs on the healthcare system were moving upwards, but not as fast as they have been over the last two years.

MR. LEBOVITZ moved to the macro backdrop and stated that the macro view had remained relatively stable. The risks had risen, particularly in the financial system, and we are watching what is going on in Europe closely. Overall, the macro picture is one of slowing growth, decelerating inflation, with a monetary policy that remained tight for the foreseeable future. What that means for capital markets and investment is that it has created risk, as well as opportunity.

MR. SHIELDS thanked all for their time and concluded the presentation.

CHAIR BOB WILLIAMS thanked them and asked CIO Hanna to do the introductions of the next presentation.

FIXED INCOME

CIO HANNA stated that it was his pleasure to reintroduce Victor Djajalie and Casey Colton. Mr. Djajalie heads up the fixed income for the ARMB, and Mr. Colton is a senior portfolio manager. He continued that they would be discussing the core bond portfolio during one of the more interesting weeks in a year of the most interesting weeks in the fixed income market. He also recognized Emily Howard in the audience, another one of the portfolio managers on the fixed income team.

MR. DJAJALIE stated that he oversees the fixed income team, and he recognized Mr. Colton. He talked about the five members of the fixed income team and added that they are all second specialists. He oversees the government and corporate bond sector. Casey and Nick oversee disruptive product. Emily oversees the asset-backed short-term fund. James Chung, a Juneau local, recently joined them and supports the operation and analytics side. They manage about $11 billion for the State and ARMB. They manage one core bond fixed income for the ARMB and three investment pools for the State. He continued that 2022 was a very difficult year. All the risk asset classes suffered. Fixed income lost 13 percent. It was the worst period in the entire history of bonds. He moved to their performance with the good news of outperforming the index. In looking over the longer track record, they consistently delivered positive excess return. He moved to the market outlook, noting that inflation fear dominated the market movements. He talked about the aggressive Fed hike that caused the Treasury curve to invest significantly. That inversion got deeper earlier this year and reached as steep as 100 basis points. He moved to inflation and stated that supply chain and demand driven by the government stimulant stalled inflation last year, and some cooling off in inflation is starting to be seen. He added that the problem is that the labor markets remain tight, which exerted upper pressure on wages and prices. He talked about profitability which was reassuring because company profitability remained decent. He asked Casey Colton to continue.

MR. COLTON talked about the adjusted rate mortgage funds which were a very popular investment in the early 1990s. He stated that one of the important things that internal fixed income provided to the ARMB and to the State was liquidity. The short-term fund was a key provider of liquidity for the ARMB. He then moved to the on-the-run U.S. Treasury notes and off-the-run cousins. He stated that the notes are securities that hedge other transactions. He continued that the action item was the last issue on the table. He explained that the current guidelines for internally managed funds mention ratings on the securities bought. He continued that markets evolve over time and there had been some new entrants who became NRSROs (Nationally Recognized Statistical Rating Organization) in the past few years. He noted that they have been watching them over time are comfortable that the ratings they assign have a relationship to the preexisting NRSROs, and that they are comfortable using them. He added that the action item was asking the Board for permission to add Dominion Bond Rating Service and Kroll Bond Rating Agency to the list of names that were acceptable to use as NRSROs for bonds bought within the short-term fund and within the aggregate bond fund.

DR. JENNINGS clarified that the SEC designated folks as the acronym NRSRO, and that was already a seal of approval.

CHAIR BOB WILLIAMS entertained a motion that would be for the domestic fixed-income guidelines.

> **MOTION:** The ARM Board approve Resolution 2023-01, which adopts the revised domestic fixed-income investment guidelines. The motion was made by TRUSTEE MOEN; seconded by TRUSTEE KROHN.

CHAIR BOB WILLIAMS asked for the roll-call vote.

> *After the roll-call vote, the MOTION was APPROVED. (Commissioner Vrana, yes; Trustee Ryan, yes; Trustee Hippler, yes; Trustee Krohn, yes; Trustee Bretz, yes; Trustee Moen, yes; Trustee Michael Williams, excused; Chair Bob Williams, yes.)*

MR. COLSON concluded their presentation and thanked the Board.

CHAIR BOB WILLIAMS called a break.

(Break.)

CHAIR BOB WILLIAMS stated that they were back on record, and asked CIO Hanna to do the introductions.

FIDELITY TACTICAL BOARD

CIO HANNA stated that he was happy to have the Fidelity Tactical Bond team here. He continued that this was Part 2 of the fixed income roundup, the core-plus piece of the bond portfolio. He turned it over to Kristin, Melissa, Jeff, and Beau to go through the portfolio and talk about market conditions.

MS. SHOFNER stated that she was joined by her client service partner, Melissa Moesman, who supports your staff with her. She introduced Beau Coash, the institutional PM for this account. He faces and interacts with the consultants, staff, and the board. She moved to Jeff Moore, the co-portfolio manager responsible for managing the tactical strategy. She recognized Beau Coash.

MR. COASH stated that they would be discussing how tactical bond came to be and why they use agg as a benchmark. He continued to the philosophy and investment process; then, current positioning; the market conditions; and the outlook. He asked Jeff Moore to continue.

MR. MOORE explained that tactical bond came to be with the help of a client. It was supposed to be something that was useful for clients through all parts of the cycle. The tactical bond was a bit more of a global investment opportunity set; more opportunity around rates; and at the same time, control risk. They kept with the same process that was used since the 1990s, and he is happy to be a part of that team. They became a team process, and it is a co-manager system with a team structure which has been extraordinarily successful in terms of generating Alpha and actually growing assets.

MR. COASH talked about the 15 portfolio management teams across high-grade asset classes and high yield, including private credit.

MR. MOORE talked about the five-step process, which always begins with macro. For fixed income they were top down, and he talked about the benchmark that had a nice amount of yield for volatility or risk. He explained that it is a very risk-controlled strategy. Step 2 is sector, and that was where they chat with all of the portfolio teams. He continued to Step 3, which is where they put pen to paper and say, "This is what we think a winning asset allocation is." He moved to Step 4, the security selection where bonds are actually bought. The reason for the great job in security selection is because we have experts. These experts work with the equity team and get a 360-degree view of every company. This gives the bond team the amazing advantage of understanding what every credit team is thinking. Step 5 is portfolio construction, and he is the portfolio manager. Every month the quant team reviews the portfolio from a quantitative perspective to say, "How did you do?"

MR. COASH explained what tactical bond is and the constraints on tactical bond. He directed the group to slide 4 of their presentation, which is a proof statement, and then the performance slide where the Alpha targets for this product were set to be higher than core-plus. He did a short review on what was going into 2022, how they were positioned, and then talked about how they morphed into where they are today.

MR. MOORE went over the yield, the duration, and then talked about the position of the portfolio. He added that the five-step process is not linear. It has all sorts of feedback loops, which he explained.

MS. SHOFNER talked about how much the ARMB business was appreciated, how she loved working with the State of Alaska and that they are grateful for this relationship.

CHAIR WILLIAMS stated that they were at the point in the agenda where they would be touring the offices of the Treasury Division within the Department of Revenue and Division of Retirement and Benefits within the Department of Administration. He added that lunch was after that.

(Break and lunch break.)

CHAIR BOB WILLIAMS called the meeting back into session.

RISK MANAGEMENT
CHAIR BOB WILLIAMS stated that State Investment Officer Shane Carson would be sharing a dynamic, exciting presentation on risk management.

MR. CARSON stated that the date for this reporting period is 12/31. He noted that he works for the Treasury Division, in the multi-asset class for the board. He said that the board determines asset allocation, oversees manager structure, and manager selection. This is the monitoring of those decisions from a risk perspective. He moved to the slide titled Risk and the Retirement Systems and stated that the main focus of the information in this reporting is on investment risk. He continued that staff employs the services of truView twice a year, a risk platform managed by a subsidiary of State Street. Staff engaged with representatives from truView to focus on answering several key questions. He went through the questions and then talked about the scenario analysis. The portfolio was tested with some historic and hypothetical situations to see how it reacted from a loss perspective. He moved to Volatility Decomposition for the reporting period December 31. The risk of the growth assets contributed about 3.25 of volatility in the analysis. He continued that portfolio volatility increased from June, and that was still fairly close to the long-term risk expectations that Callan forecasted in their fiscal year 2023 asset allocation. He moved to the calculation of value at risk and conditional value at risk. The profit and losses were lined up in such a way that the higher profit was on the upside and were sorted from the highest profit down to the lower profit, which was in the negative. He moved to the equity beta and calculated it was about 1.02 versus the MSCI ACWI, the global equity benchmark. His key takeaway was that the risk metrics were within expectations; the public equity allocation is the largest driver of portfolio volatility; and the value-at-risk metrics are as expected.

CHAIR BOB WILLIAMS thanked him for his presentation and moved to part 2 of Callan's presentation.

CALLAN PRESENTATION PART 2
CIO HANNA stated that Steve Center would continue Callan's presentation.

MR. CENTER stated that he would continue through his presentation and slides which had a lot of good news in them. He explained that the reason for looking at asset allocation as of year-end was that it helped to illustrate some of the things that may have driven performance relative to the target benchmark over the calendar year. The plan was close to its target asset allocation, with some slight deviations, which he explained. He continued that that asset allocation for the long-term target asset allocations for the PERS plan is relative to some peers. This helped illustrate what could be driving relative performance versus the peer group. The PERS plan had performed very well, and then he talked about the Sharpe ratio which measures how well risk was being implemented within the portfolio. He then moved to the domestic equity portfolio which included both large cap and small cap equities and outperformed the benchmark by 1.1 percent last quarter and 2 percent over the last trailing 12 months. Additionally, the small cap portfolio performed pretty well. He continued through his presentation and concluded with the alternative fixed income portfolio and looked at the private equity performance. He talked about the conference in Arizona in April, and looked forward to seeing those that can make it.

CHAIR BOB WILLIAMS moved to capital market assumptions and asked CIO Hanna to do the introductions.

CAPITAL MARKET ASSUMPTIONS

CIO HANNA stated that Jay Kloepfer did not need a real introduction, and that he was glad to have him here. Callan had done a lot of work on their 2023 capital market assumptions, and this presentation would kick off the asset allocation process for the year. In June, recommendations will be brought to the board.

CHAIR BOB WILLIAMS called a short break due to technical difficulties.

(Break.)

MR. KLOEPFER stated that when the capital market assumptions were put together, they tried to set the playing field looking out over the next 10 years. The results should be reasonable and defensible, both individually and as a group. He talked about last year and thought that the rates would start to rise, which happened in 10 months. Everything changed overnight in February with the invasion of Ukraine, and then inflation took off. The entire bond market was re-priced in the first couple of months after March. Equity markets move around all the time, but bond markets being down as much as they were was very, very different. He continued through his presentation, explaining and commenting as he went along. He talked about the things he would be looking at for a recession, and the housing market would suffer as mortgage rates go up. That was the biggest impact on new housing. That would impact people as they try to change, or people would move into the housing market. The job market was really strong. He asked Mr. Lozinski if he had any comments about how much it changed in a year.

MR. LOZINSKI stated that the main thing was that it was slightly out of hand and really throwing off the overall headline numbers. He continued that it had moved into housing, which is a bigger part of the index. He added that as soon as one thing got better, something else got worse.

MR. KLOEPFER stated that he was asked a lot last year "how come the TIPS portfolio got hammered." The answer is that it had a long real duration, and interest rates went up faster than ever before. He moved into some of the details of fixed income and focused on the aggregate. This revealed how they were thinking about the world. He did a quick run through alternatives, noting that they were holding their expectations level. It still showed up in the optimization models. He moved to hedge funds and stated that the benefit for a hedge fund of much higher starting cash was a high return expectation. This could also be seen compared to the other asset classes. He talked about private credit, which had been added to the ARMB portfolio. The reasoning for this had been different across different clients. He stated that it had been a fascinating time to be an observer and an actor in this market. No one had ever lived through this before.

CIO HANNA stated that they let the board know that instructions were given to all of the real asset managers right now to hold off on making additional purchases without first talking to staff. That included the use of leverage.

CHAIR BOB WILLIAMS thanked them for the presentation and moved forward with the agenda.

UNFINISHED BUSINESS

He noted a couple of housekeeping things beginning with the Operations Committee. They looked through the projected 2024 calendar and were looking to switch the committee and board meeting to Tuesday, Wednesday, Thursday, instead of Wednesday, Thursday, Friday. The plan was to finalize the calendar at the June meeting. He also noted that congratulations were in order for Trustees Bretz and Hippler who were reappointed by Governor Dunleavy for another term. He thanked them for their willingness to continue their service.

CHAIR BOB WILLIAMS continued that IAC Member Mitchell's last meeting will be this June. There is an IAC search in process, with applications due by the end of the month. The evaluation committee will be reviewing the applications in mid-April. The committee is comprised of Commissioner Crum, Trustees Mike Williams, Dennis Moen, Bob Williams, and Lorne Bretz. Trustee Bretz expressed a strong interest and was added to the committee. He added that if anyone had not heard their name and would like to be part of this journey, to let him know. He asked if there was any unfinished business to come before this board. Were there any other matters to properly come before the board? Were there any public or member comments online or in person?

Hearing none, he moved forward with the agenda.

INVESTMENT ADVISORY COUNCIL COMMENTS

MS. TRAYLOR commented about the manager hiring process they have. You leveraged all the personnel and data that Callan had scrubbed through, got a small set to staff, and then staff brought in a finalist for each mandate. From a staff perspective, it was a much better process. When Mr. Moon started talking, she could tell that he was very vested in his selections. A great job was done, and we ended up with some good hires.

DR. MITCHELL stated that they had two good days of meetings and a lot of good presentations. The equity managers left him with three very interesting takeaways. These were their own words: Difficult to outperform; small edge; takes a lot of work. That was very true, and he stated appreciation for those words. On the discussions about recession, he was amused by the variety of definitions, the National Bureau of Economic Research and the traditional two down quarters of GDP. He commented on the famous case of Jacobellis v. Ohio, 1964 -- a pornography case -- and the justices were wrestling with the definition of pornography when Justice Stewart stood up and said, "I know it when I see it." He added, that was his definition of recession; you know it when you see it. The JPMorgan comments on the markets, he found himself agreeing that high-quality liquidity assets, core real assets, and emerging markets would be the place you might want to be. On the performance of the fund, very good. He stated that everyone involved should be congratulated. Finally, on inflation, he had nothing but admiration for Callan and for the other contributors on that subject. He thought inflation might be a little higher than what was expected.

DR. JENNINGS took all in a different direction back towards defined contribution to share a factoid he found interesting. First, all managed accounts are optional. 53 percent of plans have managed accounts. There was concern that the 2006 to 2009 hires might inadvertently be in managed accounts. The mechanism of re-enrollment had been used elsewhere in situations that were adjacent to what was being dealt with. It should be considered. He added that re-enrollment and not having managed accounts were viable options to be considered. He shared two quotes: "Re-enrollment has been described as a positive fiduciary act and as a consensus industry best practice." It is not that crazy of an idea.

CHAIR BOB WILLIAMS thanked the IAC members for their comments. He stated that they were having a review study of managed accounts by Callan and that could be something on which they comment.

TRUSTEE COMMENTS

TRUSTEE MOEN stated appreciation for Alysia and all the support. He enjoyed the training. The information was beneficial and nicely done. Thank you very much.

TRUSTEE BRETZ asked if the study comes back from Callan on managed accounts and the information lends itself to recommend re-enrollment, could staff make a recommendation on that by ability of the re-enrollment?

CIO HANNA replied that they would have to work with DRB, and we would make them aware of this, conceptually.

TRUSTEE RYAN stated with 109 days, 20 hours, 14 minutes and not counting until her retirement time, she gave a shoutout to the Division of Retirement for what seemed a daunting process of going through retirement. She gave a quality, positive shoutout to the work done in making sure that the paperwork was in place. She hoped that all her little ducklings were in a row.

CHAIR BOB WILLIAMS congratulated Trustee Ryan on her upcoming retirement and her continued public service to ensure that retirement is secure. He asked for any other trustee comments. He thanked the IAC members for playing along with the idea of the keys to the future, and really appreciated the value of that. He thanked everyone for the work to make this meeting successful. He reiterated that the work they do is very important. He thanked them for their commitment capabilities, and working together in a coherent, competent function is outstanding. He asked for any future agenda items. Seeing no future agenda items, he asked for a motion to adjourn.

> **MOTION:** <u>A motion to adjourn the meeting was made by TRUSTEE RYAN; seconded by TRUSTEE MOEN.</u>
>
> *There being no objection, the MOTION was APPROVED.*

(Alaska Retirement Management Board meeting adjourned at 3:48 p.m.)

ALASKA RETIREMENT MANAGEMENT BOARD

STAFF REPORT

Disclosure – Communications – Calendar Update
June 15, 2023

The 1st Quarter Disclosure Memorandum is included in the packet; no disclosure transactions required additional review or discussion.

The Communications Memorandum lists communications directed to and sent on behalf of the Board since the March 16-17, 2023, Board of Trustees meeting, as well as a summary of public records requests received between March 1 – May 31, 2023.

The remaining 2023 meeting calendar is attached, along with the proposed 2024 meeting calendar. At the March 2023 Operations Committee there was a discussion regarding shifting the meeting dates to Tuesday, Wednesday, Thursday as well as consideration of changing the location of the September meetings to Fairbanks beginning in 2024.The action item for the 2024 ARMB meeting calendar will be brought forward by Operations Committee Chair Moen, during his report.

For reference, a copy of the timeline showing contract and review deadlines for FY2023 through FY2028, is also included in the Liaison Report.

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

To: ARMB Trustees
From: Alysia Jones
Date: May 23, 2023
Subject: Financial Disclosures

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

1st Quarter January 1, 2023 – March 31, 2023

Name	Position Title	Disclosure Type	Disclosure Date
Dennis Moen	ARMB Trustee	Equities	3/29/2023
Donald Krohn	ARMB Trustee	Equities (w/ Options)	4/1/2023
Hunter Romberg	Senior Investment Compliance Officer	Equities/Fixed Income	4/5/2023

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

To: ARMB Trustees
From: Alysia Jones
Date: May 23, 2023
Subject: Communications & Information Requests

Communications to Trustees
The following is a list of communications directed to the Board, that were received since the March 16-17, 2023 Board of Trustees meeting.

Name	Type	Date	Topic
Susan Tullo	Email	4/12/2023	Opposition to ESG Investment Options

Communications Sent on behalf of the Board
There are no communications to report.

Public Records Requests
March 1, 2023 – May 31, 2023

Topics	# of Requests	Description
Investment Portfolio	7	Portfolio performance data, Investment pools, hedge funds/absolute return, real estate, and private debt, historical data
Meeting Materials	2	Summary of Board Actions

ALASKA RETIREMENT MANAGEMENT BOARD 2023 Meeting Calendar		
DATE	**LOCATION**	**DESCRIPTION**
March 15 Wednesday	Juneau, AK	Actuarial Committee Audit Committee Operations Committee Defined Contribution Plan Committee
March 16-17 Thursday-Friday	**Juneau, AK**	**Board of Trustees Meeting:** *Performance Measurement – 4th Quarter* *Buck Draft Actuarial Report/GRS Draft Actuary Certification* *Capital Markets – Asset Allocation* *Manager Presentations*
April 13 Thursday	Videoconference	RFS#2023-0400-0016 Investment Advisory Council Member Procurement Evaluation Committee (PEC) Meeting
May 1 Monday	Videoconference	RFS#2023-0400-0016 Investment Advisory Council Member PEC Meeting
May 8 Monday	Videoconference	RFS#2023-0400-0016 Investment Advisory Council Member PEC Meeting - Candidate Interviews
June 14 Wednesday	Anchorage, AK	Actuarial Committee Audit Committee Operations Committee Defined Contribution Plan Committee
June 15-16 Thursday - Friday	**Anchorage, AK**	**Board of Trustees Meeting:** *Final Actuary Reports/Adopt Valuation* *Adopt Asset Allocation* *Performance Measurement - 1st Quarter* *Manager Presentations*
September 13 Wednesday	Anchorage, AK	Actuarial Committee Audit Committee Operations Committee Defined Contribution Plan Committee
September 14-15 Thursday - Friday	**Anchorage, AK**	**Board of Trustees Meeting:** *Set Contribution Rates* *Audit Results/Assets – Auditor* *Approve Budget* *Performance Measurement – 2nd Quarter* *Real Estate Annual Plan* *Real Assets Evaluation – Callan LLC* *Manager Presentations*
October 9 *Monday (placeholder)*	Videoconference	Audit Committee
December 6 Wednesday	Anchorage, AK	Actuarial Committee Audit Committee Operations Committee Defined Contribution Plan Committee
December 7-8 Thursday-Friday	**Anchorage, AK**	**Board of Trustees Meeting:** *Audit Report - DRB Auditor* *Performance Measurement – 3rd Quarter* *Manager Review (Questionnaire)* *Private Equity Evaluation - Callan LLC* *Review Private Equity Annual Plan* *Cybersecurity* *Manager Presentations*

NOTE: Meeting locations and topics are subject to change.

**Meetings to be held as necessary*

Approved 6/16/2022. Updated 5/26/2023

ALASKA RETIREMENT MANAGEMENT BOARD
2024 DRAFT Meeting Calendar

DATE	LOCATION	DESCRIPTION
March 5 Tuesday	Juneau, AK	Audit Committee Defined Contribution Plan Committee Actuarial Committee Operations Committee
March 6-7 Wednesday - Thursday	**Juneau, AK**	**Board of Trustees Meeting:** *Performance Measurement – 4^{th} Quarter* *Buck Draft Actuarial Report/GRS Draft Actuary Certification* *Capital Markets – Asset Allocation* *Manager Presentations (Emphasis on Public Investments - Fixed Income & Equities)*
April/May TBD*	Videoconference	Actuarial Committee *Follow-up/additional discussion/questions on valuations*
April/May TBD*	**Videoconference**	**Board of Trustees Meeting**
June 11 Tuesday	Anchorage, AK	Audit Committee Defined Contribution Plan Committee Actuarial Committee Operations Committee
June 12-13 Wednesday - Thursday	**Anchorage, AK**	**Board of Trustees Meeting:** *Final Actuary Reports/Adopt Valuation* *Adopt Asset Allocation* *Performance Measurement - 1^{st} Quarter* *Manager Presentations (Emphasis on Multi-Asset & Asset Allocation)*
September 17 Tuesday	TBD	Audit Committee Defined Contribution Plan Committee Actuarial Committee Operations Committee
September 18-19 Wednesday - Thursday	TBD	**Board of Trustees Meeting:** *Set Contribution Rates* *Audit Results/Assets – Auditor* *Approve Budget* *Performance Measurement – 2^{nd} Quarter* *Real Estate Annual Plan* *Real Assets Evaluation – Callan LLC* *Manager Presentations (Emphasis on Real Assets)*
October TBD*	Videoconference	Audit Committee
December 3 Tuesday	Anchorage, AK	Audit Committee Defined Contribution Plan Committee Actuarial Committee Operations Committee
December 4-5 Wednesday - Thursday	**Anchorage, AK**	**Board of Trustees Meeting:** *Audit Report - DRB Auditor* *Performance Measurement – 3^{rd} Quarter* *Manager Review (Questionnaire)* *Private Equity Evaluation - Callan LLC* *Review Private Equity Annual Plan* *Cybersecurity* *Manager Presentations (Emphasis on Private Equity)*

NOTE: Meeting locations and topics are subject to change.

**Meetings to be held as necessary*

Updated: 3/21/2023

ARMB Timeline of Contract and Review Deadlines FY2023 - FY2028

FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Trustee Appointments/ Nominations for Terms Ending 3/01/2023 *Public - Vacant*	**Trustee Appointments/ Nominations for Terms Ending 3/01/2024** *Public - D. Krohn* *PERS - D. Moen* *TRS - B. Williams*		**Trustee Appointments/ Nominations for Terms Ending 3/01/2026** *PERS - M. Williams* *TRS - S. Ryan*	**Trustee Appointments/ Nominations for Terms Ending 3/01/2027** *Finance Office- TBD* *Public - TBD*	**Trustee Appointments/ Nominations for Terms Ending 3/01/2028** *Public - TBD* *PERS - TBD* *TRS - TBD*
IAC Appointments *Seat 2* June 2023 agenda Effective Date: 7/01/2023 (FY24)	**IAC Appointments** *Seat 3 - Academic Advisor* March 2024 agenda Effective Date: 7/01/2024 (FY25)	**IAC Appointments** *Seat 1 - Trustee or manager of public fund or endowment* March 2025 agenda Effective Date: 7/01/2025 (FY26)	**IAC Appointments** *Seat 2 - Portfolio Manager* March 2025 agenda Effective Date: 7/01/2026 (FY27)	**IAC Appointments** *Seat 3 - Academic Advisor* March 2027 agenda Effective Date: 7/01/2027 (FY28)	**IAC Appointments** *Seat 1 - Trustee or manager of public fund or endowment* March 2028 agenda Effective Date: 7/01/2028 (FY29)
	Performance Measurement (General) Consultant Contract (TRSY) *RFP - March 2024* Effective Date: 7/01/2024 (FY25)			**Performance Measurement - General Consultant Contract (TRSY)** *1st Renewal Option or RFP -* TBD March 2027 agenda Effective Date: 7/1/2027 (FY28)	**Performance Measurement - General Consultant Contract (TRSY)** *2nd Renewal Option or RFP -* TBD March 2028 agenda Effective Date: 7/1/2028 (FY29)
	Performance Consultant Review (TRSY) AS 37.10.220(a)(11) *RFP - March 2024* Presentation Sept 2024 (FY25)				**Performance Consultant Review (TRSY)** AS 37.10.220(a)(11) *RFP - March 2028* Presentation Sept 2028 (FY29)
	Real Assets Consultant Contract (TRSY) *RFP - March 2024* Effective Date: 7/01/2024 (FY25)			**Real Assets Consultant Contract** *1st Renewal Option or RFP* - TBD March 2027 agenda Effective Date: 7/1/2027 (FY28)	**Real Assets Consultant Contract** *2nd Renewal Option or RFP* - TBD March 2028 agenda Effective Date: 7/1/2028 (FY29)
	Asset Liability Study (TRSY) *Recommendation: Every 5 years*				
			Actuary Contract (DRB) AS 37.10.220(a)(8 & 9) *2yr Renewal Option - Buck* Effective Date: 7/01/2026 (FY27)		**Actuary Contract (DRB)** AS 37.10.220(a)(8 & 9) *RFP* Effective Date: 7/01/2028 (FY29)
		Review Actuary Contract (TRSY) AS 37.10.220(a)(9) *2yr Renewal Option* March 2025 agenda Effective Date: 7/01/2025 (FY26)		**Review Actuary Contract (TRSY)** AS 37.10.220(a)(9) *2 yr Renewal Option* March 2027 *agenda* Effective Date: 7/01/2027 (FY28)	
		Actuarial Audit RFP (TRSY) AS 37.10.220(a)(10) RFP March 2025 Effective Date: 7/01/2025 (FY26)			**Actuarial Audit RFP (TRSY)** AS 37.10.220(a)(10) *2 yr Reneawal Option* Effective Date: 7/01/2028 (FY29)
Actuarial Valuations AS 37.10.220(a)(8)	**Actuarial Valuations** AS 37.10.220(a)(8)	**Actuarial Valuations** AS 37.10.220(a)(8)	**Actuarial Valuations** AS 37.10.220(a)(8)	**Actuarial Valuations** AS 37.10.220(a)(8)	**Actuarial Valuations** AS 37.10.220(a)(8)
		Actuarial Experience Analysis AS 37.10.220(a)(9)			**Actuarial Experience Analysis** AS 37.10.220(a)(9)
		Recordkeeper RFP (DRB) *RFP* Effective Date: 7/01/2025 (FY26)			
	Auditor (DRB) *2nd Renewal Option - KPMG* Effective Date: 7/01/2024 (FY25)				**Auditor (DRB)** *RFP* Effective Date: 7/01/2028 (FY29)

Updated: 5/30/2023

ALASKA RETIREMENT MANAGEMENT BOARD

STAFF REPORT

Fund Financials – Cash Flow Report
June 15, 2023

Ryan Kauzlarich, Assistant State Comptroller, Department of Revenue

As of April 2023 month-end, total plan assets were as follows: PERS - $23 billion, TRS - $10.6 billion, JRS - $275.5 million, NGNMRS - $44.2 million, SBS - $4.6 billion, DCP - $1.1 billion. Total non-participant-directed plans totaled $31.1 billion, and participant-directed plans totaled $8.6 billion. Total assets were $39.7 billion.

Year-to-date income was $2 billion, and the plans experienced a net withdrawal of $1.1 billion. Total assets were up 2.28% year-to-date.

Internally managed assets totaled $15.1 billion.

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

Kevin Worley, Chief Financial Officer, Division of Retirement and Benefits

Presented is the Division of Retirement and Benefits (DRB) Supplement to the Treasury Division's Financial Report as of April 30, 2023.

DRB's supplement report expands on the ARMB Financial Report column "Net Contributions (Withdrawals)" located on pages 1 and 2. DRB reports the summary totals of actual employee and employer, State of Alaska, and other revenue items, as well as benefit payments, refunds & disbursements, and combined administrative & investment expenditures. DRB's supplement report presents cash inflows and outflows for the 10-months ended April 30, 2023 (page 1) and for the month of April 2023 (page 2).

Also presented are participant-directed distributions by plan and by type for the 10-month period on page 3. This page includes Tier information on the defined benefit refunds, and vested percentage on defined contribution distributions.

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

ALASKA RETIREMENT MANAGEMENT BOARD
FINANCIAL REPORT

As of April 30, 2023

ALASKA RETIREMENT MANAGEMENT BOARD
Schedule of Investment Income and Changes in Invested Assets by Fund
Fiscal Year-to-Date through April 30, 2023

	Beginning Invested Assets	Investment Income (1)	Net Contributions (Withdrawals)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income (2)
Public Employees' Retirement System (PERS)						
Defined Benefit Plans:						
Retirement Trust	$ 10,837,529,623	$ 494,352,465	$ (413,109,898)	$ 10,918,772,190	0.75%	4.65%
Retirement Health Care Trust	8,933,550,736	413,548,434	(368,069,254)	8,979,029,916	0.51%	4.73%
Total Defined Benefit Plans	19,771,080,359	907,900,899	(781,179,152)	19,897,802,106	0.64%	4.68%
Defined Contribution Plans:						
Participant Directed Retirement	1,797,124,735	156,224,581	81,731,321	2,035,080,637	13.24%	8.50%
Health Reimbursement Arrangement	689,783,476	34,287,072	40,273,831	764,344,379	10.81%	4.83%
Retiree Medical Plan	207,591,164	10,396,440	14,833,057	232,820,661	12.15%	4.84%
Defined Benefit Occupational Death and Disability:						
Public Employees	43,232,741	2,172,287	3,315,146	48,720,174	12.69%	4.84%
Police and Firefighters	18,163,141	905,040	1,061,813	20,129,994	10.83%	4.84%
Total Defined Contribution Plans	2,755,895,257	203,985,420	141,215,168	3,101,095,845	12.53%	7.22%
Total PERS	**22,526,975,616**	**1,111,886,319**	**(639,963,984)**	**22,998,897,951**	2.09%	5.01%
Teachers' Retirement System (TRS)						
Defined Benefit Plans:						
Retirement Trust	6,044,974,411	273,676,901	(308,166,354)	6,010,484,958	-0.57%	4.65%
Retirement Health Care Trust	3,414,090,333	158,910,512	(112,562,055)	3,460,438,790	1.36%	4.73%
Total Defined Benefit Plans	9,459,064,744	432,587,413	(420,728,409)	9,470,923,748	0.13%	4.68%
Defined Contribution Plans:						
Participant Directed Retirement	742,357,878	66,346,996	27,555,456	836,260,330	12.65%	8.77%
Health Reimbursement Arrangement	200,887,593	9,932,069	11,054,692	221,874,354	10.45%	4.81%
Retiree Medical Plan	66,714,952	3,282,096	3,055,131	73,052,179	9.50%	4.81%
Defined Benefit Occupational Death and Disability	6,540,428	320,605	260,551	7,121,584	8.89%	4.81%
Total Defined Contribution Plans	1,016,500,851	79,881,766	41,925,830	1,138,308,447	11.98%	7.70%
Total TRS	**10,475,565,595**	**512,469,179**	**(378,802,579)**	**10,609,232,195**	1.28%	4.98%
Judicial Retirement System (JRS)						
Defined Benefit Plan Retirement Trust	226,351,741	10,570,394	(3,485,962)	233,436,173	3.13%	4.71%
Defined Benefit Retirement Health Care Trust	40,479,282	1,917,368	(301,939)	42,094,711	3.99%	4.75%
Total JRS	**266,831,023**	**12,487,762**	**(3,787,901)**	**275,530,884**	3.26%	4.71%
National Guard/Naval Militia Retirement System (MRS)						
Defined Benefit Plan Retirement Trust	44,237,906	1,746,045	(1,765,402)	44,218,549	-0.04%	4.03%
Other Participant Directed Plans						
Supplemental Annuity Plan	4,412,830,900	293,667,593	(72,447,200)	4,634,051,293	5.01%	6.71%
Deferred Compensation Plan	1,052,309,932	72,437,702	(25,165,915)	1,099,581,719	4.49%	6.97%
Total All Funds	**38,778,750,972**	**2,004,694,600**	**(1,121,932,981)**	**39,661,512,591**		
Total Non-Participant Directed	30,774,127,527	1,416,017,728	(1,133,606,643)	31,056,538,612	0.92%	4.69%
Total Participant Directed	8,004,623,445	588,676,872	11,673,662	8,604,973,979	7.50%	7.35%
Total All Funds	**$ 38,778,750,972**	**$ 2,004,694,600**	**$ (1,121,932,981)**	**$ 39,661,512,591**	**2.28%**	**5.25%**

Notes:

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

(2) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates and can be found at: http://treasury.dor.alaska.gov/armb/Reports-and-Policies/Investment-Performance.aspx

ALASKA RETIREMENT MANAGEMENT BOARD
Schedule of Investment Income and Changes in Invested Assets by Fund
For the Month Ended April 30, 2023

	Beginning Invested Assets	Investment Income (1)	Net Contributions (Withdrawals)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income (2)
Public Employees' Retirement System (PERS)						
Defined Benefit Plans:						
Retirement Trust	$ 10,889,021,511	$ 73,374,830	$ (43,624,151)	$ 10,918,772,190	0.27%	0.68%
Retirement Health Care Trust	8,949,744,607	60,308,346	(31,023,037)	8,979,029,916	0.33%	0.68%
Total Defined Benefit Plans	19,838,766,118	133,683,176	(74,647,188)	19,897,802,106	0.30%	0.68%
Defined Contribution Plans:						
Participant Directed Retirement	2,003,413,473	20,550,643	11,116,521	2,035,080,637	1.58%	1.02%
Health Reimbursement Arrangement	754,448,738	5,111,625	4,784,016	764,344,379	1.31%	0.68%
Retiree Medical Plan	229,524,350	1,555,983	1,740,328	232,820,661	1.44%	0.68%
Defined Benefit Occupational Death and Disability:						
Public Employees	48,020,802	325,586	373,786	48,720,174	1.46%	0.68%
Police and Firefighters	19,893,081	134,762	102,151	20,129,994	1.19%	0.68%
Total Defined Contribution Plans	3,055,300,444	27,678,599	18,116,802	3,101,095,845	1.50%	0.90%
Total PERS	**22,894,066,562**	**161,361,775**	**(56,530,386)**	**22,998,897,951**	0.46%	0.71%
Teachers' Retirement System (TRS)						
Defined Benefit Plans:						
Retirement Trust	6,008,887,658	40,437,957	(38,840,657)	6,010,484,958	0.03%	0.68%
Retirement Health Care Trust	3,446,138,365	23,232,712	(8,932,287)	3,460,438,790	0.41%	0.68%
Total Defined Benefit Plans	9,455,026,023	63,670,669	(47,772,944)	9,470,923,748	0.17%	0.68%
Defined Contribution Plans:						
Participant Directed Retirement	824,022,008	8,560,418	3,677,904	836,260,330	1.49%	1.04%
Health Reimbursement Arrangement	219,257,588	1,484,902	1,131,864	221,874,354	1.19%	0.68%
Retiree Medical Plan	72,235,405	489,020	327,754	73,052,179	1.13%	0.68%
Defined Benefit Occupational Death and Disability	7,044,360	47,681	29,543	7,121,584	1.10%	0.68%
Total Defined Contribution Plans	1,122,559,361	10,582,021	5,167,065	1,138,308,447	1.40%	0.94%
Total TRS	**10,577,585,384**	**74,252,690**	**(42,605,879)**	**10,609,232,195**	0.30%	0.70%
Judicial Retirement System (JRS)						
Defined Benefit Plan Retirement Trust	232,721,935	1,568,023	(853,785)	233,436,173	0.31%	0.68%
Defined Benefit Retirement Health Care Trust	41,801,815	282,253	10,643	42,094,711	0.70%	0.68%
Total JRS	**274,523,750**	**1,850,276**	**(843,142)**	**275,530,884**	0.37%	0.68%
National Guard/Naval Militia Retirement System (MRS)						
Defined Benefit Plan Retirement Trust	44,075,786	287,006	(144,243)	44,218,549	0.32%	0.65%
Other Participant Directed Plans						
Supplemental Annuity Plan	4,602,041,507	41,297,354	(9,287,568)	4,634,051,293	0.70%	0.90%
Deferred Compensation Plan	1,092,980,876	8,625,751	(2,024,908)	1,099,581,719	0.60%	0.79%
Total All Funds	**39,485,273,865**	**287,674,852**	**(111,436,126)**	**39,661,512,591**		
Total Non-Participant Directed	30,962,816,001	208,640,686	(114,918,075)	31,056,538,612	0.30%	0.68%
Total Participant Directed	8,522,457,864	79,034,166	3,481,949	8,604,973,979	0.97%	0.93%
Total All Funds	**$ 39,485,273,865**	**$ 287,674,852**	**$ (111,436,126)**	**$ 39,661,512,591**	**0.45%**	**0.73%**

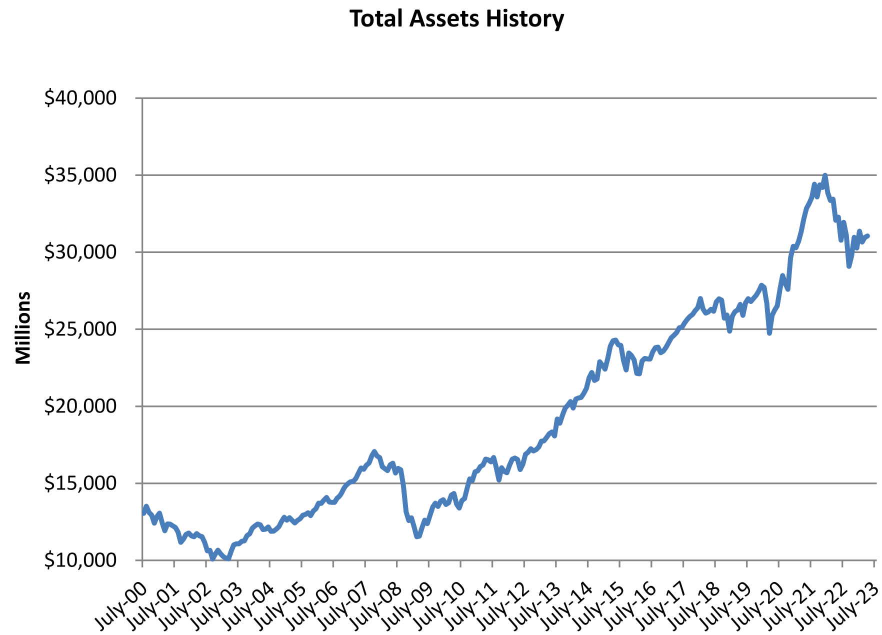
Notes:

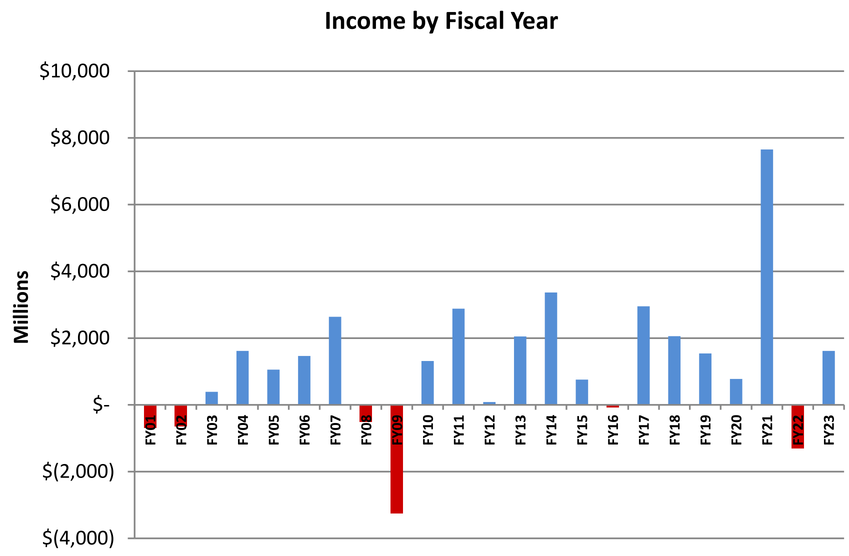
(1) Includes interest, dividends, securities lending, expenses, realized and unrealized gains/losses

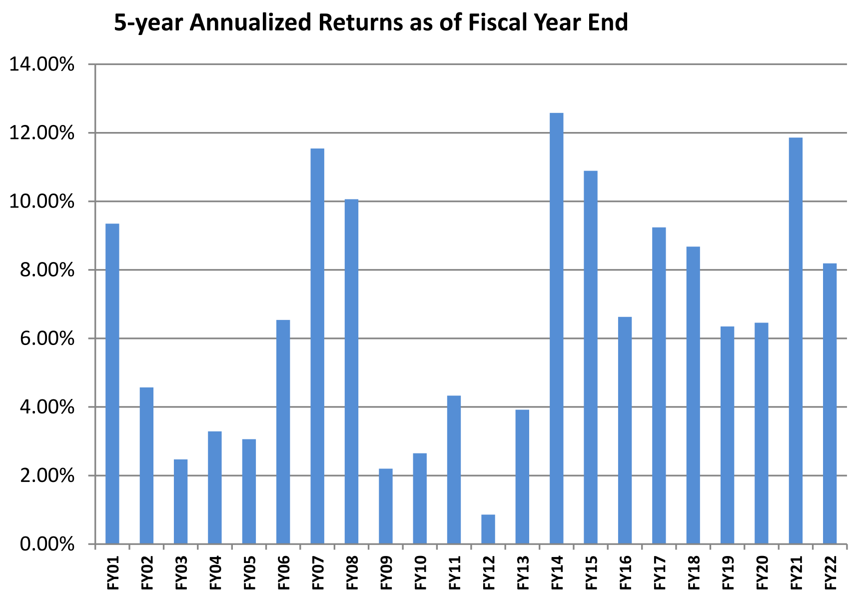
(2) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates and can be found at: http://treasury.dor.alaska.gov/armb/Reports-and-Policies/Investment-Performance.aspx

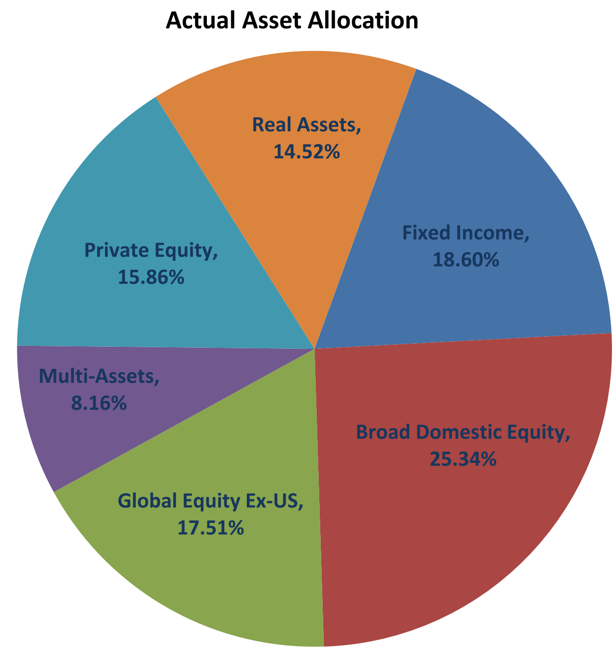
Total Non Participant Directed Assets

As of April 30, 2023



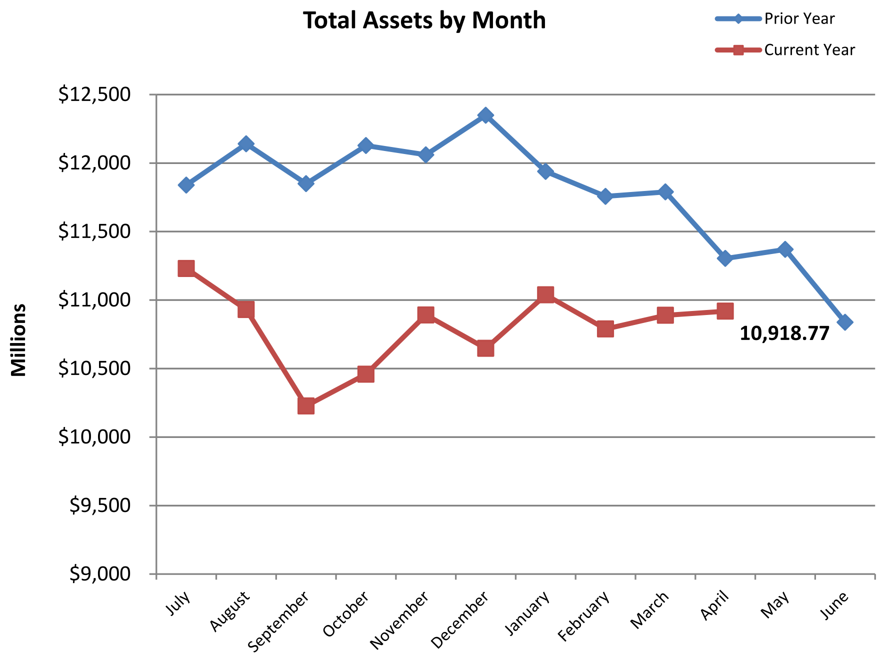


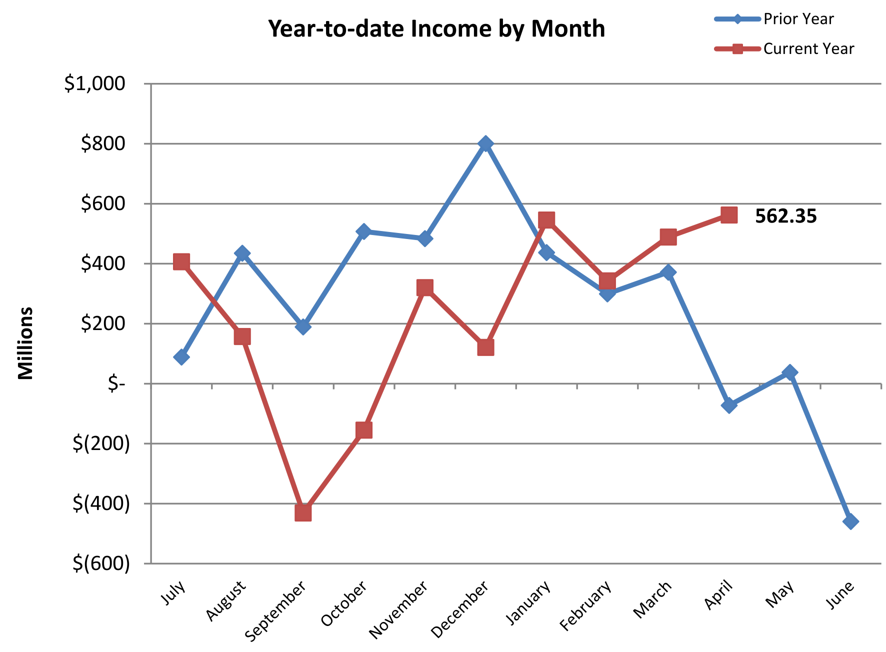


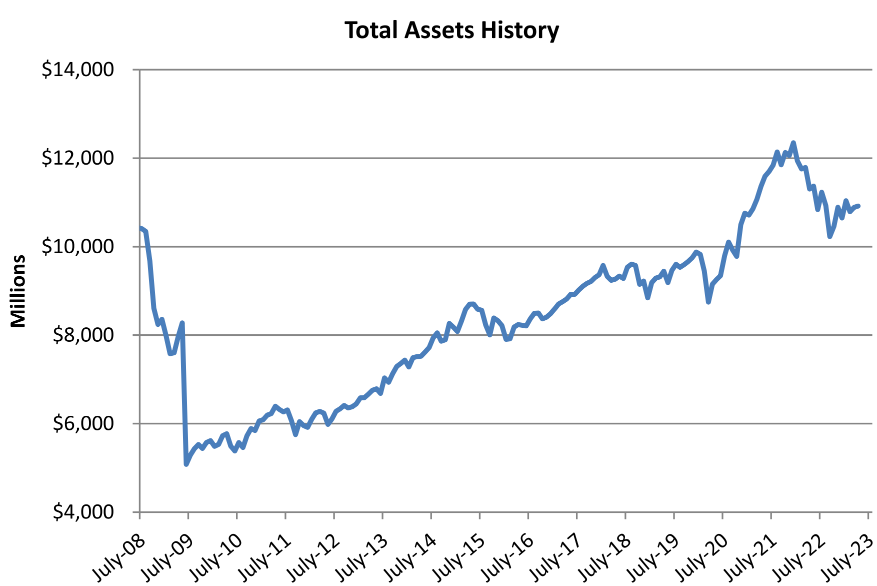


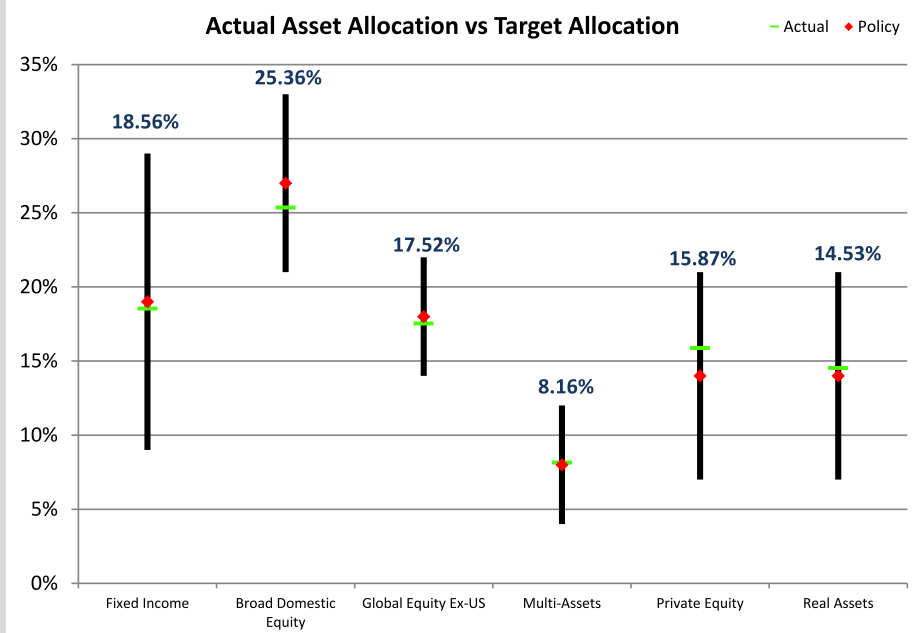
Public Employees' Retirement Pension Trust Fund

Fiscal Year-to-Date through April 30, 2023



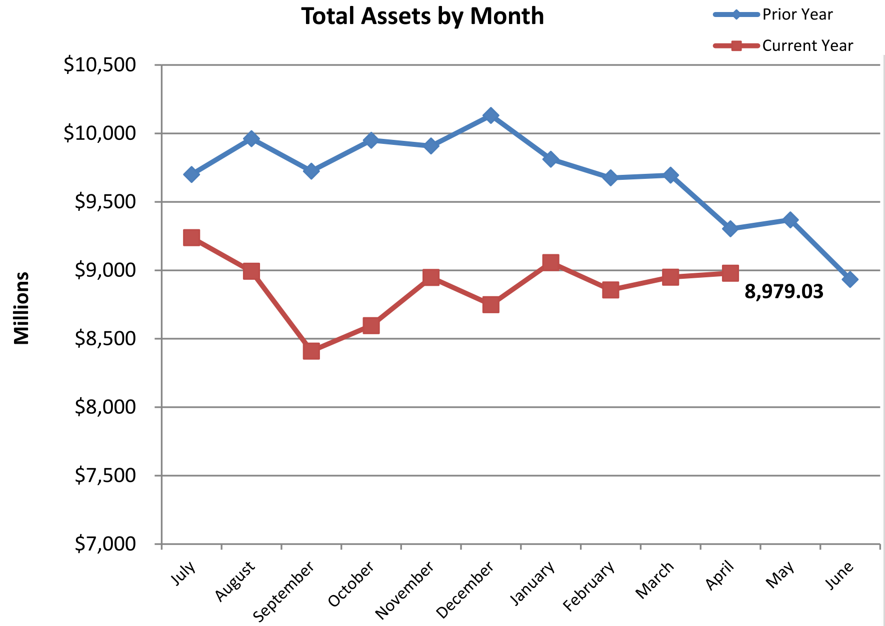


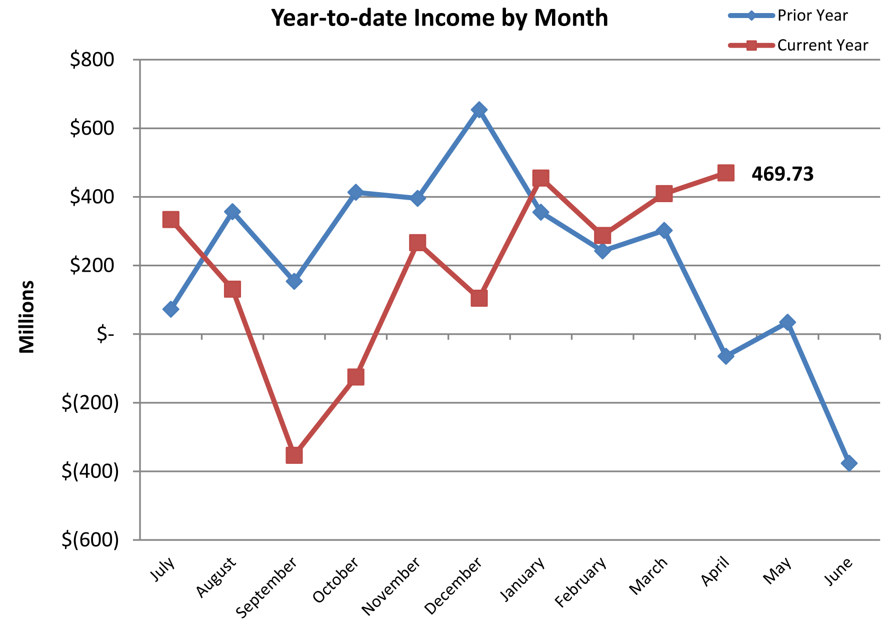


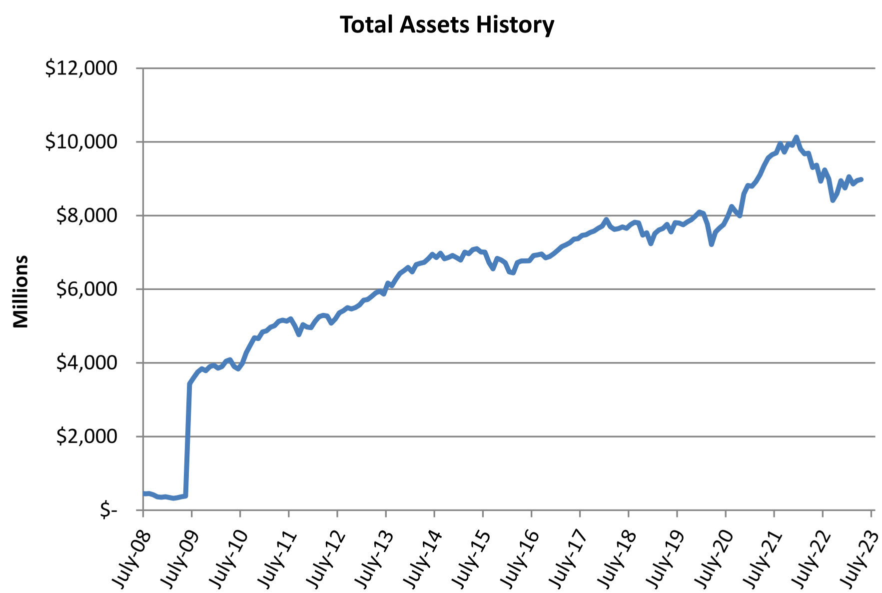


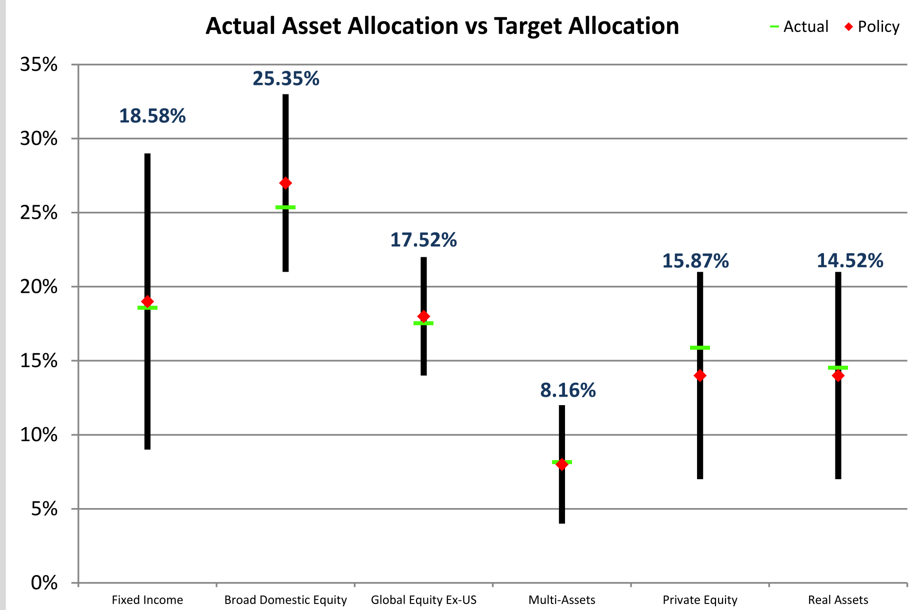
Public Employees' Retirement Health Care Trust Fund

Fiscal Year-to-Date through April 30, 2023



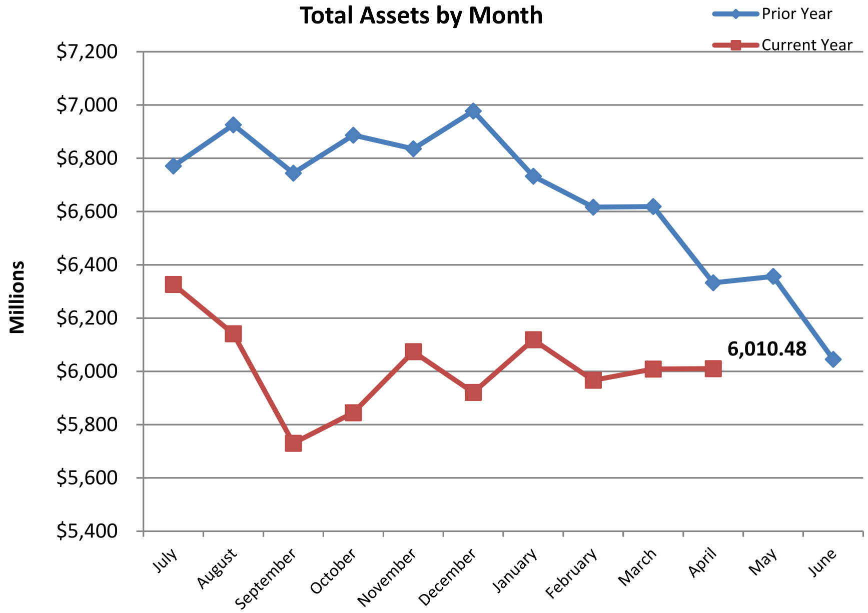


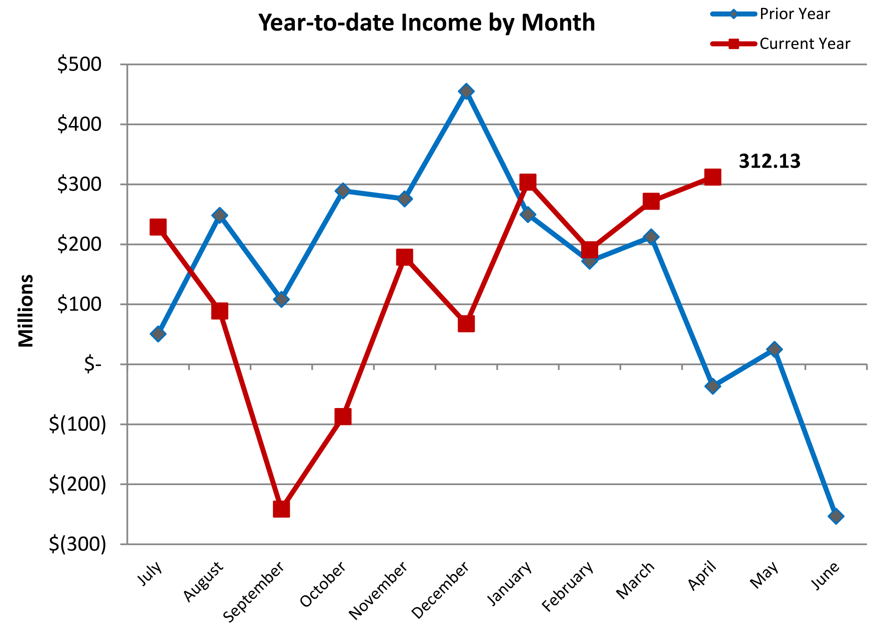


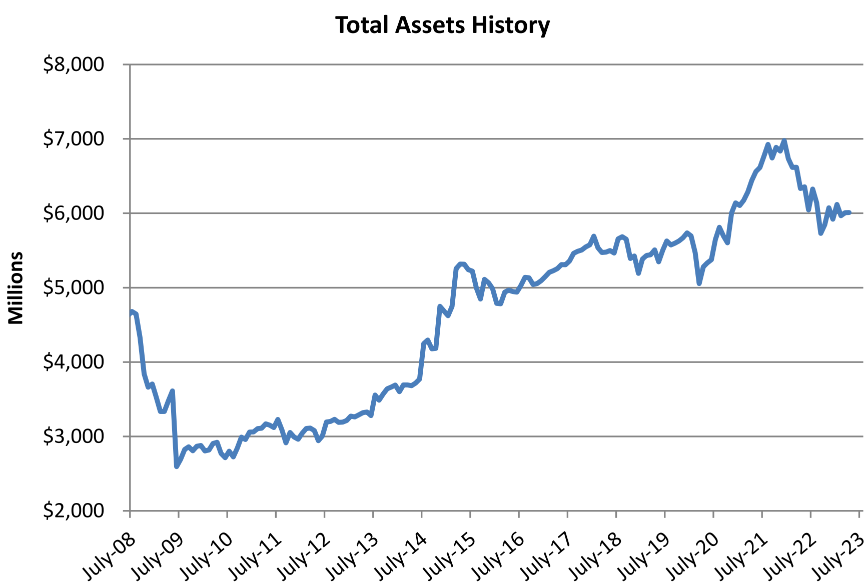


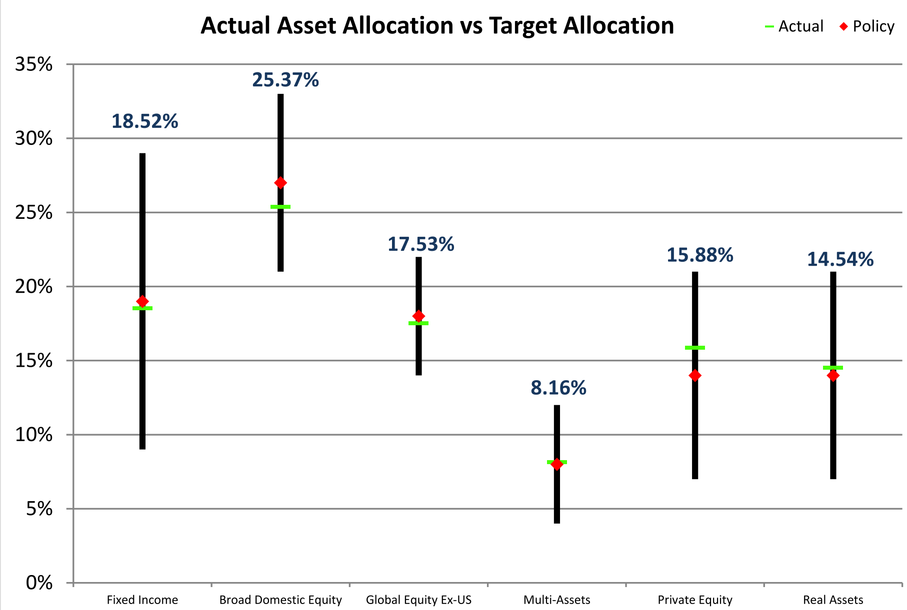
Teachers' Retirement Pension Trust Fund

Fiscal Year-to-Date through April 30, 2023



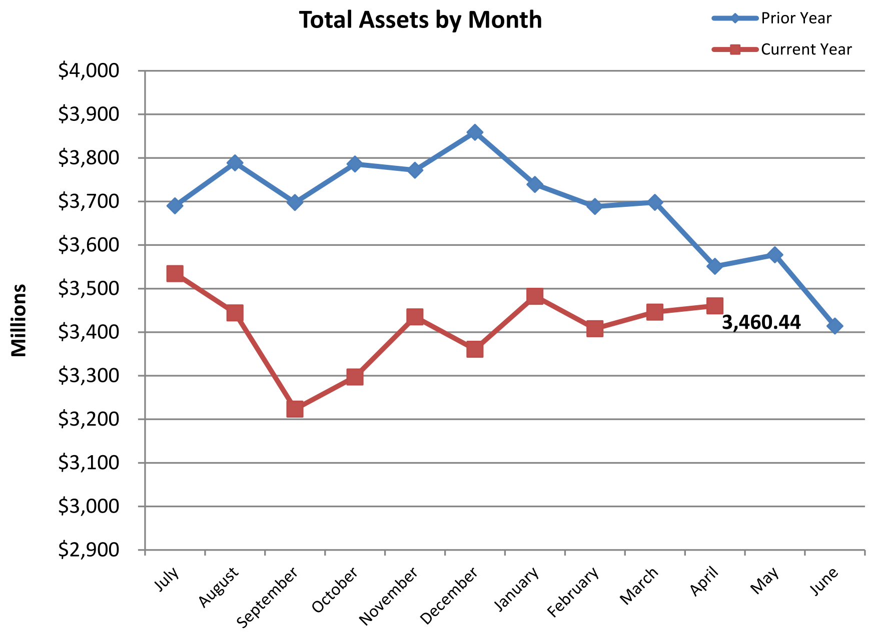


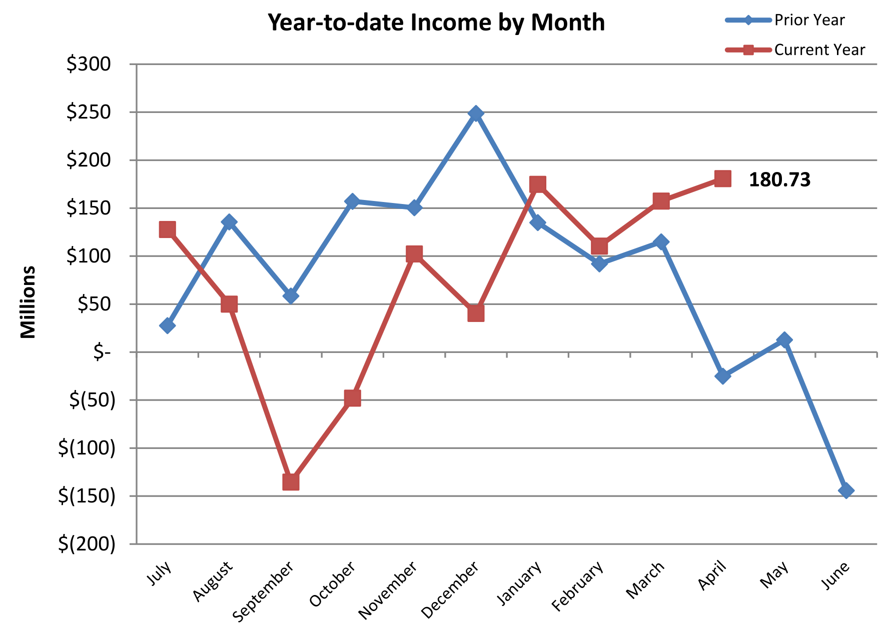


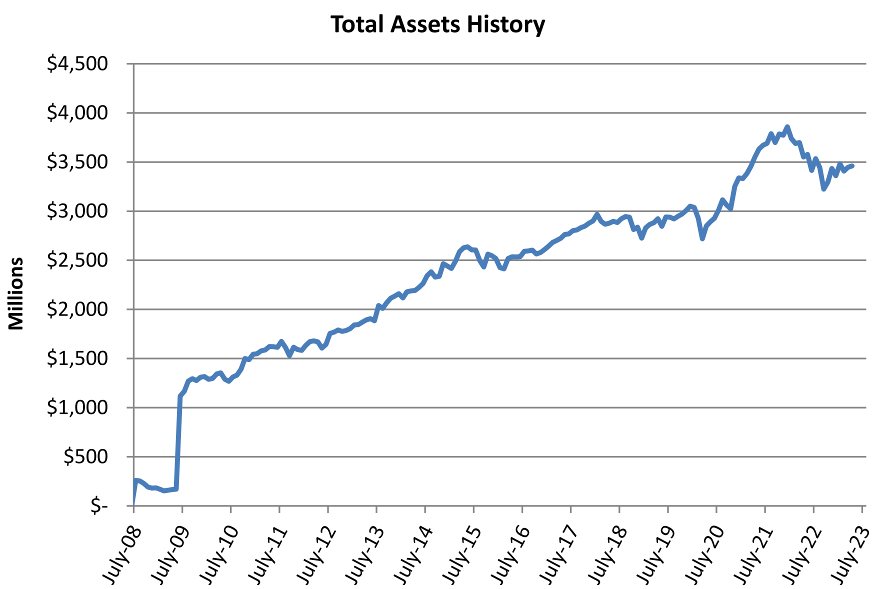


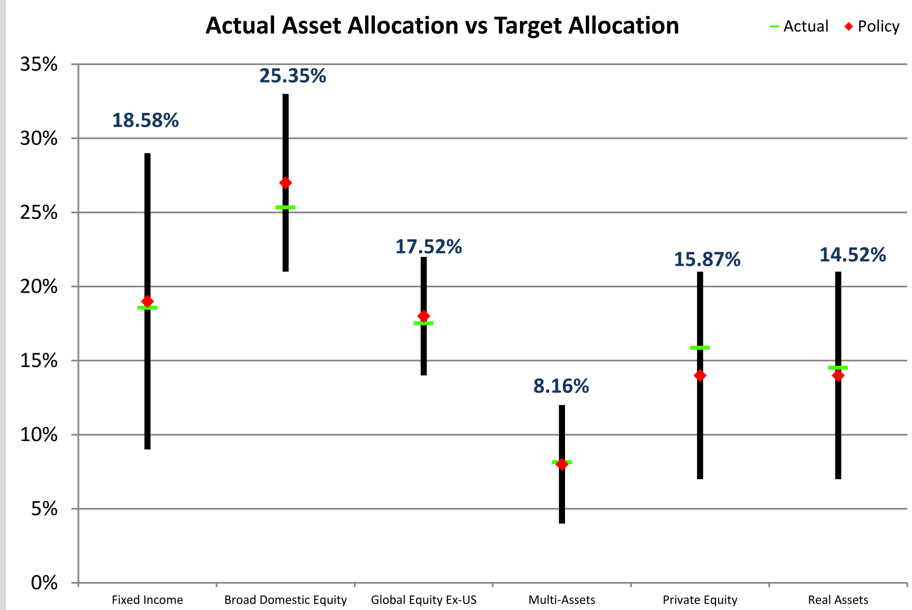
Teachers' Retirement Health Care Trust Fund

Fiscal Year-to-Date through April 30, 2023



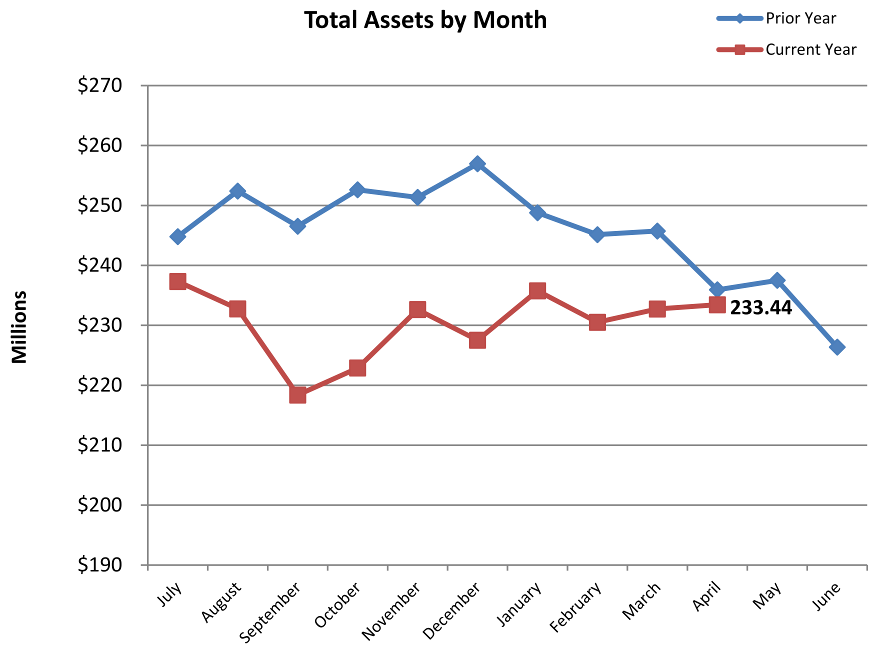


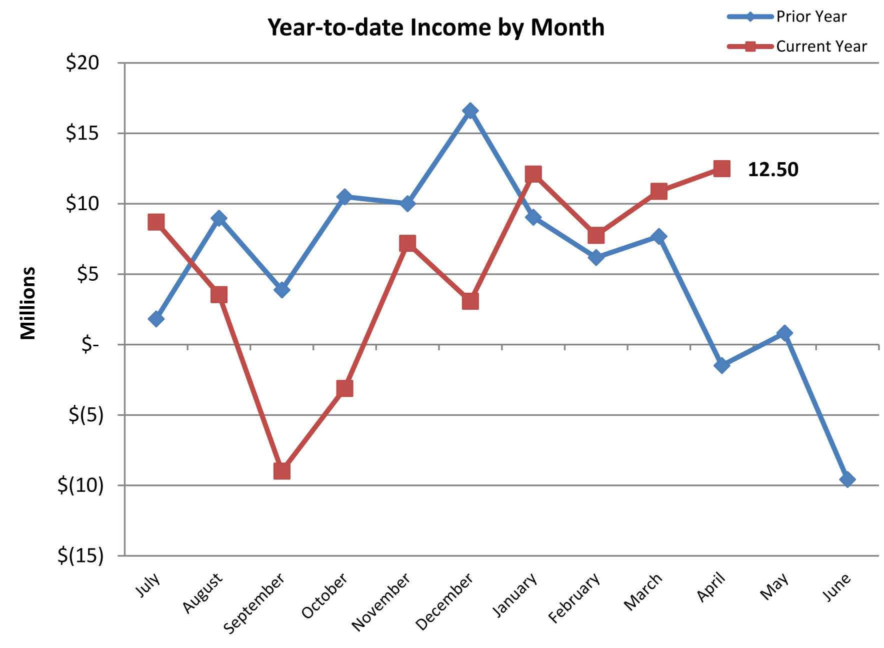


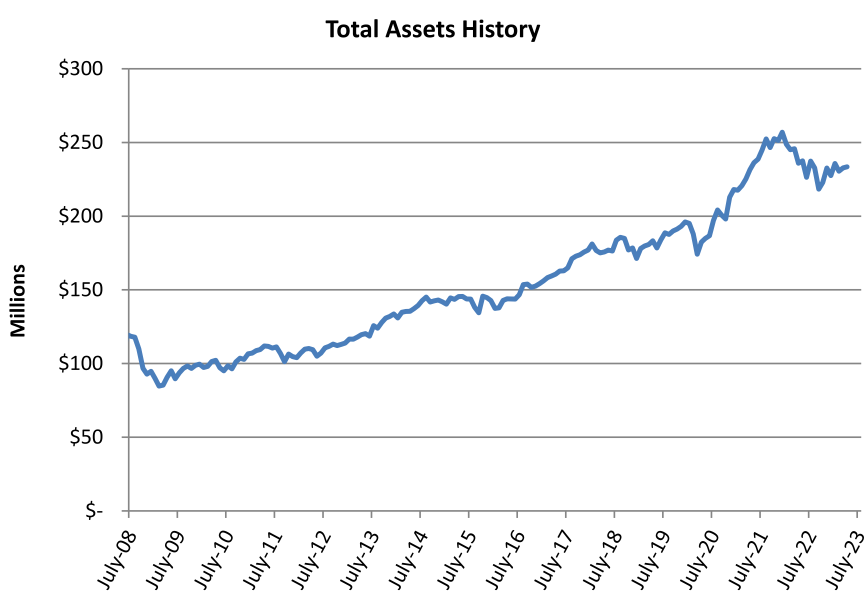


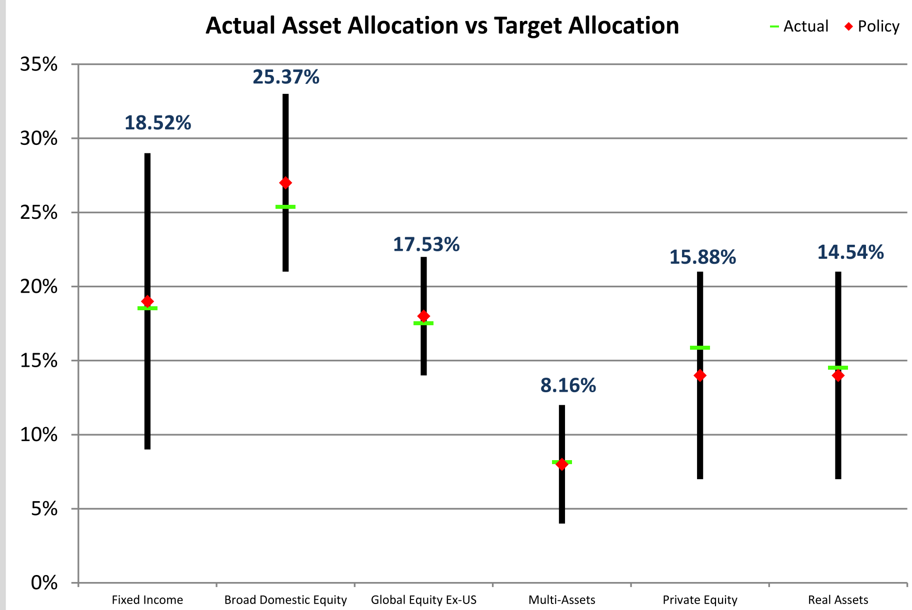
Judicial Retirement Pension Trust Fund

Fiscal Year-to-Date through April 30, 2023



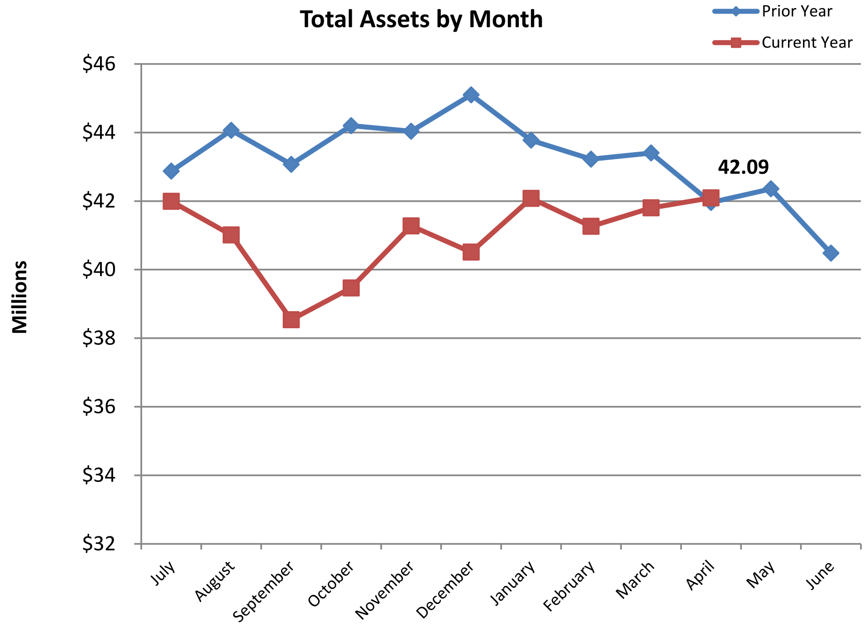


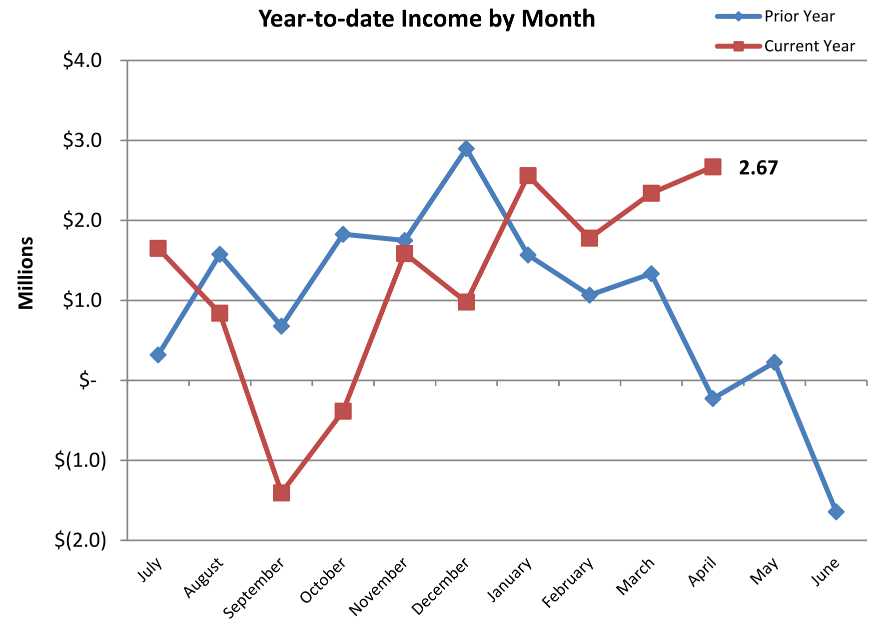


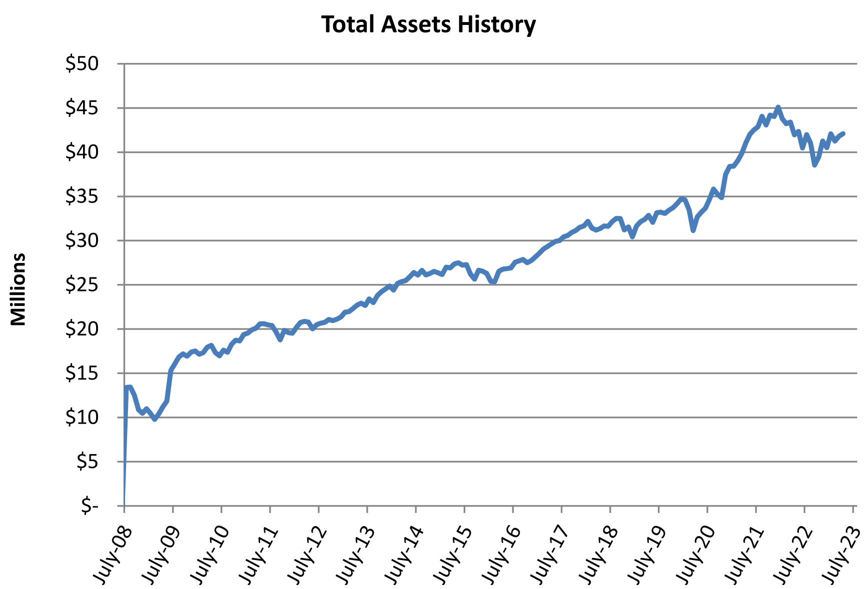


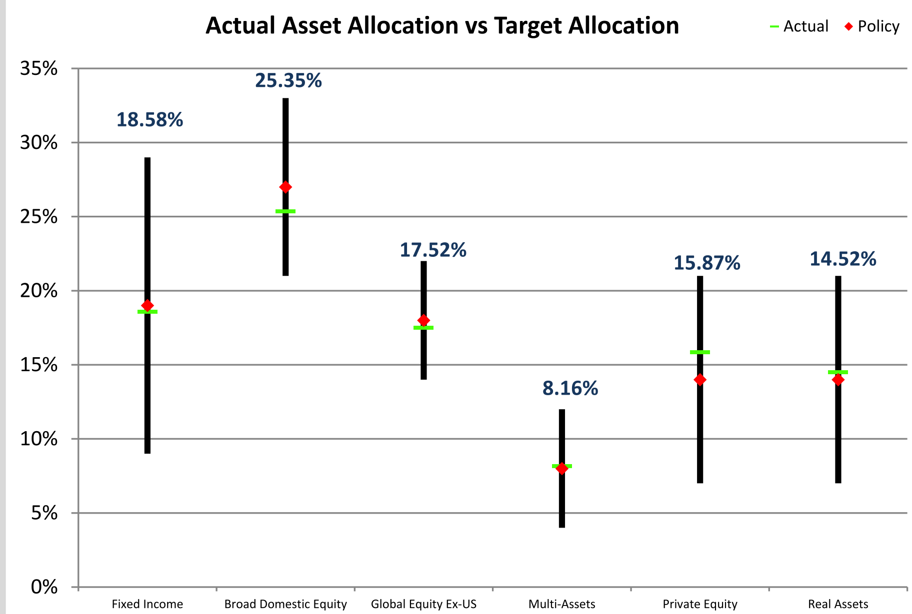
Judicial Retirement Health Care Trust Fund

Fiscal Year-to-Date through April 30, 2023



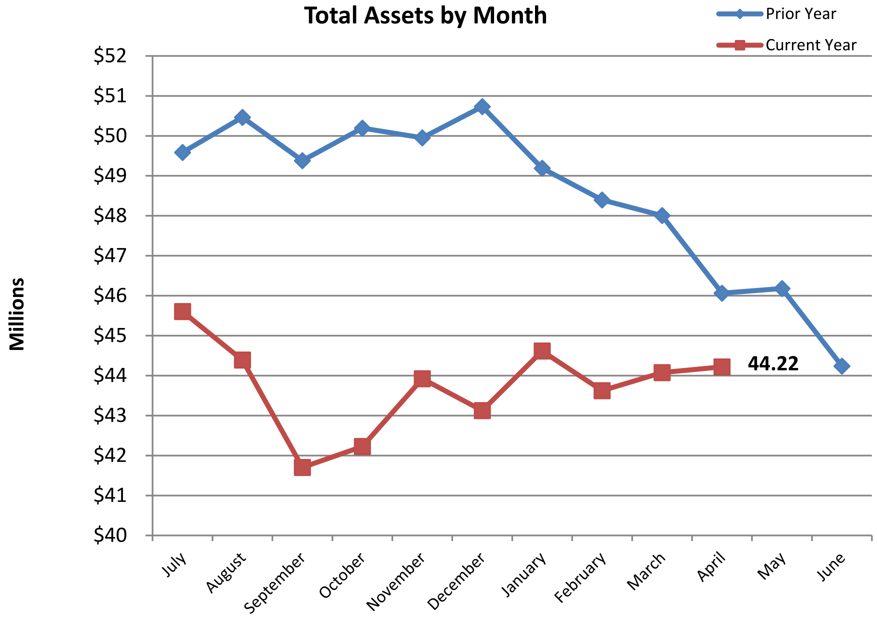


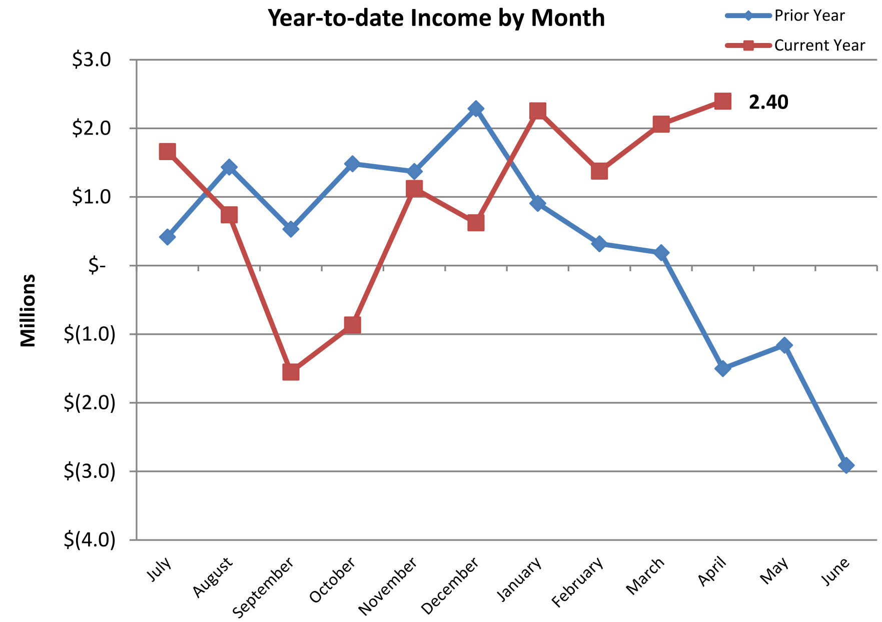


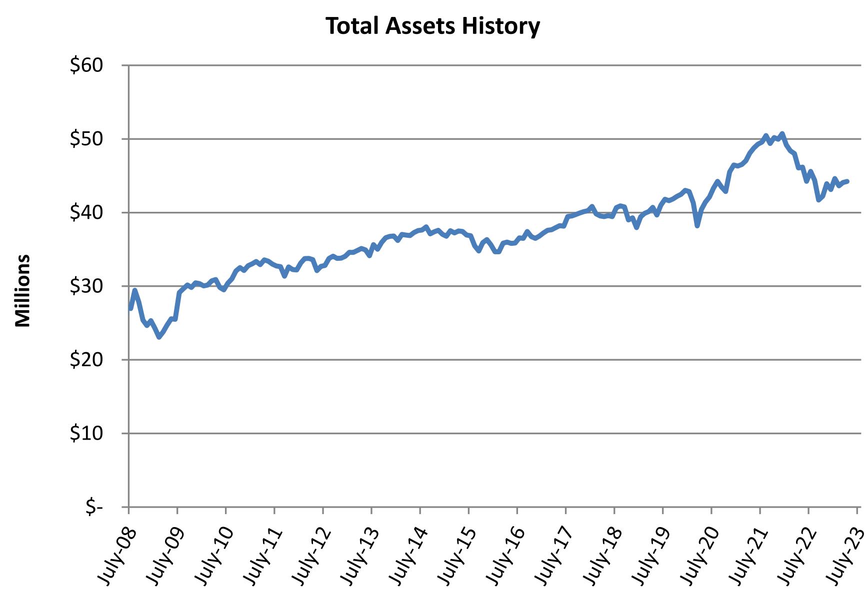


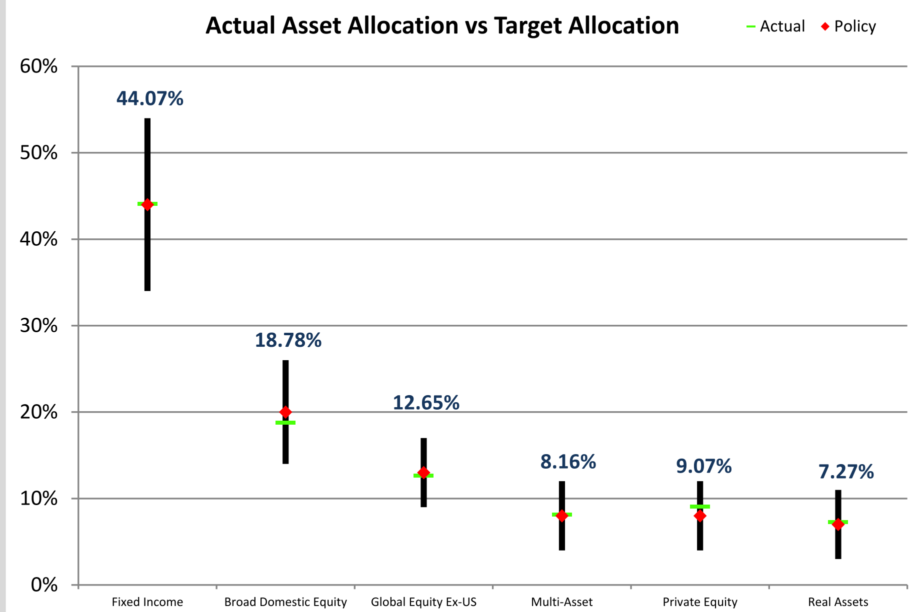
Military Retirement Trust Fund

Fiscal Year-to-Date through April 30, 2023









ALASKA RETIREMENT MANAGEMENT BOARD

Reporting of Funds by Manager

All Non-Participant Directed Plans

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended April 30, 2023

	Beginning Invested Assets	Investment Income	Net Contributions and (Withdrawals)	Ending Invested Assets	% increase (decrease)	% Change due to Investment Income
Cash						
Short-Term Fixed Income Pool	$ 361,473,099	$ 1,397,169	$ (57,777,589)	$ 305,092,679	-15.60%	0.42%
Securities Lending Income Pool	81,252	125,470	(78,292)	128,430	58.06%	297.99%
Total Cash	361,554,351	1,522,639	(57,855,881)	305,221,109	-15.58%	0.46%
Fixed Income						
Fidelity Inst. Asset Mgmt. High Yield CMBS	197,154,433	960,542	-	198,114,975	0.49%	0.49%
Fidelity Institutional Asset Management	940,370,261	5,051,651	-	945,421,912	0.54%	0.54%
MacKay Shields, LLC	900,143	-	-	900,143	-	-
Total Opportunistic Fixed Income	1,138,424,837	6,012,193	-	1,144,437,030	0.53%	0.53%
ARMB Barclays Agg Bond Fund	4,201,489,458	24,836,892	100,000,000	4,326,326,350	2.97%	0.58%
Total Fixed Income	5,339,914,295	30,849,085	100,000,000	5,470,763,380	2.45%	0.57%
Domestic Equities						
Small Cap						
Passively Managed						
ARMB S&P 600	625,650,671	(17,302,263)	-	608,348,408	-2.77%	-2.77%
Total Passive	625,650,671	(17,302,263)	-	608,348,408	-2.77%	-2.77%
Actively Managed						
Transition Account	-	-	-	-	-	-
Total Active	-	-	-	-	-	-
Total Small Cap	625,650,671	(17,302,263)	-	608,348,408	-2.77%	-2.77%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended April 30, 2023

Large Cap						
Passively Managed						
ARMB S&P 900	5,035,280,897	70,877,801	(30,000,000)	5,076,158,698	0.81%	1.41%
Total Passive	5,035,280,897	70,877,801	(30,000,000)	5,076,158,698	0.81%	1.41%
Actively Managed						
ARMB Domestic Residual Assets	24,074	43,370	-	67,444	180.15%	180.15%
ARMB Large Cap Multi-Factor	1,087,644,986	10,648,697	-	1,098,293,683	0.98%	0.98%
ARMB Scientific Beta	1,080,051,831	8,250,099	101,652	1,088,403,582	0.77%	0.76%
Transition Account	-	-	-	-	-	-
Total Active	2,167,720,891	18,942,166	101,652	2,186,764,709	0.88%	0.87%
Total Large Cap	7,203,001,788	89,819,967	(29,898,348)	7,262,923,407	0.83%	1.25%
Total Domestic Equity	7,828,652,459	72,517,704	(29,898,348)	7,871,271,815	0.54%	0.93%
Global Equities						
Large Cap						
Arrow Street Capital	550,535,036	13,859,561	-	564,394,597	2.52%	2.52%
Baillie Gifford Overseas Limited	469,512,554	(1,210,600)	445,611	468,747,565	-0.16%	-0.26%
Brandes Investment Partners	586,917,874	16,684,633	(49,576,549)	554,025,958	-5.60%	2.97%
Cap Guardian Trust Co	512,444,810	4,567,869	(25,000,000)	492,012,679	-3.99%	0.91%
Legal & General	833,561,675	22,566,799	77,930	856,206,404	2.72%	2.71%
ARMB Int'l Residual Assets	2,677,697	197,563	-	2,875,260	7.38%	7.38%
SSgA MSCI World Ex-US IMI Index Fund	1,553,813,312	41,200,839	(50,000,000)	1,545,014,151	-0.57%	2.69%
Total Large Cap	4,509,462,958	97,866,664	(124,053,008)	4,483,276,614	-0.58%	2.20%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended April 30, 2023

Emerging Markets Equity						
MSCI Emerging Markets Index Fund	646,953,339	(7,323,483)	-	639,629,856	-1.13%	-1.13%
Legal & General Sci-Beta Emerging Markets	309,170,387	7,355,223	28,872	316,554,482	2.39%	2.38%
Total Emerging Markets	956,123,726	31,740	28,872	956,184,338	0.01%	0.00%
Total Global Equities	5,465,586,684	97,898,404	(124,024,136)	5,439,460,952	-0.48%	1.81%
Multi-Asset						
Alternative Equity Strategy						
Alternative Equity Strategies Transition Account	-	-	-	-	-	-
McKinley Global Health Care	312,320,152	4,830,494	-	317,150,646	1.55%	1.55%
Total Alternative Equity Strategy	312,320,152	4,830,494	-	317,150,646	1.55%	1.55%
Alternative Fixed Income						
Crestline Investors, Inc.	706,345,566	(7,908,705)	8,045,973	706,482,834	0.02%	-1.11%
Prisma Capital Partners	49,053,152	(283,995)	-	48,769,157	-0.58%	-0.58%
Crestline Specialty Lending Fund II	38,008,329	-	(699,717)	37,308,612	-1.84%	-
Crestline Specialty Lending Fund III	61,501,959	-	-	61,501,959	-	-
Total Alternative Fixed Income	854,909,006	(8,192,700)	7,346,256	854,062,562	-0.10%	-0.95%
Alternative Beta						
Man Group Alternative Risk Premia	294,406,949	(5,329,143)	-	289,077,806	-1.81%	-1.81%
Total Alternative Beta	294,406,949	(5,329,143)	-	289,077,806	-1.81%	-1.81%
Other Opportunities						
Schroders Insurance Linked Securities	139,918	3,184	-	143,102	2.28%	2.28%
Total Other Opportunities	139,918	3,184	-	143,102	2.28%	2.28%
Tactical Allocation Strategies						
Fidelity Signals	534,573,523	5,964,875	-	540,538,398	1.12%	1.12%
PineBridge	536,043,356	(3,209,652)	262,275	533,095,979	-0.55%	-0.60%
Total Tactical Allocation Strategies	1,070,616,879	2,755,223	262,275	1,073,634,377	0.28%	0.26%
Total Multi-Asset	2,532,392,904	(5,932,942)	7,608,531	2,534,068,493	0.07%	-0.23%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended April 30, 2023

Private Equity						
Abbott Capital	1,914,098,655	11,012,592	(1,593,229)	1,923,518,018	0.49%	0.58%
Advent International GPE Fund VIII-B	29,373,251	1,440,578	-	30,813,829	4.90%	4.90%
Advent International GPE Fund IX	38,502,378	(1,067,771)	-	37,434,607	-2.77%	-2.77%
Advent International GPE Fund X	3,452,479	181,340	4,000,000	7,633,819	121.11%	3.33%
Battery Ventures XIV	3,338,295	-	-	3,338,295	-	-
Clearlake Capital Partners VI	42,188,048	1,265,730	-	43,453,778	3.00%	3.00%
Clearlake Capital Partners VII	25,397,409	(235,121)	-	25,162,288	-0.93%	-0.93%
Dyal Capital Partners III	43,036,826	-	-	43,036,826	-	-
Dyal Capital Partners IV	28,588,326	-	-	28,588,326	-	-
Genstar X	14,581,863	180,807	1,744,116	16,506,786	13.20%	1.17%
Glendon Opportunities	8,700,237	-	-	8,700,237	-	-
Glendon Opportunities II	83,743,995	-	-	83,743,995	-	-
Glendon Opportunities III	-	-	2,000,000	2,000,000	100.00%	-
Insight XII	22,680,966	-	-	22,680,966	-	-
KKR Lending Partners II	6,404,172	-	-	6,404,172	-	-
Lexington Capital Partners VIII	30,635,480	-	(217,110)	30,418,370	-0.71%	-
Lexington Partners VII	9,444,882	-	(264,387)	9,180,495	-2.80%	-
Merit Capital Partners	4,035,375	(96,173)	-	3,939,202	-2.38%	-2.38%
NB SOF III	11,773,108	-	-	11,773,108	-	-
NB SOF IV	34,378,431	-	-	34,378,431	-	-
Neuberger Berman Secondary Opportunities Fund V	19,770,436	-	-	19,770,436	-	-
New Mountain Partners IV	8,393,842	-	-	8,393,842	-	-
New Mountain Partners V	56,760,822	-	-	56,760,822	-	-
New Mountain Partners VI	33,541,933	-	-	33,541,933	-	-
NGP XI	38,074,184	-	(392,807)	37,681,377	-1.03%	-
NGP XII	30,397,155	-	-	30,397,155	-	-
Onex Partnership III	4,159,580	-	-	4,159,580	-	-
Pathway Capital Management LLC	1,973,037,764	9,586,482	(529,034)	1,982,095,212	0.46%	0.49%
Resolute Fund III	9,352,271	-	-	9,352,271	-	-
Resolute Fund IV	74,866,983	-	-	74,866,983	-	-
Resolute Fund V	63,448,300	-	-	63,448,300	-	-
Riverside Micro-Cap Fund VI	6,780,619	-	-	6,780,619	-	-
Summit Partners GE IX	60,291,029	(1,277,768)	308,000	59,321,261	-1.61%	-2.11%
Summit Partners GE X	33,176,346	-	-	33,176,346	-	-
Summit XI	9,400,453	-	488,411	9,888,864	5.20%	-
Warburg Pincus Global Growth Fund	46,633,375	-	-	46,633,375	-	-
Warburg Pincus X	548,918	-	-	548,918	-	-
Warburg Pincus XI	11,374,586	-	-	11,374,586	-	-
Warburg Pincus XII	65,375,127	-	-	65,375,127	-	-
Total Private Equity	4,899,737,899	20,990,696	5,543,960	4,926,272,555	0.54%	0.43%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended April 30, 2023

Real Assets						
Farmland						
UBS Farmland Investors LLC	982,362,463	-	-	982,362,463	-	-
Total Farmland	982,362,463	-	-	982,362,463	-	-
Timber						
Timberland Invt Resource LLC	380,457,823	-	(8,800,000)	371,657,823	-2.31%	-
Total Timber	380,457,823	-	(8,800,000)	371,657,823	-2.31%	-
Energy						
EIG Energy Fund XIV-A	3,654,271	(3,820)	-	3,650,451	-0.10%	-0.10%
EIG Energy Fund XV	6,519,343	(472,990)	-	6,046,353	-7.26%	-7.26%
EIG Energy Fund XVI	48,204,557	(1,440,742)	-	46,763,815	-2.99%	-2.99%
Total Energy	58,378,171	(1,917,552)	-	56,460,619	-3.28%	-3.28%
REIT						
REIT Transition Account	-	-	-	-	-	-
ARMB REIT	477,392,098	1,432,274	18,550	478,842,922	0.30%	0.30%
Total REIT	477,392,098	1,432,274	18,550	478,842,922	0.30%	0.30%
Infrastructure Private						
IFM Global Infrastructure Fund-Private	675,425,571	13,601,655	-	689,027,226	2.01%	2.01%
JP Morgan Infrastructure Fund-Private	153,104,357	-	-	153,104,357	-	-
Total Infrastructure Private	828,529,928	13,601,655	-	842,131,583	1.64%	1.64%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended April 30, 2023

Real Estate						
Core Commingled Accounts						
BlackRock US Core Property Fund	419,252,382	(4,235,091)	(4,026,220)	410,991,071	-1.97%	-1.02%
JP Morgan	178,984,719	(2,392,537)	(988,212)	175,603,970	-1.89%	-1.34%
UBS Trumbull Property Fund	36,793,642	1	(232,173)	36,561,470	-0.63%	0.00%
Total Core Commingled	635,030,743	(6,627,627)	(5,246,605)	623,156,511	-1.87%	-1.05%
Core Separate Accounts						
Sentinel Separate Account	301,439,294	-	(922,161)	300,517,133	-0.31%	-
UBS Realty	759,906,552	(18,198,336)	(2,170,073)	739,538,143	-2.68%	-2.40%
Total Core Separate	1,061,345,846	(18,198,336)	(3,092,234)	1,040,055,276	-2.01%	-1.72%
Non-Core Commingled Accounts						
Almanac Realty Securities V	46,026	-	-	46,026	-	-
Almanac Realty Securities VII	28,599,268	1,461,845	142,464	30,203,577	5.61%	5.10%
Almanac Realty Securities VIII	28,814,454	827,915	845,181	30,487,550	5.81%	2.83%
Almanac Realty Securities IX	5,923,458	151,031	-	6,074,489	2.55%	2.55%
Clarion Ventures 4	6,738,898	-	-	6,738,898	-	-
Colony Investors VIII, L.P.	1,953	(1,953)	-	-	-100.00%	-100.00%
ING Clarion Development Ventures III	595,787	-	-	595,787	-	-
KKR Real Estate Partners Americas L.P.	3,349,679	-	-	3,349,679	-	-
KKR Real Estate Partners Americas II	7,685,917	-	-	7,685,917	-	-
KKR Real Estate Partners Americas III	27,631,626	-	-	27,631,626	-	-
Silverpeak Legacy Pension Partners II, L.P.	838,913	20,573	-	859,486	2.45%	2.45%
Silverpeak Legacy Pension Partners III, L.P.	1,104,784	21,449	-	1,126,233	1.94%	1.94%
Tishman Speyer Real Estate Venture VI	5,723	-	-	5,723	-	-
Tishman Speyer Real Estate Venture VII	143,851	23,826	(159,557)	8,120	-94.36%	37.19%
Total Non-Core Commingled	111,480,337	2,504,686	828,088	114,813,111	2.99%	2.24%
Total Real Estate	1,807,856,926	(22,321,277)	(7,510,751)	1,778,024,898	-1.65%	-1.24%
Total Real Assets	4,534,977,409	(9,204,900)	(16,292,201)	4,509,480,308	-0.56%	-0.20%
Total Assets	$ 30,962,816,001	$ 208,640,686	$ (114,918,075)	$ 31,056,538,612	0.30%	0.68%

ALASKA RETIREMENT MANAGEMENT BOARD

Reporting of Funds by Manager

Participant Directed Plans

Supplemental Annuity Plan
Schedule of Investment Income and Changes in Invested Assets
for the Month Ended
April 30, 2023

	Beginning Invested Assets	Investment Income	Net Contributions (Withdrawals)	Transfers In (Out)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income (1)
Participant Options							
T. Rowe Price							
Stable Value Fund	$ 514,205,915	$ 886,101	$ (4,115,024)	$ 94,412	$ 511,071,404	-0.61%	0.17%
Small Cap Stock Fund	194,083,578	(1,698,265)	(461,573)	1,539,187	193,462,927	-0.32%	-0.87%
Alaska Balanced Trust	1,025,799,289	9,199,041	(3,542,369)	(1,568,471)	1,029,887,490	0.40%	0.90%
Long Term Balanced Fund	742,384,474	7,697,588	(860,557)	(1,008,660)	748,212,845	0.79%	1.04%
AK Target Date 2010 Trust	8,864,559	74,067	(32,913)	(131,425)	8,774,288	-1.02%	0.84%
AK Target Date 2015 Trust	65,410,351	567,907	(151,014)	172,896	66,000,140	0.90%	0.87%
AK Target Date 2020 Trust	74,823,815	722,389	(429,905)	14,587	75,130,886	0.41%	0.97%
AK Target Date 2025 Trust	104,725,929	1,055,370	32,385	(401,623)	105,412,061	0.66%	1.01%
AK Target Date 2030 Trust	97,062,154	1,054,483	447,695	796,051	99,360,383	2.37%	1.08%
AK Target Date 2035 Trust	99,304,647	1,142,196	461,620	(42,988)	100,865,475	1.57%	1.15%
AK Target Date 2040 Trust	93,314,726	1,122,071	(39,520)	(73,392)	94,323,885	1.08%	1.20%
AK Target Date 2045 Trust	114,357,161	1,405,536	700,974	(177,349)	116,286,322	1.69%	1.23%
AK Target Date 2050 Trust	128,315,641	1,603,746	820,810	(341,389)	130,398,808	1.62%	1.25%
AK Target Date 2055 Trust	136,870,679	1,685,952	1,038,602	(227,830)	139,367,403	1.82%	1.23%
AK Target Date 2060 Trust	14,372,133	176,428	501,549	(19,156)	15,030,954	4.58%	1.21%
AK Target Date 2065 Trust	7,393,930	93,883	307,303	30,855	7,825,971	5.84%	1.24%
Total Investments with T. Rowe Price	3,421,288,981	26,788,493	(5,321,937)	(1,344,295)	3,441,411,242		
JP Morgan							
JPMorgan SmartRetirement Blend 2015 R6	981,195	7,694	884	782	990,555	0.95%	0.78%
JPMorgan SmartRetirement Blend 2020 R6	241,651	2,334	2,123	80,540	326,648	35.17%	0.82%
Total Investments with JP Morgan	1,222,846	10,028	3,007	81,322	1,317,203		
State Street Global Advisors							
Money Market	67,725,898	259,706	(792,164)	1,621,847	68,815,287	1.61%	0.38%
S&P 500 Stock Index	499,200,562	7,708,615	(1,829,415)	(5,092,292)	499,987,470	0.16%	1.55%
Russell 3000 Index	131,730,037	1,422,542	(463,563)	821,410	133,510,426	1.35%	1.08%
World Equity Ex-US Index	98,819,430	1,845,158	(46,270)	1,522,492	102,140,810	3.36%	1.85%
Total Investments with SSgA	797,475,927	11,236,021	(3,131,412)	(1,126,543)	804,453,993		
BlackRock							
Passive U.S. Bond Index Fund	152,924,378	934,960	(396,030)	2,069,692	155,533,000	1.71%	0.61%
Strategic Completion Fund	35,024,506	215,494	(54,683)	(488,066)	34,697,251	-0.93%	0.62%
Total Investments with BlackRock	187,948,884	1,150,454	(450,713)	1,581,626	190,230,251		
Brandes and Baillie Gifford							
AK International Equity Fund	87,273,910	1,038,917	(15,269)	610,801	88,908,359	1.87%	1.19%
Northern Trust							
Environmental, Social, and Governance Fund	106,830,959	1,073,441	(371,244)	197,089	107,730,245	0.84%	1.01%
Total All Funds	$ 4,602,041,507	$ 41,297,354	$ (9,287,568)	$ -	$ 4,634,051,293	0.70%	0.90%

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

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

Supplemental Annuity Plan
Schedule of Invested Assets with
Schedule of Investment Income and Changes in Invested Assets
By Month Through the Month Ended
April 30, 2023
$ (Thousands)

Invested Assets (at fair value)	**July**	**August**	**September**	**October**	**November**	**December**	**January**	**February**	**March**	**April**
Investments with T. Rowe Price										
Stable Value Fund	$ 509,583	$ 504,379	$ 512,328	$ 514,522	$ 510,791	$ 512,249	$ 510,639	$ 511,448	$ 514,206	$ 511,071
Small Cap Stock Fund	216,753	208,685	182,471	195,362	199,944	187,905	204,031	199,246	194,084	193,463
Alaska Balanced Trust	1,077,406	1,041,557	974,482	987,213	1,025,714	997,667	1,037,372	1,011,656	1,025,799	1,029,887
Long Term Balanced Fund	713,482	699,059	657,900	682,311	726,679	710,810	747,891	727,881	742,384	748,213
AK Target Date 2010 Trust	9,357	9,115	8,504	8,512	8,847	8,468	8,786	8,649	8,865	8,774
AK Target Date 2015 Trust	69,270	66,830	62,454	63,960	66,050	64,150	66,643	64,721	65,410	66,000
AK Target Date 2020 Trust	80,500	77,795	72,594	74,352	75,895	73,775	76,551	73,909	74,824	75,131
AK Target Date 2025 Trust	106,102	102,253	93,924	96,841	101,626	98,629	105,131	102,479	104,726	105,412
AK Target Date 2030 Trust	94,843	91,702	84,775	88,754	94,302	90,950	96,038	94,164	97,062	99,360
AK Target Date 2035 Trust	95,021	92,135	84,686	88,941	95,933	93,197	98,859	96,637	99,305	100,865
AK Target Date 2040 Trust	88,843	86,072	79,255	83,539	89,383	86,409	92,697	90,526	93,315	94,324
AK Target Date 2045 Trust	108,544	105,290	96,837	102,783	110,707	106,829	114,053	110,818	114,357	116,286
AK Target Date 2050 Trust	119,748	115,724	106,590	113,539	122,646	118,235	126,772	124,149	128,316	130,399
AK Target Date 2055 Trust	126,547	122,690	112,867	120,565	130,205	126,261	135,807	132,452	136,871	139,367
AK Target Date 2060 Trust	10,529	10,564	10,003	11,004	12,235	12,336	13,579	13,612	14,372	15,031
AK Target Date 2065 Trust	5,127	5,177	4,906	5,542	5,888	5,949	6,622	6,987	7,394	7,826
Investments with JP Morgan										
JPMorgan SmartRetirement Blend 2015 R6	960	937	887	907	953	936	982	962	981	991
JPMorgan SmartRetirement Blend 2020 R6	141	118	112	197	235	212	224	235	242	327
Investments with State Street Global Advisors										
Money Market	70,250	68,317	68,835	68,289	67,995	68,276	68,432	68,485	67,726	68,815
S&P 500 Stock Index	478,856	471,613	435,711	472,328	501,085	472,052	501,562	486,757	499,201	499,987
Russell 3000 Index	142,583	128,979	105,595	110,879	124,182	122,912	131,480	127,928	131,730	133,510
World Equity Ex-US Index	79,348	85,820	82,780	87,619	93,649	87,980	94,296	92,538	98,819	102,141
Investments with BlackRock										
Passive U.S. Bond Index Fund	142,459	139,488	142,949	143,766	148,872	146,141	151,420	149,762	152,924	155,533
Strategic Completion Fund	39,351	37,780	33,898	33,948	35,965	35,536	36,449	35,513	35,025	34,697
Investments with Brandes and Baillie Gifford										
AK International Equity Fund	97,564	85,972	69,982	71,719	81,670	81,901	90,062	84,968	87,274	88,908
Investments with Northern Trust										
Environmental, Social, and Governance Fund	143,617	129,320	110,137	115,750	114,110	99,806	104,794	101,672	106,831	107,730
Total Invested Assets	**$ 4,626,785**	**$ 4,487,371**	**$ 4,195,460**	**$ 4,343,141**	**$ 4,545,563**	**$ 4,409,572**	**$ 4,621,171**	**$ 4,518,154**	**$ 4,602,042**	**$ 4,634,051**
Change in Invested Assets										
Beginning Assets	$ 4,412,831	$ 4,626,785	$ 4,487,371	$ 4,195,460	$ 4,343,141	$ 4,545,563	$ 4,409,572	$ 4,621,171	$ 4,518,154	$ 4,602,042
Investment Earnings	217,056	(127,697)	(285,727)	153,684	209,714	(134,628)	227,646	(98,354)	90,676	41,297
Net Contributions (Withdrawals)	(3,102)	(11,717)	(6,184)	(6,003)	(7,291)	(1,363)	(16,047)	(4,663)	(6,788)	(9,288)
Ending Invested Assets	**$ 4,626,785**	**$ 4,487,371**	**$ 4,195,460**	**$ 4,343,141**	**$ 4,545,563**	**$ 4,409,572**	**$ 4,621,171**	**$ 4,518,154**	**$ 4,602,042**	**$ 4,634,051**

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

Deferred Compensation Plan
Schedule of Invested Assets and Changes in Invested Assets
for the Month Ended
April 30, 2023

	Beginning Invested Assets	Investment Income	Net Contributions (Withdrawals)	Transfers In (Out)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income (1)
Participant Options							
T. Rowe Price							
Stable Value Fund	$ 201,824,369	$ 347,578	$ (1,100,662)	$ 40,774	$ 201,112,059	-0.35%	0.17%
Small Cap Stock Fund	109,792,282	(958,788)	(217,376)	(654,350)	107,961,768	-1.67%	-0.88%
Alaska Balanced Trust	39,148,367	353,090	(98,266)	455,201	39,858,392	1.81%	0.90%
Long Term Balanced Fund	95,803,606	989,534	(80,222)	(449,226)	96,263,692	0.48%	1.04%
AK Target Date 2010 Trust	2,712,380	22,911	(5,151)	(2,995)	2,727,145	0.54%	0.85%
AK Target Date 2015 Trust	8,360,922	72,047	(33,407)	(69,788)	8,329,774	-0.37%	0.87%
AK Target Date 2020 Trust	20,193,210	195,310	(47,756)	39,636	20,380,400	0.93%	0.97%
AK Target Date 2025 Trust	27,523,967	279,008	70,585	101,862	27,975,422	1.64%	1.01%
AK Target Date 2030 Trust	18,617,209	200,052	94,805	(128,878)	18,783,188	0.89%	1.08%
AK Target Date 2035 Trust	15,556,998	178,789	135,619	24,822	15,896,228	2.18%	1.14%
AK Target Date 2040 Trust	13,781,317	165,586	126,911	(9,601)	14,064,213	2.05%	1.20%
AK Target Date 2045 Trust	10,832,226	132,559	113,791	(94,273)	10,984,303	1.40%	1.22%
AK Target Date 2050 Trust	9,568,639	119,520	119,524	(1,841)	9,805,842	2.48%	1.24%
AK Target Date 2055 Trust	7,244,389	89,334	101,276	(56,762)	7,378,237	1.85%	1.23%
AK Target Date 2060 Trust	1,752,985	21,951	27,162	39,979	1,842,077	5.08%	1.23%
AK Target Date 2065 Trust	758,170	9,299	15,770	(36,958)	746,281	-1.57%	1.24%
Total Investments with T. Rowe Price	583,471,036	2,217,780	(777,397)	(802,398)	584,109,021		
JP Morgan							
JPMorgan SmartRetirement Blend 2015 R6	113,522	872	(298)	(1,637)	112,459	-0.94%	0.77%
JPMorgan SmartRetirement Blend 2020 R6	107,805	953	2,173	18,535	129,466	20.09%	0.81%
Total Investments with JP Morgan	221,327	1,825	1,875	16,898	241,925		
State Street Global Advisors							
Money Market	20,811,699	79,750	(933,899)	1,318,049	21,275,599	2.23%	0.38%
S&P 500 Stock Index	251,641,623	3,895,708	(97,693)	(2,626,035)	252,813,603	0.47%	1.56%
Russell 3000 Index	49,632,689	535,286	(125,554)	359,293	50,401,714	1.55%	1.08%
World Equity Ex-US Index	30,369,406	567,280	14,865	751,132	31,702,683	4.39%	1.84%
Total Investments with SSgA	352,455,417	5,078,024	(1,142,281)	(197,561)	356,193,599		
BlackRock							
Passive U.S. Bond Index Fund	66,384,430	402,493	(28,432)	526,214	67,284,705	1.36%	0.60%
Strategic Completion Fund	14,095,774	86,141	11,202	(398,271)	13,794,846	-2.13%	0.62%
Total Investments with BlackRock	80,480,204	488,634	(17,230)	127,943	81,079,551		
Brandes and Baillie Gifford							
AK International Equity Fund	37,644,511	446,967	37,953	156,696	38,286,127	1.70%	1.18%
Northern Trust							
Environmental, Social, and Governance Fund	38,708,381	392,521	(127,828)	698,422	39,671,496	2.49%	1.01%
Total All Funds	$ 1,092,980,876	$ 8,625,751	$ (2,024,908)	$ -	$ 1,099,581,719	0.60%	0.79%

Notes: Source data provided by the record keeper, Empower Retirement.
(1) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates.

Deferred Compensation Plan
Schedule of Invested Assets with
Schedule of Investment Income and Changes in Invested Assets
By Month Through the Month Ended
April 30, 2023
$ (Thousands)

Invested Assets (at fair value)	July	August	September	October	November	December	January	February	March	April
Investments with T. Rowe Price										
Stable Value Fund	$ 204,728	$ 204,568	$ 206,036	$ 205,294	$ 204,521	$ 204,128	$ 202,334	$ 201,261	$ 201,824	$ 201,112
Small Cap Stock Fund	120,486	116,930	104,772	113,257	114,721	107,640	116,883	114,243	109,792	107,962
Alaska Balanced Trust	43,306	40,397	37,135	37,495	39,064	37,583	39,060	38,397	39,148	39,858
Long Term Balanced Fund	87,367	86,805	82,151	86,057	92,389	91,164	96,427	94,064	95,804	96,264
AK Target Date 2010 Trust	3,107	3,040	2,798	2,662	2,771	2,242	2,720	2,660	2,712	2,727
AK Target Date 2015 Trust	9,156	8,822	8,459	8,545	8,750	8,145	8,255	8,185	8,361	8,330
AK Target Date 2020 Trust	22,182	20,681	19,395	19,743	20,195	19,226	19,826	19,324	20,193	20,380
AK Target Date 2025 Trust	27,723	26,538	24,476	25,519	26,962	26,273	27,906	26,904	27,524	27,975
AK Target Date 2030 Trust	18,443	18,011	16,490	17,131	18,212	17,596	18,397	18,084	18,617	18,783
AK Target Date 2035 Trust	13,986	13,551	12,461	13,285	14,691	14,239	15,233	15,084	15,557	15,896
AK Target Date 2040 Trust	12,917	12,457	11,456	12,202	13,111	12,637	13,567	13,301	13,781	14,064
AK Target Date 2045 Trust	10,058	9,779	8,845	9,489	10,403	9,957	10,678	10,467	10,832	10,984
AK Target Date 2050 Trust	8,162	7,973	7,412	8,021	8,764	8,498	9,161	9,116	9,569	9,806
AK Target Date 2055 Trust	6,577	6,377	5,827	6,325	6,867	6,638	7,094	6,961	7,244	7,378
AK Target Date 2060 Trust	1,519	1,489	1,361	1,475	1,607	1,562	1,716	1,695	1,753	1,842
AK Target Date 2065 Trust	846	830	656	588	642	628	683	713	758	746
Investments with JP Morgan										
JPMorgan SmartRetirement Blend 2015 R6	7	7	6	6	7	7	105	103	114	112
JPMorgan SmartRetirement Blend 2020 R6	90	92	84	100	109	88	117	119	108	129
Investments with State Street Global Advisors										
Money Market	20,594	20,518	20,575	21,176	20,874	20,599	20,401	20,502	20,812	21,276
S&P 500 Stock Index	251,530	242,416	219,620	238,455	252,301	237,353	251,533	244,540	251,642	252,814
Russell 3000 Index	52,553	48,501	40,817	43,559	47,356	46,581	49,904	48,728	49,633	50,402
World Equity Ex-US Index	25,143	26,539	25,349	26,736	28,932	27,556	29,493	28,672	30,369	31,703
Investments with BlackRock										
Passive U.S. Bond Index Fund	64,888	63,658	63,759	63,960	65,905	64,787	66,493	65,752	66,384	67,285
Strategic Completion Fund	16,018	15,395	13,748	13,939	14,674	14,275	14,849	14,234	14,096	13,795
Investments with Brandes and Baillie Gifford										
AK International Equity Fund	38,664	35,180	29,625	30,584	34,769	34,915	38,540	36,770	37,645	38,286
Investments with Northern Trust										
Environmental, Social, and Governance Fund	48,847	44,859	38,650	40,833	41,074	36,274	38,262	37,264	38,708	39,671
Total Invested Assets	**$ 1,108,897**	**$ 1,075,411**	**$ 1,001,966**	**$ 1,046,436**	**$ 1,089,672**	**$ 1,050,591**	**$ 1,099,637**	**$ 1,077,145**	**$ 1,092,981**	**$ 1,099,582**
Change in Invested Assets										
Beginning Assets	$ 1,052,310	$ 1,108,897	$ 1,075,411	$ 1,001,966	$ 1,046,436	$ 1,089,672	$ 1,050,591	$ 1,099,637	$ 1,077,145	$ 1,092,981
Investment Earnings	57,738	(30,723)	(68,004)	43,838	45,813	(35,994)	54,696	(21,058)	17,505	8,626
Net Contributions (Withdrawals)	(1,151)	(2,763)	(5,442)	632	(2,577)	(3,087)	(5,650)	(1,435)	(1,669)	(2,025)
Ending Invested Assets	**$ 1,108,897**	**$ 1,075,411**	**$ 1,001,966**	**$ 1,046,436**	**$ 1,089,672**	**$ 1,050,591**	**$ 1,099,637**	**$ 1,077,145**	**$ 1,092,981**	**$ 1,099,582**

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

Defined Contribution Retirement - Participant Directed PERS
Schedule of Investment Income and Changes in Invested Assets
for the Month Ended
April 30, 2023

Participant Options	Beginning Invested Assets	Investment Income	Net Contributions (Withdrawals)	Transfers In (Out)	Ending Invested Assets	% Change in Invested Assets	% Change due to Investment Income (1)
T. Rowe Price							
Stable Value Fund	$ 141,150,864	$ 244,181	$ 120,983	$ 443,552	$ 141,959,580	0.57%	0.17%
Small Cap Stock Fund	82,666,473	(716,115)	304,936	1,154,567	83,409,861	0.90%	-0.86%
Alaska Balanced Trust	45,515,035	410,756	48,586	167,033	46,141,410	1.38%	0.90%
Long Term Balanced Fund	65,067,662	676,904	51,140	(23,346)	65,772,360	1.08%	1.04%
AK Target Date 2010 Trust	2,974,724	25,129	(7,782)	-	2,992,071	0.58%	0.85%
AK Target Date 2015 Trust	10,632,223	91,933	(331)	(97,182)	10,626,643	-0.05%	0.87%
AK Target Date 2020 Trust	38,252,104	368,709	(408,266)	(18,599)	38,193,948	-0.15%	0.97%
AK Target Date 2025 Trust	81,284,149	823,812	516,241	(273,133)	82,351,069	1.31%	1.01%
AK Target Date 2030 Trust	96,467,317	1,047,615	700,267	(200,845)	98,014,354	1.60%	1.08%
AK Target Date 2035 Trust	124,365,820	1,435,087	581,367	(86)	126,382,188	1.62%	1.15%
AK Target Date 2040 Trust	144,477,264	1,743,374	702,138	(46,477)	146,876,299	1.66%	1.20%
AK Target Date 2045 Trust	193,792,003	2,387,008	1,349,363	(248,324)	197,280,050	1.80%	1.23%
AK Target Date 2050 Trust	232,728,109	2,920,594	1,908,850	(290,316)	237,267,237	1.95%	1.25%
AK Target Date 2055 Trust	256,163,782	3,163,649	2,513,712	(717,466)	261,123,677	1.94%	1.23%
AK Target Date 2060 Trust	21,268,665	263,114	928,555	(87,699)	22,372,635	5.19%	1.21%
AK Target Date 2065 Trust	12,524,948	160,624	598,958	10,101	13,294,631	6.15%	1.25%
Total Investments with T. Rowe Price	1,549,331,142	15,046,374	9,908,717	(228,220)	1,574,058,013		
JP Morgan							
JPMorgan SmartRetirement Blend 2015 R6	7,938	65	429	(1)	8,431	6.21%	0.80%
JPMorgan SmartRetirement Blend 2020 R6	54,028	439	901	-	55,368	2.48%	0.81%
Total Investments with JP Morgan	61,966	504	1,330	(1)	63,799		
State Street Global Advisors							
Money Market	20,827,801	79,572	(207,638)	411,855	21,111,590	1.36%	0.38%
S&P 500 Stock Index	115,575,103	1,804,480	491,084	(713,280)	117,157,387	1.37%	1.56%
Russell 3000 Index	67,619,741	736,308	331,797	364,408	69,052,254	2.12%	1.08%
World Equity Ex-US Index	73,138,754	1,364,430	234,170	722,986	75,460,340	3.17%	1.85%
Total Investments with SSgA	277,161,399	3,984,790	849,413	785,969	282,781,571		
BlackRock							
Passive U.S. Bond Index Fund	80,339,375	488,555	35,142	(230,148)	80,632,924	0.37%	0.61%
Strategic Completion Fund	9,833,064	61,526	45,624	(5,307)	9,934,907	1.04%	0.62%
Total Investments with BlackRock	90,172,439	550,081	80,766	(235,455)	90,567,831		
Brandes and Baillie Gifford							
AK International Equity Fund	49,687,990	592,448	173,867	(578,833)	49,875,472	0.38%	1.20%
Northern Trust							
Environmental, Social, and Governance Fund	36,998,537	376,446	102,428	256,540	37,733,951	1.99%	1.01%
Total All Funds	$ 2,003,413,473	$ 20,550,643	$ 11,116,521	$ -	$ 2,035,080,637	1.58%	1.02%

Notes: Source data provided by the record keeper, Empower Retirement.
(1) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates.

Defined Contribution Retirement - Participant Directed PERS
Schedule of Invested Assets with
Schedule of Investment Income and Changes in Invested Assets
By Month Through the Month Ended
April 30, 2023
$ (Thousands)

Invested Assets (at fair value)	July	August	September	October	November	December	January	February	March	April
Investments with T. Rowe Price										
Stable Value Fund	$ 116,967	$ 115,093	$ 128,475	$ 132,295	$ 135,607	$ 136,095	$ 138,770	$ 141,767	$ 141,151	$ 141,960
Small Cap Stock Fund	100,573	96,648	78,633	81,853	83,008	78,901	86,444	84,045	82,666	83,410
Alaska Balanced Trust	52,462	48,824	45,502	45,638	45,426	41,876	44,194	44,131	45,515	46,141
Long Term Balanced Fund	36,697	40,771	45,768	50,021	58,070	60,259	64,591	63,589	65,068	65,772
AK Target Date 2010 Trust	2,967	2,900	2,763	2,789	2,883	2,821	2,963	2,911	2,975	2,992
AK Target Date 2015 Trust	11,309	10,922	10,154	10,313	10,698	10,427	10,747	10,435	10,632	10,627
AK Target Date 2020 Trust	40,687	39,224	36,233	36,973	38,431	37,394	38,911	37,290	38,252	38,194
AK Target Date 2025 Trust	80,473	77,812	72,154	74,877	78,641	76,420	81,472	79,618	81,284	82,351
AK Target Date 2030 Trust	93,945	91,404	84,768	88,276	93,252	90,355	95,858	93,567	96,467	98,014
AK Target Date 2035 Trust	118,370	114,833	105,761	111,329	118,613	114,722	122,839	119,950	124,366	126,382
AK Target Date 2040 Trust	140,376	135,488	124,746	131,498	139,318	134,558	144,012	140,795	144,477	146,876
AK Target Date 2045 Trust	183,395	177,707	163,436	173,615	185,831	179,159	192,830	187,907	193,792	197,280
AK Target Date 2050 Trust	217,574	210,643	193,381	205,856	222,335	213,939	230,692	225,759	232,728	237,267
AK Target Date 2055 Trust	235,982	228,742	210,659	225,122	242,950	234,687	253,235	247,814	256,164	261,124
AK Target Date 2060 Trust	13,814	13,943	13,475	15,140	17,074	17,207	19,466	19,689	21,269	22,373
AK Target Date 2065 Trust	7,664	7,813	7,586	8,444	9,698	9,874	11,291	11,492	12,525	13,295
Investments with JP Morgan										
JPMorgan SmartRetirement Blend 2015 R6	5	5	5	5	6	5	7	7	8	8
JPMorgan SmartRetirement Blend 2020 R6	45	47	70	44	47	49	52	52	54	55
State Street Global Advisors										
Money Market	17,090	17,477	19,526	20,181	19,524	20,046	20,311	20,567	20,828	21,112
S&P 500 Stock Index	89,480	94,854	92,341	102,453	112,334	109,534	117,879	112,883	115,575	117,157
Russell 3000 Index	79,923	70,080	51,027	50,821	58,912	61,696	66,574	64,902	67,620	69,052
World Equity Ex-US Index	62,442	68,540	62,361	65,388	69,349	65,240	69,386	68,459	73,139	75,460
Investments with BlackRock										
Passive U.S. Bond Index Fund	59,044	58,209	71,596	76,583	78,419	74,722	78,644	78,754	80,339	80,633
Strategic Completion Fund	5,972	5,095	4,670	4,780	7,474	9,533	10,184	9,836	9,833	9,935
Investments with Brandes and Baillie Gifford										
AK International Equity Fund	75,867	67,102	48,584	47,509	51,200	49,926	54,058	49,457	49,688	49,875
Investments with Northern Trust										
Environmental, Social, and Governance Fund	65,829	58,269	45,940	46,769	41,847	32,748	34,636	34,560	36,999	37,734
Total Invested Assets	**$ 1,908,952**	**$ 1,852,442**	**$ 1,719,613**	**$ 1,808,570**	**$ 1,920,944**	**$ 1,862,193**	**$ 1,990,047**	**$ 1,950,233**	**$ 2,003,413**	**$ 2,035,081**
Change in Invested Assets										
Beginning Assets	$ 1,797,125	$ 1,908,952	$ 1,852,442	$ 1,719,613	$ 1,808,570	$ 1,920,944	$ 1,862,193	$ 1,990,047	$ 1,950,233	$ 2,003,413
Investment Earnings	106,297	(61,483)	(140,884)	81,703	109,123	(68,434)	114,750	(47,834)	42,437	20,551
Net Contributions (Withdrawals)	5,531	4,973	8,054	7,254	3,252	9,683	13,104	8,020	10,743	11,117
Ending Invested Assets	**$ 1,908,952**	**$ 1,852,442**	**$ 1,719,613**	**$ 1,808,570**	**$ 1,920,944**	**$ 1,862,193**	**$ 1,990,047**	**$ 1,950,233**	**$ 2,003,413**	**$ 2,035,081**

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

Defined Contribution Retirement - Participant Directed TRS
Schedule of Investment Income and Changes in Invested Assets
for the Month Ended
April 30, 2023

Participant Options	**Beginning Invested Assets**	**Investment Income**	**Net Contributions (Withdrawals)**	**Transfers In (Out)**	**Ending Invested Assets**	**% Change in Invested Assets**	**% Change due to Investment Income (1)**
T. Rowe Price							
Stable Value Fund	$ 53,343,250	$ 92,297	$ 5,971	$ 161,254	$ 53,602,772	0.49%	0.17%
Small Cap Stock Fund	33,955,878	(295,020)	50,543	395,568	34,106,969	0.44%	-0.86%
Alaska Balanced Trust	19,078,043	172,360	3,439	144,278	19,398,120	1.68%	0.90%
Long Term Balanced Fund	29,259,691	304,089	(12,123)	25,130	29,576,787	1.08%	1.04%
AK Target Date 2010 Trust	1,006,294	9,666	6,480	292,569	1,315,009	30.68%	0.84%
AK Target Date 2015 Trust	3,649,225	30,953	(11,742)	(143,950)	3,524,486	-3.42%	0.87%
AK Target Date 2020 Trust	11,408,822	109,272	(154,628)	-	11,363,466	-0.40%	0.96%
AK Target Date 2025 Trust	25,377,686	256,758	(117,559)	(86,951)	25,429,934	0.21%	1.02%
AK Target Date 2030 Trust	37,545,133	405,715	264,492	(292,570)	37,922,770	1.01%	1.08%
AK Target Date 2035 Trust	52,518,217	605,891	297,135	-	53,421,243	1.72%	1.15%
AK Target Date 2040 Trust	65,384,954	787,486	308,077	-	66,480,517	1.68%	1.20%
AK Target Date 2045 Trust	93,306,571	1,148,457	694,067	(144,612)	95,004,483	1.82%	1.23%
AK Target Date 2050 Trust	128,915,835	1,616,423	771,366	(38,504)	131,265,120	1.82%	1.25%
AK Target Date 2055 Trust	89,134,314	1,102,311	857,426	(117,457)	90,976,594	2.07%	1.23%
AK Target Date 2060 Trust	7,118,391	89,107	319,340	-	7,526,838	5.74%	1.22%
AK Target Date 2065 Trust	1,787,816	23,270	118,355	-	1,929,441	7.92%	1.26%
Total Investments with T. Rowe Price	652,790,120	6,459,035	3,400,639	194,755	662,844,549		
State Street Global Advisors							
Money Market	6,368,575	24,377	24,660	31,758	6,449,370	1.27%	0.38%
S&P 500 Stock Index	36,719,147	572,152	144,709	(318,903)	37,117,105	1.08%	1.56%
Russell 3000 Index	27,557,184	297,921	49,543	21,531	27,926,179	1.34%	1.08%
World Equity Ex-US Index	32,446,341	604,116	22,136	265,116	33,337,709	2.75%	1.85%
Total Investments with SSgA	103,091,247	1,498,566	241,048	(498)	104,830,363		
BlackRock							
Passive U.S. Bond Index Fund	27,478,974	167,291	(18,319)	150,702	27,778,648	1.09%	0.61%
Strategic Completion Fund	3,996,211	24,991	5,421	6,248	4,032,871	0.92%	0.62%
Total Investments with BlackRock	31,475,185	192,282	(12,898)	156,950	31,811,519		
Brandes and Baillie Gifford							
AK International Equity Fund	21,787,014	258,942	25,082.00	(496,641)	21,574,397	-0.98%	1.20%
Northern Trust							
Environmental, Social, and Governance Fund	14,878,442	151,593	24,033.00	145,434	15,199,502	2.16%	1.01%
Total All Funds	$ 824,022,008	$ 8,560,418	$ 3,677,904	$ -	$ 836,260,330	1.49%	1.04%

Notes: Source data provided by the record keeper, Empower Retirement.
(1) Income divided by beginning assets plus half of net contributions/(withdrawals). Actual returns are calculated by Callan and Associates.

Defined Contribution Retirement - Participant Directed TRS
Schedule of Invested Assets with
Schedule of Investment Income and Changes in Invested Assets
By Month Through the Month Ended
April 30, 2023
$ (Thousands)

Invested Assets (at fair value)	July	August	September	October	November	December	January	February	March	April
Investments with T. Rowe Price										
Stable Value Fund	$ 45,641	$ 44,765	$ 47,427	$ 48,796	$ 50,458	$ 51,432	$ 52,377	$ 53,196	$ 53,343	$ 53,603
Small Cap Stock Fund	40,776	38,396	32,660	34,208	34,711	32,847	35,886	35,051	33,956	34,107
Alaska Balanced Trust	22,213	19,807	18,235	18,760	18,907	17,495	18,312	18,389	19,078	19,398
Long Term Balanced Fund	15,873	18,369	19,406	21,490	25,376	26,831	28,786	28,413	29,260	29,577
AK Target Date 2010 Trust	1,532	1,498	1,143	1,158	1,017	1,001	1,004	977	1,006	1,315
AK Target Date 2015 Trust	3,668	3,576	3,376	3,465	3,631	3,472	3,604	3,553	3,649	3,524
AK Target Date 2020 Trust	12,107	11,706	10,681	10,996	11,345	11,017	11,663	11,391	11,409	11,363
AK Target Date 2025 Trust	26,104	25,080	22,928	23,801	25,007	23,999	25,160	24,627	25,378	25,430
AK Target Date 2030 Trust	36,650	35,226	32,560	34,161	36,544	35,542	37,794	36,584	37,545	37,923
AK Target Date 2035 Trust	51,272	49,004	44,701	47,085	50,495	48,605	51,962	50,965	52,518	53,421
AK Target Date 2040 Trust	61,928	59,549	54,727	58,088	62,478	60,101	64,447	63,105	65,385	66,481
AK Target Date 2045 Trust	88,513	85,155	77,804	82,765	89,283	85,884	92,408	90,381	93,307	95,004
AK Target Date 2050 Trust	121,377	116,909	107,070	114,207	123,294	118,429	127,623	124,866	128,916	131,265
AK Target Date 2055 Trust	82,948	79,620	72,931	77,995	84,311	81,008	87,557	85,881	89,134	90,977
AK Target Date 2060 Trust	4,935	4,780	4,478	5,086	5,810	5,708	6,480	6,583	7,118	7,527
AK Target Date 2065 Trust	993	950	928	1,097	1,304	1,320	1,543	1,606	1,788	1,929
Investments with State Street Global Advisors										
Money Market	5,583	5,551	5,963	6,055	6,148	6,447	6,348	6,314	6,369	6,449
S&P 500 Stock Index	26,108	30,067	29,314	33,075	36,201	35,363	38,227	36,230	36,719	37,117
Russell 3000 Index	32,509	27,219	20,875	20,627	24,257	25,269	27,332	26,545	27,557	27,926
World Equity Ex-US Index	27,123	30,294	27,831	29,256	31,278	29,183	31,028	30,686	32,446	33,338
Investments with BlackRock										
Passive U.S. Bond Index Fund	21,858	22,279	25,427	26,850	27,228	25,728	26,695	26,653	27,479	27,779
Strategic Completion Fund	1,745	1,664	1,510	1,551	2,832	3,868	4,106	3,995	3,996	4,033
Investments with Brandes and Baillie Gifford										
AK International Equity Fund	32,754	28,144	22,034	21,633	23,106	22,203	23,991	22,044	21,787	21,574
Investments with Northern Trust										
Environmental, Social, and Governance Fund	26,794	22,626	18,537	19,075	17,072	13,166	13,960	13,928	14,878	15,200
Total Invested Assets	**$ 791,005**	**$ 762,235**	**$ 702,547**	**$ 741,282**	**$ 792,092**	**$ 765,916**	**$ 818,291**	**$ 801,961**	**$ 824,022**	**$ 836,260**
Change in Invested Assets										
Beginning Assets	$ 742,358	$ 791,005	$ 762,235	$ 702,547	$ 741,282	$ 792,092	$ 765,916	$ 818,291	$ 801,961	$ 824,022
Investment Earnings	44,277	(25,432)	(58,565)	34,080	46,106	(28,497)	48,274	(19,999)	17,542	8,560
Net Contributions (Withdrawals)	4,370	(3,337)	(1,124)	4,655	4,704	2,320	4,101	3,669	4,519	3,678
Ending Invested Assets	**$ 791,005**	**$ 762,235**	**$ 702,547**	**$ 741,282**	**$ 792,092**	**$ 765,916**	**$ 818,291**	**$ 801,961**	**$ 824,022**	**$ 836,260**

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

ALASKA RETIREMENT MANAGEMENT BOARD

FINANCIAL REPORT
(Supplement to the Treasury Division Report)

As of April 30, 2023

Prepared by the Division of Retirement & Benefits

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the Ten Months Ending April 30, 2023

	Contributions				Expenditures				Net
	Contributions EE and/or ER	State of Alaska	Other	Total Contributions	Benefits	Refunds & Disbursements	Administrative & Investment	Total Expenditures	**Contributions/ (Withdrawals)**
Public Employees' Retirement System (PERS)									
Defined Benefit Plans:									
Retirement Pension Trust	$ 412,074,001	$ 33,933,000	$ 132,659	$ 446,139,660	$ (846,652,854)	$ (8,075,664)	$ (4,521,040)	$ (859,249,558)	$ (413,109,898)
Retirement Health Care Trust	4,690,478	-	94,776,281	99,466,759	(450,270,989)	-	(17,265,024)	(467,536,013)	(368,069,254)
Total Defined Benefit Plans	416,764,479	33,933,000	94,908,940	545,606,419	(1,296,923,843)	(8,075,664)	(21,786,064)	(1,326,785,571)	(781,179,152)
Defined Contribution Plans:									
Participant Directed Retirement	178,561,097	-	-	178,561,097	-	(91,544,401)	(5,285,375)	(96,829,776)	81,731,321
Health Reimbursement Arrangement [a]	41,190,060	-	-	41,190,060	(724,619)	-	(191,610)	(916,229)	40,273,831
Retiree Medical Plan [a]	15,880,752	-	239,055	16,119,807	(1,135,788)	-	(150,962)	(1,286,750)	14,833,057
Occupational Death and Disability: [a]									
All Others	3,489,887	-	-	3,489,887	(139,238)	-	(35,503)	(174,741)	3,315,146
Peace Officers and Firefighters	1,462,851	-	-	1,462,851	(386,952)	-	(14,086)	(401,038)	1,061,813
Total Defined Contribution Plans	240,584,647	-	239,055	240,823,702	(2,386,597)	(91,544,401)	(5,677,536)	(99,608,534)	141,215,168
Total PERS	**657,349,126**	**33,933,000**	**95,147,995**	**786,430,121**	**(1,299,310,440)**	**(99,620,065)**	**(27,463,600)**	**(1,426,394,105)**	**(639,963,984)**
Teachers' Retirement System (TRS)									
Defined Benefit Plans:									
Retirement Pension Trust	53,936,430	91,029,000	25,429	144,990,859	(449,331,721)	(1,320,322)	(2,505,170)	(453,157,213)	(308,166,354)
Retirement Health Care Trust	2,822,407	-	30,931,750	33,754,157	(140,025,587)	-	(6,290,625)	(146,316,212)	(112,562,055)
Total Defined Benefit Plans	56,758,837	91,029,000	30,957,179	178,745,016	(589,357,308)	(1,320,322)	(8,795,795)	(599,473,425)	(420,728,409)
Defined Contribution Plans:									
Participant Directed Retirement	55,007,810	-	-	55,007,810	-	(25,495,677)	(1,956,677)	(27,452,354)	27,555,456
Health Reimbursement Arrangement [a]	11,310,641	-	-	11,310,641	(200,452)	-	(55,497)	(255,949)	11,054,692
Retiree Medical Plan [a]	3,322,721	-	43,786	3,366,507	(236,696)	-	(74,680)	(311,376)	3,055,131
Occupational Death and Disability [a]	294,367	-	-	294,367	(21,660)	-	(12,156)	(33,816)	260,551
Total Defined Contribution Plans	69,935,539	-	43,786	69,979,325	(458,808)	(25,495,677)	(2,099,010)	(28,053,495)	41,925,830
Total TRS	**126,694,376**	**91,029,000**	**31,000,965**	**248,724,341**	**(589,816,116)**	**(26,815,999)**	**(10,894,805)**	**(627,526,920)**	**(378,802,579)**
Judicial Retirement System (JRS)									
Defined Benefit Plan Retirement Pension Trust	6,663,304	3,225,000	-	9,888,304	(13,209,719)	(39,292)	(125,255)	(13,374,266)	(3,485,962)
Defined Benefit Plan Retirement Health Care Trust	731,137	-	309,796	1,040,933	(1,273,356)	-	(69,516)	(1,342,872)	(301,939)
Total JRS	**7,394,441**	**3,225,000**	**309,796**	**10,929,237**	**(14,483,075)**	**(39,292)**	**(194,771)**	**(14,717,138)**	**(3,787,901)**
National Guard/Naval Militia Retirement System (NGNMRS)									
Defined Benefit Plan Retirement Pension Trust [a]	-	-	-	-	(1,633,077)	-	(132,325)	(1,765,402)	(1,765,402)
Other Participant Directed Plans									
Supplemental Annuity Plan (SBS)	147,709,807	-	-	147,709,807	-	(212,550,376)	(7,606,631)	(220,157,007)	(72,447,200)
Deferred Compensation Plan [b] (DCP)	41,133,803	-	-	41,133,803	-	(64,396,076)	(1,903,642)	(66,299,718)	(25,165,915)
Total All Funds	**980,281,553**	**128,187,000**	**126,458,756**	**1,234,927,309**	**(1,905,242,708)**	**(403,421,808)**	**(48,195,774)**	**(2,356,860,290)**	**(1,121,932,981)**
Total Non-Participant Directed	557,869,036	128,187,000	126,458,756	812,514,792	(1,905,242,708)	(9,435,278)	(31,443,449)	(1,946,121,435)	(1,133,606,643)
Total Participant Directed	422,412,517	-	-	422,412,517	-	(393,986,530)	(16,752,325)	(410,738,855)	11,673,662
Total All Funds	**$ 980,281,553**	**$ 128,187,000**	**$ 126,458,756**	**$ 1,234,927,309**	**$ (1,905,242,708)**	**$ (403,421,808)**	**$ (48,195,774)**	**$ (2,356,860,290)**	**$ (1,121,932,981)**

(a) Employer only contributions.
(b) Employee only contributions.

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the Month Ended April 30, 2023

	Contributions				Expenditures				Net
	Contributions EE and/or ER	State of Alaska	Other	Total Contributions	Benefits	Refunds & Disbursements	Administrative & Investment	Total Expenditures	**Contributions/ (Withdrawals)**
Public Employees' Retirement System (PERS)									
Defined Benefit Plans:									
Retirement Pension Trust	$ 42,553,463	$ -	$ 23,703	$ 42,577,166	$ (84,973,913)	$ (844,551)	$ (382,853)	$ (86,201,317)	$ (43,624,151)
Retirement Health Care Trust	452	-	12,080,654	12,081,106	(42,607,309)	-	(496,834)	(43,104,143)	(31,023,037)
Total Defined Benefit Plans	42,553,915	-	12,104,357	54,658,272	(127,581,222)	(844,551)	(879,687)	(129,305,460)	(74,647,188)
Defined Contribution Plans:									
Participant Directed Retirement	19,166,104	-	-	19,166,104	-	(7,353,698)	(695,885)	(8,049,583)	11,116,521
Health Reimbursement Arrangement [(a)]	4,927,090	-	-	4,927,090	(128,811)	-	(14,263)	(143,074)	4,784,016
Retiree Medical Plan [(a)]	1,821,913	-	33,770	1,855,683	(105,685)	-	(9,670)	(115,355)	1,740,328
Occupational Death and Disability: [(a)]									
All Others	389,508	-	-	389,508	(13,961)	-	(1,761)	(15,722)	373,786
Peace Officers and Firefighters	143,262	-	-	143,262	(40,344)	-	(767)	(41,111)	102,151
Total Defined Contribution Plans	26,447,877	-	33,770	26,481,647	(288,801)	(7,353,698)	(722,346)	(8,364,845)	18,116,802
Total PERS	**69,001,792**	**-**	**12,138,127**	**81,139,919**	**(127,870,023)**	**(8,198,249)**	**(1,602,033)**	**(137,670,305)**	**(56,530,386)**
Teachers' Retirement System (TRS)									
Defined Benefit Plans:									
Retirement Pension Trust	6,194,089	-	3,477	6,197,566	(44,752,721)	(97,155)	(188,347)	(45,038,223)	(38,840,657)
Retirement Health Care Trust	(41)	-	4,113,321	4,113,280	(12,860,117)	-	(185,450)	(13,045,567)	(8,932,287)
Total Defined Benefit Plans	6,194,048	-	4,116,798	10,310,846	(57,612,838)	(97,155)	(373,797)	(58,083,790)	(47,772,944)
Defined Contribution Plans:									
Participant Directed Retirement	6,077,137	-	-	6,077,137	-	(2,102,582)	(296,651)	(2,399,233)	3,677,904
Health Reimbursement Arrangement [(a)]	1,166,480	-	-	1,166,480	(30,489)	-	(4,127)	(34,616)	1,131,864
Retiree Medical Plan [(a)]	366,549	-	2,059	368,608	(35,231)	-	(5,623)	(40,854)	327,754
Occupational Death and Disability [(a)]	32,250	-	-	32,250	(2,172)	-	(535)	(2,707)	29,543
Total Defined Contribution Plans	7,642,416	-	2,059	7,644,475	(67,892)	(2,102,582)	(306,936)	(2,477,410)	5,167,065
Total TRS	**13,836,464**	**-**	**4,118,857**	**17,955,321**	**(57,680,730)**	**(2,199,737)**	**(680,733)**	**(60,561,200)**	**(42,605,879)**
Judicial Retirement System (JRS)									
Defined Benefit Plan Retirement Pension Trust	504,384	-	-	504,384	(1,352,715)	-	(5,454)	(1,358,169)	(853,785)
Defined Benefit Plan Retirement Health Care Trust	72,210	-	44,880	117,090	(104,154)	-	(2,293)	(106,447)	10,643
Total JRS	**576,594**	**-**	**44,880**	**621,474**	**(1,456,869)**	**-**	**(7,747)**	**(1,464,616)**	**(843,142)**
National Guard/Naval Militia Retirement System (NGNMRS)									
Defined Benefit Plan Retirement Pension Trust [(a)]	-	-	-	-	(138,655)	-	(5,588)	(144,243)	(144,243)
Other Participant Directed Plans									
Supplemental Annuity Plan (SBS)	14,899,409	-	-	14,899,409	-	(23,264,444)	(922,533)	(24,186,977)	(9,287,568)
Deferred Compensation Plan [(b)] (DCP)	4,221,562	-	-	4,221,562	-	(6,021,426)	(225,044)	(6,246,470)	(2,024,908)
Total All Funds	**102,535,821**	**-**	**16,301,864**	**118,837,685**	**(187,146,277)**	**(39,683,856)**	**-**	**(230,273,811)**	**(111,436,126)**
Total Non-Participant Directed	58,171,609	-	16,301,864	74,473,473	(187,146,277)	(941,706)	(1,303,565)	(189,391,548)	(114,918,075)
Total Participant Directed	44,364,212	-	-	44,364,212	-	(38,742,150)	(2,140,113)	(40,882,263)	3,481,949
Total All Funds	**$ 102,535,821**	**$ -**	**$ 16,301,864**	**$ 118,837,685**	**$ (187,146,277)**	**$ (39,683,856)**	**$ (3,443,678)**	**$ (230,273,811)**	**$ (111,436,126)**

(a) Employer only contributions.
(b) Employee only contributions.

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the Ten Months Ending April 30, 2023

PARTICIPANT DIRECTED DISBURSEMENTS BY PLAN AND TYPE

Type	PERS DCR Plan	TRS DCR Plan	Supplemental Annuity Plan	Deferred Compensation	TOTAL	% of Total
Payment to Beneficiary	$ 191,301	$ 15,276	$ 823,334	$ 206,514	$ 1,236,425	0.3%
Death Benefit	2,152,116	1,084,897	13,153,876	4,239,841	20,630,730	5.2%
Disability / Hardship	209,682	-	59,202	227,088	495,972	0.1%
Minimum Required Distribution	170,366	69,469	13,277,955	5,162,587	18,680,377	4.7%
Deminimus Acct Balance Distribution	-	-	-	6,096	6,096	0.0%
Qualified Domestic Relations Order	1,097,762	244,228	3,956,428	152,450	5,450,868	1.4%
Separation from Service / Retirement	68,400,133 a	20,794,339 a	178,131,387	52,426,975	319,752,834	81.2%
Purchase of Service Credit	11,499,256 a	1,752,549 a	3,148,194	119,368	16,519,367	4.2%
Transfer to a Qualifying Plan	-	-	-	5,000	5,000	0.0%
59-½ In-service Distribution	-	-	-	1,820,287	1,820,287	0.5%
Qualified Birth / Adoption Expense	-	-	-	29,870	29,870	0.0%
DCR to DB Conversion	7,823,785 a	1,534,919 a	-	-	9,358,704	2.4%
TOTAL	$ 91,544,401	$ 25,495,677	$ 212,550,376	$ 64,396,076	$ 393,986,530	100.0%

[a] Employer distributions sent to the DB plan are shown as "DCR to DB Conversion". Employee funds sent to the DB plan are included with "Purchase of Service Credit". Excess employee money sent to employee after conversion are included in "Separation from Service".

PERS & TRS PARTICIPANT DIRECTED DISBURSEMENTS BY PLAN AND VESTED PERCENTAGE

Vesting	PERS DCR Plan	TRS DCR Plan	TOTAL	% of Total
100% Vested	$ 83,273,015	$ 22,219,493	$ 105,492,508	90.2%
75% Vested	1,575,229	1,057,978	2,633,207	2.2%
50% Vested	1,908,429	696,656	2,605,085	2.2%
25% Vested	1,647,857	765,583	2,413,440	2.1%
0% Vested	3,139,871	755,967	3,895,838	3.3%
TOTAL	$ 91,544,401	$ 25,495,677	$ 117,040,078	100.0%

DEFINED BENEFIT REFUNDS BY PLAN, TIER, CONTRIBUTION TYPE AND VESTED STATUS

	PERS DB Pension Plan				TRS DB Pension Plan			JRS	TOTAL
Contribution Type	Tier 1	Tier 2	Tier 3	Total	Tier 1	Tier 2	Total	DB Pension Plan	DB Pension Plan
Mandatory Vested	$ 30,829	$ 872,051	$ 1,398,010	$ 2,300,890	$ -	$ 174,778	$ 174,778	$ 39,292	$ 2,514,960.00
Mandatory Non-Vested	184,393	293,093	790,669	1,268,155	270,042	818,938	1,088,980	-	2,357,135
Geographic Differential	-	236,010	81,382	317,392	-	-	-	-	317,392
Voluntary Full	301,384	1,343,353	2,103,273	3,748,010	-	-	-	-	3,748,010
Indebtedness, Lagging & Partial	14,700	176,005	250,512	441,217	-	56,564	56,564	-	497,781
TOTAL	$ 531,306	$ 2,920,512	$ 4,623,846	$ 8,075,664	$ 270,042	$ 1,050,280	$ 1,320,322	$ 39,292	$ 9,435,278

Notes for the DRB Supplement to the Treasury Report

April 2023

This report is the DRB supplement to the Treasury Division's Financial Report. It expands the "Net Contributions/(Withdrawals)" column into contributions and expenditures. It shows contributions received from both employees and employers, contributions from the State of Alaska, and other non-investment income. This report also expands expenditures into benefits, refunds & disbursements, and administrative & investment expenditures.

The net amount of total contributions and total expenditures, presented as "Net Contributions/(Withdrawals)", agrees with the same column in the Treasury Division's Report. Page one shows the year-to-date totals for the first ten months of Fiscal Year 2023, while page two shows only the month of April 2023.

Highlights – On page one, for the ten months ending April 30, 2023:

- PERS DB Pension – Average employer and employee contributions of $41.2 million per month, benefit payments of approximately $84.7 million per month, refunds average $808 thousand, and administrative and investment expenditures of $452 thousand per month (DOR and DRB).
- PERS DB Healthcare – Average employer contributions of $469 thousand per month, and benefit payments of approximately $45 million per month. Other income of $22.6 million from OptumRx EGWP subsidies (most recently received in March for March), $35.4 million from OptumRx pharmacy rebates (most recently received in February for 4th Qtr 2021), $23.1 million from OptumRx EGWP coverage gap discount program (CGDP) (most recently received in February for 3rd Qtr 2022), $1.1 million from Aetna pharmacy rebates (most recently received in March for 3rd Qtr 2022), and average administrative and investment expenditures of $1.7 million per month (DOR and DRB).
- PERS DC Pension – Average employer and employee contributions of $17.9 million per month, participant disbursements average $9.2 million per month, and average administrative and investment expenditures of $529 thousand per month (DOR and DRB).
- PERS DCR Health – For HRA, RMP, and OD&D only, employer contributions average $6.2 million per month on behalf of participating employees, and benefit payments of approximately $239 thousand per month. Currently, 16 benefits are being paid from the Occupational Death & Disability plans, 177 retirees are participating in RMP, and 230 retirees are participating in HRA. Other income of $81 thousand from OptumRx EGWP subsidies (most recently received in March for March), $76 thousand from OptumRx pharmacy rebates (most recently received in February for 4th Qtr 2021), $47 thousand from OptumRx EGWP coverage gap discount program (CGDP) (most recently received in February for 3rd Qtr 2022), and administrative and investment expenditures were approximately $39 thousand per month (DOR and DRB).
- TRS DB Pension – Average employer and employee contributions of $5.4 million per month, benefit payments of approximately $44.9 million per month, refunds average $132 thousand, and average administrative and investment expenditures of $251 thousand per month (DOR and DRB).
- TRS DB Healthcare – For HRA, RMP, and OD&D only, average employer contributions of $282 thousand per month, and benefit payments of approximately $14 million per month. Other income of $7.9 million from OptumRx EGWP subsidies (most recently received in March for March), $10.7 million from OptumRx pharmacy rebates (most recently received in February for 4th Qtr 2021), $7.4 million from OptumRx EGWP coverage gap discount program (CGDP) (most recently received in February for 3rd Qtr 2022), $471 thousand from Aetna pharmacy rebates (most recently received in March for 3rd Qtr 2022), and average administrative and investment expenditures of $629 thousand per month (DOR and DRB).

- TRS DC Pension – Average employer and employee contributions of $5.5 million per month, participant disbursements average $2.5 million per month, and average administrative and investment expenditures of $196 thousand per month (DOR and DRB).
- TRS DCR Health – Average employer contributions of $1.5 million per month, and benefit payments of approximately $46 thousand per month. Other income of $14.5 thousand from OptumRx EGWP subsidies (most recently received in March for March), $14.3 thousand from OptumRx pharmacy rebates (most recently received in February for 4th Qtr 2021), $12.3 thousand from OptumRx EGWP coverage gap discount program (CGDP) (most recently received in February for 3rd Qtr 2022), and average administrative and investment expenditures of $14 thousand per month (DOR and DRB).
- JRS Pension – Average employer and employee contributions of $740 thousand per month, benefit payments of approximately $1.3 million per month, and average administrative and investment expenditures of $13 thousand per month (DOR and DRB).
- JRS Healthcare – Average employer contributions of $81 thousand per month, and benefit payments of approximately $127 thousand per month. Other income of $67.4 thousand from OptumRx EGWP subsidies (most recently received in March for March), $104 thousand from OptumRx pharmacy rebates (most recently received in February for 4th Qtr 2021), $86.4 thousand from EGWP coverage gap discount program (CGDP) (most recently received in February for 3rd Qtr 2022), and average administrative and investment expenditures of $7 thousand per month (DOR and DRB).
- NGNMRS – A combination of lump-sum and monthly benefit payments of $163 thousand per month, and average administrative and investment expenditures of $13 thousand per month (DOR and DRB).
- SBS – Average employer and employee contributions and transfers in of $14.8 million per month. Participant disbursements average of $21.3 million per month, and average administrative and investment expenditures of $761 thousand per month (DOR and DRB).
- Deferred Compensation – Average employer and employee contributions and transfers in of $4.1 million per month, participant disbursements average of $6.4 million per month, and average administrative and investment expenditures of $190 thousand per month (DOR and DRB).

Highlights – On page two, activity for the one month of April 2023 only:

- PERS DB Healthcare - Other income of $12. million from OptumRx EGWP subsidies, Optum pharmacy rebates and Aetna pharmacy rebates.
- PERS DCR Health - Other income of $33.8 thousand from OptumRx EGWP subsidies, Optum pharmacy rebates and Aetna pharmacy rebates.
- TRS DB Healthcare - Other income of $4.1 million from OptumRx EGWP subsidies, Optum pharmacy rebates and Aetna pharmacy rebates.
- JRS DB Healthcare - Other income of $44.8 thousand from OptumRx EGWP subsidies, Optum pharmacy rebates and Aetna pharmacy rebates.
- All other funds - Nothing significant to report.

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

Division of Retirement & Benefits
Legislative Update – 2023

Bill	Sponsor	Referrals	Summary	Status
Pension Plans				
HB7	Representative Hannan	(H) STA then JUD, FIN	This bill would change the types of proceedings handled by the Office of Administrative hearings (OAH), the entities that may use OAH, the duties of the chief administrative law judge, qualifications and powers of administrative law judges, subpoena powers, compensation, complaints against admin law judges and hearing officers, reimbursement for cost incurred by OAH, procedures for requesting and conducting proceedings of OAH	Referred to (H) State Affairs
HB22	Representative Josephson	(H) CRA, then STA, JUD, FIN	This bill would open a new PERS Defined Benefits tier allowing current police/fire fighters to elect the new tier or remain in the PERS DCR. Make necessary changes relating to eligibility of peace officers and firefighters for DCR medical, changes to employee contribution as set by the ARMB, and changes to the PRPA program based on the funding of the PERS system. *Companion Bill to SB35	Passed out of (H) Community & Regional Affairs, heard and held in (H) State Affairs
SB11	Senator Kiehl	(S) L&C then FIN	This bill would open a new PERS &TRS Defined Benefits (DB) tier and offer all PERS and TRS Defined Contribution Retirement (DCR) Plan members the choice to elect the new tier or to remain in the DCR including all new hires must within 90 days of joining the plan make an irrevocable election to participate in the DCR. Maintains the contribution rates from the DCR plan to the new DB tier, open to all participating employers, medical plan premium subsidy structure is similar to the DCR retiree health plan, no HRA, changes to disability benefits, and provides for the administrator to adjust the percentage of	Referred to (S) Labor & Commerce

			the medical plan premiums payment structure beginning on 7/1/2028 and every five years thereafter.	
SB14	Senator Kawasaki	(S) EDC, then L&C, FIN	This bill offers a retired teacher to be employed as a mentor without stopping their TRS benefit, and the retired teacher will not receive TRS service credit while reemployed. This bill also offers a temporary retirement incentive program to the defined benefits members of PERS and TRS. It allows qualified members to retire three years early, the cost percentages, eligibility, and reemployment cost if the employee returns to a covered position.	Passed out of (S) Education, referred to (S) Labor & Commerce
SB35	Senator Kawasaki	(S) L&C then FIN	This bill would open a new PERS Defined Benefits tier allowing current police/fire fighters to elect the new tier or remain in the PERS DCR. Make necessary changes relating to eligibility of peace officers and firefighters for DCR medical, changes to employee contribution as set by the ARMB, and changes to the PRPA program based on the funding of the PERS system. *Companion Bill to HB22	Referred to (S) Labor and Commerce
SB88	Senator Giessel	(S) L&C, then FIN	This bill would create new Defined Benefit (DB) tiers for the PERS and TRS systems and close the Defined Contribution Retirement (DCR) plan in the PERS and TRS systems for new hires. Existing DCR members would be given the option to convert to the new DB tier or maintain their current DCR plan. Retiree health benefits available under the new DB tiers would be the same as for current DCR members.	Passed out of (S) Labor and Commerce, heard and held in (S) Finance
Health Plans				
HB17	Representative Carrick	(H) HSS, then CRA, L&C, ~~FIN~~ (FIN referral removed)	This bill mandates specific coverage of contraceptives by the AlaskaCare employee plan and other specified health insurers in the state. *Companion Bill to SB 27	Passed out of (H) Health & Social Services, Community & Regional Affairs, Labor & Commerce, Calendared (H) 5/17/2023

HB21	Representative Vance	(H) EDC, then L&C, FIN	This bill allows school districts and local governmental units to elect to join the self-insured AlaskaCare employee plan. *Companion Bill to SB 110	Passed out of (H) Education, Labor & Commerce, heard and held in (H) Finance
SB3	Senator Hughes	(S) L&C then JUD	This bill includes multiple health care cost transparency provisions and requires specified insurers to establish a cash incentive program to encourage patients to seek care from lower cost providers. The provisions do not apply to AlaskaCare, however the bill requires DRB to analyze the potential impacts of complying with the provisions of the bill to the AlaskaCare employee plan, and to prepare a report to the legislature detailing the findings.	Referred to (S) Labor & Commerce
SB27	Senator Tobin	(S) HSS then L&C	This bill mandates specific coverage of contraceptives by the AlaskaCare employee plan and other specified health insurers in the state. *Companion Bill to HB 17	Referred to (S) Health & Social Services
SB110	Senator Hughes	(S) EDC, then L&C, FIN	This bill allows school districts and local governmental units to elect to join the self-insured AlaskaCare employee plan. *Companion Bill to HB 21	Heard and held in (S) Education
SB121	Senator Giessel	(S) L&C, then FIN	This bill sets restrictions and establishes requirements related to business and payment practices for Pharmacy Benefit Managers (PBMs) and health care insurers providing coverage for pharmacy benefits in the state and applies the provisions of the bill to the AlaskaCare employee health plan, health insurers and insurance plans regulated through Title 21, and health plans sponsored by municipalities.	Referred to (S) Labor and Commerce
SB124	Senator Wilson	(S) L&C, then FIN	This bill would apply certain provisions related to pharmacy benefits and pharmacy benefit managers contained in Title 21 of Alaska Statue to the AlaskaCare employee and retiree plans. These provisions include new statues enacted by the bill that require prescription drug rebates to be calculated (or estimated) at the point of sale.	Referred to (S) Labor and Commerce

SJR10	Senator Giessel	(S) HSS; (H)HSS	This resolution urges the President, Alaska's federal Congressional delegation, and all members of the U.S. Congress to increase Medicare reimbursement rates in Alaska to meet the actual cost of care.	Passed Senate, referred to (H) Rules

ALASKA RETIREMENT MANAGEMENT BOARD
STAFF REPORT
Division of Retirement & Benefits Report
June 15, 2023

Summary of Monthly Billings – Buck Global LLC

Attached is the requested summary schedule of invoices by quarter related to actuarial services provided by the Division's consulting actuary, Buck Global LLC.

Included on this schedule is the quarters ended September 30, 2022, December 31, 2022, and March 31, 2023.

Items listed on the left side of the schedule represent regular and non-regular services provided under our current contract.

The associated costs of each service are charged to the System or Plan noted on the column headings.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	Summary of Monthly Billings - Buck Global LLC	ACTION:	
DATE:	June 15, 2023	INFORMATION:	**X**

BACKGROUND:

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

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

STATUS:

Attached are the summary totals for the nine months ended March 31, 2023 with comparative totals from the prior fiscal year.

Buck
Billing Summary
For the Three Months Ended September 30, 2022

	PERS	TRS	JRS	NGNMRS	EPORS	TOTAL
Actuarial valuations	$ 53,466	42,561	5,457	5,457	2,184	$ 109,125
KPMG audit information request	2,280	926	17	65	-	3,288
ARMB presentations and meeting attendance	3,411	3,414	-	-	-	6,825
FY24 final PERS/TRS contribution rates	3,411	3,414	-	-	-	6,825
GASB 67/74	7,572	6,060	759	759	-	15,150
GASB 68/75	22,722	18,180	2,274	2,274	-	45,450
Projections	6,750	6,750	-	-	-	13,500
Meeting materials	3,551	1,444	26	101	-	5,122
TOTAL	$ 103,163	82,749	8,533	8,656	2,184	$ 205,285
For the Three Months Ended September 30, 2021	$ 150,478	101,313	8,561	8,580	2,184	$ 271,116

For the Three Months Ended December 31, 2022

	PERS	TRS	JRS	NGNMRS	EPORS	TOTAL
Actuarial valuations	$ 53,466	42,561	5,457	5,457	2,184	$ 109,125
Change to valuation data request for DRB's new systems	832	332	-	-	-	1,164
ARMB presentations and meeting attendance	3,411	3,414	-	-	-	6,825
FY24 final PERS/TRS contribution rates	3,411	3,414	-	-	-	6,825
GASB 67/74	7,572	6,060	759	759	-	15,150
GASB 68/75	22,722	18,180	2,274	2,274	-	45,450
Projections	6,750	6,750	-	-	-	13,500
Meeting materials	7,538	3,065	55	215	-	10,873
TOTAL	$ 105,702	83,776	8,545	8,705	2,184	$ 208,912
For the Three Months Ended December 31, 2021	$ 143,005	98,949	8,825	9,795	2,184	$ 262,758

For the Three Months Ended March 31, 2023

	PERS	TRS	JRS	NGNMRS	EPORS	TOTAL
Actuarial valuations	$ 18,183	14,553	1,821	1,818	-	$ 36,375
Change to valuation data request for DRB's new systems	988	393	-	-	-	1,381
FY24 final PERS/TRS contribution rates	1,125	1,125	-	-	-	2,250
AlaskaCare retiree plan cost study	22,174	9,001	-	-	-	31,175
Projections	2,325	2,325	-	-	-	4,650
Meeting materials	6,081	3,139	37	141	-	9,398
Senate Finance Committee – DB/DCR comparison	6,749	2,116	-	-	-	8,865
Voluntary savings plan	825	-	-	-	-	825
ARMB trustees - new orientation slides	3,061	1,224	24	91	-	4,400
TOTAL	$ 61,511	33,876	1,882	2,050	-	$ 99,319
For the Three Months Ended March 31, 2022	$ 35,717	24,173	7,709	1,965	726	$ 70,290

Summary through the Nine Months Ended March 31, 2023

	PERS	TRS	JRS	NGNMRS	EPORS	TOTAL
Actuarial valuations	$ 125,115	99,675	12,735	12,732	4,368	$ 254,625
Change to valuation data request for DRB's new systems	1,820	725	-	-	-	2,545
KPMG audit information request	2,280	926	17	65	-	3,288
ARMB presentations and meeting attendance	6,822	6,828	-	-	-	13,650
FY24 final PERS/TRS contribution rates	7,947	7,953	-	-	-	15,900
AlaskaCare retiree plan cost study	22,174	9,001	-	-	-	31,175
GASB 67/74	15,144	12,120	1,518	1,518	-	30,300
GASB 68/75	45,444	36,360	4,548	4,548	-	90,900
Projections	15,825	15,825	-	-	-	31,650
Meeting materials	17,170	7,648	118	457	-	25,393
Senate Finance Committee – DB/DCR comparison	6,749	2,116	-	-	-	8,865
Voluntary savings plan	825	-	-	-	-	825
ARMB trustees - new orientation slides	3,061	1,224	24	91	-	4,400
TOTAL	$ 270,376	200,401	18,960	19,411	4,368	$ 513,516
Summary through the Nine Months Ended March 31, 2022	$ 329,200	224,435	25,095	20,340	5,094	$ 604,164

ALASKA RETIREMENT MANAGEMENT BOARD

STAFF REPORT

Division of Retirement & Benefits Report
June 15, 2023

Retirement System Membership Activity as of March 31, 2023

Attached are the membership statistics for the quarter ending

- March 31, 2023

Active counts have changed in the following manner:

- PERS Tier 1-3 active members decreased from 8,911 to 8,871, or a decrease of 40.
- PERS DCR active members increased from 25,984 to 26,343, or an increase of 359.
- PERS active members had a net increase of 319.

- TRS Tier 1-2 active members increased from 3,099 to 3,114, or an increase of 15.
- TRS DCR active members increased from 6,863 to 6,906, or an increase of 43.
- TRS active members had a net increase of 58.

Retiree counts have changed in the following manner:

- PERS retirees decreased from 37,565 to 37,356, or a decrease of 210 (all tiers).
- TRS retirees decreased from 13,684, to 13,613, or a decrease of 71 (all tiers).

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: Retirement System Membership Activity as of March 31, 2023

ACTION: ______

DATE: June 15, 2023

INFORMATION: X

BACKGROUND:

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

STATUS:

Membership information as of March 31, 2023.

MEMBERSHIP STATISTICS AS OF SEPTEMBER 30, 2022

	PERS						TRS					JRS	NGNMRS	SBS	DCP
	DB				DCR	SYSTEM	DB			DCR	SYSTEM				
	Tier I	Tier II	Tier III	Total	Tier IV	TOTAL	Tier I	Tier II	Total	Tier III	TOTAL				
Active Members	499	1,855	6,502	8,856	25,434	34,290	113	2,972	3,085	6,591	9,676	75	n/a	20,255	6,557
Terminated Members															
Entitled to Future Benefits	229	1,475	3,146	4,850	2,514	7,364	16	605	621	1,014	1,635	1	n/a	30,565	6,138
Other Terminated Members	958	1,930	7,218	10,106	18,257	28,363	209	1,388	1,597	3,035	4,632	2	n/a	n/a	n/a
Total Terminated Members	1,187	3,405	10,364	14,956	20,771	35,727	225	1,993	2,218	4,049	6,267	3	n/a	30,565	6,138
Retirees & Beneficiaries	21,845	9,701	5,902	37,448	201	37,649	9,811	3,880	13,691	55	13,746	147	698	n/a	n/a
Managed Accounts	n/a	n/a	n/a	n/a	6,017	6,017	n/a	n/a	n/a	1,501	1,501	n/a	n/a	3,564	3,498
Retirements - 1st QTR FY23	42	146	158	346	17	363	34	293	327	16	343	1	39	n/a	n/a
Full Disbursements - 1st QTR FY23	9	51	72	132	717	849	6	13	19	143	162	-	n/a	632	162
Partial Disbursements - 1st QTR FY23	n/a	n/a	n/a	n/a	203	203	n/a	n/a	n/a	66	66	n/a	n/a	1,385	567

MEMBERSHIP STATISTICS AS OF DECEMBER 31, 2022

	PERS						TRS					JRS	NGNMRS	SBS	DCP
	DB				DCR	SYSTEM	DB			DCR	SYSTEM				
	Tier I	Tier II	Tier III	Total	Tier IV	TOTAL	Tier I	Tier II	Total	Tier III	TOTAL				
Active Members	497	1,873	6,541	8,911	25,984	34,895	116	2,983	3,099	6,863	9,962	75	n/a	19,782	6,511
Terminated Members															
Entitled to Future Benefits	220	1,427	3,136	4,783	2,602	7,385	12	587	599	1,009	1,608	1	n/a	31,443	6,217
Other Terminated Members	944	1,918	7,171	10,033	18,424	28,457	203	1,370	1,573	3,004	4,577	2	n/a	n/a	n/a
Total Terminated Members	1,164	3,345	10,307	14,816	21,026	35,842	215	1,957	2,172	4,013	6,185	3	n/a	31,443	6,217
Retirees & Beneficiaries	21,710	9,698	5,940	37,348	217	37,565	9,747	3,885	13,632	52	13,684	150	692	n/a	n/a
Managed Accounts	n/a	n/a	n/a	n/a	5,728	5,728	n/a	n/a	n/a	1,291	1,291	n/a	n/a	3,525	3,514
Managed account balance qtr end					$478,875,082					$186,552,674				$590,596,131	$162,104,760
Retirements - 2nd QTR FY23	38	97	114	249	16	265	6	22	28	-	28	1	31	n/a	n/a
Full Disbursements - 2nd QTR FY23	16	47	88	151	552	703	5	12	17	96	113	-	n/a	586	155
Partial Disbursements - 2nd QTR FY23	n/a	n/a	n/a	n/a	356	356	n/a	n/a	n/a	55	55	n/a	n/a	1,711	738

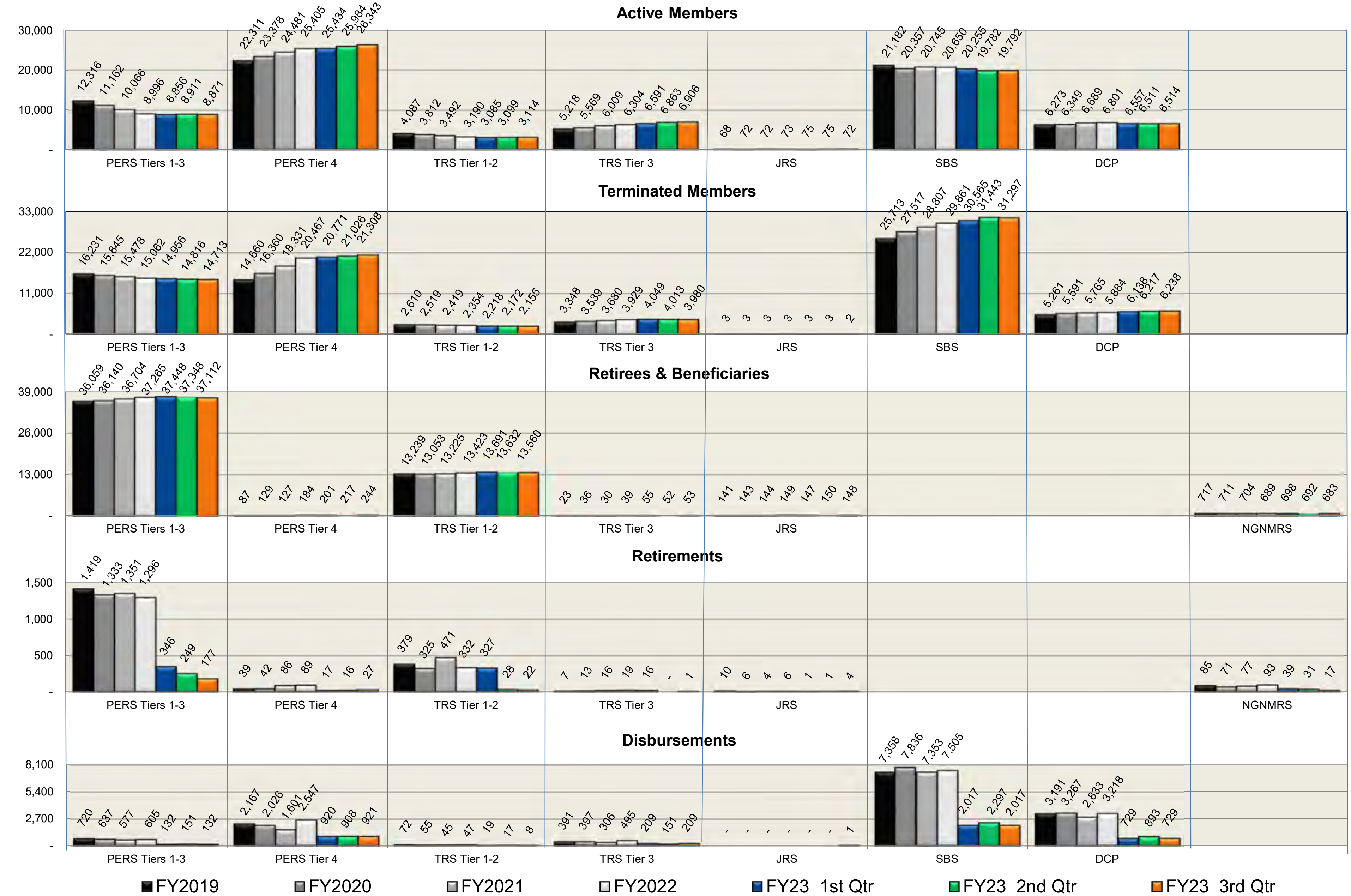
MEMBERSHIP STATISTICS AS OF MARCH 31, 2023

	PERS						TRS					JRS	NGNMRS	SBS	DCP
	DB				DCR	SYSTEM	DB			DCR	SYSTEM				
	Tier I	Tier II	Tier III	Total	Tier IV	TOTAL	Tier I	Tier II	Total	Tier III	TOTAL				
Active Members	495	1,861	6,515	8,871	26,343	35,214	110	3,004	3,114	6,906	10,020	72	n/a	19,792	6,514
Terminated Members															
Entitled to Future Benefits	221	1,410	3,106	4,737	2,639	7,376	13	580	593	993	1,586	1	n/a	31,297	6,238
Other Terminated Members	937	1,900	7,139	9,976	18,669	28,645	203	1,359	1,562	2,987	4,549	1	n/a	n/a	n/a
Total Terminated Members	1,158	3,310	10,245	14,713	21,308	36,021	216	1,939	2,155	3,980	6,135	2	n/a	31,297	6,238
Retirees & Beneficiaries	21,547	9,648	5,917	37,112	244	37,356	9,683	3,877	13,560	53	13,613	148	683	n/a	n/a
Managed Accounts	n/a	n/a	n/a	n/a	5,714	5,714	n/a	n/a	n/a	1,290	1,290	n/a	n/a	3,589	3,583
Managed account balance qtr end					$ 507,485,962					$ 196,847,516				$ 628,451,518	$ 170,653,902
Retirements - 3rd QTR FY23	12	64	101	177	27	204	1	21	22	1	23	4	17	n/a	n/a
Full Disbursements - 3rd QTR FY23	13	45	74	132	718	850	1	7	8	143	151	1	n/a	586	162
Partial Disbursements - 3rd QTR FY23	n/a	n/a	n/a	n/a	203	203	n/a	n/a	n/a	66	66	n/a	n/a	1,431	567

Alaska Division of Retirement and Benefits

FY 2023 QUARTERLY REPORT OF MEMBERSHIP STATISTICS

Annual & Quarterly Trends as of March 31, 2023



LEGEND

Active Members - All active members at the time of the data pull,
except SBS & DCP, which are counts of contributors during the final quarter of each period.
Terminated Members - All members who have terminated without refunding their account,
except SBS & DCP, which are counts of members with balances at the end of the period less active members.
Retirees & Beneficiaries - All members who have retired from the plans, including beneficiaries eligible for benefits.
Managed Accounts - Individuals who have elected to participate in the managed accounts option with Empower.
Retirements - The number of retirement applications processed.
Full Disbursements - All types of disbursements that leave the member balance at zero.
Partial Disbursements - All types of disbursements that leave the member balance above zero. If more than one partial disbursement is completed during the quarter for a member, they are counted only once for statistical purposes.

Division of Retirement & Benefits
Alaska Retirement Management Board

Division Staff Report
June 15, 2023

BEnefits And Retirement System (BEARS) IT Modernization

Project Background:

With a capital appropriation in FY19, the Division of Retirement and Benefits (DRB) began implementing a multi-year project to modernize IT and work processes to drive efficiency, accuracy, and security associated with its core business and services. This integrated, enterprise-wide system supports all of our core business functions for pension and health plans of all tiers including demographic information as a single source of truth. The system will be an enterprise-level retirement information system solution providing many modern tools to enable the state to maintain and improve service to members. The system will integrate core business processes, facilitate consistency, and enable additional oversight and accountability.

DRB's contracted vendors, Linea (Project Management) and Sagitec (Technical Implementation), are working closely with DRB staff to continue to analyze any changes to DRB's needs, review all requirements, and design and develop the modules that will comprise the enterprise-wide system.

Status Update:

Since the March 2023 update on the BEARS project, DRB has had several accomplishments and met a number of milestones. Accomplishments include:

- *Scope Change Requests:* All change requests mentioned in the previous update have been fully designed and 12 of 13 have been fully developed.

- *Program Modules:* Design has been completed on all modules, and development of all but 7 program modules is complete. Pilot 3 testing is scheduled for August 2023.

- *Data Conversion:* Success of the project requires that data sources be mapped correctly for accessibility within BEARS. 9 modules are fully mapped, 8 modules are at or over 98% complete, and 1 module is at 33% complete.

- *System Testing:* Testing by Sagitec of the developed modules has begun. Test execution on 20 of 35 modules is complete and exception and error corrections are underway for those modules. 10 of the 15 remaining modules have unit or system testing in process, while 5 have not begun the testing process.

Budget and Spending by Vendors (as of 5/26/2023):

Sagitec **–** Program design, development, and implementation

- *Total spend-to-date in the previous reporting period was overstated. The accurate amount is in the table below:*

Total Auth	25,566,097
Spend-to-date	14,227,715
Balance Remaining	*11,338,382*

Linea – Program management

- *The revision of the implementation date caused by the previously reported Scope Change Request necessitates that DRB request a cost amendment of $896,328 to the Linea contract to support the remainder of the project:*

Original Auth	3,270,858
Amendment	896,328
Total Auth	4,167,186
Spend-to-date	3,047,264
Balance Remaining	*1,045,716*

THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Revenue

ALASKA RETIREMENT MANAGEMENT BOARD

PO Box 110405
Juneau, Alaska 99811-0405
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Chief Investment Officer Report – June 2023

1. CIO Update

2. Watch List:
   a. Existing – Fidelity Real Estate High Income, performance, 12/21
   b. Existing – Blackrock Real Estate, personnel turnover, 3/22
   c. Existing – Brandes International, performance, 3/22
   d. Existing – Baillie Gifford, performance, 9/22
   e. Recommended Removal – Brandes International
   f. Recommended Removal – Blackrock Real Estate

3. Material contract and investment actions:
   a. 03/07/23 New Mountain VII – $50 million private equity commitment
   b. 04/06/23 Genstar XI – $50 million private equity commitment
   c. 05/02/23 Comvest Credit Partners Fund– $100 million private debt investment
   d. 05/02/23 Crestline Blue Glacier Fund II – $200 million private debt investment
   e. 05/18/23 Callan General Consulting Contract Renewal
   f. 05/18/23 Callan Real Assets Consulting Contract Renewal

4. Portfolio Transaction Update from February 2023 through April 2023

Individual Manager Transactions

Feb 2023 - April 2023

Asset Class	Total
Fixed Income	265,154,277
Broad Domestic Equity	(85,154,277)
Global Equity Ex-US	(180,000,000)
Real Assets	-
Multi-Asset	-
Private Equity	-
Net Buys	265,154,277
Net Sells	(265,154,277)

Manager	Total	Fund	Asset Class	Description
Short Term Fixed Income Pool	275,154,277	AY70	Fixed Income	Rebalancing
ARMB Aggregate Bond Fund	(10,000,000)	AY77	Fixed Income	Rebalancing
ARMB Domestic Residual Assets	(154,258)	AY5E	Dom. Equity	Rebalancing
Large Cap Transition Account	(20)	AY30	Dom. Equity	Rebalancing
ARMB S&P 900	(85,000,000)	AY4L	Dom. Equity	Rebalancing
SSGA World ex-US IMI	(105,000,000)	AYL7	Intl. Equity	Rebalancing
Brandes Investment Partners	(50,000,000)	AY65	Intl. Equity	Rebalancing
Capital Group	(25,000,000)	AY67	Intl. Equity	Rebalancing

Alaska Retirement Management Board Statutory Investment Powers and Duties

Ben Hofmeister

Senior Assistant Attorney General

State of Alaska, Department of Law

June 15, 2023

State Law and ARMB

State Constitution – Diminishment Clause

Open Meetings Act

Public Records Act

Executive Branch Ethics Act

Duties and Powers of a Fiduciary

<u>Why?</u>

It is required under state law

AS 37.10.210(h)

"The board shall provide annual training to its members on the duties and powers of a fiduciary of a state fund and other training necessary to keep the members of the board educated about pension management and investment."

Law School 101

AS 37.10.210

AS = Alaska Statutes

37 = Title 37 (Public Finance)

10 = Chapter 10 (Public Funds)

210 = Section 210 (ARMB)

What is a fiduciary?

What is a fiduciary?

Fiduciary (noun) means:

One who transacts business, and handles money and property, not for self-interest, but for the benefit of another, "implying and necessitating great confidence and trust, and a high degree of good faith"

What is a fiduciary duty?

A fiduciary duty is when one party must act for another. The fiduciary is entrusted with the care of property or funds. It is a duty of a third party who stands in a position of trust or confidence with another person to act with due regard for the benefit and interest of that person.

ARMB's Fiduciary Duty
AS 37.10.210(a)

"The board's primary mission is to serve as the trustee of the assets of the state's [retirement plans] and the [retiree health care trusts]."

ARMB's Fiduciary Duty
AS 37.10.210(a)

1. Consistent with standards of <u>prudence</u>

2. Fiduciary obligation to <u>manage and invest</u> assets entrusted to the board

3. In a manner sufficient to <u>meet liabilities and obligations</u>

ARMB's Fiduciary Duty
AS 37.10.071

1. Exercise powers and duties of an owner with respect to the assets

2. Perform necessary and proper acts to administer the assets

3. Apply the Prudent Investor Rule

ARMB's Fiduciary Duty

Prudent Investor Rule

ARMB's Fiduciary Duty
Prudent Investor Rule

AS 13.36.260(a)

"A trustee shall invest and manage trust assets as a prudent investor would by considering the purposes, terms, distribution requirements, and other circumstances of the trust, in satisfying this standard, the trustee shall exercise reasonable care, skill, and caution."

ARMB’s Fiduciary Duty
Prudent Investor Rule

AS 13.36.260(b)

“Trustee’s investment and management decisions respecting individual assets shall be evaluated not in isolation but in the context of the trust portfolio as a whole and as a part of an overall investment strategy having risk and return objectives reasonably suited to the trust.”

ARMB's Fiduciary Duty
Prudent Investor Rule

AS 37.10.071(c):

"[T]he fiduciary of a state fund shall apply the prudent investor rule and exercise the fiduciary duty in the sole financial best interest of the fund entrusted to the fiduciary. Among beneficiaries of a fund, the fiduciaries shall treat beneficiaries with impartiality."

ARMB's Powers and Duties

AS 37.10.220 (a)

ARMB's Powers and Duties
AS 37.10.220 (a)

- Hold Meetings
- Adopt Investment Policies
- Provide a Range of Investment Options
- Employer Contribution Rates
- Actuarial Valuations
- Auditing and Reporting

ARMB's Powers and Duties

History 101

Mercer

1990's – .com bubble

Unfunded Liability

2005 Pension Reform

Creation of the ARMB

Changes in Actuarial Practices

ARMB's Power and Duties

Investments

- Fiduciary duty applies to all funds managed by ARMB
- No ideal prudent behavior for all situations
- Depends on purpose of invested funds
- Objective and subjective components
- Diversification

Do Trustees have to do this on their own?

Answer = NO

Do Trustees have to do this on their own?

Answer = NO

AS 37.10.260(a)

"The Department of Revenue shall provide staff for the board."

AS 37.10.270(a)

"The board may appoint investment advisory council."

Do Trustees have to do this on their own?

Answer = NO

AS 37.10.220(b)(1)

“The board may employ outside investment advisors to review investment policies.”

AS 37.10.220(b)(3)

“The board may contract for other services necessary to execute the board’s power and duties.”

Do Trustees have to do this on their own?

Answer = NO

AS 37.10.071(d)

"In exercising investment, custodial, depository powers or duties…the fiduciary or the fiduciary's designee is liable for a breach of a duty that is assigned or delegated under this section…However, the fiduciary or the designee is not liable for a breach of duty that has been delegated to another person if the delegation is prudent…"

CONCLUSION

- ARMB has an enormous fiduciary responsibility, but a significant toolkit set out in its statutes
- How to use it?
  - Follow the processes as set out in AS 37.10.220
  - Refine structure and governance
  - Continually review policies
  - Maintain compliance
  - Comply with reporting requirements
  - Attend meetings and ASK QUESTIONS!

QUESTIONS?

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: JP Morgan Smart Retirement Discontinue Participant-Directed Plans

ACTION: X

DATE: June 15, 2023

INFORMATION:

BACKGROUND:

The Alaska Retirement Management Board added the J.P. Morgan Smart Retirement portfolios at the June 2020 board meeting. The objective was a retiree income solution to improve participants' expected retirement experience. Retiree income solutions include strategies that help give retirees guidelines, but not guarantees, for drawing down income in retirement, and include such products as bond ladders, endowment strategies, and other spenddown solutions.

On February 13, 2023, JP Morgan notified staff that the JP Morgan Smart Retirement Blend 2015 fund would be closed and liquidated in June of 2023 due to the low level of assets invested in the fund. Staff requested that the fund provide staff additional time to evaluate options for participants and allow Empower to communicate to participants in a timely manner. The 2015 fund will now be closed on October 25, 2023.

	Number of Participants	Market Value	% of Total DC Funds
JPMorgan SmartRetirementBlend 2015 R6	30	1,102,655	0.013%
JPMorgan SmartRetirementBlend 2020 R6	45	403,484	0.005%

JP Morgan is not discontinuing the 2020 fund. They are merging it with their broader target date funds, and it will no longer be a discrete retiree income solution. This creates potential participant confusion with existing Alaska target date options and staff does not recommend continuing adding to the series of Smart Retirement portfolios as a result.

The 2020 fund could continue as a stand-alone option, but has gathered assets of just over $400,000, representing a small 0.005 percent of the participant directed funds. Unfortunately, this is not enough participant interest for staff to recommend continuing it as a stand-alone option. Therefore, staff recommends discontinuing the 2020 fund at the same time that the 2015 fund is discontinued. Staff further recommends that participants be notified and those that remain in the funds should be mapped into an age-appropriate target date fund.

RECOMMENDATION:

The Alaska Retirement Management Board direct staff to discontinue the JP Morgan Smart Retirement Blend 2015 and JP Morgan Smart Retirement Blend 2020 in the Alaska Supplemental Annuity Plan, the Defined Contribution Retirement Plans, and the Deferred Compensation Plan and request that the recordkeeper notify participants of the intent to remap them into an age-appropriate target date fund if they don't select a different option prior to the date the 2015 fund will be discontinued.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	Fidelity Core Plus Strategy - Active Participant-Directed Plans	ACTION:	X
DATE:	June 15, 2023	INFORMATION:	

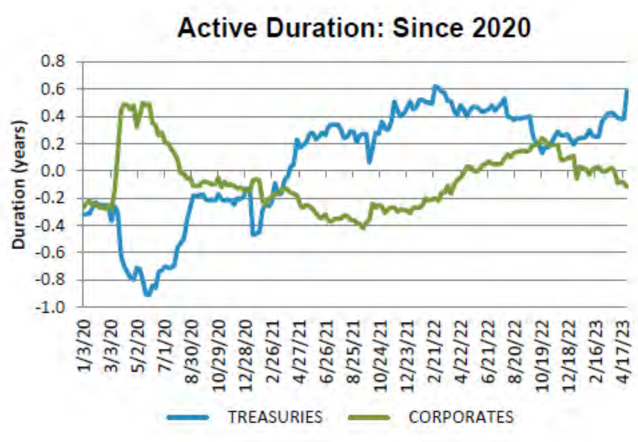
BACKGROUND:

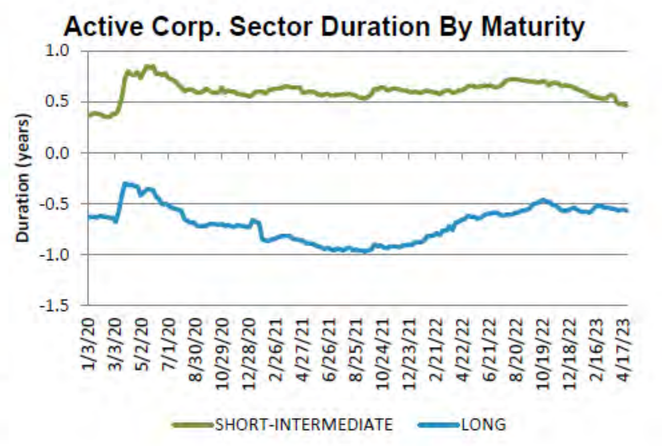
During the Investment Structure Evaluation of the participant-directed plans, Callan recommended adding an Active Core Plus Fixed Income option. A manager for this type of strategy should have a historical ability to add value above their benchmarks through their ability to allocate to out-of-benchmark sectors and manage duration exposure.

Staff evaluated the Fidelity Core Plus Strategy. The strategy seeks consistent competitive risk-adjusted total returns and aims to mitigate unexpected downside risk. The manager has delivered on these expectations historically.

	Cumulative	Annualized			
	3-Month	1-Year	3-Year	5-Year	10-Year
Core Plus Total Composite (Gross) %	**0.40**	**(0.12)**	**(0.63)**	**2.34**	**2.47**
Core Plus Total Composite (Net) %	**0.32**	**(0.45)**	**(0.95)**	**2.00**	**2.13**
BBg US Agg Bond Index	0.49	(0.43)	(3.15)	1.18	1.32
Relative Return (Gross)	*(0.09)*	*0.31*	*2.52*	*1.16*	*1.15*
Relative Return (Net)	*(0.17)*	*(0.02)*	*2.20*	*0.82*	*0.81*
Standard Deviation	–	–	**6.38**	**5.73**	**4.58**
BBg US Agg Bond **Index**	–	–	6.19	5.45	4.36
*Information Ratio	–	–	**1.56**	**0.41**	**0.48**
Peer Universe Performance Ranking					
	1Q23	1-Year	3-Year	5-Year	10-Year
**eVestment Universe Percentile as of March 31, 2023	43rd	33rd	29th	21st	28th

Fidelity Core plus Strategy - Asset Allocation





Fidelity is an approved manager by Callan. Staff has an existing relationship with the management team that manages the Fidelity Tactical Bond fund and pricing for the Core Plus Strategy will take relationship pricing into account.

RECOMMENDATION:

The Alaska Retirement Management Board direct staff to contract with Fidelity to offer the Core Plus Strategy in the Alaska Supplemental Annuity Plan, the Defined Contribution Retirement Plans and the Deferred Compensation Plan.

Report on Alaska Retiree Health Plan Advisory Board Meeting May 4, 2023

The advisory board facilitates engagement and coordination between the State's retirement systems' members, the ARMB, and the Commissioner regarding the administration of the retiree health plan.

The Department of Administration, Division of Retirement and Benefits, is working with the board to review the following proposed updates to the AlaskaCare Defined Benefit Retiree Health Plan:

- Update to the Lifetime Benefit Maximum
- Addition of Supplemental Non-Emergent Surgery and Travel Benefits
- Addition of Virtual Physical Therapy and Musculoskeletal Care

Detailed draft proposals are posted on the Division website. Public comment on these proposals will end June 16.

Update to the Lifetime Benefit Maximum

Three Lifetime Benefit Maximum options had previously been considered. The Division is no longer considering increasing the maximum to \$4 million, which is the equivalent to an inflationary increase since the last update to the lifetime maximum.

The options below are being put forward.

Option	Financial Impact
Option 1: Lifetime Maximum Increased to \$8 million	\$2.4 million annual increase
Option 2: Lifetime Maximum Removed	\$2.74 million annual increase

The cost increase associated with the proposed benefit alteration may have long-term impacts to the healthcare Actuarial Accrued Liability and to the Additional State Contributions associated with the Plan.

Because the financial impact to the plan will vary depending on whether individuals with claims over \$2 million are enrolled in Medicare or are not yet Medicare-eligible, the future cost projections contemplate two scenarios:

• 10% of the cost impact attributable to Medicare members / 90% attributable to non-Medicare members.

• 20% of the cost impact attributable to Medicare members / 80% attributable to non-Medicare members.

Addition of Supplemental Non-Emergent Surgery and Travel Benefits

Traveling to seek care often enables members to visit providers best suited to meet their health needs, many health plans, including the AlaskaCare Employee Health Plan (employee plan) have implemented programs to ease the burden of travel, and to incentivize use of providers who meet certain quality and cost metrics. Plans report benefits from this model including avoided unnecessary procedures, reduced complication and readmittance rates, and discounted costs.

It is estimated that this benefit will have a neutral actuarial impact, but the financial impact will be a cost decrease.

Addition of Virtual Physical Therapy and Musculoskeletal Care
Virtual PT is a method of providing physical therapy or musculoskeletal (MSK) care services where patients communicate with a provider via phone call or videoconference. This proposal considers providing Plan members with access to a virtual MSK care and support program as an additional care and treatment option. The addition of such a program should benefit the membership and allow for greater choice, improved accessibility, and additional convenience.

These benefits are available to be added based on services being offered by a third-party provider. The ability to continue to offer them is dependent on the continued availability of the service provider.

The AlaskaCare Active employee plan added this benefit in July 2021 and has seen good results. Participants in the chronic program reported a 52% reduction in pain and surgery likelihood decreased by 59%. In the acute program, participants reported a 63% reduction in pain over the first three weeks of therapy and a 28% reduction in pain during weeks four through six.

The not yet approved projected healthcare AAL for the defined benefit retiree systems combined (PERS, TRS, and JRS) as of the June 30, 2022, valuation is $9,117.7 million. Under the scenarios contemplated, if Hinge Health was implemented for the retiree plan, the illustrative impact on the AAL could range from an increase of $27 million to a decrease of $500k. This represents a .30% to -0.01% impact on the overall AAL.

Next meeting
The board will meet June 29, 2023, to review and consider an advisory vote on the three proposals.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: Certification of Actuarial Review ACTION: X

DATE: June 15-16, 2023 INFORMATION:

BACKGROUND:

AS 39.10.220 (a) (9) prescribes certain duties and reports that the Alaska Retirement Management Board is responsible for securing from a member of the American Academy of Actuaries. Additionally, it contains a requirement that "the results of all actuarial assumptions prepared under this paragraph shall be reviewed and certified by a second member of the American Academy of Actuaries before presentation to the board."

AS 37.10.220(a)(9) provides that "the results of all actuarial assumptions prepared under this paragraph shall be reviewed and certified by a second member of the American Academy of Actuaries before presentation to the Board."

STATUS:

Buck Global, LLC (Buck), the board's primary actuary, has completed valuation reports of the following two (2) defined benefit plans as of June 30, 2022:

- Public Employees' Retirement System (PERS)
- Teachers' Retirement System (TRS)

The following two (2) defined contribution plans as of June 30, 2022:

- PERS Tier IV for Occupational Death & Disability and Retiree Medical Benefits
- TRS Tier III for Occupational Death & Disability and Retiree Medical Benefits

Gabriel Roeder Smith & Company (GRS), the board's review actuary, has reviewed the valuation reports prepared by Buck and provided a letter and report describing a review of the above listed valuation reports.

GRS compiled and reviewed an audit findings list (incorporated in the report referenced above) setting out recommendations and suggestions from the GRS review reports for further discussion or action.

RECOMMENDATION:

That the Alaska Retirement Management Board accept the review and certification of the FY 2022 actuarial reports by Gabriel Roeder Smith & Company.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	Acceptance of Actuarial Valuation Reports PERS / TRS DB & DCR	ACTION:	X
DATE:	June 15, 2023	INFORMATION:	

BACKGROUND:

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

AS 37.10.220(a)(9) provides that "the results of all actuarial assumptions prepared under this paragraph shall be reviewed and certified by a second member of the American Academy of Actuaries before presentation to the Board."

STATUS:

Buck Global, LLC (Buck), the Department of Administration's and Plans' actuary, has completed and reviewed the following reports with the Board's Actuarial Committee on November 30, 2022, March 15, 2023, and June 14, 2023:

1) an actuarial valuation of the Public Employees' Retirement System as of June 30, 2022
2) an actuarial valuation of the Teachers' Retirement System as of June 30, 2022
3) an actuarial valuation of the Public Employees' Retirement System – Defined Contribution Retirement Plan (for Occupational Death and Disability and Retiree Medical Benefits) as of June 30, 2022
4) an actuarial valuation of the Teachers' Retirement System – Defined Contribution Retirement Plan (for Occupational Death and Disability and Retiree Medical Benefits) as of June 30, 2022

There are three assumption changes recommended and presented in the final reports:

1) At the June 2022 Board meeting, the Board adopted the changes to the demographic and economic assumptions recommended by the actuary based on the results of an experience study performed on the plan experience from July 1, 2017 to June 30, 2021;
2) Healthcare claim costs are updated annually and described in Section 5.2 for the PERS and TRS DB and Section 4.2 for the PERS DCR and TRS DCR actuarial valuation reports; and
3) The Normal Cost load for administrative expenses was updated based on the most recent two years of actual amounts paid from plan asset.

Gabriel Roeder Smith & Company (GRS), the Board's actuary, has reviewed the listed actuarial valuations and provided their reports and audit findings to the Actuarial Committee and the Board.

ACTION:

The Alaska Retirement Management Board accepts the actuarial valuation reports prepared by Buck for the Public Employees', Teachers', Public Employees' Defined Contribution (for Occupational Death and Disability and Retiree Medical Benefits), and Teachers' Defined Contribution (for Occupational Death and Disability and Retiree Medical Benefits) retirement systems as of June 30, 2022.

Callan

June 15, 2023

ARMB Board Meeting

Preliminary Investment Performance
Periods Ended March 31, 2023

Steve Center, CFA
Senior Vice President

Ivan "Butch" Cliff, CFA
Executive Vice President and Director of Research

Hannah Vieira
Assistant Vice President

Agenda

- Market and Economic Environment

- Total Fund Performance
  - Participant-Directed Plans
  - Defined Benefit Plans
  - DB Plans Major Asset Classes

Equity and Fixed Income Markets Up Together in 4Q22 and 1Q23

Declines for stocks and bonds in first three quarters of 2022 eased by market rebound

S&P 500 up 7.5% in both 1Q23 and 4Q22.

- Loss through first three quarters of 2022 was 23.8%; rebound in last two quarters reduced the loss to -9.7%. Similar loss reduction across all equity market segments: developed, emerging, small cap

Fixed income recovered as high inflation began to ease, leading to speculation about interest rates

- Bloomberg Aggregate: up 3% in 1Q, after a 1.9% rise in 4Q22, lowering the loss since the start of 2022 to 8.4%
- CPI-U: +5% year-over year for 1Q, down from 6.5% for the year ended Dec. 2022

▶ Inflation hit the highest rate (9%) in decades in June.

▶ Economic data show growth slowed in 2022; GDP gained only 1.1% in 1Q

- Job market remains solid, providing support to Fed efforts to fight inflation

Returns for Periods ended 3/31/23

	Quarter	Year to Date	1 Year	5 Years	10 Years	25 Years
U.S. Equity						
Russell 3000	7.18	7.18	-8.58	10.45	11.73	7.45
S&P 500	7.50	7.50	-7.73	11.19	12.24	7.39
Russell 2000	2.74	2.74	-11.61	4.71	8.04	6.84
Global ex-U.S. Equity						
MSCI World ex USA	8.02	8.02	-2.74	3.80	4.91	4.39
MSCI Emerging Markets	3.96	3.96	-10.70	-0.91	2.00	--
MSCI ACWI ex USA Small Cap	4.70	4.70	-10.37	1.67	5.06	6.45
Fixed Income						
Bloomberg Aggregate	2.96	2.96	-4.78	0.91	1.36	4.03
90-day T-Bill	1.07	1.07	2.50	1.41	0.87	1.90
Bloomberg Long Gov/Credit	5.76	5.76	-13.40	0.63	2.35	5.56
Bloomberg Global Agg ex-US	3.06	3.06	-10.72	-3.17	-0.99	2.80
Real Estate						
NCREIF Property	-1.81	-1.81	-1.63	6.71	8.34	8.79
FTSE Nareit Equity	2.68	2.68	-19.22	6.02	5.97	8.01
Alternatives						
CS Hedge Fund Index	0.92	0.92	1.06	4.25	4.24	5.81
Cambridge Private Equity*	-1.84	-1.84	-3.77	16.84	15.31	14.31
Bloomberg Commodity	-5.36	-5.36	-12.49	5.36	-1.72	1.80
Gold Spot Price	8.76	8.76	1.65	8.40	2.21	7.81
Inflation - CPI-U	1.70	1.70	4.98	3.88	2.63	2.51

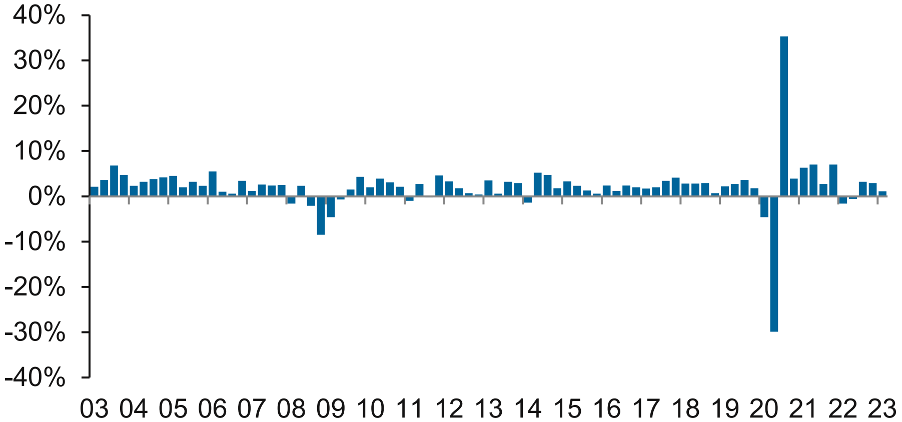
*Cambridge PE data as of 3Q22 and CS Hedge fund data as of 4Q22.

Sources: Bloomberg, Callan, Cambridge, Credit Suisse, FTSE Russell, MSCI, NCREIF, S&P Dow Jones Indices

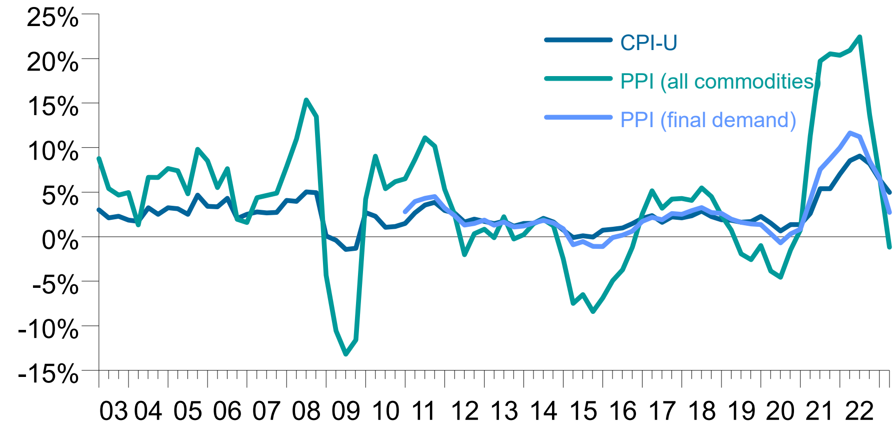
U.S. Economy—Summary

For periods ended 3/31/23

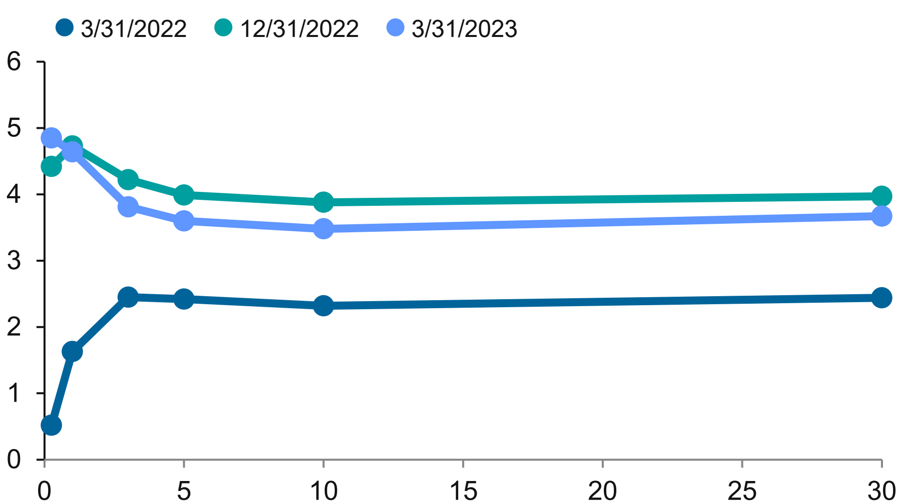
Quarterly Real GDP Growth



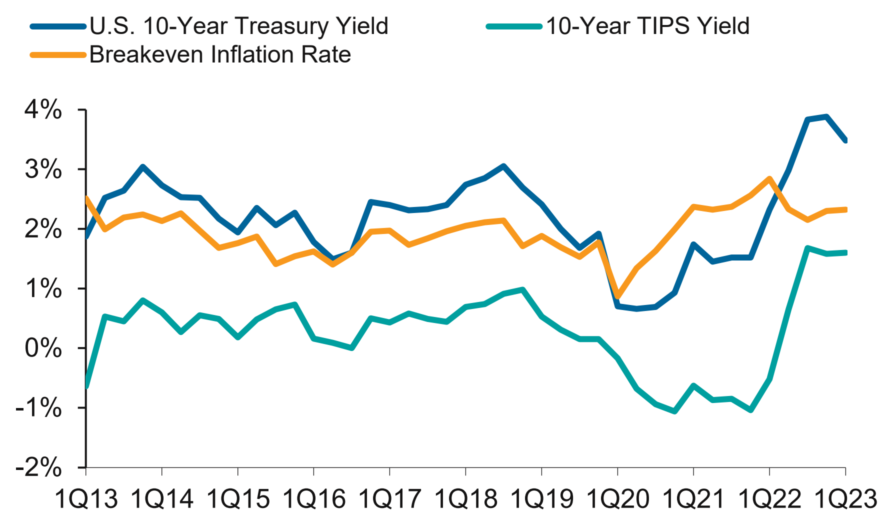
Inflation Year-Over-Year



U.S. Treasury Yield Curves



Historical 10-Year Yields Through 3/31/23

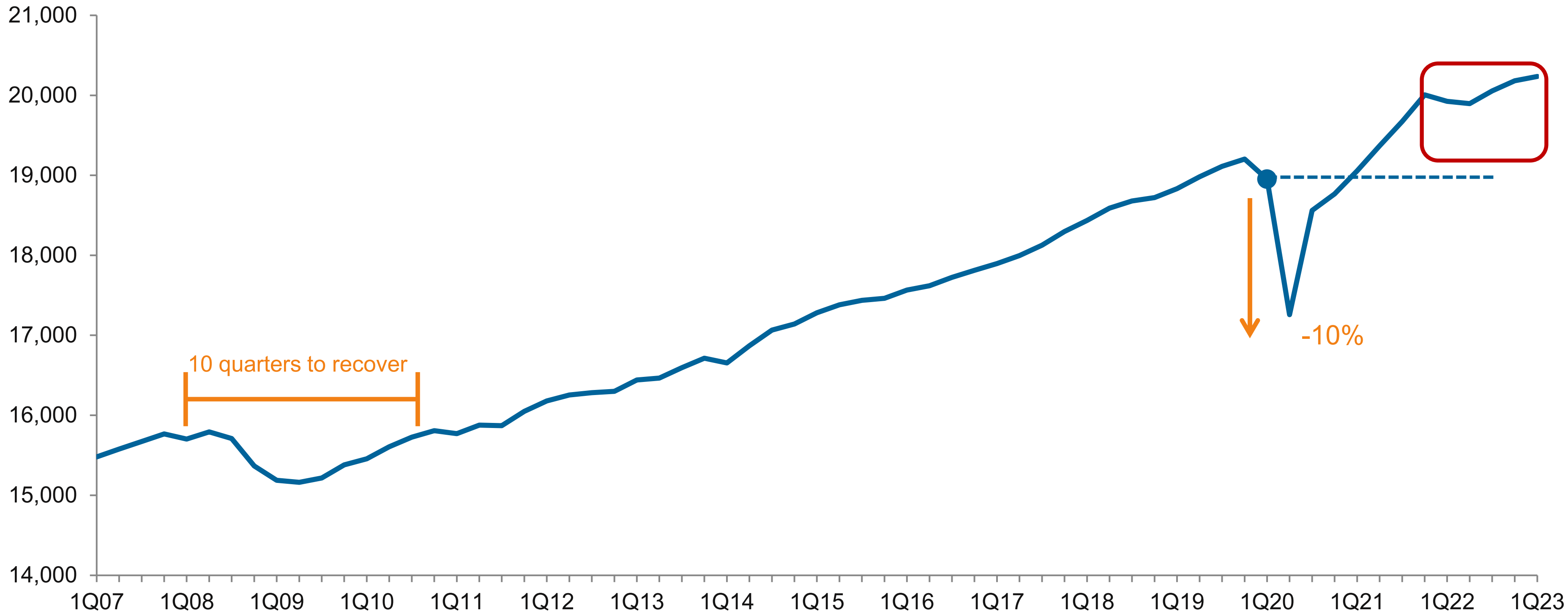


Sources: Bloomberg, Bureau of Labor Statistics, Callan

GDP Rose 1.1% in 1Q, Building on the Rebound in 3Q and 4Q

However, widespread expectations for a recession in 2023

Seasonally Adjusted Real GDP in Billions of Dollars Through 3/31/23



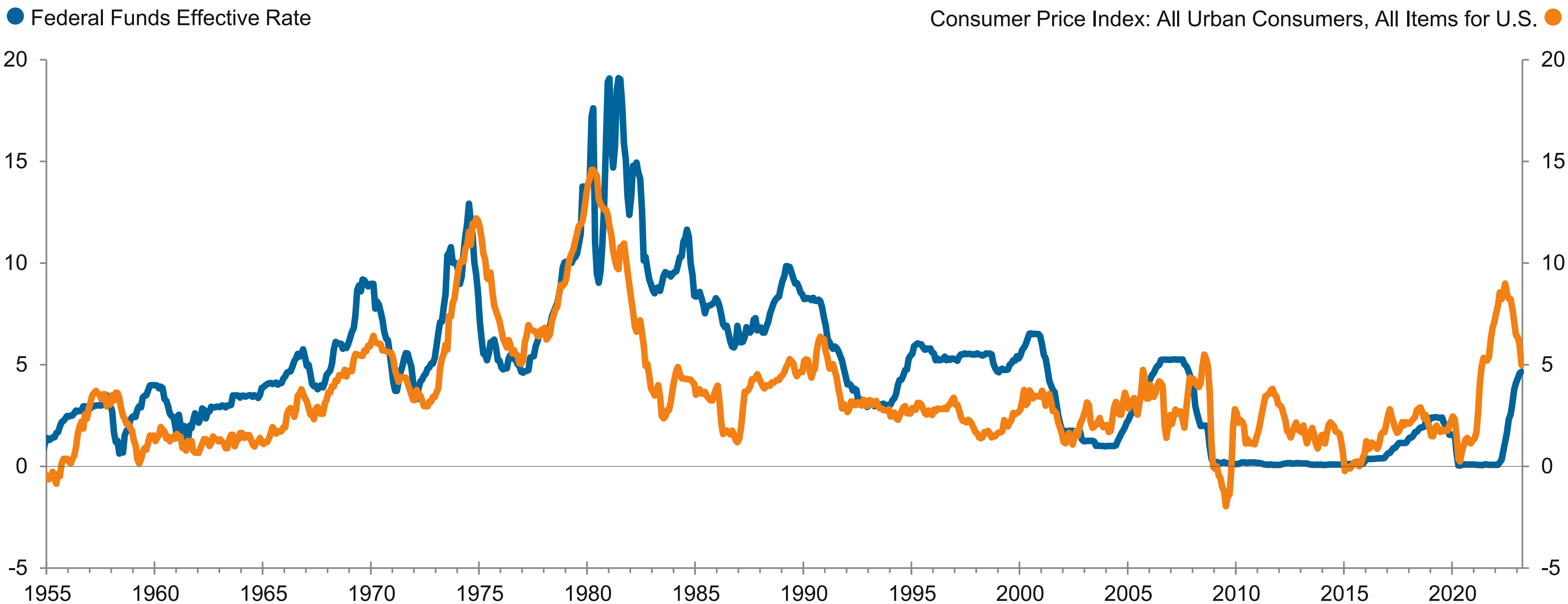
GDP rose 1.1% in 1Q23, after 2.1% growth in 2022.

- 2022 saw GDP decline in the first two quarters before gains of 3.2% in 3Q22 and 2.6% in 4Q.
- Loss of business and consumer confidence followed the start of the conflict in Ukraine.
- Consumer wealth hit by stock and bond market drop, and now a sharp slowdown in residential housing, as mortgage rates doubled from the start of the year.

Source: Federal Reserve Bank of St. Louis

Inflation vs. Interest Rates Over the Long Term

Federal Funds vs. Consumer Price Index

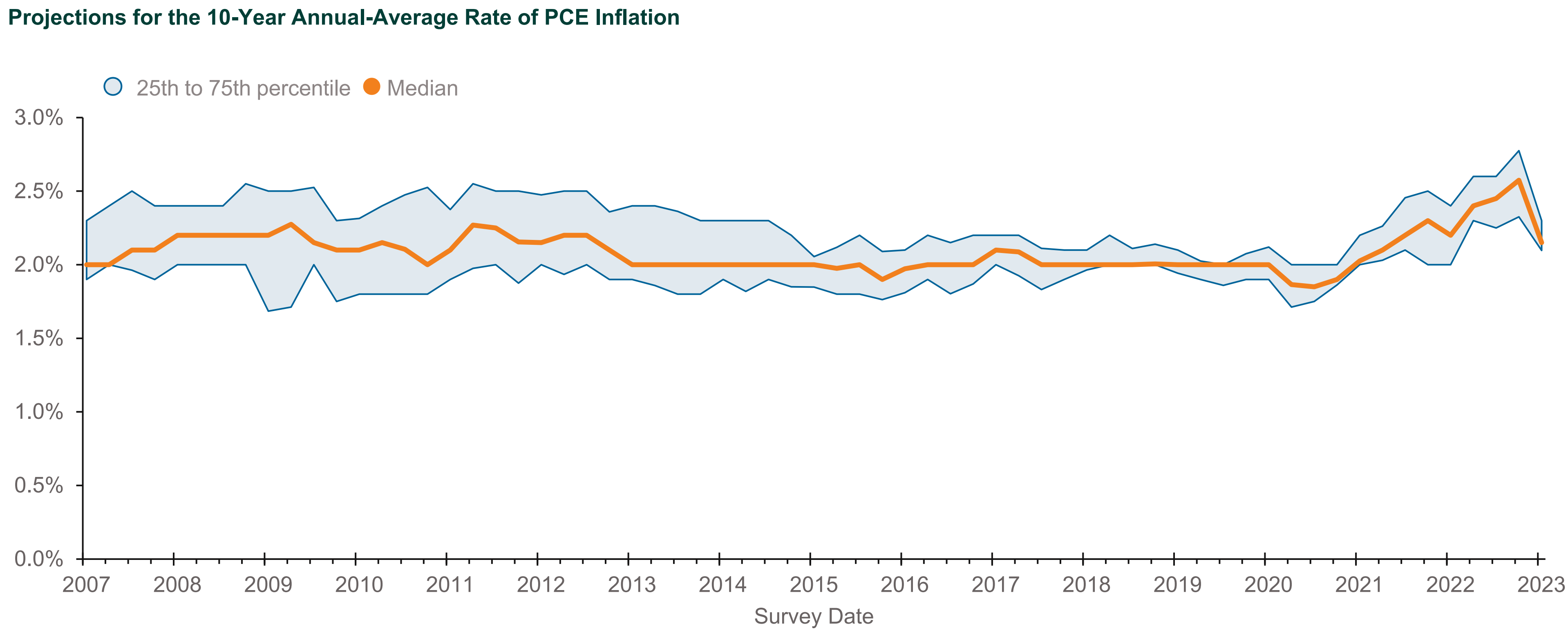


- The recent inflation spike capped out at 9% in June 2022, well above the last inflation peak from 2005–08.
- The gap between inflation and the Fed Funds rate reached an unprecedented level going back to 1955 but has closed quickly, as the Fed acted on rates and inflation has come down.
- Yield history suggests that the Fed Funds rate is typically above inflation, not below it.

Source: Federal Reserve Bank of St. Louis

Inflation Forecasts: Survey of Professional Forecasters, 10-Year Horizon

PCE inflation



Ten-year forecasts for inflation have risen since the start of 2021.

In the most recent survey, published in February, the 10-year forecast was 2.2%.

- The drop in the most recent quarter reflects that 2022 is no longer in the 10-year forecast.

Source: Philadelphia Federal Reserve, *First Quarter 2023 Survey of Professional Forecasters*

Callan Periodic Table of Investment Returns – Trailing Year

Monthly Returns												Trailing Year
Apr 2022	**May 2022**	**Jun 2022**	**Jul 2022**	**Aug 2022**	**Sep 2022**	**Oct 2022**	**Nov 2022**	**Dec 2022**	**Jan 2023**	**Feb 2023**	**Mar 2023**	**12 Mos.**
High Yield **-3.56%**	Dev ex-U.S. Equity **0.83%**	U.S. Fixed Income **-1.57%**	Small Cap Equity **10.44%**	Emerging Market Equity **0.42%**	High Yield **-3.97%**	Small Cap Equity **11.01%**	Emerging Market Equity **14.83%**	Global ex-U.S. Fixed Income **1.31%**	Small Cap Equity **9.75%**	High Yield **-1.29%**	Global ex-U.S. Fixed Income **3.73%**	Dev ex-U.S. Equity **-2.74%**
U.S. Fixed Income **-3.79%**	U.S. Fixed Income **0.64%**	Global ex-U.S. Fixed Income **-4.50%**	Large Cap Equity **9.22%**	Small Cap Equity **-2.05%**	U.S. Fixed Income **-4.32%**	Large Cap Equity **8.10%**	Dev ex-U.S. Equity **10.65%**	U.S. Fixed Income **-0.45%**	Real Estate **8.98%**	Small Cap Equity **-1.69%**	Large Cap Equity **3.67%**	High Yield **-3.34%**
Real Estate **-5.48%**	Emerging Market Equity **0.44%**	Emerging Market Equity **-6.64%**	Real Estate **7.96%**	High Yield **-2.30%**	Global ex-U.S. Fixed Income **-5.87%**	Dev ex-U.S. Equity **5.51%**	Real Estate **6.73%**	Dev ex-U.S. Equity **-0.48%**	Dev ex-U.S. Equity **8.20%**	Dev ex-U.S. Equity **-2.33%**	Emerging Market Equity **3.03%**	U.S. Fixed Income **-4.78%**
Emerging Market Equity **-5.56%**	High Yield **0.25%**	High Yield **-6.73%**	High Yield **5.90%**	U.S. Fixed Income **-2.83%**	Large Cap Equity **-9.21%**	Real Estate **2.99%**	Large Cap Equity **5.59%**	High Yield **-0.62%**	Emerging Market Equity **7.90%**	Large Cap Equity **-2.44%**	U.S. Fixed Income **2.54%**	Large Cap Equity **-7.73%**
Dev ex-U.S. Equity **-6.57%**	Large Cap Equity **0.18%**	Small Cap Equity **-8.22%**	Dev ex-U.S. Equity **4.97%**	Large Cap Equity **-4.08%**	Dev ex-U.S. Equity **-9.26%**	High Yield **2.60%**	Global ex-U.S. Fixed Income **5.58%**	Emerging Market Equity **-1.41%**	Large Cap Equity **6.28%**	U.S. Fixed Income **-2.59%**	Dev ex-U.S. Equity **2.22%**	Emerging Market Equity **-10.70%**
Global ex-U.S. Fixed Income **-6.83%**	Small Cap Equity **0.15%**	Large Cap Equity **-8.25%**	U.S. Fixed Income **2.44%**	Dev ex-U.S. Equity **-4.67%**	Small Cap Equity **-9.58%**	Global ex-U.S. Fixed Income **-0.14%**	U.S. Fixed Income **3.68%**	Real Estate **-2.79%**	High Yield **3.81%**	Global ex-U.S. Fixed Income **-3.99%**	High Yield **1.07%**	Global ex-U.S. Fixed Income **-10.72%**
Large Cap Equity **-8.72%**	Global ex-U.S. Fixed Income **0.01%**	Real Estate **-8.69%**	Global ex-U.S. Fixed Income **1.92%**	Global ex-U.S. Fixed Income **-4.99%**	Emerging Market Equity **-11.72%**	U.S. Fixed Income **-1.30%**	Small Cap Equity **2.34%**	Large Cap Equity **-5.76%**	Global ex-U.S. Fixed Income **3.48%**	Real Estate **-4.41%**	Real Estate **-3.26%**	Small Cap Equity **-11.61%**
Small Cap Equity **-9.91%**	Real Estate **-4.35%**	Dev ex-U.S. Equity **-9.41%**	Emerging Market Equity **-0.25%**	Real Estate **-6.49%**	Real Estate **-12.42%**	Emerging Market Equity **-3.10%**	High Yield **2.17%**	Small Cap Equity **-6.49%**	U.S. Fixed Income **3.08%**	Emerging Market Equity **-6.48%**	Small Cap Equity **-4.78%**	Real Estate **-21.40%**

Sources: ● Bloomberg Aggregate ● Bloomberg Corp High Yield ● Bloomberg Global Aggregate ex US ● FTSE EPRA Nareit Developed ● MSCI World ex USA ● MSCI Emerging Markets ● Russell 2000 ● S&P 500

Callan Periodic Table of Investment Returns – Trailing Fiscal Years

Fiscal Year Returns – Ending June 30

06/2014	06/2015	06/2016	06/2017	06/2018	06/2019	06/2020	06/2021	06/2022	2023 to Date
Large Cap Equity 24.61%	Large Cap Equity 7.42%	Real Estate 11.58%	Small Cap Equity 24.60%	Small Cap Equity 17.57%	Large Cap Equity 10.42%	U.S. Fixed Income 8.74%	Small Cap Equity 62.03%	U.S. Fixed Income -10.29%	Dev ex-U.S. Equity 13.96%
Dev ex-U.S. Equity 23.83%	Small Cap Equity 6.49%	Global ex-U.S. Fixed Income 11.24%	Emerging Market Equity 23.75%	Large Cap Equity 14.37%	U.S. Fixed Income 7.87%	Large Cap Equity 7.51%	Emerging Market Equity 40.90%	Large Cap Equity -10.62%	Large Cap Equity 9.98%
Small Cap Equity 23.64%	U.S. Fixed Income 1.86%	U.S. Fixed Income 6.00%	Dev ex-U.S. Equity 19.49%	Emerging Market Equity 8.20%	Real Estate 7.68%	Global ex-U.S. Fixed Income 0.71%	Large Cap Equity 40.79%	High Yield -12.81%	High Yield 7.19%
Emerging Market Equity 14.31%	Real Estate -0.36%	Large Cap Equity 3.99%	Large Cap Equity 17.90%	Dev ex-U.S. Equity 7.04%	High Yield 7.48%	High Yield 0.03%	Dev ex-U.S. Equity 33.60%	Real Estate -13.45%	Small Cap Equity 6.75%
Real Estate 13.55%	High Yield -0.40%	High Yield 1.62%	High Yield 12.70%	Real Estate 5.64%	Global ex-U.S. Fixed Income 4.10%	Emerging Market Equity -3.39%	Real Estate 33.55%	Dev ex-U.S. Equity -16.76%	Emerging Market Equity 0.84%
High Yield 11.73%	Emerging Market Equity -5.12%	Small Cap Equity -6.73%	Real Estate 0.21%	Global ex-U.S. Fixed Income 2.78%	Dev ex-U.S. Equity 1.29%	Dev ex-U.S. Equity -5.42%	High Yield 15.37%	Global ex-U.S. Fixed Income -18.78%	Global ex-U.S. Fixed Income 0.33%
Global ex-U.S. Fixed Income 9.42%	Dev ex-U.S. Equity -5.28%	Dev ex-U.S. Equity -9.84%	U.S. Fixed Income -0.31%	High Yield 2.62%	Emerging Market Equity 1.22%	Small Cap Equity -6.63%	Global ex-U.S. Fixed Income 4.60%	Small Cap Equity -25.20%	U.S. Fixed Income -0.09%
U.S. Fixed Income 4.37%	Global ex-U.S. Fixed Income -13.19%	Emerging Market Equity -12.05%	Global ex-U.S. Fixed Income -3.80%	U.S. Fixed Income -0.40%	Small Cap Equity -3.31%	Real Estate -16.25%	U.S. Fixed Income -0.33%	Emerging Market Equity -25.28%	Real Estate -4.79%

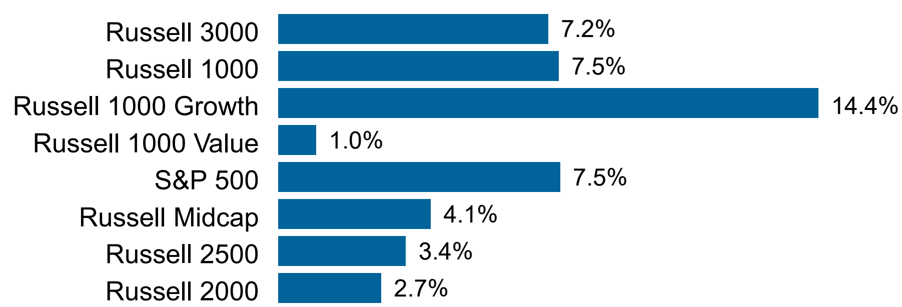
Sources: ● Bloomberg Aggregate ● Bloomberg Corp High Yield ● Bloomberg Global Aggregate ex US ● FTSE EPRA Nareit Developed ● MSCI World ex USA ● MSCI Emerging Markets ● Russell 2000 ● S&P 500

U.S. Equity Performance: 1Q23

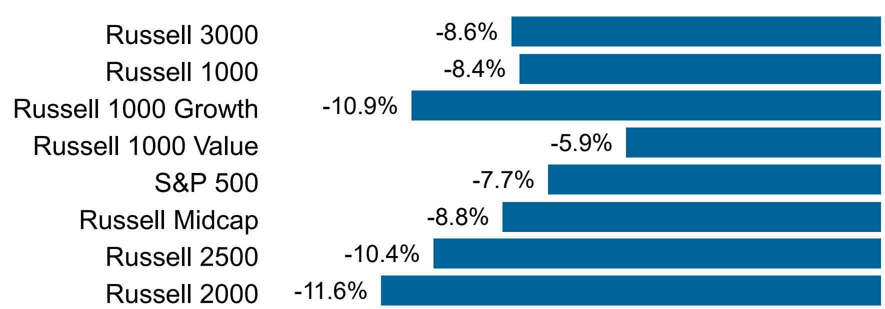
Large cap growth stocks lead broad indices higher; small cap indices hurt by regional bank sell-off

- The S&P 500 posted a second straight quarter of positive performance, gaining 7.5%; large cap growth led all styles, advancing 14.4%; Russell 2000 Value was an exception with a slight decline (0.7%) due to greater exposure to Financials, specifically small banks.
- Three sectors comprising 44% of S&P 500 (63% of Russell 1000 Growth) drove performance: Technology (+21.8%), Communication Services (+20.5%), and Consumer Discretionary (+16.1%). Financials, Energy, and Health Care were negative but had only a modest impact given smaller weights in these benchmarks.
- Small caps (Russell 2000) underperformed large caps (Russell 1000) and growth outperformed value during the quarter, a reversal of trend from 2022. Greater exposure to small banks in Russell 2000 (8.3%) versus Russell 1000 (3.3%) was one differentiator; strong returns for mega-cap Technology also increased divergence.

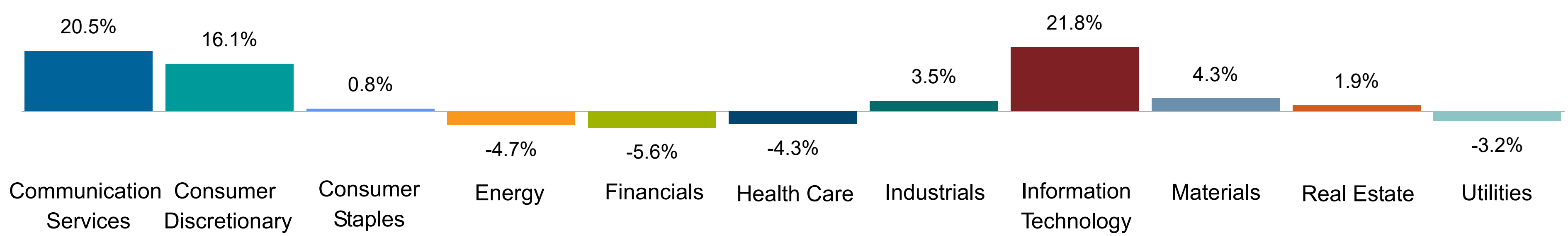
U.S. Equity: Quarter Ended 3/31/23



U.S. Equity: One-Year Returns Ended 3/31/23



Industry Sector Quarterly Performance (S&P 500) as of 3/31/23



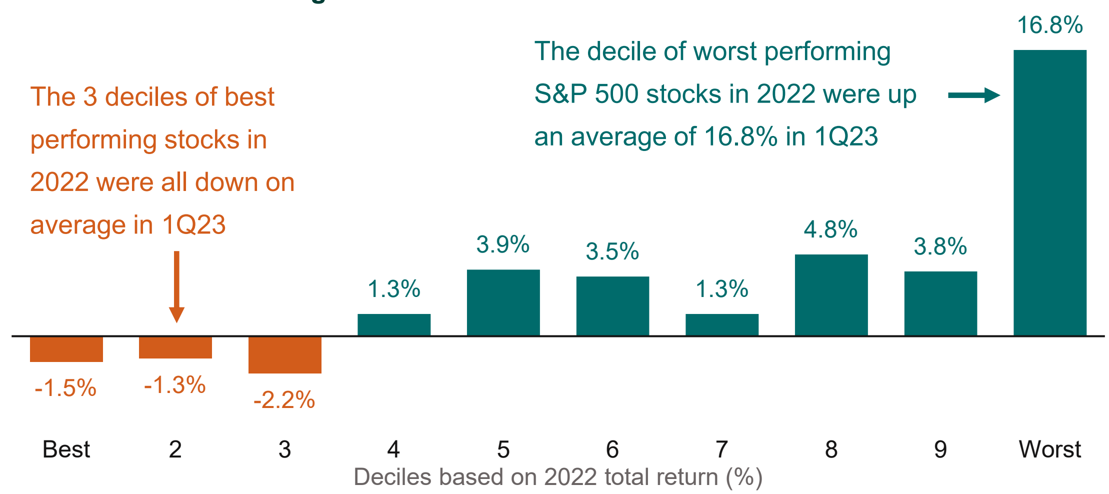
Sources: FTSE Russell, S&P Dow Jones Indices

U.S. Equity Overview

Worst to best: Large caps reverse 2022 trends during 1Q23

- Investors "bought the dip" as stock performance reversed from the prior year—the worst-performing stocks for 2022 became the best-performing stocks during 1Q23 in the S&P 500.
- The top chart illustrates the S&P 500 as deciles (10 groups of 50 stocks each) based on how stocks performed in 2022.
  - *Decile 1 contains the 50 stocks that performed the best in 2022, decile 2 contains the 50 next best, etc.*
  - *Decile 10 contains the 50 stocks that did the worst in 2022.*
- The three deciles containing the 150 best performing stocks in 2022 all averaged declines during 1Q23.
- On the flip side, the worst performers in 2022 averaged a gain of 16.8% during 1Q23, with strong absolute performance from mega-cap growth names such NVIDIA, Meta, Tesla, and Salesforce.

S&P 500 Deciles: 1Q23 Avg Performance Based on 2022 Performance



Best-Performing S&P 500 Stocks in 1Q23

Name	Sector	Price	Market Cap ($bn)	Total Return (%) 2022	Total Return (%) QTD
NVIDIA	Technology	277.77	686.1	-50.27	90.10
Meta Platforms	Comm Svcs	211.94	549.5	-64.22	76.12
Tesla	Cons Discret	207.46	656.4	-65.03	68.42
Warner Bros Discovery	Comm Svcs	15.10	36.8	--	59.28
Align Technology	Health Care	334.14	25.6	-67.91	58.44
Advanced Micro Devices	Technology	98.01	157.9	-54.99	51.32
Salesforce	Technology	199.78	199.8	-47.83	50.68
West Pharmaceutical	Health Care	346.47	25.7	-49.70	47.32
General Electric	Industrials	95.60	104.2	-10.92	46.35
Catalent	Health Care	65.71	11.8	-64.84	45.99

Source: Bespoke Investment

Global/Global ex-U.S. Equity Performance: 1Q23

A reversal of 2022

1Q23 brought global and global ex-U.S. equity markets back to black.

Positive results despite hiccups

- The first quarter of the year was marked by the collapse of Silicon Valley Bank and Credit Suisse, which sent fears of a banking crisis across global markets.
- Despite a Fed hike during the period, investors began to price in lower rate expectations.
- Europe outperformed other regions, making up ground lost in 2022 as inflation eased and recession fears lessened.

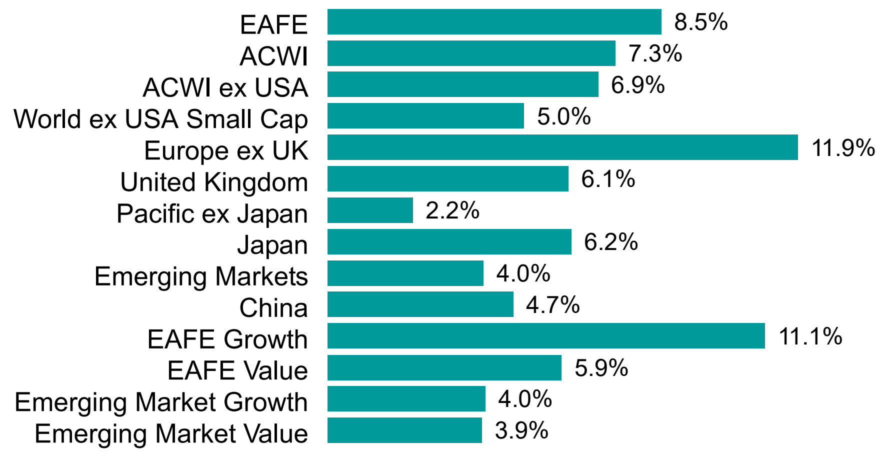
Growth vs. value

- Growth outpaced value across developed and emerging markets.
  - In a reversal from 2022, investors preferred growth alongside a drawdown in banks; Information Technology was the largest outperformer.

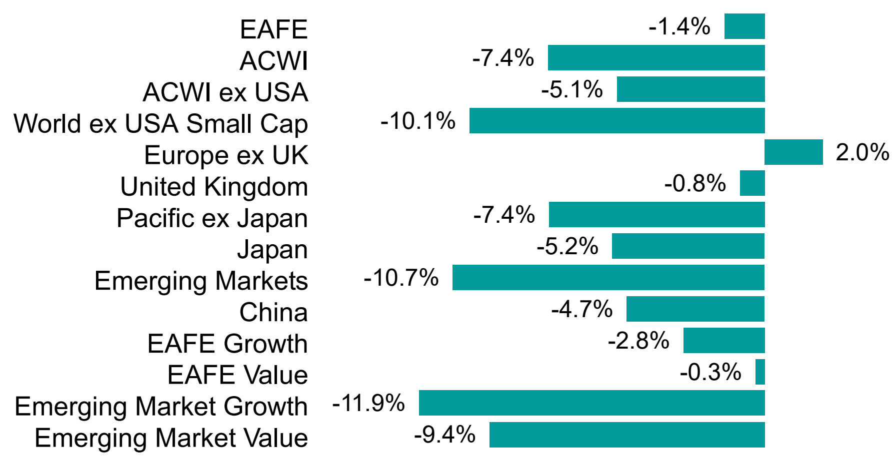
U.S. dollar vs. other currencies

- After some strength early in the quarter, the U.S. dollar declined 1% as interest rate differentials narrowed globally.

Global Equity Returns: Quarter Ended 3/31/23



Global Equity Returns: One Year Ended 3/31/23



Source: MSCI

U.S. Fixed Income Performance: 1Q23

Bloomberg Aggregate was positive in 1Q but mixed

– January: +3.1%
– February: -2.6%
– March: +2.5%

U.S. Treasury volatility was pronounced

– 2-year US Treasury yield high was 5.08% on 3/8 and low was 3.77% on 3/24
– MOVE Index highest since 2008

Yield curve remained inverted but was also volatile

– 2yr/10yr => 3/31: -58 bps; max 3/8: -109; min 3/23: -38
– 1yr/10yr => 3/31: -116 bps

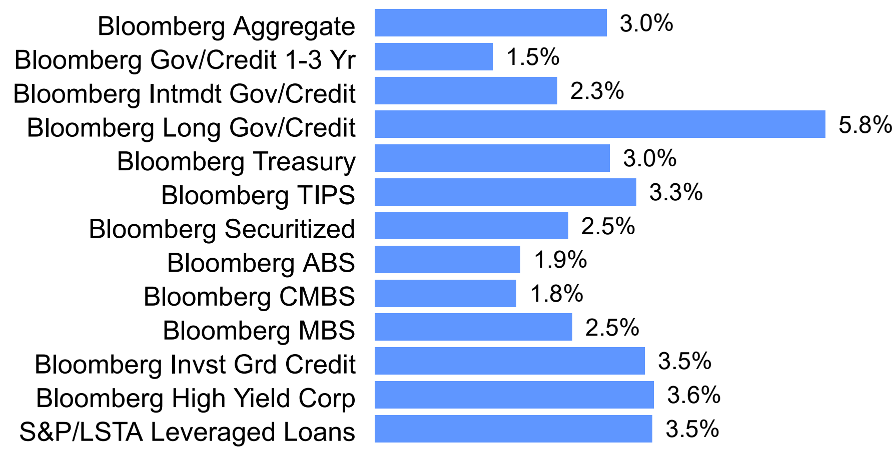
Fed raised rates bringing target to 4.75%–5.00%

– Median expectation from Fed is 5.1% for year-end 2023; market pricing in Fed cuts by year-end
– Inflation moderated but still high and job market tight

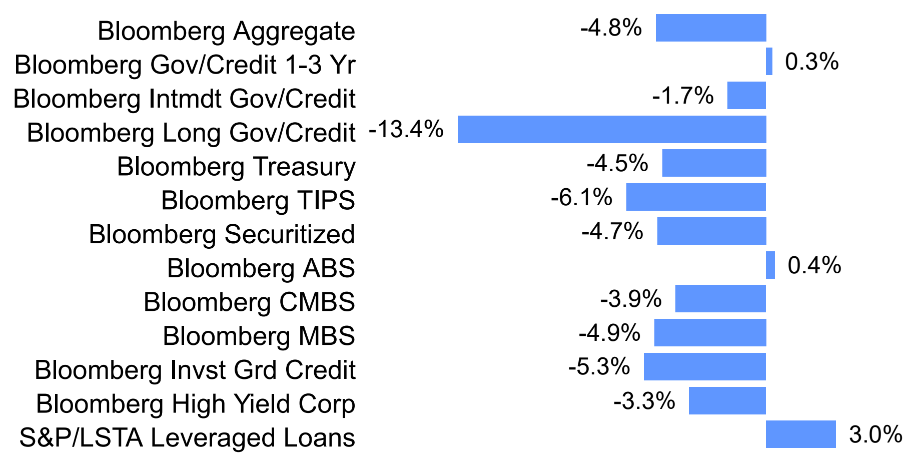
Sector performance mixed

– Corporate Industrials excess return: +58 bps
– Corporate Financials excess return: -39 bps
– RMBS: -50 bps
– CMBS excess return: -74 bps
– High Yield excess return: +123 bps
– Valuations fair
– Credit spreads have not widened materially and are close to historical averages

U.S. Fixed Income Returns: Quarter Ended 3/31/23



U.S. Fixed Income Returns: One Year Ended 3/31/23

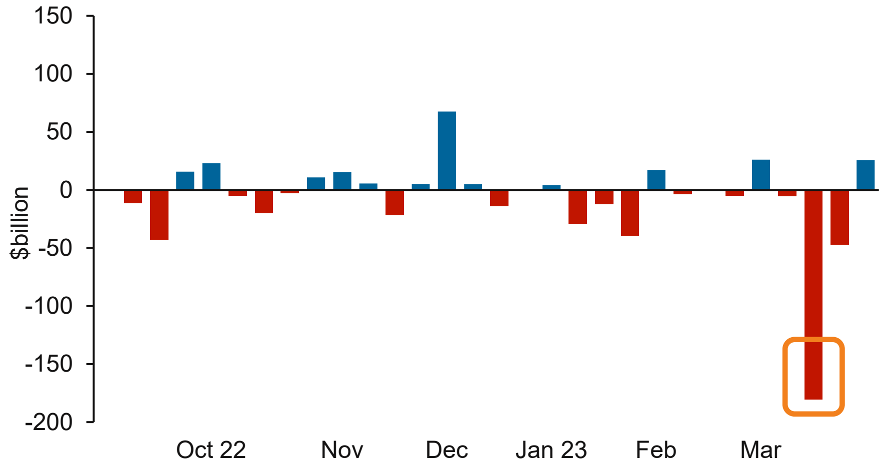


Sources: Bloomberg, S&P Dow Jones Indices

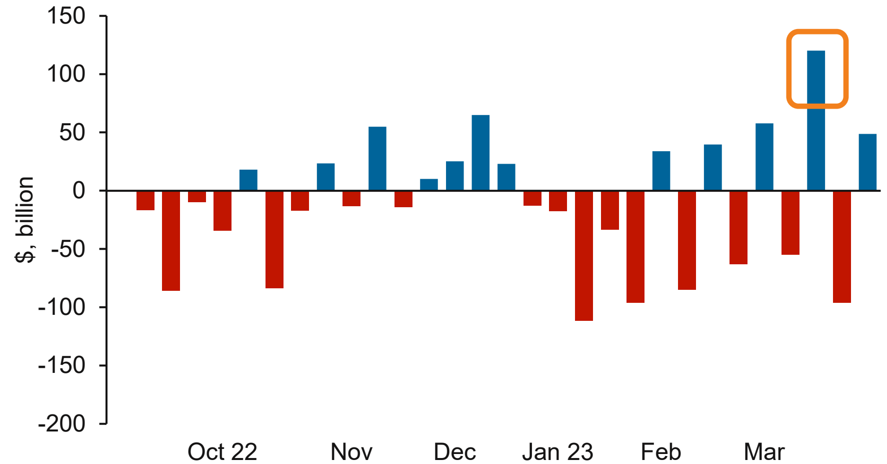
Fixed Income Themes

Regional bank contagion fears ignited as the FDIC took over Silicon Valley and Signature banks

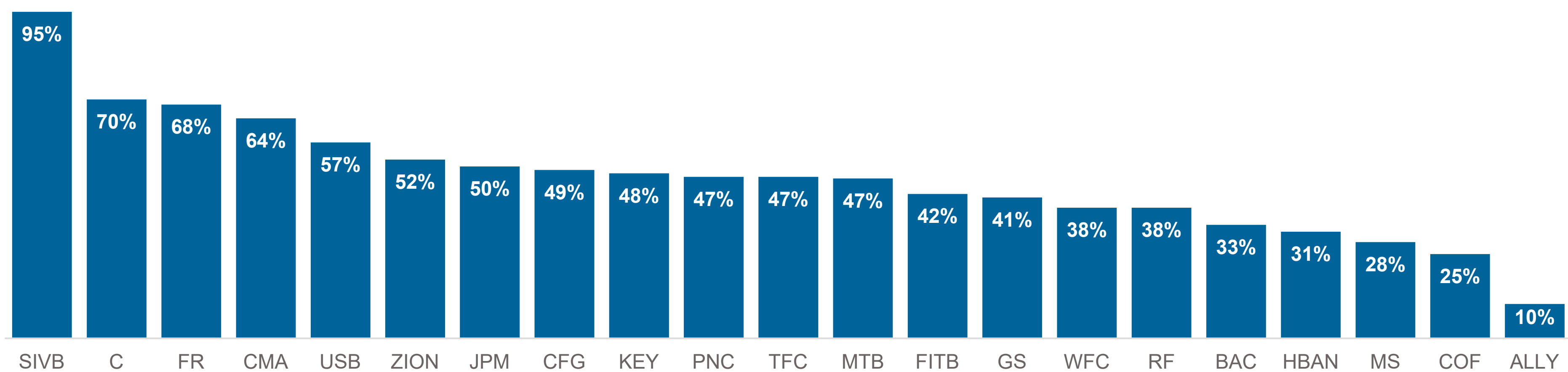
Small Banks – Deposits change from a week ago



Large Banks – Deposits change from a week ago



Uninsured Domestic U.S. Deposits as Percent of Total Deposits (ex-trust banks), 4Q22



Sources: Barclays, Federal Reserve

U.S. Private Real Estate Performance: 1Q23

Appreciation returns negative once again

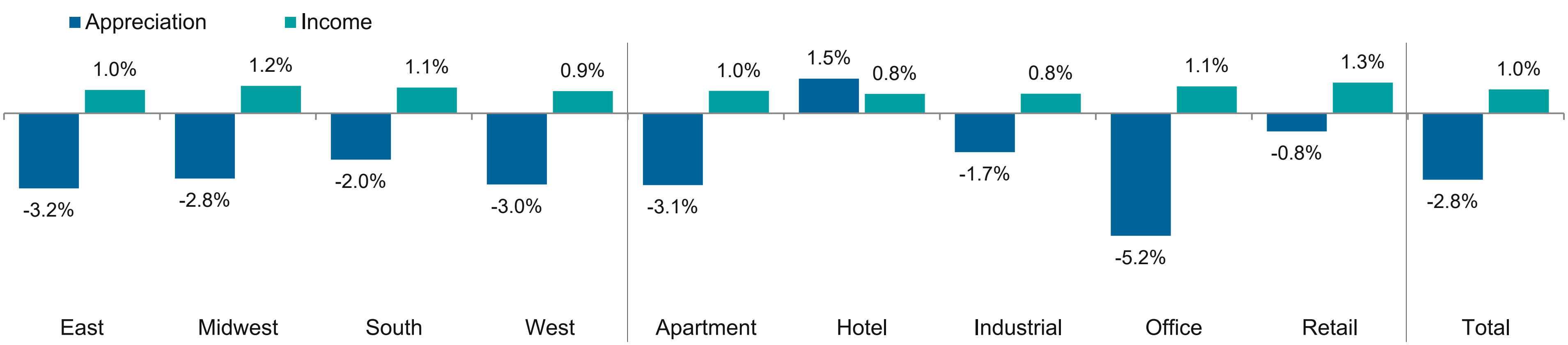
Negative appreciation in four major sectors

- Income returns were positive across sectors and regions.
- All property sectors and regions, except for Hotel, experienced negative appreciation.
- Valuations are reflective of higher interest rates, which have put upward pressure on capitalization rate and discount rate assumptions.
- Return dispersion by manager within the ODCE Index was due to the composition of underlying portfolios.

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
NCREIF ODCE	-3.4%	-3.9%	7.5%	6.6%	8.5%
Income	0.6%	2.5%	2.8%	3.0%	3.4%
Appreciation	-4.0%	-6.3%	4.6%	3.5%	5.0%
NCREIF Property Index	-1.8%	-1.6%	7.2%	6.7%	8.3%
Income	1.0%	3.9%	4.1%	4.3%	4.6%
Appreciation	-2.8%	-5.4%	3.0%	2.4%	3.6%

Returns are geometrically linked

NCREIF Property Index Quarterly Returns by Region and Property Type

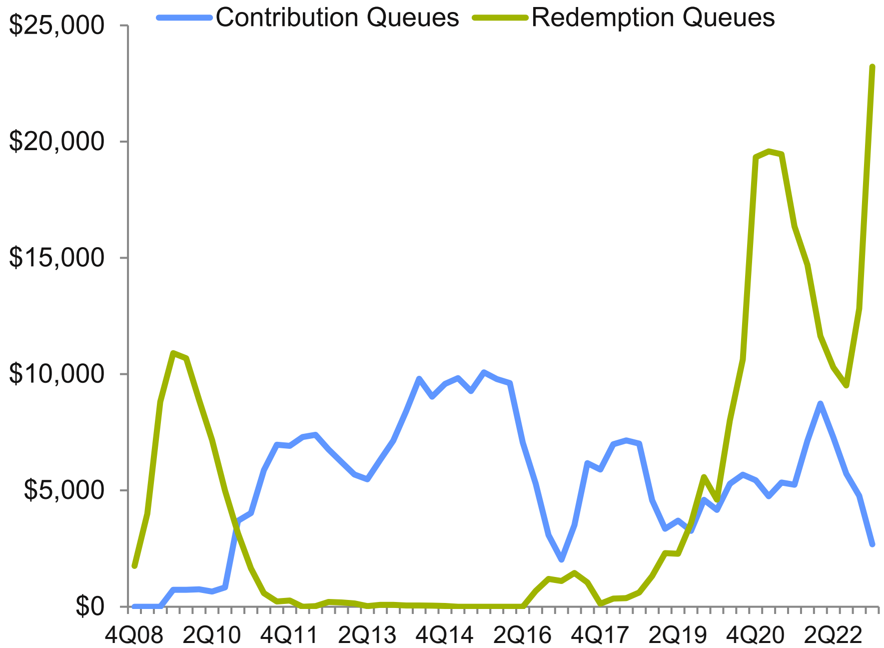


Source: NCREIF, ODCE return is net

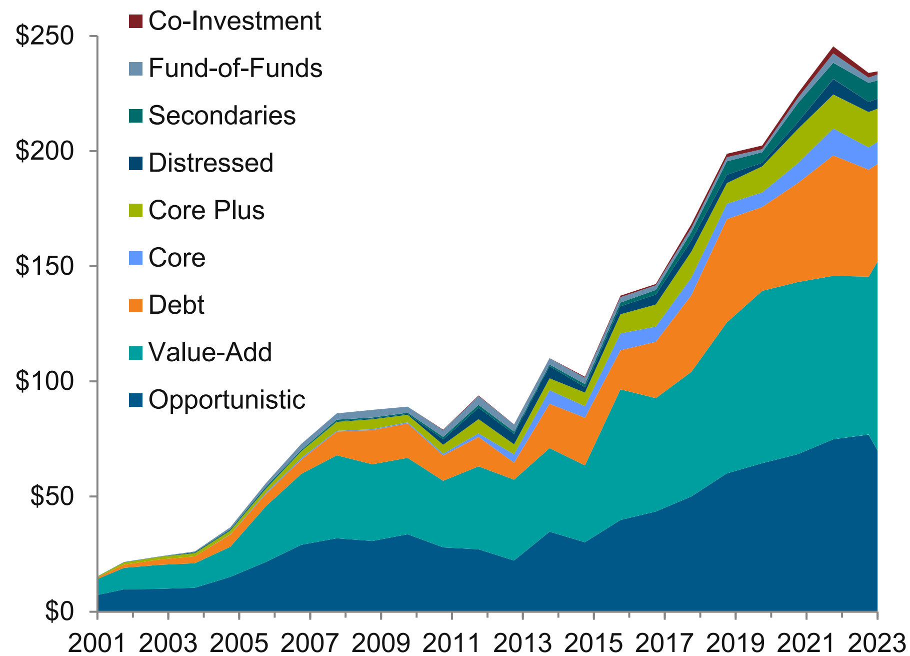
U.S. Private Real Estate Market Trends

Dry powder exceeds $200 billion

Core Fund Contribution/Redemption Queues ($mm)*



Dry Powder for CRE Investment in North America ($bn)



- Net core activity down for the past three quarters; investors rebalancing due to the denominator effect
- Outstanding redemption requests for most large ODCE funds are approximately 8% to 16% of net asset value.
- >$200 billion of capital waiting to be deployed in North America
- Majority of dry powder capital in opportunistic, value-add, and debt funds
  - Value-add and opportunistic strategies have experienced larger fundraises due to the opportunity set and number of offerings. Debt fund offerings have increased to due stricter lending standards requiring alternative sources of capital than banks and relative attractiveness as compared to equity investments.

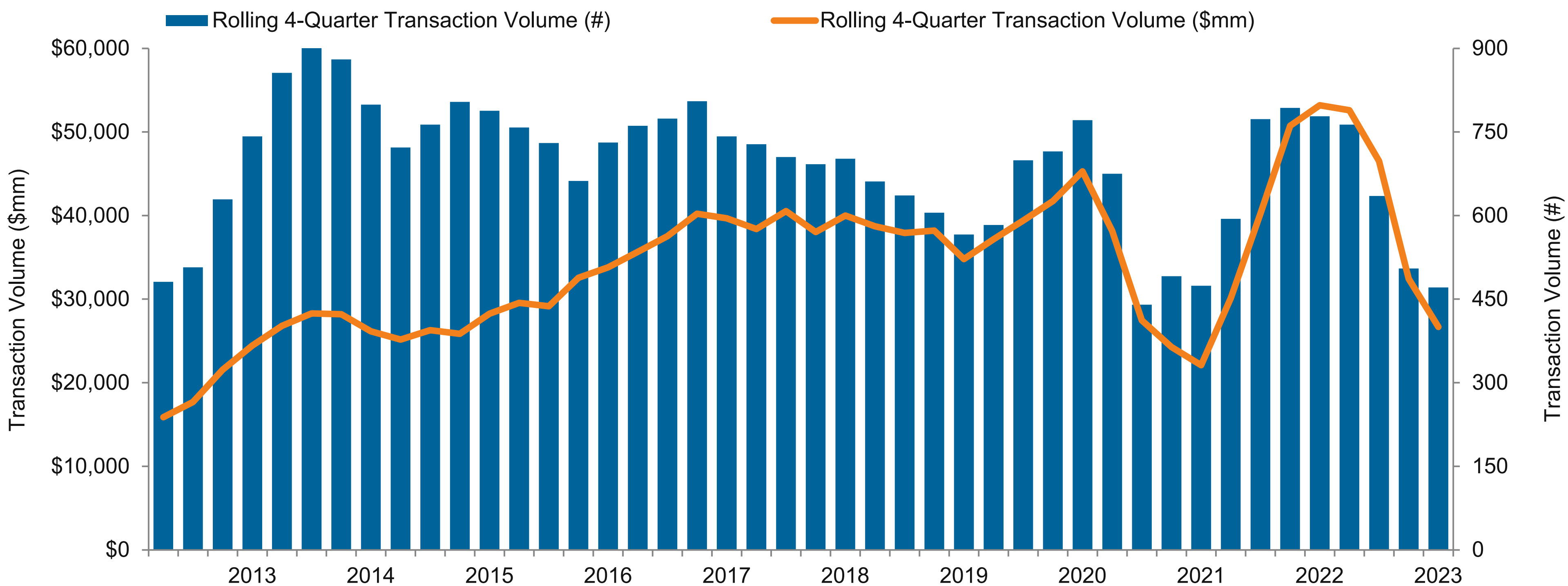
Sources: AEW, NCREIF, Preqin

*Queue data as of 4Q22, the latest available at time of publication

U.S. Private Real Estate Market Trends

Pricing and transaction volumes decline through 1Q23

NCREIF Rolling 4-Quarter Transaction Totals Through 3/31/23



- ▶ Transaction volume continues to decrease on a rolling four-quarter basis and is now below five-year averages.
- ▶ In 1Q23 transaction volume decreased on a quarter-over-quarter basis; transaction volume is significantly lower compared to 1Q22.
- ▶ The rise in interest rates is the driving force behind the slowdown in transactions. A bid-ask spread remains and price discovery continues to occur among market participants. Sectors that are in favor, such as multi-family and industrial, are more liquid.

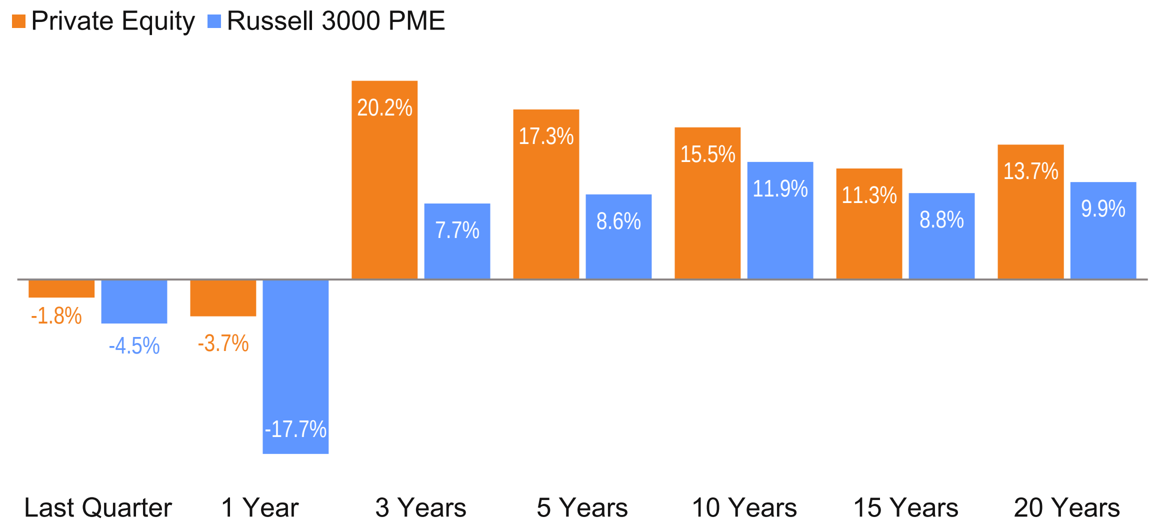
Source: NCREIF

Private Equity Performance

Smoothing effect in 3Q22 private equity returns

- As is typical for the asset class, private equity returns have experienced a smoothing effect in 2022 compared to the sharp declines seen in the public markets.
- Private equity was only down about a third as much as the public markets during 2022, on a PME basis.
- Portfolio companies are typically valued internally by the manager on a quarterly basis. Valuations are based on the operating metrics of the company, recent comparable transactions, and public market comps.
- Venture capital and growth equity experienced the sharpest declines, given their technology focus as well as post-IPO public equity holdings.

Net IRRs as of 09/30/22



Net IRRs by Strategy as of 09/30/22

Strategy	Last Quarter	1 Year	3 Years	5 Years	10 Years	20 Years
Venture Capital	-2.7%	-9.1%	28.4%	23.8%	19.4%	12.4%
Growth Equity	-1.8%	-9.4%	20.8%	18.4%	15.7%	14.3%
Buyouts	-1.9%	-1.4%	18.5%	16.1%	15.2%	14.7%
Mezzanine	0.2%	5.0%	11.8%	11.1%	11.3%	11.1%
Credit Opportunities	0.7%	3.9%	8.4%	7.2%	8.3%	9.9%
Control-Oriented Distressed	-0.2%	11.3%	19.4%	13.8%	12.7%	11.9%
Total Private Equity	**-1.8%**	**-3.7%**	**20.2%**	**17.3%**	**15.5%**	**13.7%**

Source: Refinitiv/Cambridge

Private Equity Overview

Fundraising slows and timelines become extended

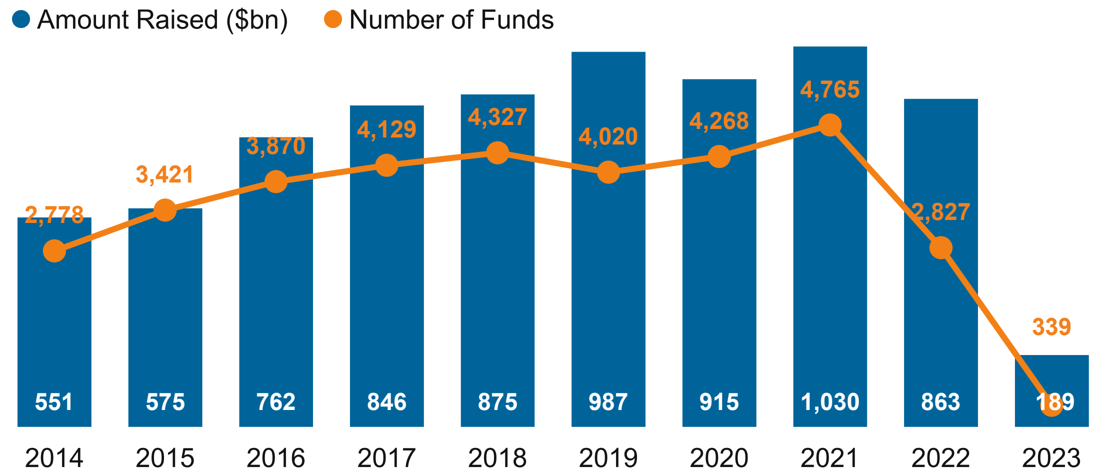
Fundraising continues to slow in 1Q23

- Total capital raised during the quarter was in line with 4Q22 but was significantly down relative to a year ago.
- LPs have slimmer commitment budgets this year and have been consolidating with high-conviction GPs.
- Fundraising timelines extending due to so many funds in the market, slowing distributions, and constrained LP commitment budgets because of the "denominator effect," delaying many final closes

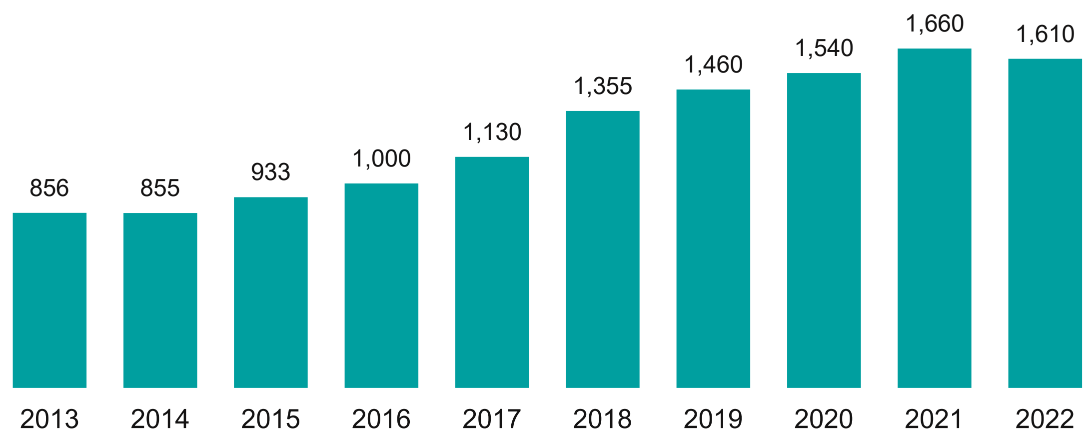
Dry powder levels off

- Level of dry powder influenced by two factors: fundraising and capital deployment.
- Dry powder peaked in 2021 at $1.7 trillion due to strong annual fundraising levels.
- Dry powder dropped slightly in 2022 due to a slower fundraising environment.

Annual Fundraising



Dry Powder ($bn)
Cumulative as of yearend



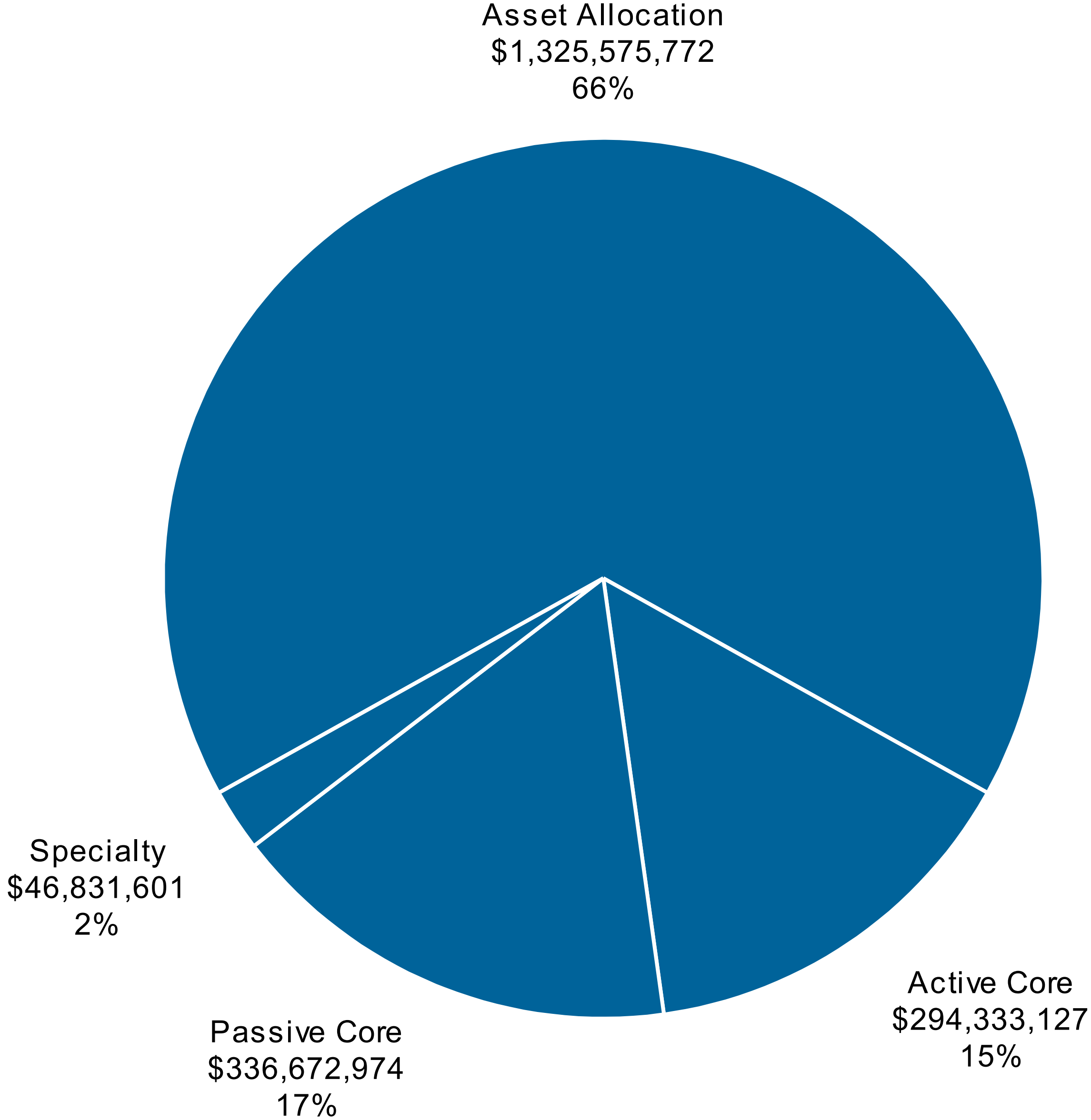
Source: PitchBook

Callan

Participant-Directed Plans

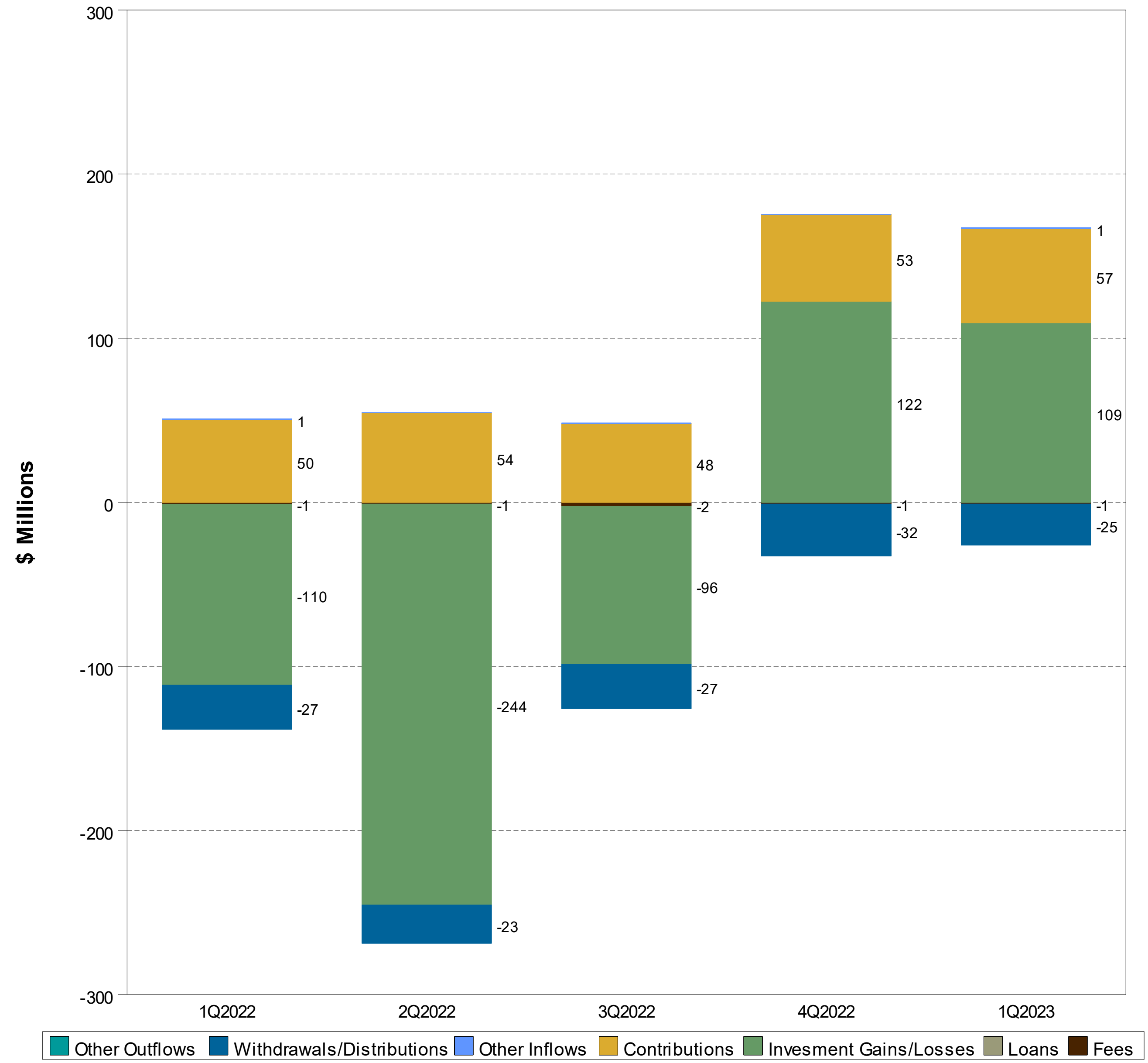
PERS DC Plan

March 31, 2023



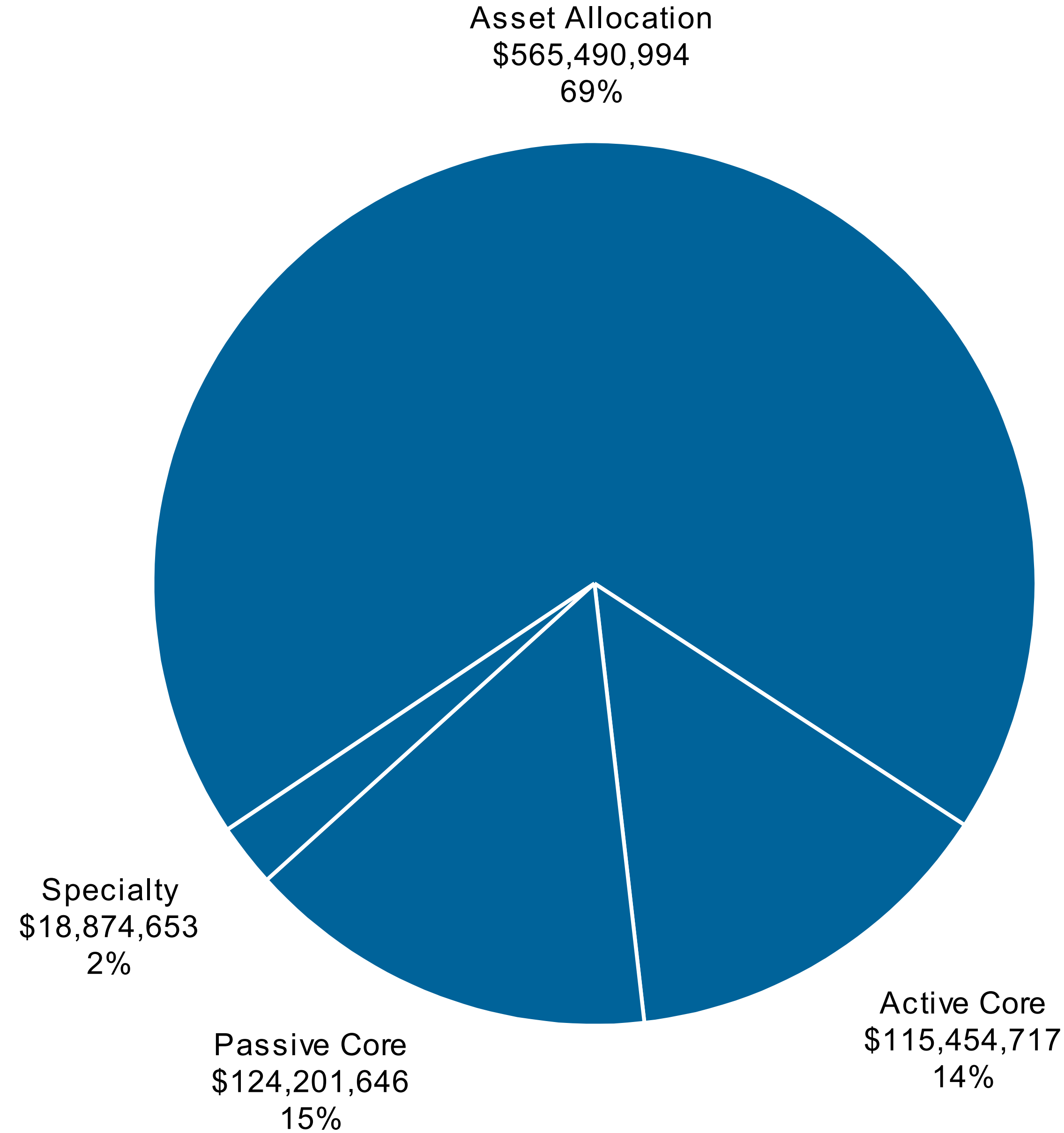
PERS DC Plan: Asset Changes

March 31, 2023



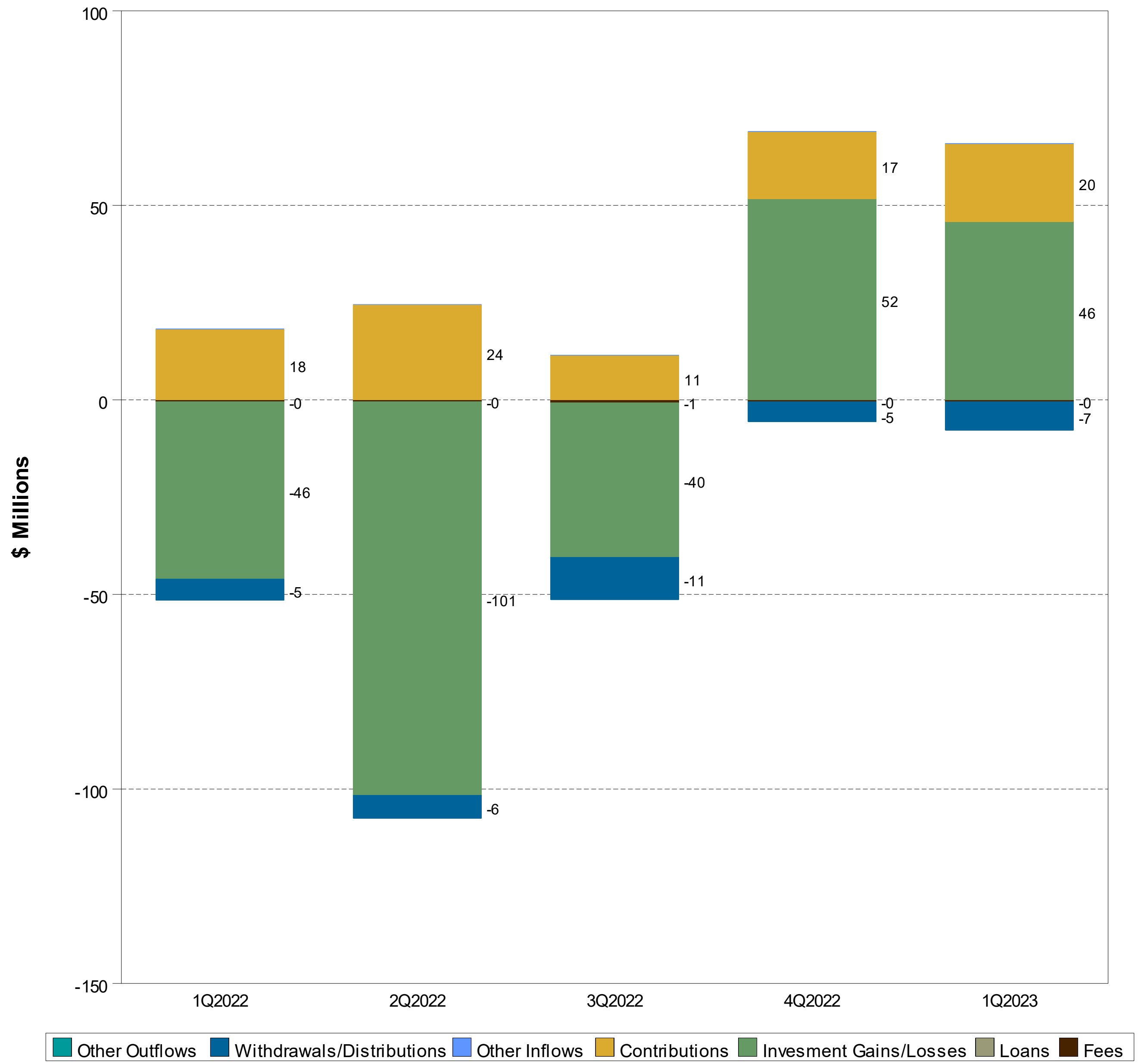
TRS DC Plan

March 31, 2023



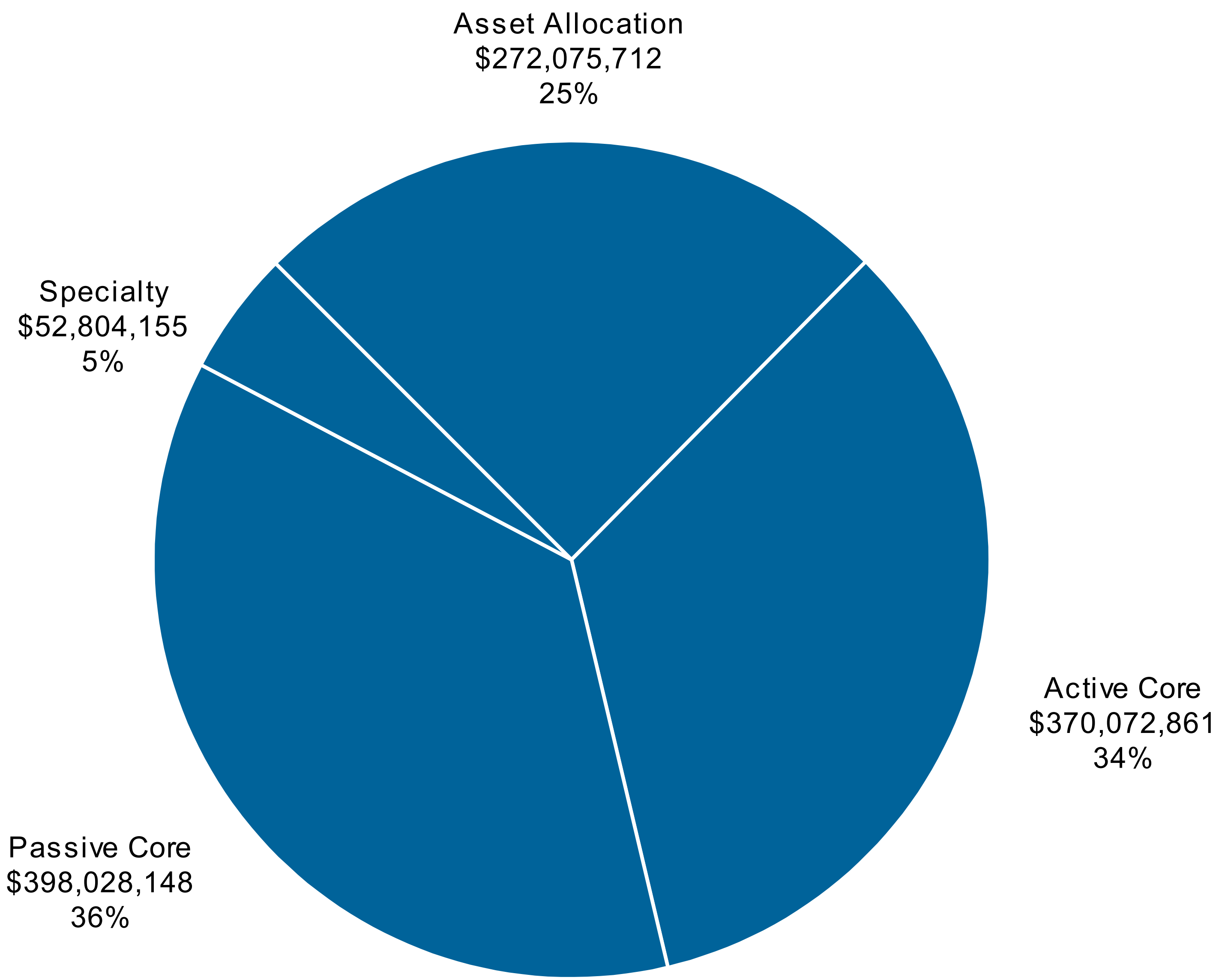
TRS DC Plan: Asset Changes

March 31, 2023



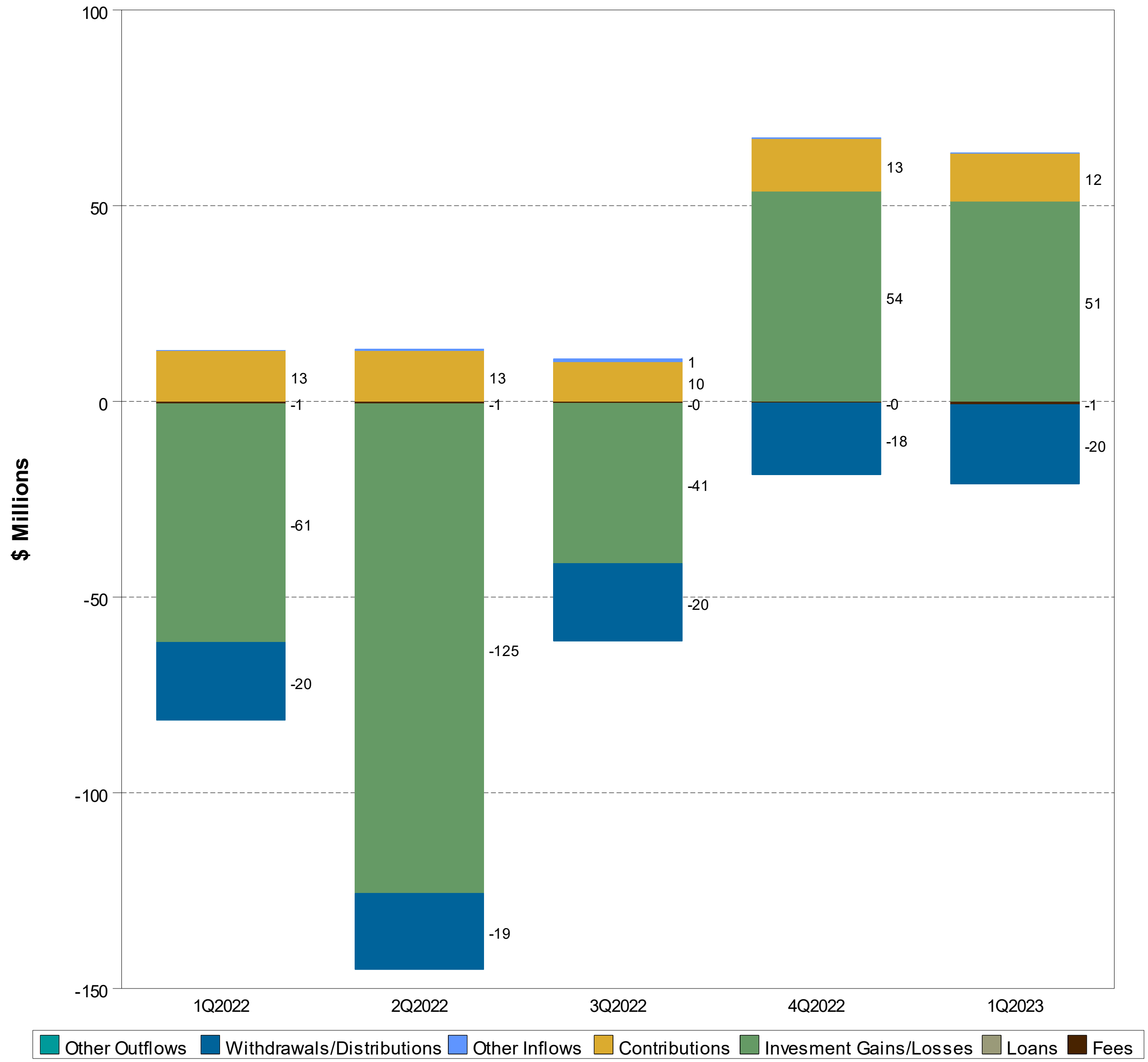
Deferred Comp Plan

March 31, 2023



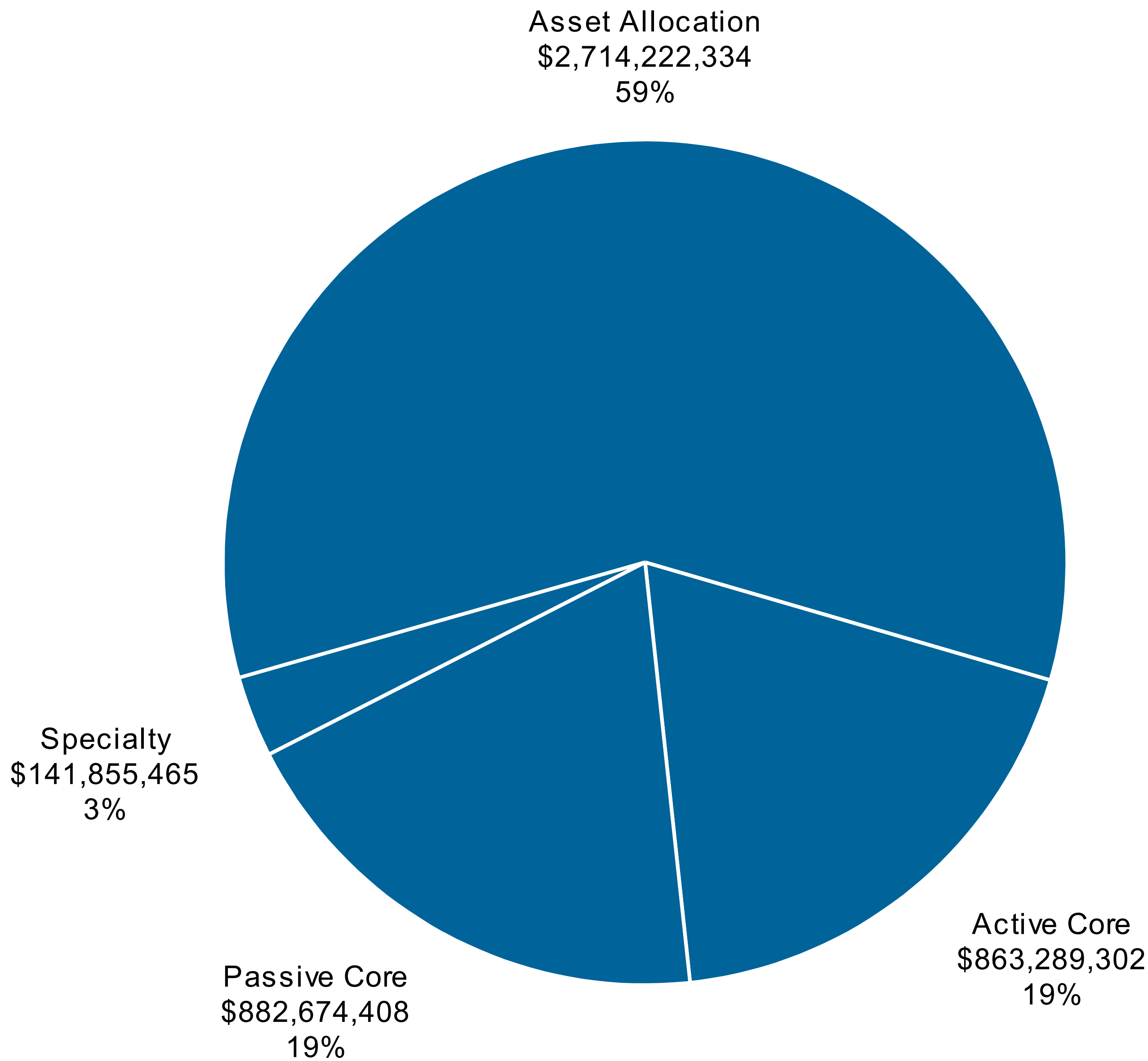
Deferred Comp Plan: Asset Changes

March 31, 2023



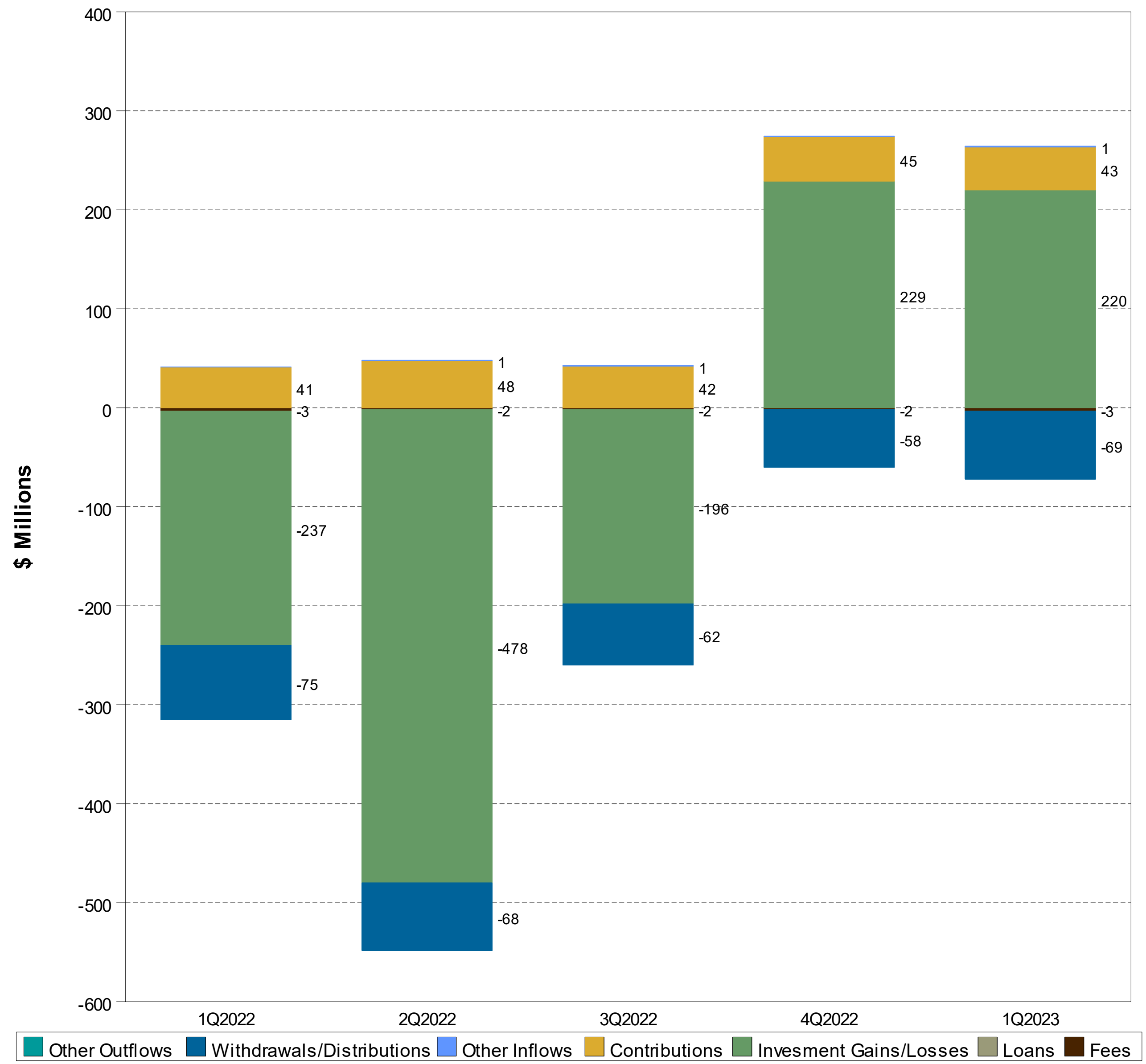
SBS Fund

March 31, 2023



SBS Fund: Asset Changes

March 31, 2023



Individual Account Option Performance: 03/31/23

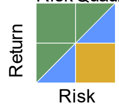
Balanced & Target Date Funds

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	5 Year Risk	5 Year Risk Quadrant	5 Year Excess Rtn Ratio	3 Year Tracking Error	5 Year Sharpe Ratio
Asset Allocation										
Alaska Balanced Trust	**4.5** 4	**-3.4** 16	**5.1** 37	**4.0** 13	**4.5** 17	**8.5** 65		**0.0** 13	**0.5** 100	**0.3** 8
CAI MA Tgt Alloc Cons MFs										
Passive Target	4.5 4	-3.7 21	5.1 39	4.0 13	4.5 17	8.7 61				0.3 8
Alaska Long-Term Balanced	**5.5** 13	**-4.5** 18	**9.6** 43	**5.7** 29	**6.8** 30	**13.1** 56		**-0.2** 37	**0.5** 100	**0.3** 24
CAI MA Tgt Alloc Mod MFs										
Passive Target	5.6 12	-4.9 26	9.5 43	5.8 27	6.9 29	13.4 53				0.3 25
Target 2010 Trust	**4.4** 19	**-3.1** 5	**6.2** 33	**4.3** 29	**5.1** 20	**9.2** 71		**-0.2** 33	**0.4** 99	**0.3** 13
CAI Tgt Date 2010										
Custom Index	4.5 11	-3.4 5	6.2 31	4.4 23	5.2 19	9.4 59				0.3 13
Target 2015 Trust	**4.7** 22	**-3.4** 3	**7.3** 19	**4.8** 6	**5.8** 14	**10.3** 70		**-0.0** 6	**0.5** 98	**0.3** 6
CAI Tgt Date 2015										
Custom Index	4.7 19	-3.7 3	7.3 19	4.8 6	5.8 15	10.6 56				0.3 8
Target 2020 Trust	**5.0** 14	**-4.0** 5	**8.8** 9	**5.4** 3	**6.7** 6	**12.1** 35		**-0.0** 3	**0.5** 99	**0.3** 5
CAI Tgt Date 2020										
Custom Index	5.1 13	-4.3 7	8.9 9	5.4 3	6.7 6	12.4 28				0.3 6
Target 2025 Trust	**5.5** 11	**-4.5** 5	**10.4** 6	**6.0** 2	**7.5** 4	**13.9** 28		**0.0** 2	**0.5** 100	**0.3** 4
CAI Tgt Date 2025										
Custom Index	5.5 11	-4.9 13	10.4 6	6.0 2	7.5 4	14.3 23				0.3 5
Target 2030 Trust	**5.9** 12	**-5.0** 10	**11.8** 7	**6.5** 3	**8.1** 4	**15.5** 34		**-0.1** 4	**0.5** 100	**0.3** 6
CAI Tgt Date 2030										
Custom Index	5.9 11	-5.4 20	11.8 7	6.6 3	8.2 3	15.8 28				0.3 6
Target 2035 Trust	**6.2** 15	**-5.4** 8	**13.0** 11	**7.0** 2	**8.7** 6	**16.9** 49		**-0.1** 2	**0.5** 100	**0.3** 3
CAI Tgt Date 2035										
Custom Index	6.2 14	-5.9 23	13.0 11	7.0 2	8.8 6	17.2 43				0.3 3
Target 2040 Trust	**6.5** 19	**-5.8** 11	**14.0** 17	**7.3** 2	**9.2** 7	**18.0** 57		**-0.0** 2	**0.5** 100	**0.3** 4
CAI Tgt Date 2040										
Custom Index	6.5 16	-6.2 28	14.0 18	7.4 2	9.2 6	18.3 54				0.3 4
Target 2045 Trust	**6.7** 22	**-6.0** 13	**14.9** 14	**7.6** 2	**9.5** 2	**18.9** 71		**-0.1** 3	**0.5** 100	**0.3** 2
CAI Tgt Date 2045										
Custom Index	6.7 19	-6.5 33	14.9 15	7.7 1	9.5 2	19.1 62				0.3 2

Returns:
- above median
- third quartile
- fourth quartile

Risk:
- below median
- second quartile
- first quartile

Risk Quadrant:



Excess Return Ratio:
- above median
- third quartile
- fourth quartile

Tracking Error:
- below median
- second quartile
- first quartile

Sharpe Ratio:
- above median
- third quartile
- fourth quartile

Individual Account Option Performance: 03/31/23

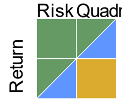
Balanced & Target Date Funds

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	5 Year Risk	5 Year Risk Quadrant	5 Year Excess Rtn Ratio	3 Year Tracking Error	5 Year Sharpe Ratio
Target 2050 Trust	**6.7** 29	**-6.1** 12	**14.9** 22	**7.6** 2	**9.5** 5	**18.9** 78		**-0.0** 2	**0.5** 100	**0.3** 4
CAI Tgt Date 2050 Custom Index	6.8 23	-6.6 31	14.9 23	7.6 2	9.5 5	19.2 73				0.3 4
Target 2055 Trust	**6.7** 34	**-6.1** 13	**14.9** 29	**7.6** 2	**9.5** 5	**18.9** 83		**-0.0** 3	**0.5** 100	**0.3** 2
CAI Tgt Date 2055 Custom Index	6.8 26	-6.6 31	14.9 33	7.6 2	9.5 5	19.2 80				0.3 2
Target 2060 Trust	**6.8** 38	**-6.1** 14	**14.9** 31	**7.6** 4	**9.4** 11	**18.9** 79		**-0.2** 9	**0.5** 100	**0.3** 4
CAI Tgt Date 2060 Custom Index	6.8 32	-6.6 31	14.9 31	7.6 3	9.5 9	19.2 77				0.3 4
Target 2065 Trust	**6.8** 27	**-6.1** 9	**14.8** 47						**0.5** 100	
CAI Tgt Date 2065 Custom Index	6.8 33	-6.6 16	14.9 46							
JPMorgan SmartRetirementBlend 2015 R6	**4.4** 45	**-4.7** 22								
Callan Target Date 2015 JPMorgan:SR Income MF Idx	4.5 43	-4.7 23	4.8 96	3.4 90	4.3 95	9.9 81				0.2 91
JPMorgan SmartRetirementBlend 2020 R6	**4.5** 40	**-4.8** 22								
Callan Target Date 2020 JPMorgan:SR 2020 MF Index	4.5 43	-4.7 21	5.1 91	3.6 81	4.9 77	10.5 80				0.2 81

Returns:
- above median
- third quartile
- fourth quartile

Risk:
- below median
- second quartile
- first quartile

Risk Quadrant:



Excess Return Ratio:
- above median
- third quartile
- fourth quartile

Tracking Error:
- below median
- second quartile
- first quartile

Sharpe Ratio:
- above median
- third quartile
- fourth quartile

Other Options: 03/31/23

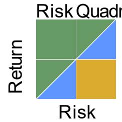
Passive Strategies

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	5 Year Risk	5 Year Risk Quadrant	5 Year Excess Rtn Ratio	3 Year Tracking Error	5 Year Sharpe Ratio
Index Funds										
SSgA S&P 500 Index Fund (i)	**7.5** 23	**-7.7** 7	**18.6** 10	**11.2** 11	**12.4** 7	**20.6** 41		**-1.1** 17	**0.0** 76	**0.5** 8
Callan S&P 500 Index MFs										
S&P 500 Index	7.5 17	-7.7 1	18.6 2	11.2 5	12.4 2	20.6 33				0.5 1
SSgA Russell 3000 Index Fund (i)	**7.2** 48	**-8.5** 51	**18.5** 32	**10.5** 41	**12.0** 43	**21.6** 54		**0.4** 10	**0.1** 100	**0.4** 31
CAI Mut Fd: Large Cap Broad Style (Net)										
Russell 3000 Index	7.2 48	-8.6 52	18.5 33	10.5 41	12.0 44	21.6 54				0.4 32
SSgA World Equity ex-US Index Fund (i)	**7.2** 79	**-4.0** 73	**12.4** 60	**2.7** 65	**6.1** 51	**21.3** 74		**0.2** 41	**1.1** 100	**0.1** 60
CAI MF: Non-U.S. Equity Style										
MSCI ACWI x U.S. Index (Net)	6.9 84	-5.1 77	11.8 69	2.5 67	5.9 54	20.9 85				0.1 65
BlackRock Passive US Bd Index Fund (i)	**3.1** 63	**-4.8** 32	**-2.8** 97						**0.2** 100	
Callan Core Bond MFs										
Blmbg Aggregate	3.0 79	-4.8 35	-2.8 98	0.9 71	0.9 91	5.6 81				-0.1 75

Returns:
- above median
- third quartile
- fourth quartile

Risk:
- below median
- second quartile
- first quartile

Risk Quadrant:



Excess Return Ratio:
- above median
- third quartile
- fourth quartile

Tracking Error:
- below median
- second quartile
- first quartile

Sharpe Ratio:
- above median
- third quartile
- fourth quartile

(i) – Indexed scoring method used. Green: manager & index ranking differ by less than +/- 10 percentiles; Blue: manager and index ranking differ by +/- 20 percentiles; Gold: manager & index ranking differ by more than 20 percentiles.

Other Options: 03/31/23

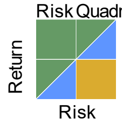
Active Equity, Stable Value, and Money Market

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	7 Year Return	5 Year Risk	5 Year Risk Quadrant	5 Year Excess Rtn Ratio	3 Year Tracking Error	5 Year Sharpe Ratio
Active and Other Funds										
BlackRrock Strategic Completion Fd	**0.6** 45	**-13.5** 80	**8.0** 78						**0.2** 99	
Callan Real Assets MFs										
Strategic Completion Custom Index	0.5 49	-13.6 80	8.2 77							
Northern Trust ESG Fund	**8.1** 42	**-8.4** 50	**18.2** 36						**0.1** 100	
Callan Lg Cap Broad MF										
MSCI USA ESG	8.2 41	-8.3 49	18.3 35	11.6 21	12.5 37	20.3 82				0.5 12
International Equity Fund	**11.0** 16	**-1.4** 57	**13.2** 50	**2.9** 59	**5.1** 72	**24.1** 29		**0.1** 59	**5.6** 57	**0.1** 60
CAI Mut Fd: Non-U.S. Equity Style										
MSCI ACWI ex US Index	6.9 84	-5.1 77	11.8 69	2.5 67	5.9 54	20.9 85				0.1 65
T. Rowe Price Small Cap	**3.5** 58	**-10.7** 62	**16.2** 62	**8.2** 29	**11.0** 33	**25.6** 90		**0.6** 7	**5.8** 92	**0.3** 18
CAI Mut Fd: Sm Cap Broad Style										
Russell 2000 Index	2.7 67	-11.6 69	17.5 54	4.7 81	8.6 72	28.7 61				0.1 80
T. Rowe Price Stable Value	**0.5** 54	**2.0** 19	**2.1** 5	**2.2** 1	**2.3** 1	**0.2** 68		**1.4** 8	**0.8** 6	**5.3** 6
Callan Stable Value CT										
FTSE 3 Mo T-Bill	1.1 1	2.6 1	1.0 93	1.4 88	1.2 95	0.6 1				-0.0 88
SSgA Inst Treasury Money Market	**1.1** 30	**2.5** 33	**0.9** 31	**1.3** 14	**1.1** 13	**0.6** 22		**-2.5** 55	**0.1** 92	**-0.2** 14
Callan Money Market Funds										
FTSE 3 Mo T-Bill	1.1 4	2.6 17	1.0 5	1.4 3	1.2 2	0.6 7				-0.0 3

Returns:
- above median
- third quartile
- fourth quartile

Risk:
- below median
- second quartile
- first quartile

Risk Quadrant:



Excess Return Ratio:
- above median
- third quartile
- fourth quartile

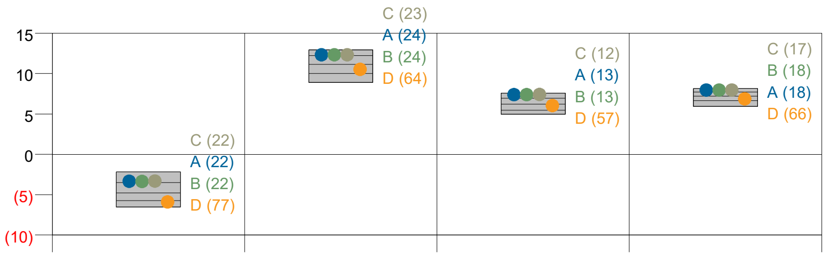
Tracking Error:
- below median
- second quartile
- first quartile

Sharpe Ratio:
- above median
- third quartile
- fourth quartile

Pension Plans

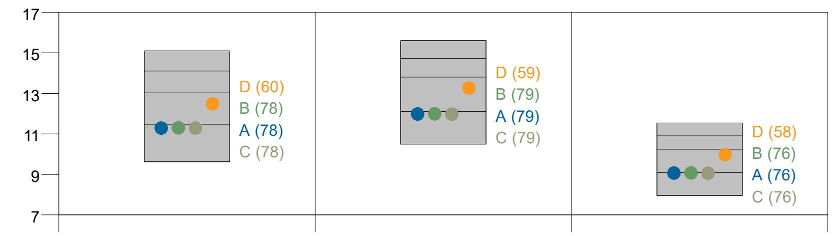
PERS, TRS, and JRS Performance Dashboard – March 31, 2023

Returns vs Callan Public Fund Sponsor Database



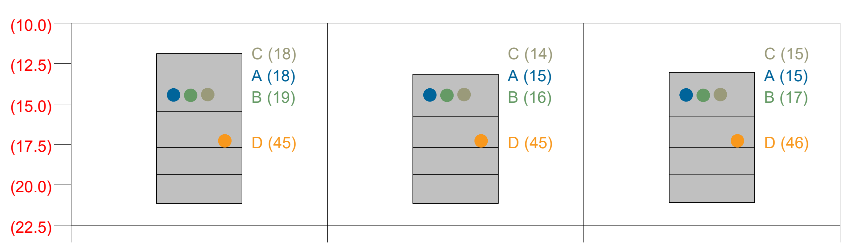
		Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		(2.18)	12.96	7.59	8.16
25th Percentile		(3.49)	12.26	6.95	7.74
Median		(4.78)	11.15	6.22	7.22
75th Percentile		(5.75)	10.02	5.48	6.67
90th Percentile		(6.52)	8.94	4.98	5.97
Member Count		212	210	210	197
Employees' Total Plan	A	(3.34)	12.34	7.42	7.97
Teachers' Total Plan	B	(3.35)	12.34	7.41	7.97
Judicial Total Plan	C	(3.31)	12.36	7.43	7.97
Policy Target	D	(5.90)	10.54	6.05	6.87

Standard Deviation vs Callan Public Fund Sponsor Database



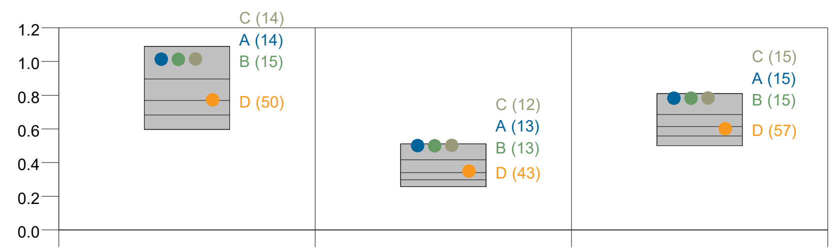
		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		15.10	15.62	11.54
25th Percentile		14.11	14.73	10.91
Median		13.03	13.81	10.25
75th Percentile		11.49	12.11	9.09
90th Percentile		9.63	10.49	7.96
Member Count		210	210	197
Employees' Total Plan	A	11.29	11.98	9.07
Teachers' Total Plan	B	11.31	12.00	9.08
Judicial Total Plan	C	11.29	11.98	9.06
Policy Target	D	12.49	13.27	9.98

Maximum Drawdown vs Callan Public Fund Sponsor Database



		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		(11.88)	(13.15)	(13.04)
25th Percentile		(15.46)	(15.78)	(15.76)
Median		(17.70)	(17.70)	(17.68)
75th Percentile		(19.36)	(19.36)	(19.34)
90th Percentile		(21.16)	(21.16)	(21.10)
Member Count		210	210	197
Employees' Total Plan	A	(14.44)	(14.44)	(14.44)
Teachers' Total Plan	B	(14.46)	(14.46)	(14.46)
Judicial Total Plan	C	(14.41)	(14.41)	(14.41)
Policy Target	D	(17.28)	(17.28)	(17.28)

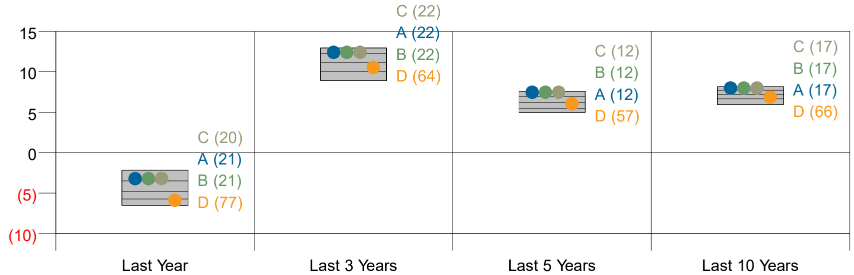
Sharpe Ratio vs Callan Public Fund Sponsor Database



		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		1.09	0.51	0.81
25th Percentile		0.90	0.42	0.69
Median		0.77	0.34	0.61
75th Percentile		0.68	0.30	0.56
90th Percentile		0.60	0.26	0.50
Member Count		210	210	197
Employees' Total Plan	A	1.01	0.50	0.78
Teachers' Total Plan	B	1.01	0.50	0.78
Judicial Total Plan	C	1.02	0.50	0.78
Policy Target	D	0.77	0.35	0.60

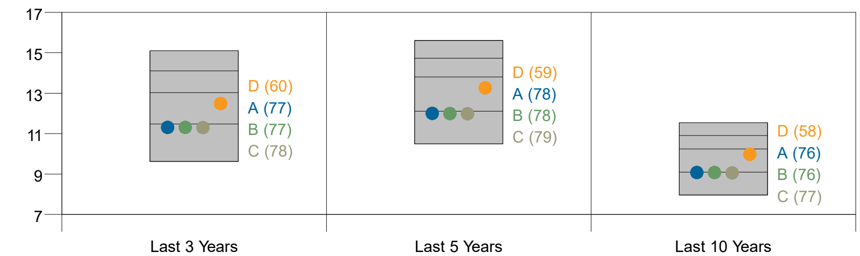
Health Care Plans Performance Dashboard – March 31, 2023

Returns vs Callan Public Fund Sponsor Database



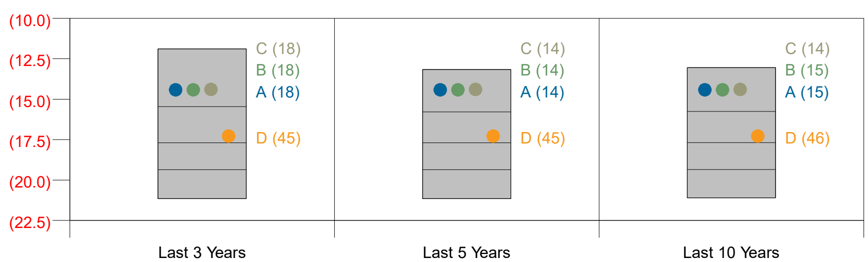
		Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		(2.18)	12.96	7.59	8.16
25th Percentile		(3.49)	12.26	6.95	7.74
Median		(4.78)	11.15	6.22	7.22
75th Percentile		(5.75)	10.02	5.48	6.67
90th Percentile		(6.52)	8.94	4.98	5.97
Member Count		212	210	210	197
PERS Health Plan	A	(3.20)	12.42	7.47	8.00
TRS Health Plan	B	(3.21)	12.41	7.47	8.00
JRS Health Plan	C	(3.19)	12.42	7.48	8.00
Policy Target	D	(5.90)	10.54	6.05	6.87

Standard Deviation vs Callan Public Fund Sponsor Database



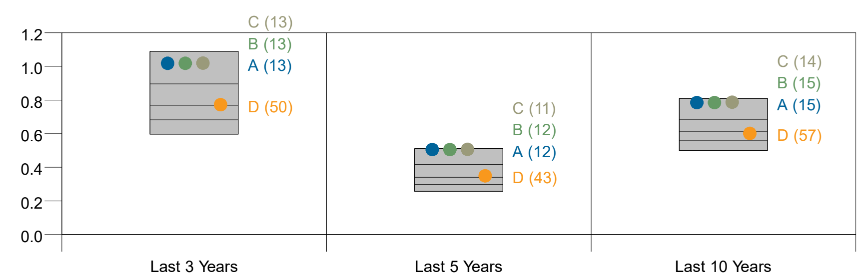
		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		15.10	15.62	11.54
25th Percentile		14.11	14.73	10.91
Median		13.03	13.81	10.25
75th Percentile		11.49	12.11	9.09
90th Percentile		9.63	10.49	7.96
Member Count		210	210	197
PERS Health Plan	A	11.31	12.00	9.07
TRS Health Plan	B	11.31	12.00	9.07
JRS Health Plan	C	11.30	11.98	9.06
Policy Target	D	12.49	13.27	9.98

Maximum Drawdown vs Callan Public Fund Sponsor Database



		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		(11.88)	(13.15)	(13.04)
25th Percentile		(15.46)	(15.78)	(15.76)
Median		(17.70)	(17.70)	(17.68)
75th Percentile		(19.36)	(19.36)	(19.34)
90th Percentile		(21.16)	(21.16)	(21.10)
Member Count		210	210	197
PERS Health Plan	A	(14.41)	(14.41)	(14.41)
TRS Health Plan	B	(14.41)	(14.41)	(14.41)
JRS Health Plan	C	(14.39)	(14.39)	(14.39)
Policy Target	D	(17.28)	(17.28)	(17.28)

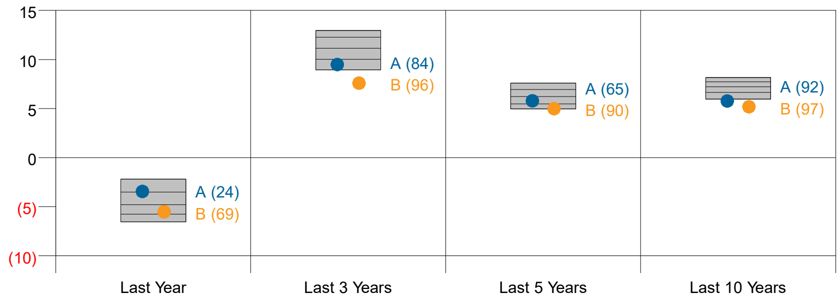
Sharpe Ratio vs Callan Public Fund Sponsor Database



		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		1.09	0.51	0.81
25th Percentile		0.90	0.42	0.69
Median		0.77	0.34	0.61
75th Percentile		0.68	0.30	0.56
90th Percentile		0.60	0.26	0.50
Member Count		210	210	197
PERS Health Plan	A	1.02	0.51	0.79
TRS Health Plan	B	1.02	0.51	0.79
JRS Health Plan	C	1.02	0.51	0.79
Policy Target	D	0.77	0.35	0.60

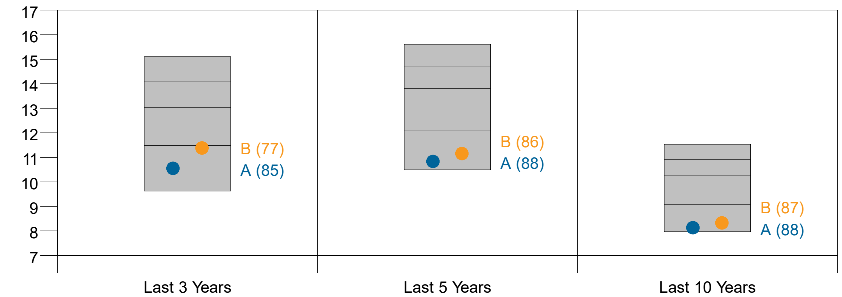
Military Plan Performance Dashboard – March 31, 2023

Returns vs Callan Public Fund Sponsor Database



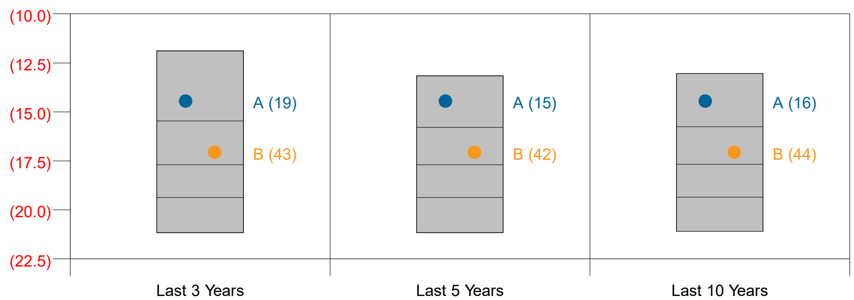
		Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		(2.18)	12.96	7.59	8.16
25th Percentile		(3.49)	12.26	6.95	7.74
Median		(4.78)	11.15	6.22	7.22
75th Percentile		(5.75)	10.02	5.48	6.67
90th Percentile		(6.52)	8.94	4.98	5.97
Member Count		212	210	210	197
Military Total Plan	A	(3.43)	9.49	5.80	5.78
Military Policy Target	B	(5.52)	7.59	5.00	5.19

Standard Deviation vs Callan Public Fund Sponsor Database



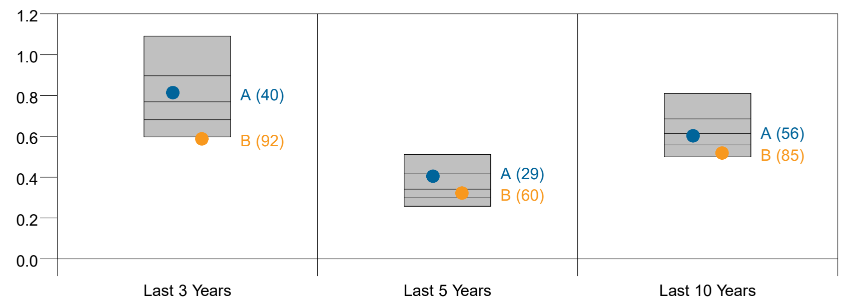
		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		15.10	15.62	11.54
25th Percentile		14.11	14.73	10.91
Median		13.03	13.81	10.25
75th Percentile		11.49	12.11	9.09
90th Percentile		9.63	10.49	7.96
Member Count		210	210	197
Military Total Plan	A	10.56	10.83	8.14
Military Policy Target	B	11.39	11.16	8.33

Maximum Drawdown vs Callan Public Fund Sponsor Database



		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		(11.88)	(13.15)	(13.04)
25th Percentile		(15.46)	(15.78)	(15.76)
Median		(17.70)	(17.70)	(17.68)
75th Percentile		(19.36)	(19.36)	(19.34)
90th Percentile		(21.16)	(21.16)	(21.10)
Member Count		210	210	197
Military Total Plan	A	(14.44)	(14.44)	(14.44)
Military Policy Target	B	(17.06)	(17.06)	(17.06)

Sharpe Ratio vs Callan Public Fund Sponsor Database

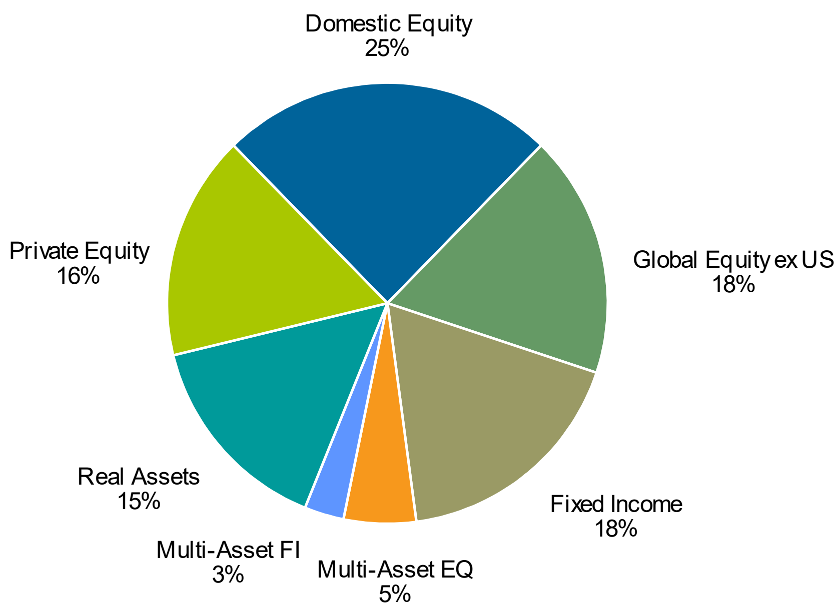


		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		1.09	0.51	0.81
25th Percentile		0.90	0.42	0.69
Median		0.77	0.34	0.61
75th Percentile		0.68	0.30	0.56
90th Percentile		0.60	0.26	0.50
Member Count		210	210	197
Military Total Plan	A	0.81	0.41	0.60
Military Policy Target	B	0.59	0.32	0.52

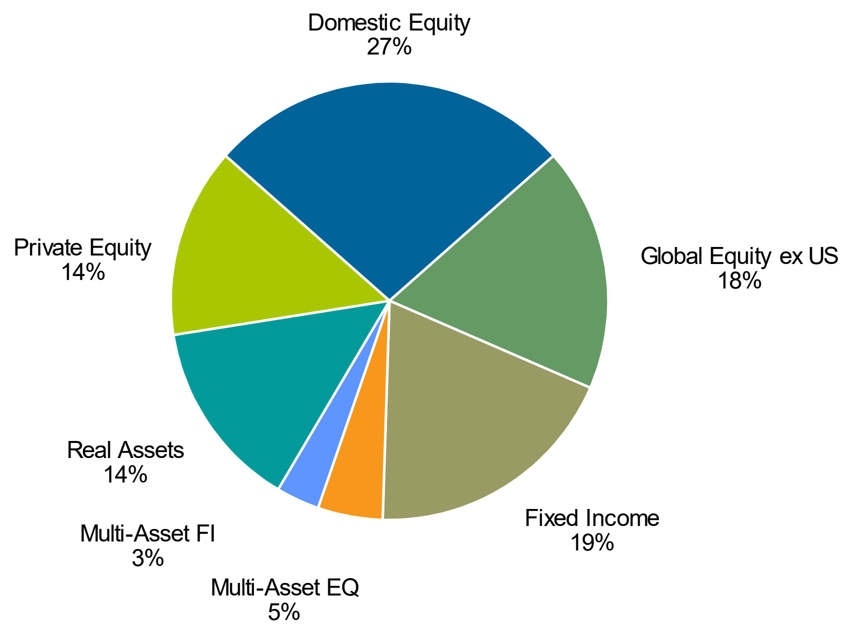
Asset Allocation – Public Employees' Retirement System

Quarter Ending March 31, 2023

Actual Asset Allocation



Target Asset Allocation



Asset Class	$000s Actual	Weight Actual	Target	Percent Difference	$000s Difference
Domestic Equity	2,751,914	25.3%	27.0%	(1.7%)	(188,114)
Global Equity ex US	1,921,326	17.6%	18.0%	(0.4%)	(38,693)
Fixed Income	2,008,402	18.4%	19.0%	(0.6%)	(60,506)
Multi-Asset EQ	577,829	5.3%	4.8%	0.5%	55,158
Multi-Asset FI	312,023	2.9%	3.2%	(0.3%)	(36,425)
Real Assets	1,594,734	14.6%	14.0%	0.6%	70,275
Private Equity	1,722,764	15.8%	14.0%	1.8%	198,305
Total	10,888,993	100.0%	100.0%		

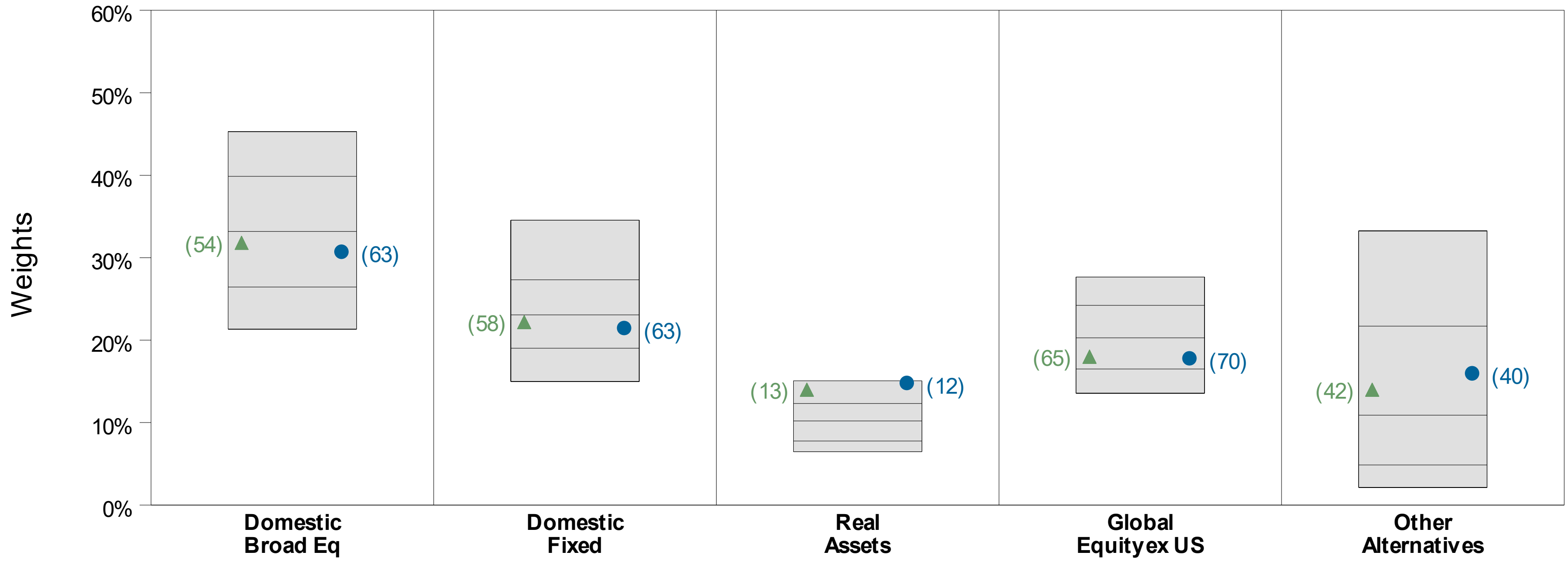
PERS is used as illustrative throughout the presentation.

The other plans exhibit modest variations from strategic target allocations.

Asset Allocation vs. Public Funds (PERS)

Callan Public Fund Database

Asset Class Weights vs Callan Public Fund Sponsor Database



	Domestic Broad Eq	Domestic Fixed	Real Assets	Global Equity ex US	Other Alternatives
10th Percentile	45.29	34.54	15.06	27.64	33.25
25th Percentile	39.85	27.32	12.32	24.23	21.70
Median	33.18	23.06	10.20	20.29	10.90
75th Percentile	26.44	19.02	7.77	16.50	4.86
90th Percentile	21.34	14.98	6.48	13.57	2.13
Fund ●	30.58	21.31	14.65	17.64	15.82
Target ▲	31.80	22.20	14.00	18.00	14.00

- Asset class allocations near targets after the asset allocation update and associated rebalancing.
- Weightings to real assets and alternatives are relatively high in comparison to other public funds.

Notes: Real Assets includes Private Real Estate, REITs, Farmland, Timber, Energy, and Infrastructure. Other Alternatives represents private equity.

Total Fund Return vs Public Funds (PERS)

Callan Public Fund Database

Gross of Fee Returns
for Periods Ended March 31, 2023
Group: Callan Public Fund Sponsor Database

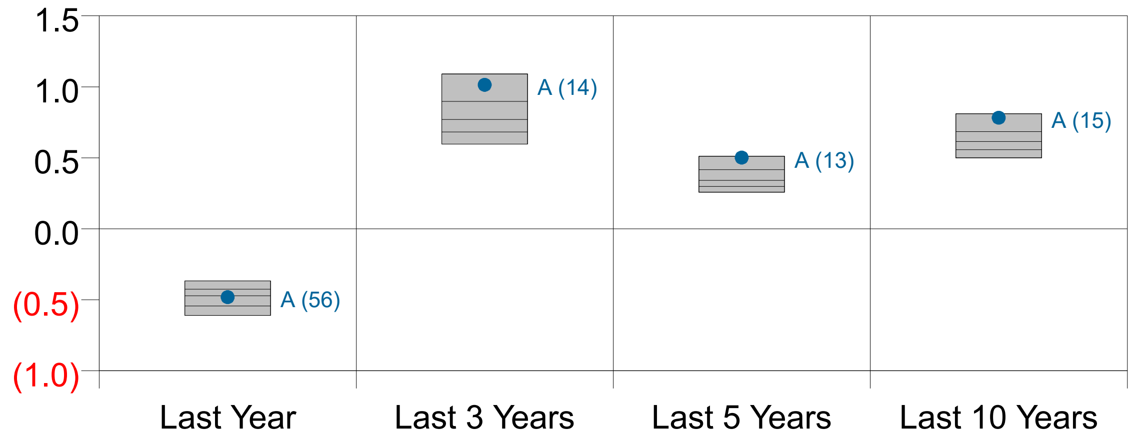
	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	(2.18)	12.96	7.59	8.16
25th Percentile	(3.49)	12.26	6.95	7.74
Median	(4.78)	11.15	6.22	7.22
75th Percentile	(5.75)	10.02	5.48	6.67
90th Percentile	(6.52)	8.94	4.98	5.97
Member Count	212	210	210	197
PERS - Total Fund ● A	(3.34)	12.34	7.42	7.97

- Despite the recent change to the asset allocation, longer-term performance reflects ARMB's prior orientation toward capital growth as opposed to income generation.
- Performance was above the Public Funds median for the one-, three-, five-, and ten-year periods.

Total Fund Sharpe Ratio Rankings vs Public Funds (PERS)

Callan Public Fund Database

Gross of Fee Sharpe Ratio
for Periods Ended March 31, 2023
Group: Callan Public Fund Sponsor Database



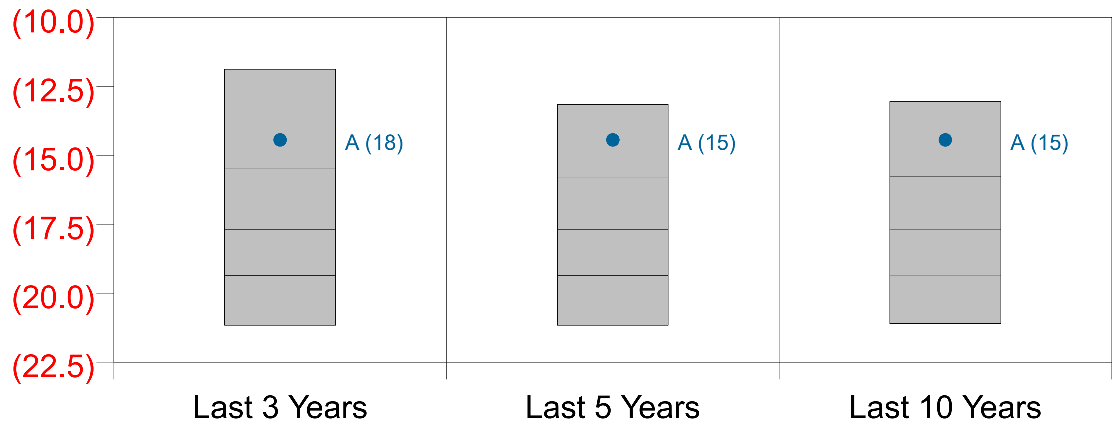
	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	(0.37)	1.09	0.51	0.81
25th Percentile	(0.43)	0.90	0.42	0.69
Median	(0.47)	0.77	0.34	0.61
75th Percentile	(0.54)	0.68	0.30	0.56
90th Percentile	(0.61)	0.60	0.26	0.50
Member Count	212	210	210	197
PERS - Total Fund ● A	(0.48)	1.01	0.50	0.78

- “Sharpe ratio” is a risk-adjusted measure of excess return above the risk-free rate.
- ARMB’s risk-adjusted return (Sharpe ratio) was above the Public Funds median for the three-, five-, and ten-year periods.

Total Maximum Drawdown Rankings vs Public Funds (PERS)

Callan Public Fund Database

Gross of Fee Maximum Drawdown
for Periods Ended March 31, 2023
Group: Callan Public Fund Sponsor Database



	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	(11.88)	(13.15)	(13.04)
25th Percentile	(15.46)	(15.78)	(15.76)
Median	(17.70)	(17.70)	(17.68)
75th Percentile	(19.36)	(19.36)	(19.34)
90th Percentile	(21.16)	(21.16)	(21.10)
Member Count	210	210	197
PERS - Total Fund ● A	(14.44)	(14.44)	(14.44)

- “Maximum drawdown” is a measure of the largest loss from peak to trough in each period.
- Lower rankings reflect larger drawdowns (i.e. bigger losses). ARMB’s drawdown rankings for all periods have reflected better than average drawdowns (i.e. lower losses) and have improved over time.
- The drawdown experienced in the first quarter of 2020 is the largest of the last 10 years.

Standard Deviation Ranking vs Public Funds (PERS)

Callan Public Fund Database

Gross of Fee Standard Deviation
for Periods Ended March 31, 2023
Group: Callan Public Fund Sponsor Database

	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	15.10	15.62	11.54
25th Percentile	14.11	14.73	10.91
Median	13.03	13.81	10.25
75th Percentile	11.49	12.11	9.09
90th Percentile	9.63	10.49	7.96
Member Count	210	210	197
PERS - Total Fund ● A	11.29	11.98	9.07

- “Standard deviation” measures variability of returns. It is one measurement of investment risk.
- Less standard deviation results in lower rankings. A lower ranking of standard deviation suggests lower variability.
- ARMB’s portfolio diversification has resulted in volatility that is lower than median compared to peers.

PERS Performance Attribution – 1st Quarter 2023 & Trailing Year

Relative Attribution Effects for Quarter ended March 31, 2023

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	25%	27%	6.56%	7.18%	(0.15%)	(0.04%)	(0.19%)
Fixed-Income	18%	19%	2.86%	2.87%	(0.00%)	0.01%	0.01%
Multi-Asset	8%	8%	2.70%	5.35%	(0.22%)	(0.00%)	(0.22%)
Real Assets	15%	14%	0.13%	0.16%	(0.00%)	(0.06%)	(0.07%)
Global Equity ex US	17%	18%	7.57%	6.56%	0.17%	(0.01%)	0.16%
Private Equity	17%	14%	(1.15%)	10.38%	(1.91%)	0.12%	(1.79%)
Total			**3.47% =**	**5.57% +**	**(2.11%) +**	**0.02%**	**(2.10%)**

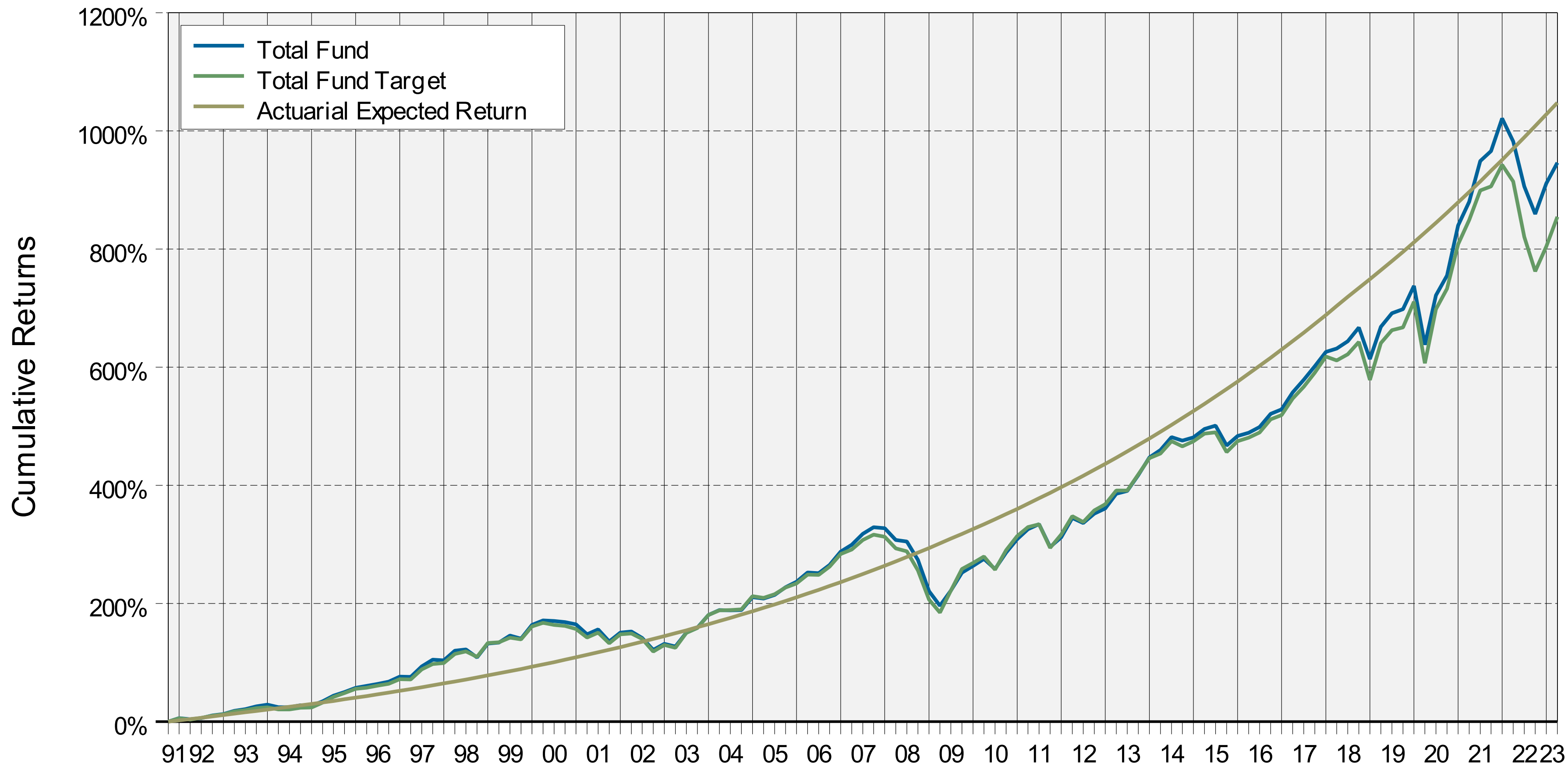
One Year Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	25%	27%	(7.21%)	(8.58%)	0.35%	(0.13%)	0.22%
Fixed-Income	20%	19%	(2.81%)	(4.42%)	0.34%	0.08%	0.42%
Multi-Asset	7%	7%	(5.19%)	(6.28%)	(0.02%)	0.00%	(0.02%)
Real Assets	15%	14%	5.21%	5.41%	(0.04%)	(0.18%)	(0.22%)
Global Equity ex US	17%	18%	(3.47%)	(5.84%)	0.40%	(0.06%)	0.34%
Private Equity	17%	14%	(4.39%)	(17.57%)	2.26%	(0.44%)	1.82%
Total			**(3.34%) =**	**(5.90%) +**	**3.29% +**	**(0.72%)**	**2.57%**

Current Quarter Target = 27.0% Russell 3000 Index, 18.0% Blmbg Aggregate, 18.0% MSCI ACWI xUS IMI, 4.9% NCREIF NFI-ODCE Val Wt Nt lagged 3 months, 4.8% MSCI ACWI IMI, 4.7% Russell 2000 Index lagged 3 months, 4.7% MSCI EAFE lagged 3 months, 4.7% S&P 500 Index lagged 3 months, 3.5% UBS Farmland Index (MB) lagged 3 months, 3.2% Blmbg Aggregate, 2.1% CPI All Urban Cons lagged 3 months+4.0%, 2.1% FTSE NAREIT All Eq Index, 1.4% NCREIF Timberland Index lagged 3 months and 0.9% 3-month Treasury Bill.

PERS Long-Term Total Fund Performance as of 03/31/2023

Cumulative Returns Actual vs Target

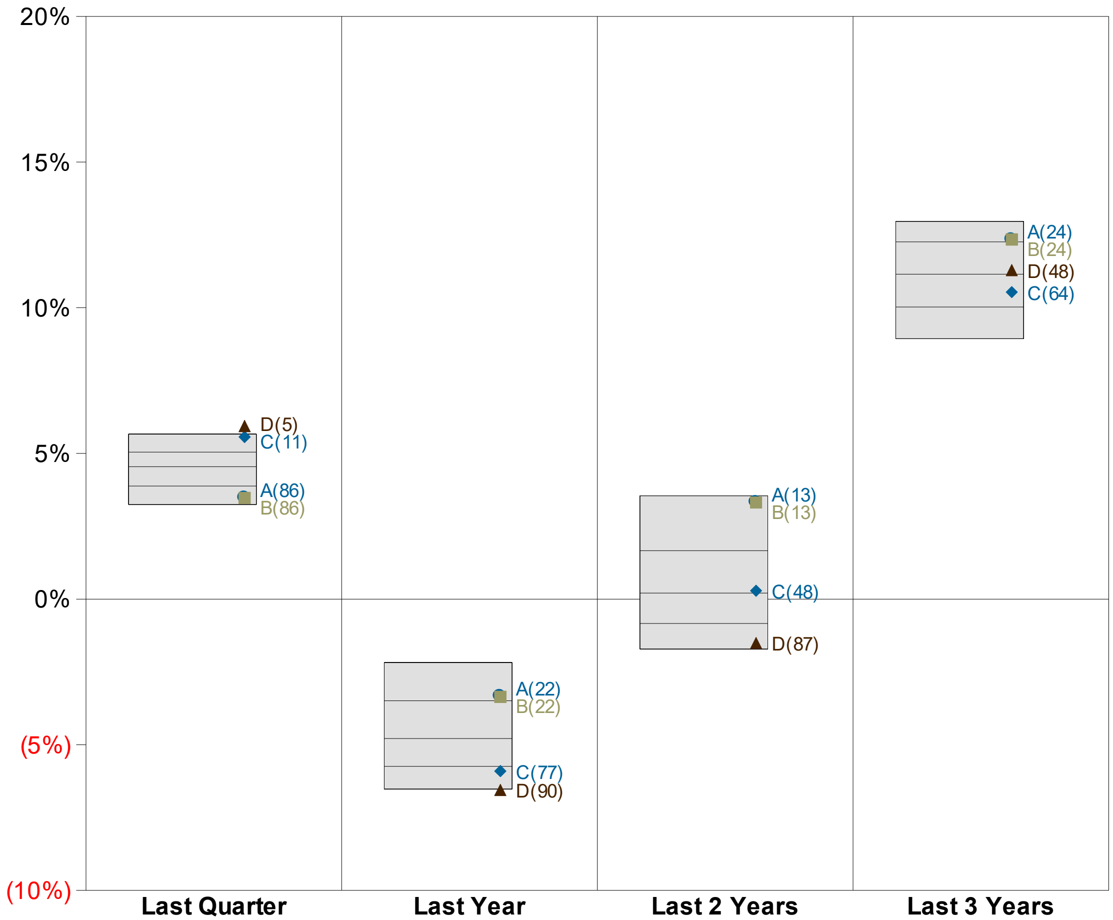


- Each Fund has two targets: the asset allocation policy return and the actuarial return.
- Total Fund returns continue to closely track the strategic allocation target.
- Market correction setbacks in 3Q15, 4Q18, 1Q20, and 2022 have hindered the Total Fund's progress toward closing the gap versus the actuarial return following the Global Financial Crisis of 2008/2009.

Historical Fiscal Year Actuarial Rate of Return:1986-1991 9.00%, 1992-1993 8.75%, 1994-1995 8.00% 1996-2009 8.25%, 2010-2018 8.00%, 2019-2022 7.38%, 2023 7.25%

Annalized Total Fund Returns as of 03/31/23

Callan Public Fund Database



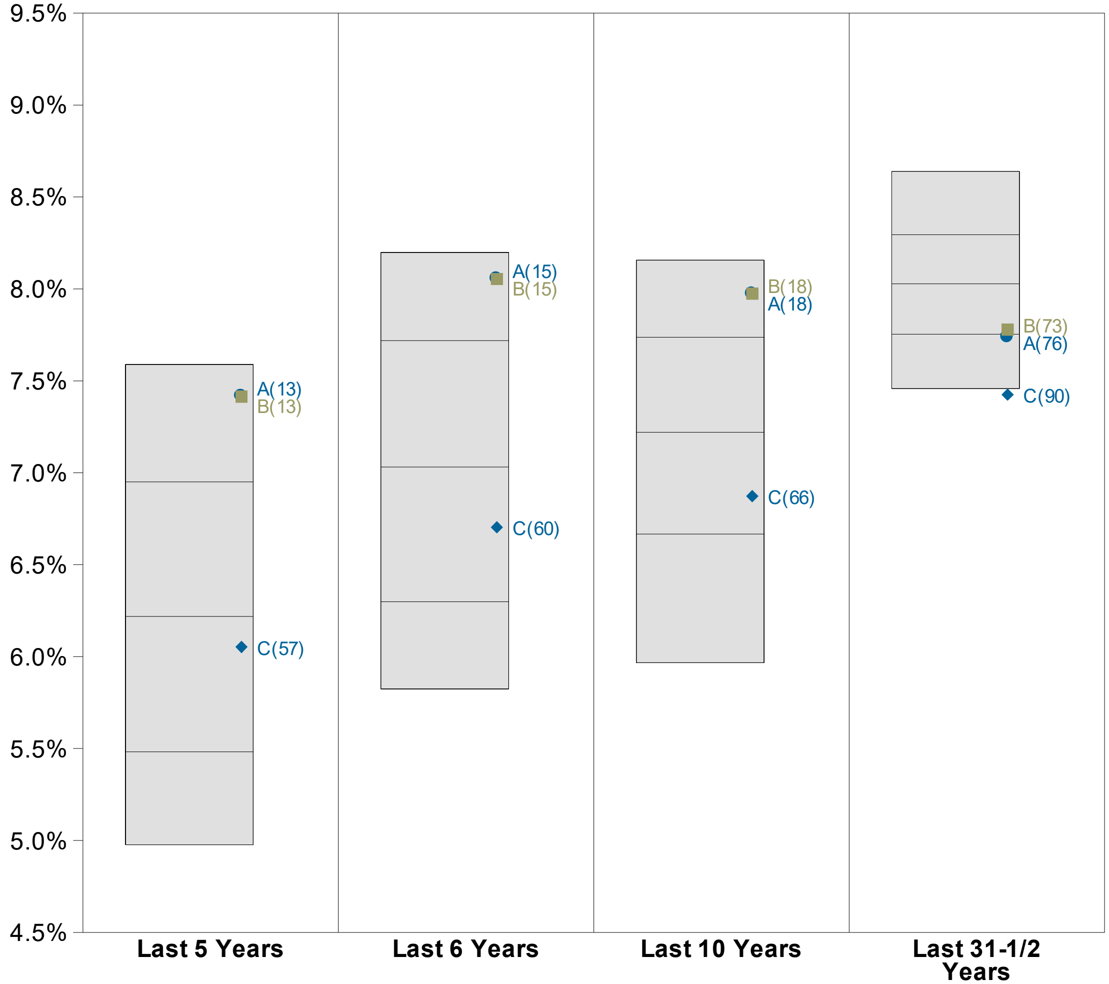
	Last Quarter	Last Year	Last 2 Years	Last 3 Years
10th Percentile	5.67	(2.18)	3.55	12.96
25th Percentile	5.05	(3.49)	1.66	12.26
Median	4.55	(4.78)	0.21	11.15
75th Percentile	3.88	(5.75)	(0.84)	10.02
90th Percentile	3.25	(6.52)	(1.72)	8.94
PERS Total Plan ● A	3.47	(3.34)	3.33	12.34
TRS Total Plan ■ B	3.47	(3.35)	3.32	12.34
Target Index ◆ C	5.57	(5.90)	0.29	10.54
Public Market Proxy ▲ D	5.94	(6.55)	(1.51)	11.29

- PERS and TRS have outperformed their target for the last year, two-year and three-year periods.

The Public Market Proxy consists of 45% Russell 3000 Index, 30% MSCI ACWI ex US IMI (Net), and 25% Bloomberg Aggregate Index.

Longer-Term Total Fund Returns as of 03/31/23

Callan Public Fund Database

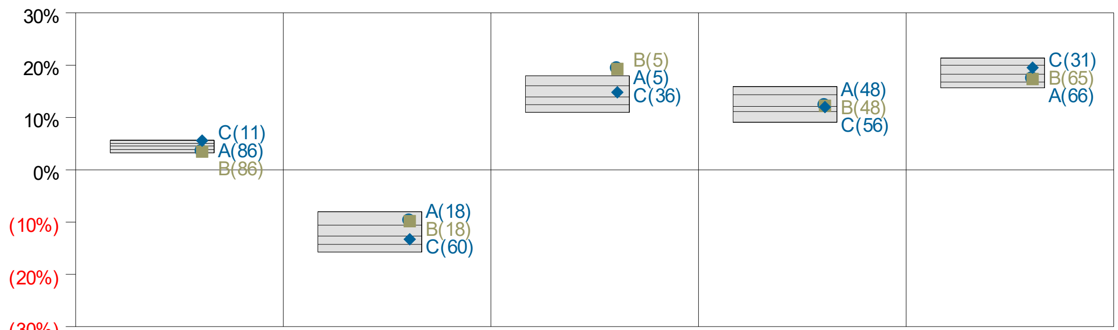


		Last 5 Years	Last 6 Years	Last 10 Years	Last 31-1/2 Years
10th Percentile		7.59	8.20	8.16	8.64
25th Percentile		6.95	7.72	7.74	8.30
Median		6.22	7.03	7.22	8.03
75th Percentile		5.48	6.30	6.67	7.75
90th Percentile		4.98	5.82	5.97	7.46
PERS Total Plan	● A	7.42	8.06	7.97	7.74
TRS Total Plan	■ B	7.41	8.05	7.97	7.78
Target Index	◆ C	6.05	6.70	6.87	7.42

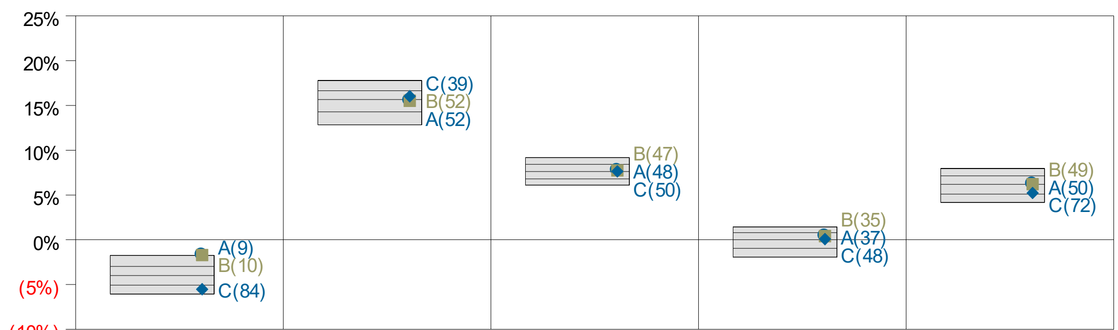
- Five-, six-, and ten-year performance is above target and median.
- 31-year and two quarter return for PERS beat the target by 32 basis points.

Calendar Period Total Fund Performance

Callan Public Fund Database



		12/2022- 3/2023	2022	2021	2020	2019
10th Percentile		5.67	(7.99)	17.97	15.91	21.39
25th Percentile		5.05	(10.58)	16.09	14.35	20.00
Median		4.55	(12.68)	13.92	12.13	18.27
75th Percentile		3.88	(14.24)	12.46	11.15	16.76
90th Percentile		3.25	(15.73)	11.00	9.09	15.69
PERS Total Plan	● A	3.47	(9.80)	19.27	12.23	17.34
TRS Total Plan	■ B	3.47	(9.83)	19.28	12.21	17.36
Target Index	◆ C	5.57	(13.27)	14.81	11.99	19.54



		2018	2017	2016	2015	2014
10th Percentile		(1.73)	17.78	9.18	1.44	7.95
25th Percentile		(2.97)	16.65	8.43	0.79	7.14
Median		(3.99)	15.66	7.62	0.02	6.19
75th Percentile		(5.07)	14.27	6.80	(0.94)	5.09
90th Percentile		(6.05)	12.83	6.10	(1.93)	4.17
PERS Total Plan	● A	(1.70)	15.52	7.74	0.40	6.22
TRS Total Plan	■ B	(1.70)	15.54	7.74	0.41	6.22
Target Index	◆ C	(5.53)	16.03	7.64	0.08	5.24

- PERS and TRS rank near or above median in eight of the ten periods shown.
- Peer group range of returns during 2016, 2015, and 2014 were very tight.
- In the three periods with negative Public Fund returns (2022, 2018, and 2015), ARMB's results ranked well above median in the Public Fund universe.

Callan

Pension Plan – Asset Class Performance

Total Domestic Equity through 03/31/23

Performance vs Public Fund - Domestic Equity (Gross)

		Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile		7.53	(6.35)	20.27	10.89	11.63	12.20
25th Percentile		7.06	(7.32)	19.42	10.39	10.98	11.78
Median		6.52	(8.00)	18.81	9.90	10.45	11.36
75th Percentile		6.04	(8.73)	18.25	9.34	10.00	10.74
90th Percentile		5.37	(9.70)	17.02	8.42	9.04	9.85
Domestic Equity Pool	A	6.55	(7.21)	18.55	9.90	10.50	11.30
Russell 1000 Index	B	7.46	(8.39)	18.55	10.87	11.38	12.01
Russell 3000 Index		7.18	(8.58)	18.48	10.45	11.00	11.73

Domestic Equity Component Returns

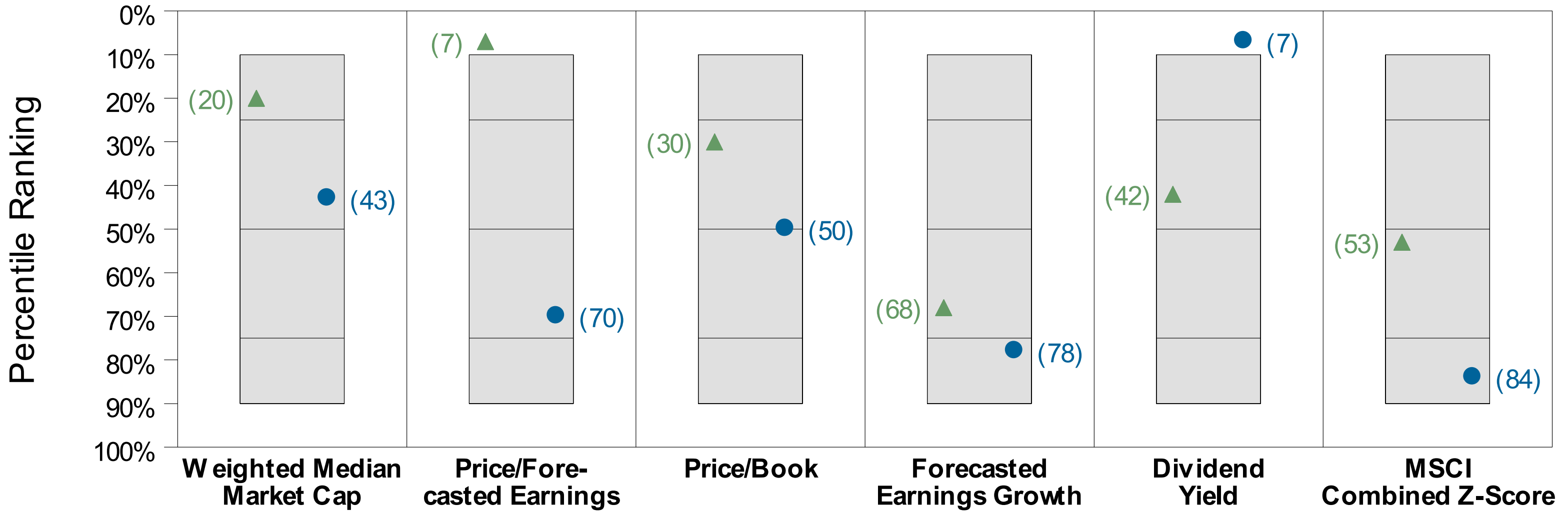
Returns for Periods Ended March 31, 2023

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Total Dom Equity Pool	6.55%	(7.21%)	18.55%	9.90%	11.30%
Russell 3000 Index	7.18%	(8.58%)	18.48%	10.45%	11.73%
Large Cap Managers	6.92%	(7.06%)	18.22%	10.22%	11.68%
Russell 1000 Index	7.46%	(8.39%)	18.55%	10.87%	12.01%
Small Cap Managers	2.61%	(8.80%)	21.48%	6.89%	9.52%
Russell 2000 Index	2.74%	(11.61%)	17.51%	4.71%	8.04%

- The large cap composite trailed its benchmark (the Russell 1000 Index) for the last quarter, trailing 3-, 5-, and 10-year periods and outperformed over the last year.
- The small cap composite has outperformed its benchmark (the Russell 2000 Index) over all periods except the last quarter.

Domestic Equity Portfolio Characteristics

Portfolio Characteristics Percentile Rankings
Rankings Against Public Fund - Domestic Equity
as of March 31, 2023

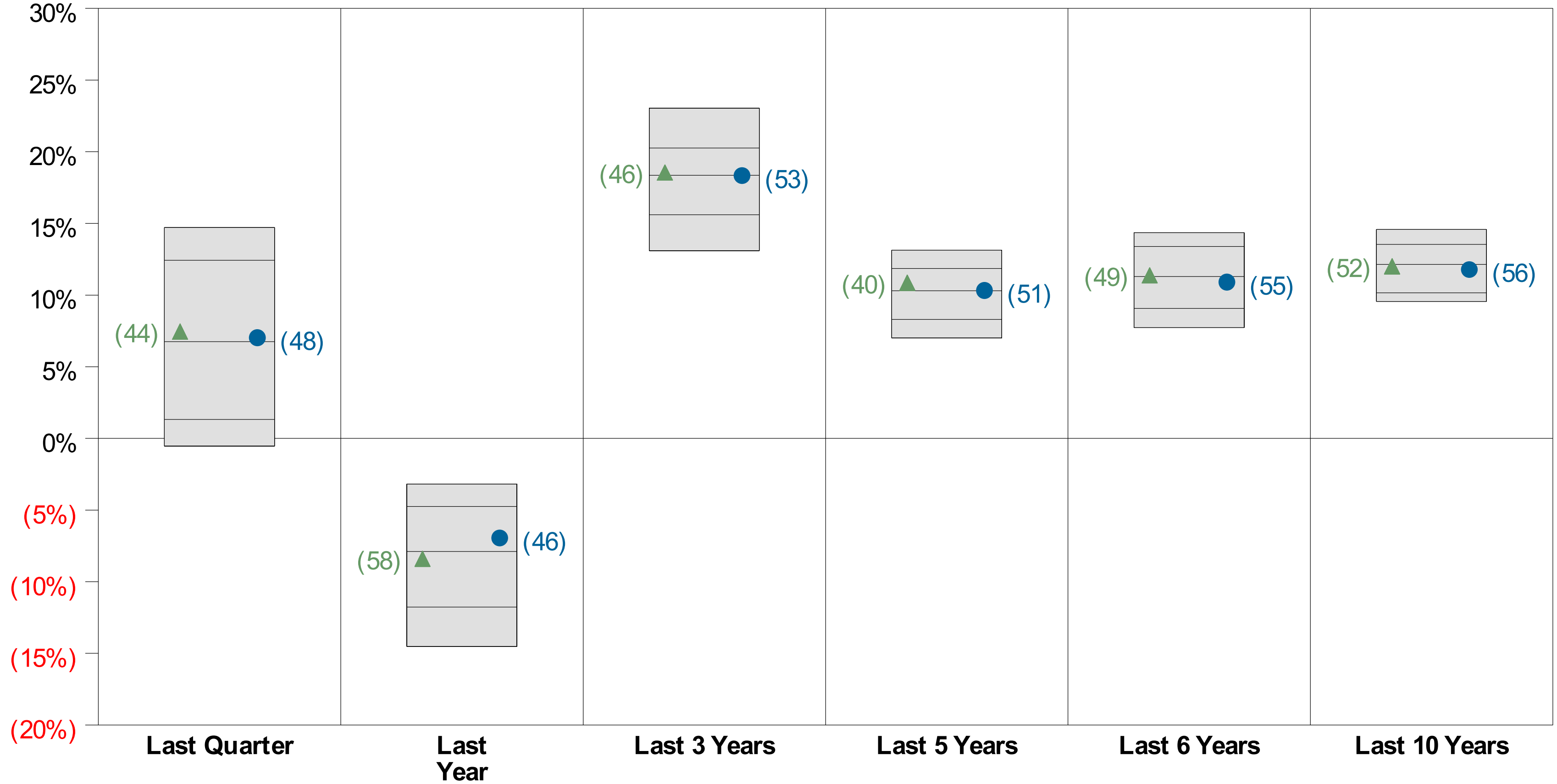


	Weighted Median Market Cap	Price/Fore-casted Earnings	Price/Book	Forecasted Earnings Growth	Dividend Yield	MSCI Combined Z-Score
10th Percentile	162.71	18.36	3.63	12.24	1.67	0.06
25th Percentile	98.08	18.27	3.35	11.52	1.66	0.03
Median	78.98	17.41	3.06	11.11	1.57	(0.01)
75th Percentile	58.73	16.82	2.76	10.21	1.49	(0.03)
90th Percentile	41.76	15.40	2.41	9.63	1.43	(0.22)
Domestic Equity Pool ●	84.60	17.06	3.06	10.11	1.68	(0.08)
Russell 3000 Index ▲	120.35	18.44	3.31	10.50	1.62	(0.01)

- ARMB's overall domestic equity portfolio's weighted median market capitalization is lower than the index but slightly above the median of public funds (first column).
- Overall, ARMB's domestic equity portfolio tilts decidedly "value" versus peers and the index (last column on right).
  - "MSCI Combined Z-Score" measures Growth and Value characteristics of individual stocks within managers' portfolios.
  - A low Z-Score rank (i.e.– the dot appears towards the top of the floating bar) indicates a Growth bias.
  - A high Z-Score rank (i.e. – the dot appears towards the bottom of the floating bar) indicates a Value bias.

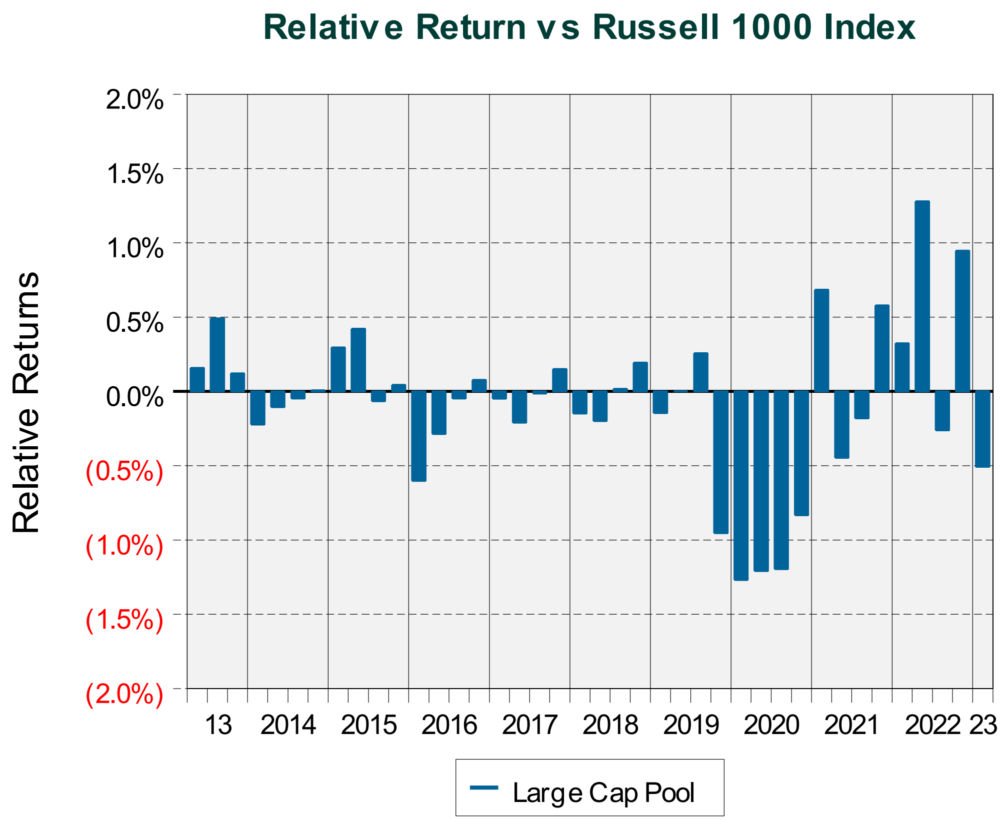
Large Cap Domestic Equity through 03/31/23

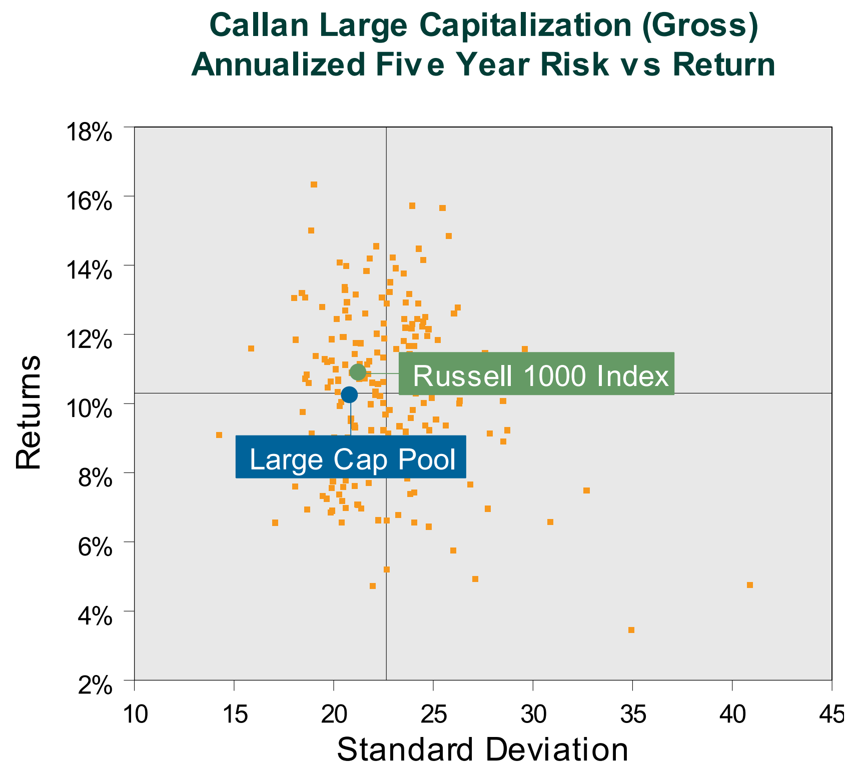
Performance vs Callan Large Capitalization (Gross)



	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	14.71	(3.18)	23.04	13.14	14.35	14.57
25th Percentile	12.43	(4.74)	20.26	11.85	13.39	13.53
Median	6.76	(7.89)	18.36	10.30	11.30	12.15
75th Percentile	1.32	(11.77)	15.60	8.30	9.07	10.16
90th Percentile	(0.53)	(14.52)	13.09	7.00	7.73	9.55
Large Cap Pool ●	6.92	(7.06)	18.22	10.22	10.79	11.68
Russell 1000 Index ▲	7.46	(8.39)	18.55	10.87	11.38	12.01

Large Cap Domestic Equity as of 03/31/23

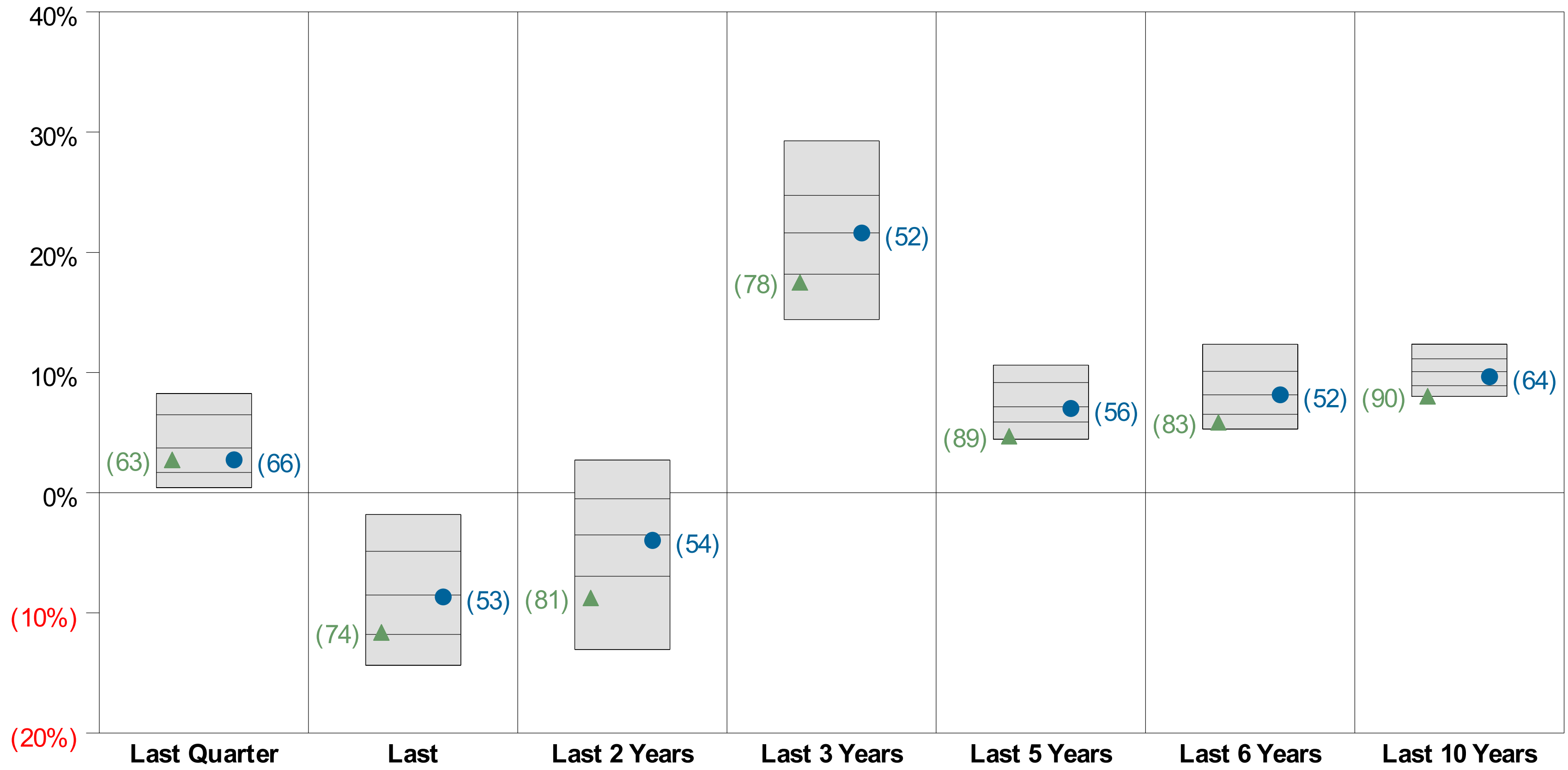




- Large Cap Domestic Equity returns underperformed the Russell 1000 index by 55bps in the first quarter of 2023.
- Long-term performance exhibits market-like returns with similar risk.
- Underperformance vs. the Russell 1000 Index in 4Q19 through 4Q20 was driven by Scientific Beta, which trailed the broad benchmark by between 2% and 4% in each of those quarters.
- Passive implementation also detracted as the S&P 900 Index trailed the Russell 1000 Index by 1.1% in 2Q20, 0.8% in 3Q20, and 0.9% in 4Q20.

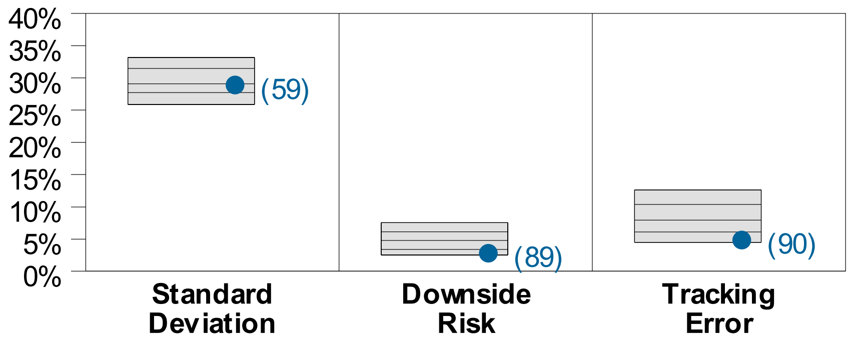
Small Cap Domestic Equity through 03/31/23

Performance vs Callan Small Capitalization (Gross)



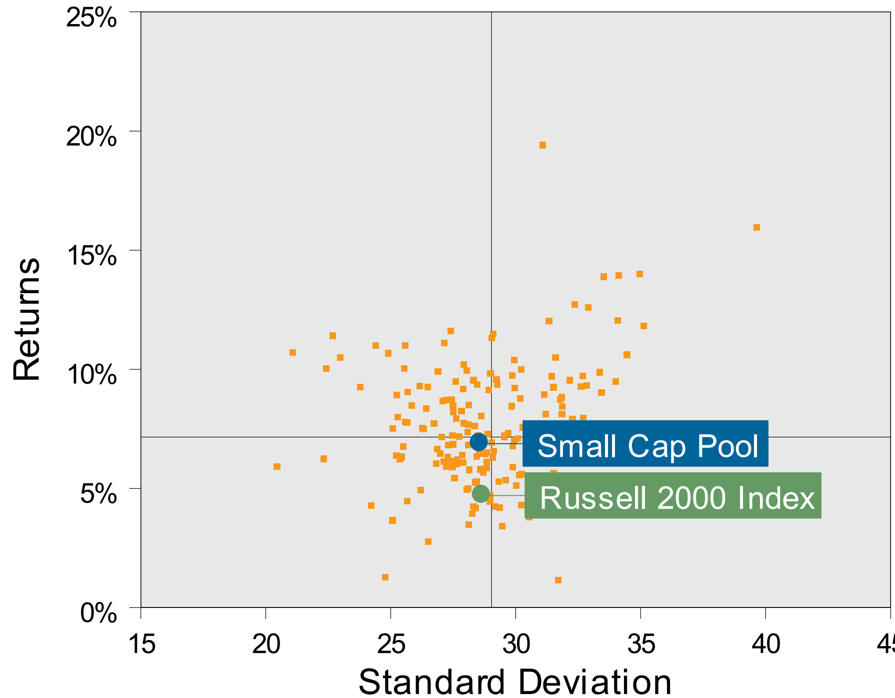
	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	8.26	(1.82)	2.72	29.27	10.62	12.35	12.37
25th Percentile	6.49	(4.87)	(0.50)	24.75	9.18	10.11	11.14
Median	3.73	(8.50)	(3.52)	21.62	7.16	8.14	10.08
75th Percentile	1.70	(11.78)	(6.94)	18.18	5.90	6.53	8.92
90th Percentile	0.43	(14.34)	(13.04)	14.41	4.45	5.30	8.01
Small Cap Pool ●	2.61	(8.80)	(4.08)	21.48	6.89	8.01	9.52
Russell 2000 Index ▲	2.74	(11.61)	(8.74)	17.51	4.71	5.86	8.04

Small Cap Domestic Equity through 03/31/23



	Standard Deviation	Downside Risk	Tracking Error
10th Percentile	33.16	7.55	12.65
25th Percentile	31.49	6.13	10.37
Median	29.08	4.79	7.95
75th Percentile	27.72	3.38	6.11
90th Percentile	25.89	2.53	4.49
Small Cap EquityPool ●	28.60	2.54	4.61

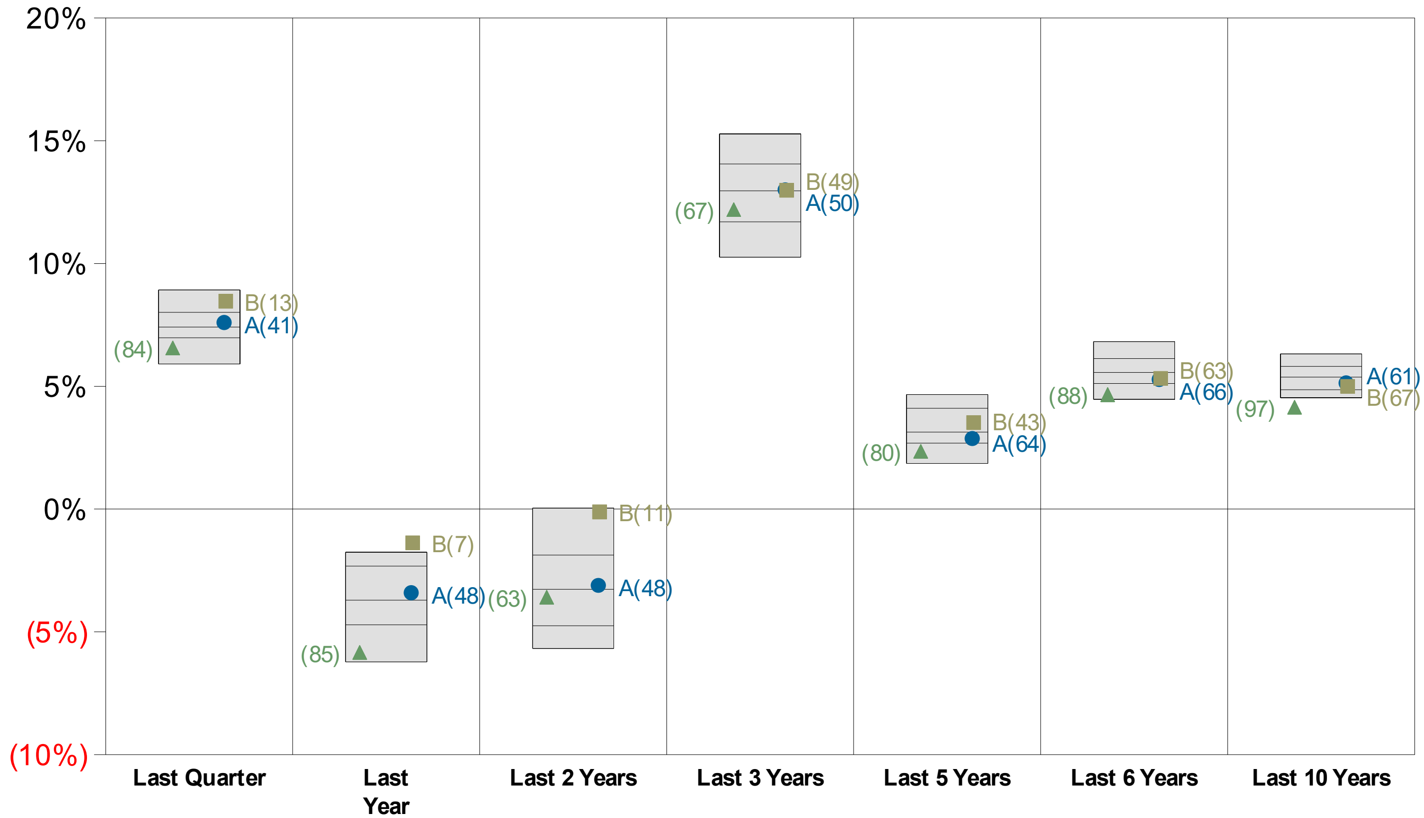
Callan Small Capitalization (Gross)
Annualized Five Year Risk vs Return



- The five-year risk statistics of standard deviation, downside risk, and tracking error compare favorably versus the peer group of small cap managers.
- Over this time period, the S&P Small Cap 600 Index has outperformed the Russell 2000 benchmark with similar risk.

Global Equity ex-US through 03/31/23

Performance vs Public Fund - International Equity (Gross)

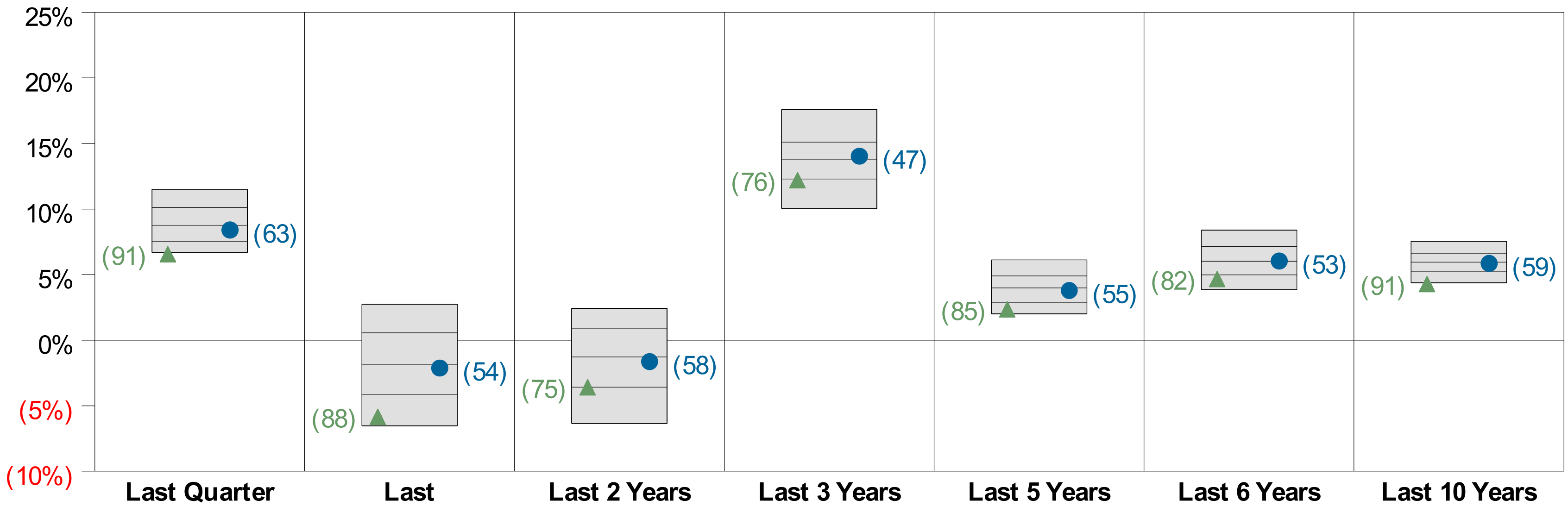


		Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile		8.92	(1.76)	0.04	15.28	4.66	6.82	6.32
25th Percentile		8.01	(2.32)	(1.88)	14.06	4.11	6.13	5.81
Median		7.42	(3.71)	(3.26)	12.96	3.14	5.57	5.38
75th Percentile		6.98	(4.71)	(4.75)	11.70	2.69	5.12	4.86
90th Percentile		5.91	(6.22)	(5.67)	10.26	1.86	4.47	4.54
Global Equity ex-US	● A	7.54	(3.47)	(3.16)	12.95	2.82	5.23	5.08
MSCI EAFE Index	■ B	8.47	(1.38)	(0.12)	12.99	3.52	5.32	5.00
Int'l Equity Target	▲	6.56	(5.84)	(3.58)	12.20	2.35	4.67	4.15

The Int'l Equity Target currently consists of MSCI ACWI ex U.S. IMI.

International Equity ex Emerging Markets through 03/31/23

Performance vs Callan Non-US Equity (Gross)



	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	11.51	2.74	2.43	17.58	6.12	8.40	7.54
25th Percentile	10.11	0.56	0.91	15.10	4.90	7.15	6.63
Median	8.76	(1.87)	(1.28)	13.77	3.99	6.02	5.95
75th Percentile	7.54	(4.13)	(3.59)	12.29	2.89	4.99	5.21
90th Percentile	6.68	(6.54)	(6.36)	10.04	2.01	3.84	4.36
Int'l Equity Pool (ex Emerging. Mkt) ●	8.27	(2.25)	(1.76)	13.91	3.67	5.91	5.73
MSCI ACWI xUS IMI ▲	6.56	(5.84)	(3.58)	12.20	2.35	4.68	4.28

International Equity ex Emerging Markets through 03/31/23

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Int'l Equity Pool (ex Emerging Market)	**8.27%**	**(2.25%)**	**13.91%**	**3.67%**	**5.73%**
Arrowstreet ACWI ex -US	4.60%	0.60%	19.52%	7.36%	-
Baillie Gifford ACWI ex US	10.27%	(7.40%)	9.32%	3.49%	-
Brandes Investment	11.36%	6.49%	18.74%	3.79%	6.16%
Capital Guardian	10.55%	(3.51%)	10.55%	4.88%	6.49%
L&G Sci Beta Dev ex US	7.48%	(3.70%)	13.37%	-	-
SSgA World ex US IMI	7.57%	(3.80%)	13.50%	-	-
MSCI EAFE Index	8.47%	(1.38%)	12.99%	3.52%	5.00%
MSCI ACWI ex-US IMI Index	6.56%	(5.84%)	12.20%	2.35%	4.28%

Emerging Markets through 03/31/23

Performance vs Callan Emerging Broad (Gross)

	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	7.28	(4.47)	(3.52)	14.49	1.51	5.44	4.82
25th Percentile	5.97	(7.07)	(8.16)	10.60	0.77	4.65	3.93
Median	5.08	(9.62)	(11.81)	9.05	(0.42)	3.55	3.17
75th Percentile	3.97	(11.64)	(14.44)	7.10	(1.30)	2.81	2.29
90th Percentile	3.15	(13.86)	(15.77)	4.92	(2.22)	2.09	1.81
Emerging Markets Pool ●	4.34	(9.34)	(9.67)	8.43	(1.30)	1.71	1.13
MSCI EM ▲	3.96	(10.70)	(11.03)	7.83	(0.91)	3.00	2.00

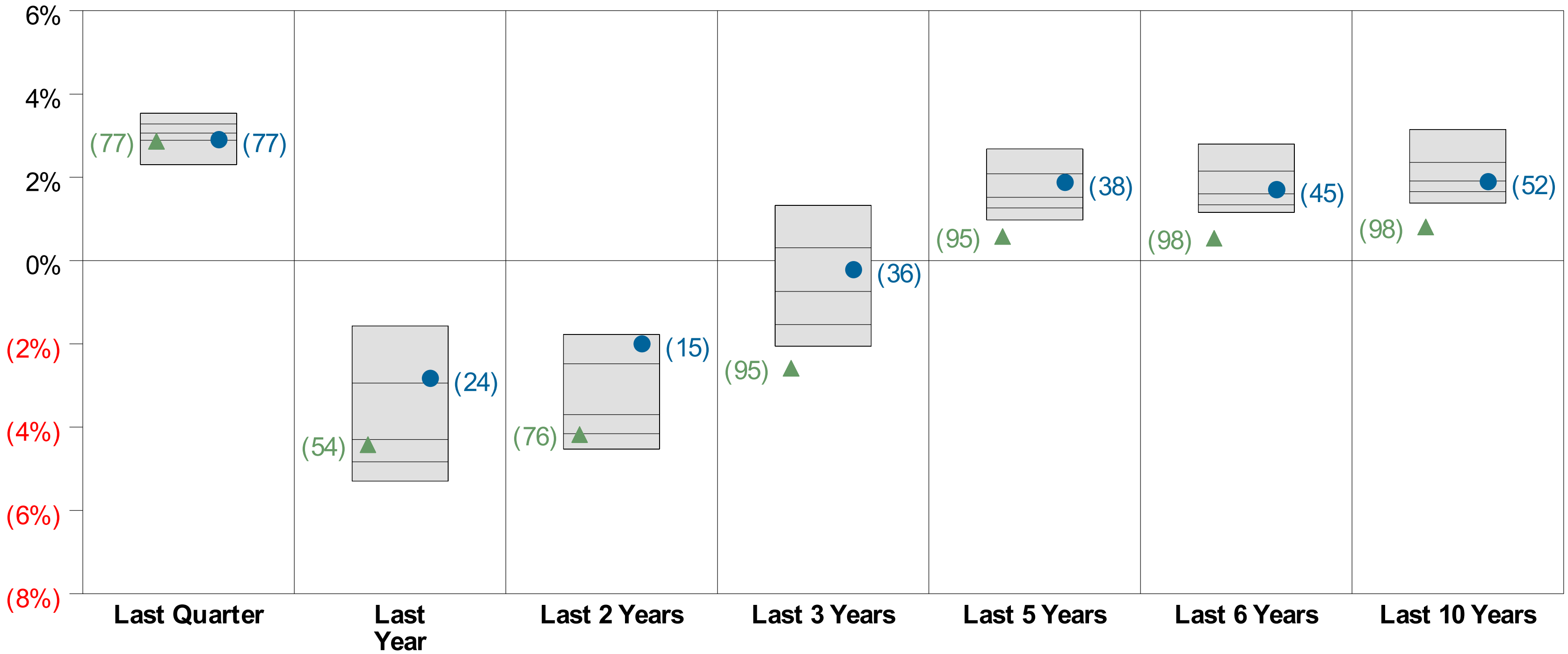
- The Emerging Markets Pool was restructured in 4Q 2019 to be a blend of passive and smart beta investments.
- The restructured Pool found its footing in 2021 and outperformed the benchmark by 1.36% over the last two years. For the most recent quarter, the Emerging Markets Pool surpassed its benchmark by 0.38% and ranks above median over the last year.

Emerging Markets Pool through 03/31/23

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Emerging Markets Pool	**4.34%**	**(9.34%)**	**8.43%**	**(1.30%)**	**1.13%**
SSgA Emerging Markets	4.10%	(10.55%)	7.77%	-	-
L&G SciBeta EM	4.87%	(6.69%)	9.79%	-	-
MSCI EM	3.96%	(10.70%)	7.83%	(0.91%)	2.00%

Total Fixed Income as of 03/31/23

Performance vs Public Fund - Domestic Fixed (Gross)



	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	3.54	(1.57)	(1.77)	1.33	2.68	2.80	3.14
25th Percentile	3.28	(2.94)	(2.48)	0.31	2.08	2.15	2.36
Median	3.06	(4.30)	(3.70)	(0.74)	1.52	1.60	1.91
75th Percentile	2.89	(4.83)	(4.15)	(1.54)	1.26	1.34	1.66
90th Percentile	2.30	(5.29)	(4.52)	(2.06)	0.97	1.16	1.38
Total Fixed Income Pool ●	2.87	(2.87)	(2.04)	(0.26)	1.83	1.67	1.86
Fixed Income Target ▲	2.87	(4.42)	(4.18)	(2.58)	0.58	0.54	0.81

- The Total Fixed Income Pool portfolio matched or outperformed the Fixed Income Target in all time periods shown.
- The transition from intermediate Treasury to Aggregate mandates was completed during the fourth quarter of 2019.

Total Fixed Income through 03/31/23

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Fixed Income	**2.87%**	**(2.87%)**	**(0.26%)**	**1.83%**	**1.86%**
Fixed Income Target	2.87%	(4.42%)	(2.58%)	0.58%	0.81%
Blmbg Treasury Intmdt	2.27%	(1.54%)	(2.33%)	1.06%	0.90%
ARMB US Aggregate	3.15%	(4.13%)	(2.29%)	-	-
Opportunistic Fixed Income	**2.48%**	**(4.53%)**	**2.90%**	**2.22%**	**3.56%**
FIAM Tactical Bond	3.37%	(3.80%)	2.88%	3.04%	-
Blmbg Aggregate	2.96%	(4.78%)	(2.77%)	0.91%	1.36%
FIAM REHI	(1.54%)	(7.29%)	4.76%	1.32%	-
Blmbg:Universal CMBS xAaa	0.15%	(8.21%)	0.03%	0.93%	1.92%

Fixed Income Target = 100% Blmbg Agg from 198912 - 199503, 100% Blmbg Govt/Credit 199503 - 200006, 100% Blmbg Aggregate 200006- 200706, 97.3% Blmbg Agg and 2.7% Blmbg US TIPS 200706 - 200806, 10% ML US High Yield master II, 70% Blmbg Agg, 10% Blmbg Treasury Index, and 10% Citigroup WGBI Non-US 200806 - 201006, 10.53% ML US High Yield master II, 78.95% Blmbg Treasury Intermediate, 10.53 % Citigroup WGBI Non-US 201006 - 201706, 100% Blmbg Treasury Intermediate 201706 - 201906, Custom floating target applied 201906 - 201912, 95% Blmbg Agg and 5% 3 Mo T-Bill thereafter. Total Fixed-Income Pool was funded in 1Q91.

Multi-Asset through 03/31/23

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Multi-Asset (T)	**2.73%**	**(4.94%)**	**7.69%**	**4.67%**	**-**
Alternative Equity Strategies	**1.84%**	**(14.26%)**	**11.45%**	**6.47%**	**7.44%**
McKinley Healthcare Transformation	1.84%	(14.26%)	11.45%	-	-
MSCI ACWI	7.31%	(7.44%)	15.36%	6.93%	8.06%
Tactical Allocation Strategies	**4.59%**	**(5.73%)**	**9.61%**	**-**	**-**
PineBridge	4.02%	(3.72%)	9.93%	-	-
Pine Bridge Benchmark	5.76%	(6.60%)	8.20%	4.13%	5.10%
Fidelity Signals	5.16%	(7.67%)	9.32%	-	-
Fidelity Signals Benchmark	5.76%	(6.60%)	8.43%	4.76%	5.58%
Alternative Beta	**0.57%**	**12.67%**	**4.02%**	**0.68%**	**-**
Man Group Alternative Risk Premia	0.57%	12.67%	6.07%	2.92%	-
T-Bills + 5%	2.26%	7.50%	5.89%	6.41%	5.87%
Alternative Fixed Income	**1.67%**	**6.67%**	**7.58%**	**-**	**-**
Crestline (Blue Glacier)	1.23%	8.63%	8.01%	6.92%	7.92%
Prisma Capital (Polar Bear)	7.37%	(18.08%)	0.90%	1.79%	2.80%
Crestline Specialty Lndg Fd II	1.40%	10.30%	10.75%	11.03%	-
Crestline Specialty Lndg Fd III	2.85%	11.69%	-	-	-
HFRI Fund of Funds Idx	0.71%	(1.93%)	7.17%	3.10%	3.24%
T-Bills + 5%	2.26%	7.50%	5.89%	6.41%	5.87%

Real Assets through 03/31/23

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Real Assets	**0.22%**	**5.66%**	**8.99%**	**7.33%**	**6.98%**
Real Assets Target (1)	1.40%	3.46%	14.31%	7.94%	7.44%
Real Estate	(3.75%)	(8.56%)	9.03%	7.34%	8.89%
Real Estate Target (2)	(1.46%)	(3.33%)	7.63%	6.87%	8.28%
Private Real Estate	(3.75%)	(2.95%)	9.67%	8.43%	9.88%
NCREIF NFI-ODCE Val Wt Nt	(3.38%)	(3.91%)	7.46%	6.56%	8.47%
NCREIF Total Index	(1.81%)	(1.63%)	7.15%	6.71%	8.34%
ARMB REIT	1.73%	(19.32%)	10.14%	6.18%	6.43%
NAREIT Equity Index	1.74%	(19.40%)	10.17%	6.25%	6.45%
Total Farmland	8.20%	11.66%	9.76%	7.42%	6.79%
UBS Agrivest	8.22%	11.70%	9.93%	7.79%	7.27%
Total Timber	7.25%	10.59%	8.43%	5.96%	5.56%
Timberland Investment Resources	7.28%	10.63%	8.29%	6.00%	5.61%
NCREIF Timberland Index	1.75%	11.31%	8.09%	5.54%	5.82%
Total Energy Funds	(2.01%)	(2.99%)	6.68%	0.40%	(2.54%)
CPI + 5%	2.88%	9.55%	10.61%	8.99%	7.59%
Total Infrastructure	2.69%	10.37%	12.09%	11.46%	-
JPM Infrastructure	2.37%	10.98%	9.93%	7.51%	-
IFM Infrastructure	2.76%	10.23%	12.60%	11.97%	-
CPI + 4%	2.65%	8.54%	9.61%	7.99%	6.59%
Global Infrastructure Idx	3.94%	(3.45%)	15.59%	5.88%	6.37%

(1) As of 10/01/2019, Real Assets Target is 37.5% NFI-ODCE Value Weight Net Index, 10% FTSE NAREIT All Equity Index, 25% NCREIF Farmland Index, 10% NCREIF Timberland Index, 17.5% CPI+4.

(2) ARMB Custom Real Estate Target is 90% NCREIF Property Index and 10% FTSE NAREIT All Equity REIT Index.

Farmland and Timber data supplied by the manager and may vary from State Street returns due to timing variations.

Private Equity as of 03/31/2023 (with one quarter lag)

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Private Eq Pool	(1.15)	(4.39)	26.11	19.87	18.29
Private Equity Target	10.38	(17.57)	14.28	5.37	7.90

Callan

Callan Update

Published Research Highlights from 1Q23

2023 DC Trends Survey and Webinar

Energy Transition Is Having a Moment, but Does It Have Staying Power?

2023-2032 Capital Markets Assumptions and Webinar

Research Café: ESG Interview Series Session

Recent Blog Posts

The PRT Decision: What Plan Sponsors Need to Know

Bill Emmett and Christopher Park

Can Institutional Investors Target 'Food Deserts' for Investment?

Aaron Quach

Risky Business Update: After a Year of Historic Losses, What Changed?

Julia Moriarty

Additional Reading

Alternatives Focus quarterly newsletter

Active vs. Passive quarterly charts

Capital Markets Review quarterly newsletter

Monthly Updates to the Periodic Table

Market Pulse Flipbook quarterly markets update

Real Estate Indicators market outlook

Callan Institute Events

Upcoming conferences, workshops, and webinars

Callan College

Intro to Alternatives

This course is for institutional investors, including trustees and staff members of public plans, corporate plans, and nonprofits. This session familiarizes trustees and staff with alternative investments like private equity, hedge funds, and real estate and how they can play a key role in any portfolio. You will learn about the importance of allocations to alternatives and how to consider integrating, evaluating, and monitoring them.

- August 23-24, 2023 – Virtual Session via Zoom

Intro to Investments—Learn the Fundamentals

This course is for institutional investors, including trustees and staff members of public plans, corporate plans, and nonprofits. This session familiarizes trustees and staff with basic investment theory, terminology, and practices.

- May 23–25, 2023 – Virtual Session via Zoom
- September 26–28, 2023 – Virtual Session via Zoom

Please visit our website at callan.com/events-education as we add dates to our 2023 calendar!

Mark Your Calendar

2023 Regional Workshops

June 27, 2023 – Denver

June 29, 2023 – San Francisco

October 24, 2023 – New York

October 26, 2023 – Chicago

2024 National Conference

April 8 –10, 2024 – San Francisco

Watch your email for further details and an invitation.

Webinars & Research Café Sessions

Webinar: DC – Managed Accounts

May 11, 2023 – 9:30am (PT)

Callan Updates

Firm updates by the numbers, as of 3/31/23

Total Associates: ~200

Ownership
- 100% employees
- 71% of employees are equity owners
- 55% of shareholders identify as women or minority

Total General and Investment Consultants: more than 55

Total Specialty and Research Consultants: more than 50

Total CFA/CAIA/FRMs: more than 55

Total Institutional Investor Clients: more than 475

Assets Under Advisement: more than $4 trillion

Leadership Updates
- Greg DeForrest promoted to head Callan's Fund Sponsor Consulting Group
- Millie Viqueira retired after 32 years with the firm

Milestones
- Celebrating our 50th anniversary

"I would like to congratulate Millie on her successful career at Callan. I look forward to continuing Callan's 50-year history of partnering with clients to achieve their goals."

— Greg DeForrest, EVP, on his promotion to head of Fund Sponsor Consulting

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ARMB Private Debt

Search Process and Current Environment

June 2023

Shane Carson, CAIA, CFA
State Investment Officer, Treasury Division
Alaska Department of Revenue

Callan

Pete Keliuotis
Executive Vice President

Agenda

- Timeline of Private Debt search
- Private Debt due diligence process
  - Callan
  - Staff
- Summary
- Questions
- Callan discussion of Private Debt environment

Timeline for Private Debt Search – 2022/2023

June 2022

- Board directs Staff to engage Callan to conduct a search for up to two private debt managers and delegates authority to staff to contract and invest up to $100m each.
- Callan and Staff participate in web meeting to discuss parameters and milestones of search process

August 2022

- Preliminary list received by Staff (19 managers) with comparative data

September 2022

- 2nd search list received by Staff (9 semi-finalists)
- Callan provides Staff with data analysis on 9 semi-finalists
- Callan provides final search book (5 finalists)
- Staff conducts initial due diligence web meetings with managers not already familiar

Oct/Nov 2022

- Staff and Callan conduct on-site due diligence on 5 finalists as well as follow-up web meetings

December 2022

- Staff selects 2 of 5 for contracting
- Additional due diligence on the selected managers and strategies

January 2023

- Staff notifies managers of selection and launches contracting process

February 2023

- Staff concludes contracting process with first private debt manager

May 2023

- Staff concludes contracting process with second private debt manager

Desirable ARMB Private Credit Characteristics

Goal: high current yield with low level of realized credit losses

Primary Callan Evaluation Criteria

- Broad loan origination capabilities (sponsored or non-sponsored)
- Credit underwriting discipline
- Avoidance of realized credit losses and in-house workout capabilities
- Deep domain knowledge for Specialty Finance portfolio
- Consistent risk-adjusted yield and return advantage vs. HY Bonds and Bank Loans

Primary ARMB Search Criteria

- Ability to achieve 7-9% net return target
- Attractive risk profile: modest leverage and focus on first lien, senior secured debt
- Strategy AUM above $1bn – ability to accommodate large allocation
- Strategy track record > 2 years
- Organization and team stability; experience with large public plans
- Broadly diversified portfolio (no sector-focused funds; <30% non-US exposure)
- Fund structure either closed-end or evergreen limited partnership (no public BDCs or RICs)
- Complementary to existing ARMB private debt exposures

Style Avoidance

- New entrants, lack of experience working through credit downturns
- Poor deal origination capabilities
- Undifferentiated strategy

Callan Due Diligence Process

Screening

Private Credit Universe

- Includes all private credit strategies in Callan databases
- Strategies include all segments of private credit

Global Forward Calendar

500 Funds

Initial Analysis

Pre-Qualified RFI Group

- Institutional strategies thought to be a fit for ARMB search criteria
- Data template provided to each manager to conduct initial analysis

Summary Data Template

57 Funds

Quantitative Analysis

Preliminary Semi-Finalists

- More extensive data analysis conducted
- Data included team size/tenure; fees/terms; portfolio characteristics; performance/risk

Expanded Data Template

19 Funds

Advanced Review

Semi-Finalists

- Onsite meeting(s) with senior team
- Assess firm, team, process, terms, client service, fit with existing ARMB PC portfolio

Search Book; ARC Presentation

9 Semi-Finalists; 5 Finalists

Final Due Diligence

Finalists

- Additional due diligence on selected managers
- Final negotiation of terms and fund structure; legal review and contracting

Final Diligence Report/ Recommendation

2 Selected for Contracting

- Collaborative process across ARMB, Callan consultants, and Callan Alternatives team
- All recommendations were reviewed by Callan's Alternatives Review Committee

Callan Operational Due Diligence

Firm Structure, Governance and Alignment

– Organizational structure
– Decision-making process
– Ownership structure
– Role of LPAC
– Reputational risk
– Distribution of economics
– Professional turnover
– Co-Investments

Compliance and Legal Assessment

– Compliance team structure
– Regulatory oversight and review
– Document review – compliance manual, code of ethics, etc.
– Conflicts of interest
– Historical and active litigation
– LPA and side letter compliance
– Legal venue

Internal and Financial Controls

– Operations team structure
– Review of outsourced functions
– Valuation policy and procedures
– Accounting standards
– Cash controls / expense allocation
– Valuation policy and procedures
– Review auditor and audit opinions
– Reporting transparency

Other Areas of Assessment

– ESG and DEI
– Fund terms and conditions
– Disaster recovery procedures
– IT infrastructure
– Allocation policy
– Insurance coverage
– Third-party providers
– Background checks

Callan Legal Due Diligence

Fund Structure
- Investment Period
- Fund Term
- Extensions
- Capital Reinvestment

Governance
- Legal Venue
- Fiduciary Duty
- Role of LPAC
- Amendments

Management
- Fund Guarantees
- Key Person Provision
- Investment Guidelines
- Credit Facility

Alignment of Interest
- GP Commitment (amount and funding)
- Fee Structure
- Conflicts of Interest
- Carried Interest Allocation

LP Rights
- Removal of GP
- Fund Dissolution
- Investment Period Suspension
- Co-Investment Allocation

Fees and Expenses
- Offsets and Exclusions
- Management Fee & Carried Interest
- Fee Allocation
- Partnership Expenses

Waterfall
- Type (European vs. American)
- Calculation
- GP/LP Catch-Up
- Clawback

Reporting
- Transparency
- Timeliness
- Audit Process
- Valuation Process

- Review legal documentation for deviations from ILPA principles and general market terms
- Callan private credit fees and terms study utilized to understand market conditions and trends

Private Debt Due Diligence Process

- Finalists meeting with Callan to discuss merits of each manager
- Conduct introductory meetings with managers
- Conduct on-site due diligence at manager’s primary place of business
- Follow-up meetings, calls, and information requests
- Evaluation and scoring
- Make preliminary selection and provide notice to candidates
- Engage ARMB legal and start contracting process

Staff Due Diligence Decision Criteria

Firm
- Ownership Structure
- Organization’s Stability
- Support Systems
- Diversified Revenue Sourcing

Investment Team
- Leadership
- Dedication to Strategy
- Experience
- Succession Planning
- Access to Resources
- Decision Making Process
- Compensation

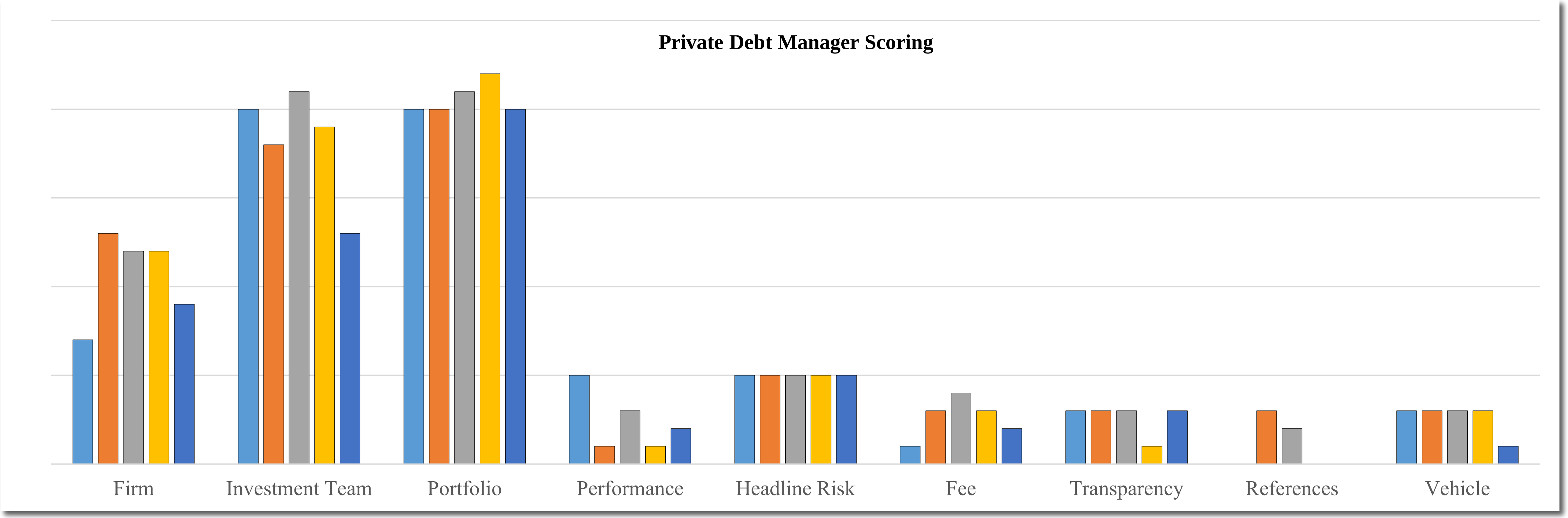
Portfolio
- Deal Sourcing
- Deal Structure
- Loss Rates
- Portfolio Management and Workouts
- Risk Management, Diversification, and Leverage
- Fund Sizing
- Sector Focus and Strategy

Performance
- Length of Track Record
- Performance Consistent with Expectations

Others
- Transparency of Process and Performance
- Headline Risk
- Reference Checks
- Structure of Fund

Manager Selection

- Manager is assigned a score for every criteria
- Uncommon for any manager to dominate every category



Illustrative example of scoring process.
Reference checks are only conducted on managers selected for contracting.

Monitoring

- Due diligence is an on-going process
  - Annual manager client meetings
  - Periodic conference calls and updates
  - Performance reporting and documentation review
  - Periodic on-sites
  - Communication with other limited partners and peers
  - Communication with consultant

Summary

- Multiple layers involved in the manager selection process
- Search process, selection, and initial due diligence is time intensive for Staff, Callan, and managers
- Due diligence does not stop after contracts are signed

Questions?

Private Credit Environment

Current Private Credit Environment: Q1 2023

1 Demand

Rapid asset growth through the low-rate environment over the past decade

Target allocations typically 2–10%

Strategic asset class

2 Diversification

Non-corporate, diversifying exposures sought by investors

Specialty finance, asset-based, and niche strategies

3 Direct Lending

Portfolios show resilience with improved pricing

Higher rates and wider spreads

Disintermediation of high yield and broadly syndicated loans from larger deals

4 Distressed

Distressed opportunity expected

Traditional corporate distressed opportunity likely in the U.S. and emerging in Europe

Capital solutions demand expected to increase

5 Downside Protection

Stronger structural protections in newer deals

Lower leverage: deal level and fund level

More stringent covenants

6 Design

Growth of creative investment structures

Evergreen funds, business development companies, interval funds

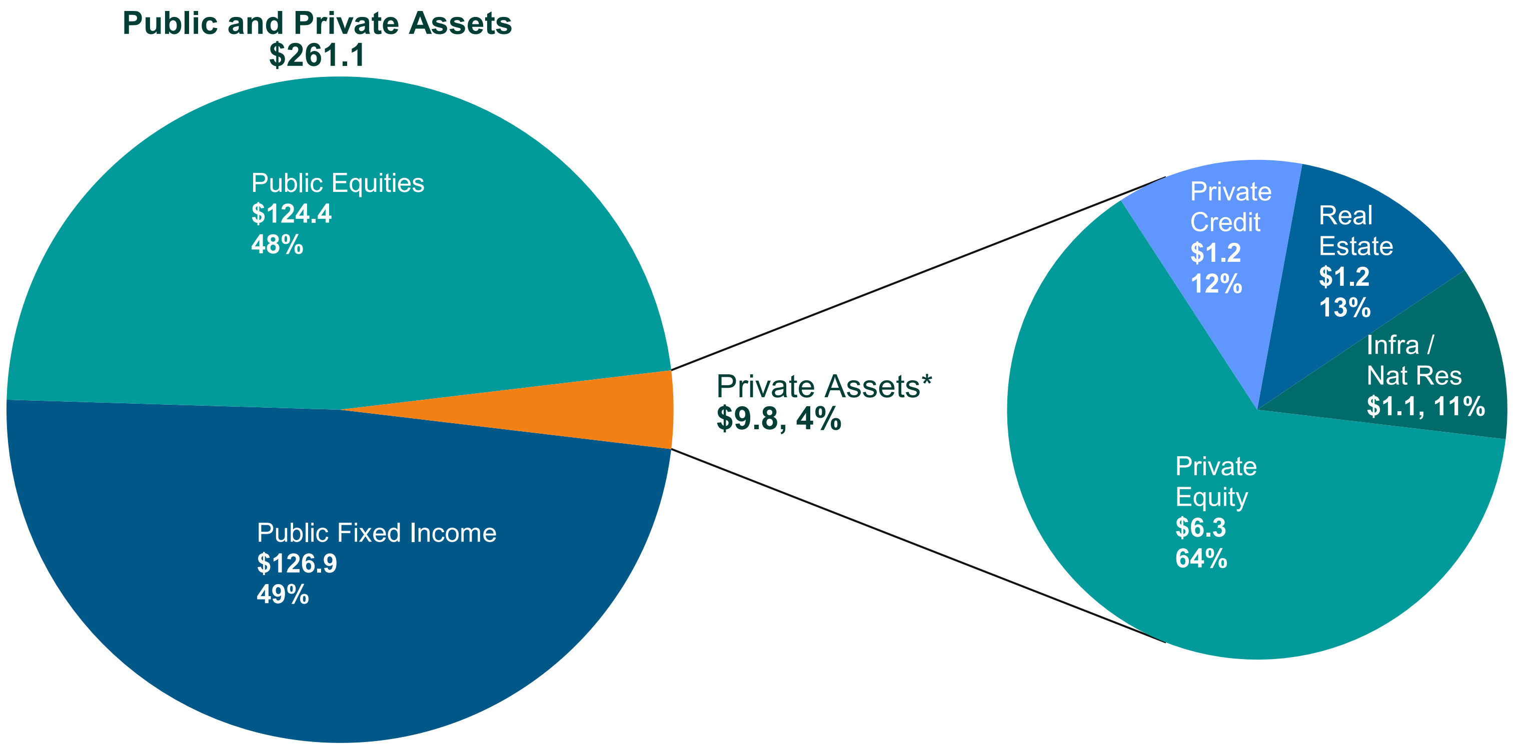
Pros: liquidity, flexibility, recycling

Cons: asset-liability mismatch risk

Size of the Private Markets

Private markets estimated at $9.8 trillion, or 4% of public and private assets

Public and Private Market Assets Under Management ($ trillion)



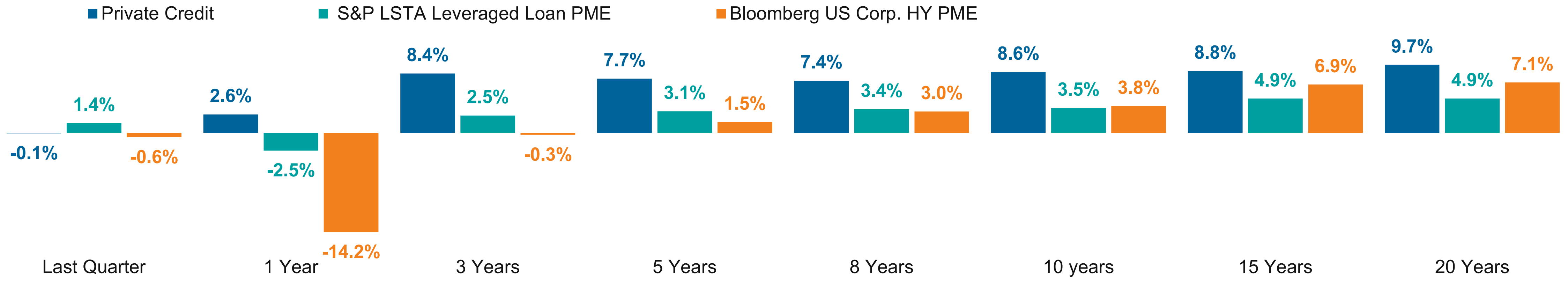
* Percentages shown as a % of private assets

Source: McKinsey analysis, Preqin, SIFMA, as of June 30, 2022

Private Credit Performance

Performance over time and compared to relevant indices

Pooled Horizon Net IRRs as of 9/30/22



Pooled Horizon Net IRRs by Strategy as of 9/30/22

Strategy	Last Quarter	1 Year	3 Years	5 Years	8 Years	10 Years	15 Years	20 Years
Senior Debt	-2.4%	-3.5%	4.6%	5.1%	5.7%	5.9%	6.3%	6.1%
Mezzanine	0.2%	5.0%	11.8%	11.1%	10.8%	11.3%	10.5%	11.3%
Credit Opportunities	0.7%	3.9%	8.4%	7.2%	6.6%	8.3%	8.6%	9.7%
Total Private Credit	**-0.1%**	**2.6%**	**8.4%**	**7.7%**	**7.4%**	**8.6%**	**8.8%**	**9.7%**

- Private credit performance varies across sub-asset class and underlying return drivers. On average, the asset class has generated net IRRs of 8% to 10% for trailing periods ended Sept. 30, 2022. Higher-risk strategies performed better than lower-risk strategies.

*PME: Public market equivalent, a benchmark that applies the cash flows of the private credit funds to a public market index and then calculates an IRR.

Source: Refinitiv/Cambridge

Callan Capital Market Assumptions 2023-2032

Under Callan's 2023–2032 Capital Markets Assumptions, private credit's projected return is 7.00%, 75 bps above liquid high yield bonds and 150 bps below private equity.

		Projected Return			Projected Risk
Asset Class	Index	1-Year Arithmetic	10-Year Geometric*	Real	Standard Deviation
High Yield	Bloomberg High Yield	6.75%	6.25%	3.75%	11.75%
Private Credit	50% High Yield / 50% S&P LSTA**	8.00%	7.00%	4.50%	15.50%
Private Equity	Cambridge Private Equity	11.95%	8.50%	6.00%	27.60%

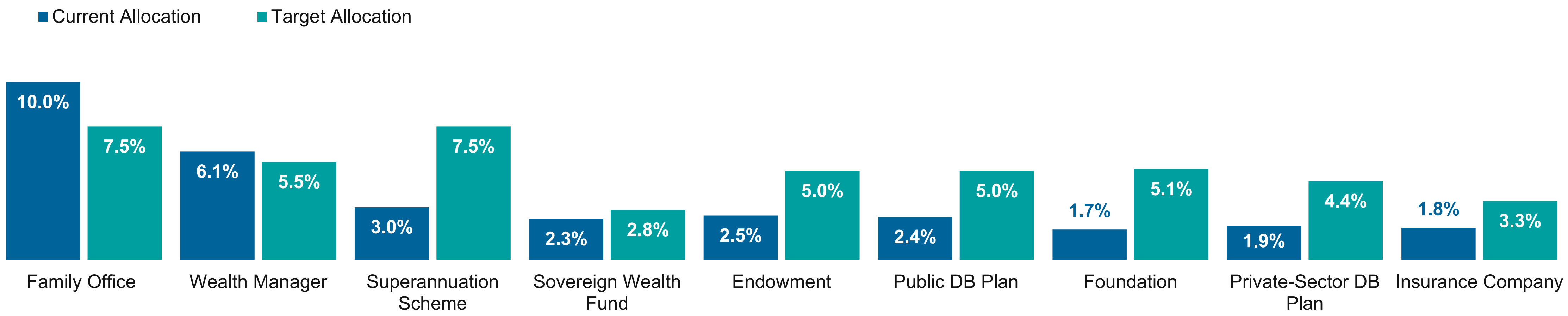
*Geometric returns are derived from arithmetic returns and the associated risk (standard deviation).

**No widely used private markets benchmark available for private credit overall

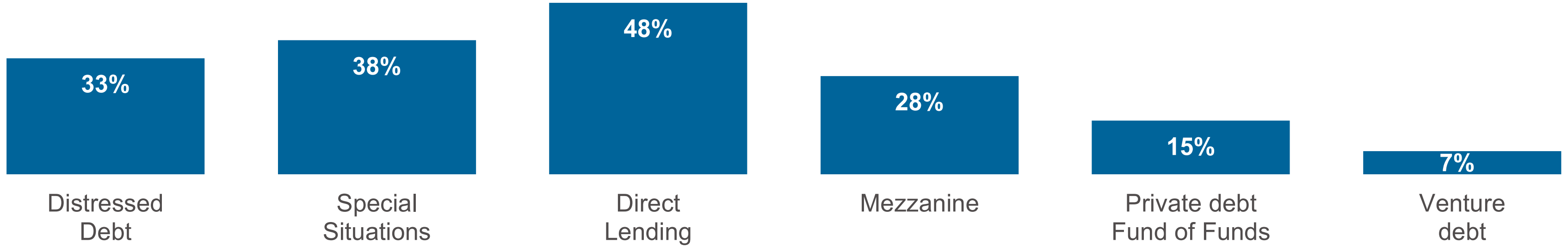
Private Credit Market Overview

Private credit demand by investor type and strategy

Investor Median Current and Target Allocations by Type



Fund Types Viewed as Best Opportunities Over Next 12 Months



- A Preqin study from late 2021 showed target private credit allocations between 3% and 8%, with most interest in direct lending, special situations, and distressed debt strategies. Callan client interest is ramping up and we are actively building out new private credit portfolios with initial targets starting at 2%–3% and ramping up to 5%–8% over time.

Source: Preqin 2021 Annual Private Credit Study

Questions?

Ares Management Corporation

Relevant Mandate: **Private Debt** | **Hired:** **2023**

Firm Information	Investment Approach	Total ARMB Mandate
Ares Management is a global alternative manager with 30 offices and over 2,600 employees worldwide. It was founded in 1997 and is publicly listed with over $360* billion in assets under management across credit, private equity, real estate, secondaries and strategic initiatives. *as of 3/31/2023. **Key Executives:** Keith Ashton*, Partner, Portfolio Manager Joel Holsinger*, Partner, Portfolio Manager Jeffery Kramer, Partner, Portfolio Manager and head of ABS *Denotes Co-Head of Ares Alternative Credit Group	The Ares Pathfinder Core Fund ("APC") is an asset-focused, open-ended income strategy that targets an 8% to 10% net return. APC is focused on current yield and invests in a large, diversified portfolio of loans, leases and receivables with contractual cash flows and expected stable performance through cycles. The strategy emphasizes downside protection and capital preservation by selecting investments with key attributes including covenants, structural protections and seniority or priority over cash flows. APC will rotate across strategic themes within their investible universe based on market conditions, relative value, and investment opportunities. **Benchmark:** N/A. APC does not have a benchmark but seeks to deliver 8-10% net returns with a 90%+ income distribution rate	Committed $100 million as of 3/31/2023

Concerns: None

3/31/2023 Performance (net of fees)

N/A – funds not yet deployed

Pathfinder Core: Asset-Focused Open-Ended Income Fund

Presentation to the Alaska Retirement Management Board

June 15, 2023

Disclaimer

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REF: TCA-01283

Today's Presenters

Keith Ashton
Partner, Portfolio Manager, Co-Head of Alternative Credit
Based in New York

Mr. Ashton is a Partner, Portfolio Manager and Co-Head of Alternative Credit in the Ares Credit Group. Mr. Ashton serves as a member of the Ares Credit Group's Alternative Credit, Pathfinder and Pathfinder Core Investment Committees. Prior to joining Ares in 2011, Mr. Ashton was a Partner at Indicus Advisors LLP, where he focused on launching the global structured credit business in May 2007. Previously, Mr. Ashton was a Portfolio Manager and Head of Structured Credit at TIAA-CREF, where he focused on managing a portfolio of structured credit investments and helped launch TIAA's institutional asset management business. Mr. Ashton's experience as an investor in alternative fixed income products spans virtually all securitized asset classes, including CLOs, consumer and commercial receivables, insurance and legal settlements, small business and trade receivables, whole business securitizations, timeshare and other mortgage-related receivables, and esoteric asset classes such as catastrophe risk and intellectual property. Mr. Ashton holds a B.A. from Brigham Young University in Economics and an M.B.A. from the University of Rochester William E. Simon School of Business in Finance and Accounting.

Juliette Schainuck, CFA
Principal, Relationship Management
Based in Los Angeles

Ms. Schainuck is a Principal in the Ares Global Client Solutions Group, where she focuses on institutional client management in North America. Prior to joining Ares in 2020, Ms. Schainuck was a Vice President and Investment Counselor at Citi Private Bank, where she advised clients on investment solutions across asset classes. Ms. Schainuck holds a B.S.B.A., magna cum laude, from the University of Denver in Finance. Ms. Schainuck is a CFA® charterholder.

David Walla
Vice President, Alternative Credit
Based in New York

Mr. Walla is a Vice President in the Ares Investor Relations Group, where he focuses on credit investor relations. Additionally, Mr. Walla serves on the Ares Diversity, Equity and Inclusion Council. Prior to joining Ares in 2014, Mr. Walla graduated from The Ohio State University with a B.S., cum laude, in Business Finance.

ARES

Ares Management

With approximately $360 billion in assets under management, Ares Management Corporation is a global alternative investment manager operating an integrated platform across five business groups

Profile

Founded	1997
AUM	$360bn
Employees	~2,615
Investment Professionals	~905
Global Offices	30+
Direct Institutional Relationships	~1,960
Listing: NYSE – Market Capitalization	$24.6bn[1]

Global Footprint[2]

The Ares Differentiators

Power of a broad and scaled platform enhancing investment capabilities

Deep management team with integrated and collaborative approach

20+ year track record of compelling risk adjusted returns through market cycles

A pioneer and leader in leveraged finance, private credit and secondaries

	Credit	Private Equity	Real Assets	Secondaries	Other Businesses
AUM	$235.1bn	$34.6bn	$64.1bn	$22.9bn	$3.5bn
Strategies	Direct Lending	Corporate Private Equity	Real Estate Equity	Private Equity Secondaries	Ares Insurance Solutions[3]
	Liquid Credit	Special Opportunities	Real Estate Debt	Real Estate Secondaries	Ares Acquisition Corporation
	Alternative Credit		Infrastructure Opportunities	Infrastructure Secondaries	
	APAC Special Situations		Infrastructure Debt	Credit Secondaries	

Note: As of March 31, 2023. AUM amounts include funds managed by Ivy Hill Asset Management, L.P., a wholly owned portfolio company of Ares Capital Corporation and registered investment adviser. Past performance is not indicative of future results.

1. As of April 26, 2023.
2. New Delhi office is operated by a third party with whom Ares Asia maintains an ongoing relationship relating to the sourcing, acquisition and/or management of investments.
3. AUM managed by Ares Insurance Solutions excludes assets which are sub-advised by other Ares' investment groups or invested in Ares funds and investment vehicles.

Ares Credit Group

Integrated scaled global platform combines direct origination, deep fundamental credit research and broad perspective of relative value

$235.1 Billion AUM[1]

~75 Partners averaging 25 years of experience

415+ dedicated investment professionals

Origination, Research & Investment Management
- 16 portfolio managers
- 85+ industry research and alternative credit professionals
- 175+ direct origination professionals

Syndication, Trading & Servicing
- 7 trading professionals in the U.S. and Europe[2]
- 6 dedicated capital markets professionals
- 55+ professionals focused on asset management, including 13 with restructuring experience[3]

Investor Relations & Business Operations
- Established investor relations and client service teams across the Americas, Europe, Asia, Australia and the Middle East

Advantages

- **Deep Investment Opportunity Set**
- **Access to Differentiated Information to Inform Credit Decisions**
- **Ability to Express Relative Value**

Leading Global Platform of Liquid Credit, Alternative Credit & Direct Lending Strategies

Syndicated Loans | High Yield | Alternative Credit | Asset Based Lending | Middle Market Cash Flow Loans | Project Finance | Private Mezz/ Opportunistic

Liquid Credit → Illiquid Credit

Accolades[4]

Institutional Investor	Refinitiv Lipper Fund Awards	Private Equity International Awards 2021	Private Debt Investor Awards 2021	Private Debt Investor Awards 2020	Asian Private Banker Asset Management Awards 2022
ARCC Received Most Honored Designation & Highest Rankings for Best Investor Relations Program 2021	*Top Quartile Rankings for Several Funds 3Q'22*	*Lender of the Year (Europe and North America) 2021*	*Global Fundraising of the Year; Fundraising of the year (Europe), Junior Lender of the Year (Americas), Ares Asia (formerly SSG Capital Management) for Fundraising of the Year and Senior Lender of the Year (Asia-Pacific) 2021*	*Distressed Debt Investor of the Year Asia-Pacific (7th year running)*	*Best Private Debt Manager (2nd year running)*

We have experienced teams across the platform that we believe are positioned for excellence in investing and client service

Note: As of March 31, 2023, unless otherwise noted. **Please see the Notes at the end of this presentation.** (1) AUM amounts include funds managed by Ivy Hill Asset Management, L.P., a wholly owned portfolio company of Ares Capital Corporation and a registered investment adviser. (2) Of the seven trading professionals, one individual has additional responsibilities as a Portfolio Manager and is counted in both categories. (3) Of the 55+ asset management professionals, three are part of the industry research and alternative credit professionals and are counted in both categories, The remaining asset management professionals are in the direct lending group. (4) The performance, awards/ratings noted herein relate only to selected funds/strategies and may not be representative of any given client's experience and should not be viewed as indicative of Ares' past performance or its funds' future performance. Ares has not provided any compensation in connection with obtaining these awards but may have paid to use the award logo. All investments involve risk, including loss of principal.

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Ares Alternative Credit Capabilities

Ares is a leader in the Alternative Credit markets

Team	Experience
62 investment professionals (one of the market's largest dedicated teams)[1]	**~$25.9bn** in AUM across diverse Alt Credit mandates[3]
~21yrs of experience (on average) across the team's 32 senior investment professionals[1]	**~$31.0bn** deployed in Alt Credit since inception
~905 investment professionals across Ares Credit, Real Estate, Private Equity, Secondary Solutions and Strategic Initiatives[2]	**~$10.2bn** deployed in last twelve months[2]

Past performance is not indicative of future results.

1. As of May 2023.
2. As of December 31, 2022.
3. As of December 31, 2022. AUM reflects USD amount. Includes ~$21.1bn invested across dedicated funds and ~$1.7bn invested across other strategies.

ARES

Ares Alternative Credit

What We Do

We invest in **large, diversified portfolios of assets**

We invest in assets that seek to generate **contractual cash flows**

We invest in assets that have **historically demonstrated stable performance**, including under stress

Type of Assets

We invest in large, diversified portfolios of assets that seek to generate contractual cash flows. These asset pools generally consist of:

- **Loans / Leases**
- **Receivables**
- **Royalties / Fees**

Format of Investments

We approach asset investing with a flexible approach, seeking to provide a tailored capital solution. The format of our investments is typically one of the following:

Lending	Asset Acquisitions	Liquids
Lend against assets	Acquire asset pools	Buy Alt Credit Securities

For illustrative purposes only. There is no guarantee or assurance investment objectives will be achieved. Diversification does not assure profit or protect against market loss. Past performance is not indicative of future results.

ARES

Why Alternative Credit?

1. **Resiliency through Cycles**
2. **Enhanced Yield**
3. **Relative Value Orientation**
4. **Diversification**
5. **Power of the Platform**

The Romans Figured This Out a Long Time Ago: Success is More Likely When Combat isn't One-on-One

Single-Name investment risk

Asset-Focused investment risk

We believe that investments in diversified asset portfolios can provide greater downside protection and greater visibility into outcomes than single-name risks whose outcomes can be more binary

For illustrative purposes only. Diversification does not assure profit or protect against market loss. References to "downside protection" or similar language are not guarantees against loss of investment capital or value.

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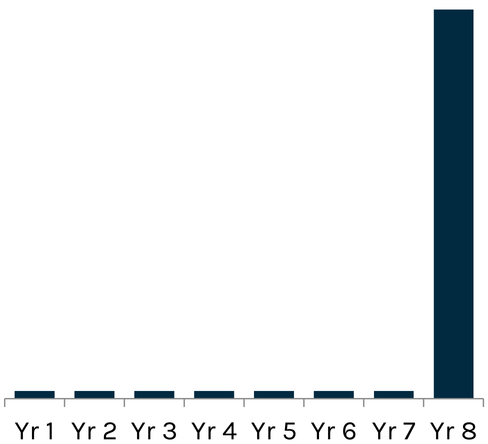
Comparing Investment Cash Flow Profiles

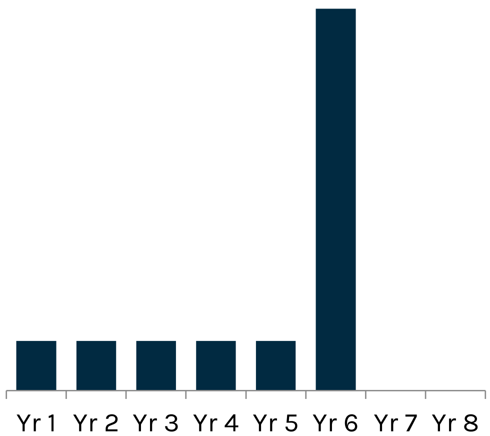
» The typical Alternative Credit investment has a cash flow profile that is very different

Private Equity



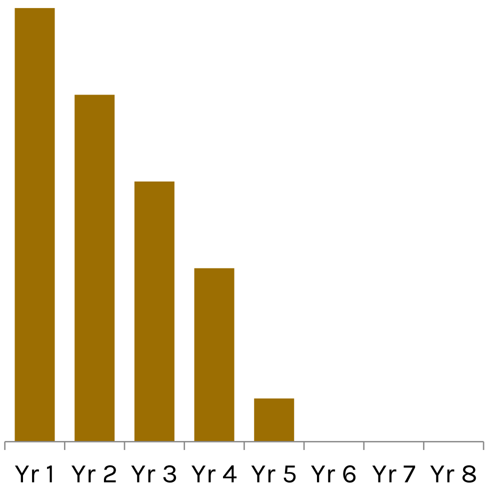
Typically receives little to no cash flow until a realization event (e.g., the sale or IPO of the company).

Corporate Debt



Typically receives only interest coupons until a realization event (e.g., the refinancing of the debt or sale of the company).

Alternative Credit



Typically sees a high volume of front-loaded cash flows from the underlying assets. It does not generally rely on a realization event.

Typical cash flows are presented for illustrative purposes only. Actual cash flows may vary materially from those presented above.

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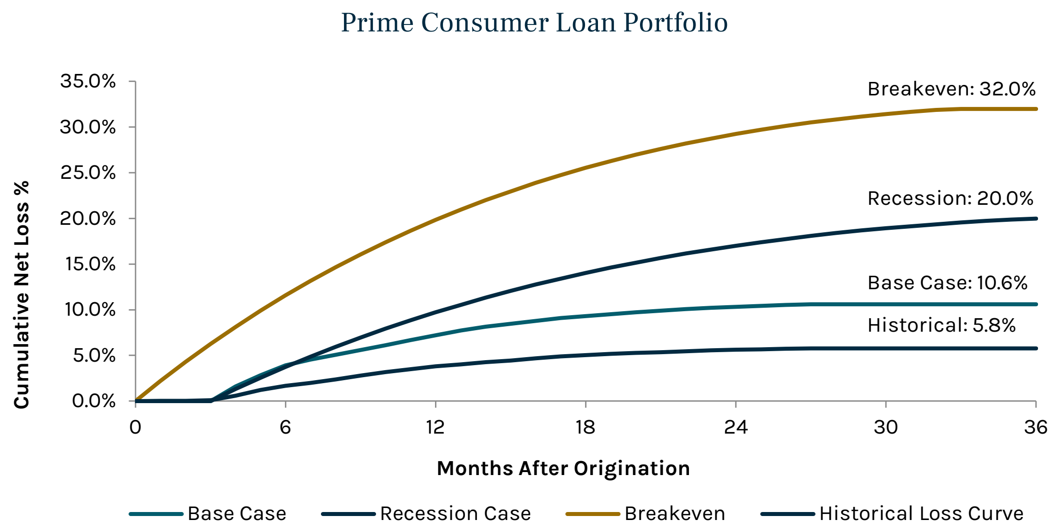
We Design a "Margin of Safety" for Stressful Times

Focused on assets that typically generate resilient cash flows.

Designed to withstand an economic downturn.

Designed with structural features to help ensure a full recovery.



Historical Loss Curve:
The historical level of losses in the underlying asset portfolio

Base Case:
Investment team's conservative estimate of future losses within the asset portfolio (typically based on the counterparty's worst vintage or market average, whichever is worse)

Recession Case:
Indicates the level of historic losses based on peak defaults during the last recession, which serves as a proxy for future recessionary environments

Breakeven Case:
The level of losses in the underlying asset portfolio that would be required to cause a $1 loss on our investment. Ares typically designs our investments of this type to withstand at least 200% of Base Case and at least 150%+ of Recessionary loss rates

For illustrative purposes only. There is no guarantee base case will be achieved. Results shown are not representative of Pathfinder Core's track record. Note: Great Financial Crisis is defined as the period just prior to and following the credit market dislocation of 2008. Modeled losses are exclusively for informational and discussion purposes only. Modeled results have inherent limitations, and actual results will differ significantly from the illustrative loss curves presented herein. In modeling the losses shown herein, Ares used publicly available data as well as assumptions that it believes are reasonable. Loss assumptions shown herein are meant to be purely illustrative and do not represent actual losses. The use of different assumptions could also produce materially different results. References to "downside protection" or similar language are not guarantees against loss of investment capital or value.

Pathfinder Core's Relative Value Lens Today

Subject to change based on market conditions, relative value and investment opportunities

In Focus

- Fund Finance (RE, PE)
- Asset Portfolios
- FinCo Loans
- REIT Financing
- Rescue Financing

Monitoring

- Legal Assets
- Secondaries Portfolios
- Lease Portfolios
- Renewables
- Media/Sports Assets
- Auto Portfolios
- Commercial Auto Financing
- Triple Net Lease
- Secondaries Lending
- Consumer Lending
- CLO Securities
- Real Estate Debt Securities
- GP/Manager Financing
- Tax Receivable Agreements
- Management/Servicing Fees

Not in Focus

- Timeshares
- Healthcare Lending
- NPL/RPL
- Infrastructure
- Small Business Lending
- Recurring Revenue Financings
- Aviation (almost never)
- Venture Debt (almost never)
- Shipping (never)
- Life Settlements (never)
- Patent Litigation (never)
- Cryptocurrency (never)

For illustrative purposes only.
Based on the Ares Alternative Credit Team's market observations as of December 2022. There is no guarantee that assets will perform or opportunities will be identified as described.

Pathfinder Fund Portfolio Overview

» Asset-focused open-ended income fund seeking to deliver 8-10% net returns(1) with a 90%+ income distribution rate[1]

~$3.2bn total fund commitments	~$3.1bn deployed to date[2]	~$410mm realized proceeds[3] to date
67 total investments to date	66 portfolio investments as of December 31, 2022	

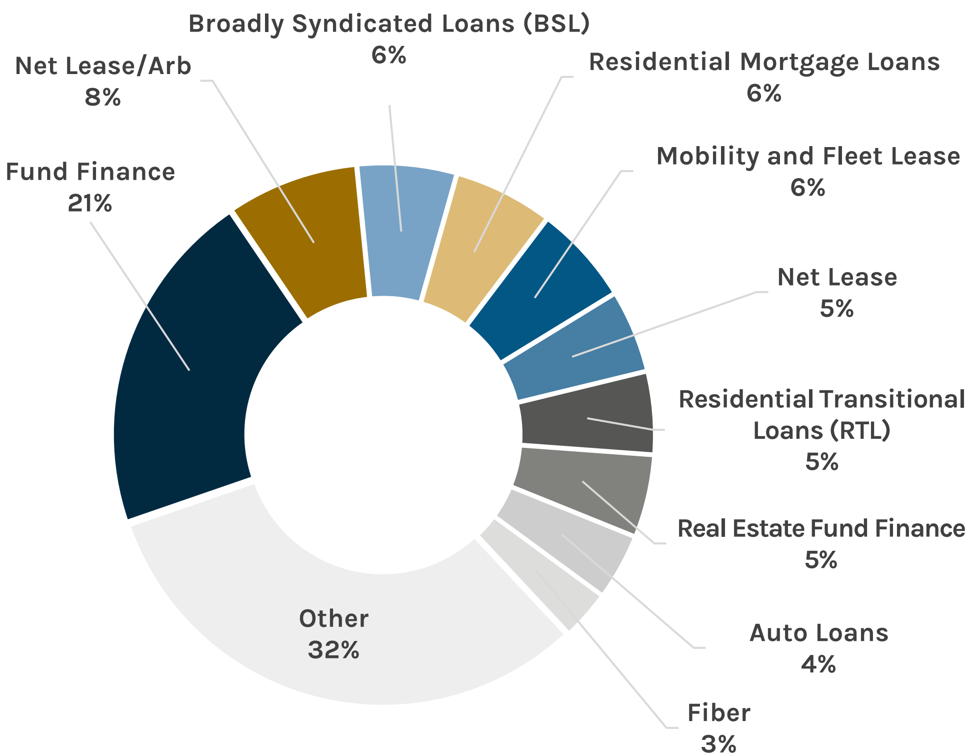
As of December 2022 unless otherwise noted and subject to change at any time. Unaudited figures presented herein. Figures presented in USD. Past performance is not indicative of future results. EUR denominated assets converted using a 1.07 EUR/USD exchange rate. SEK denominated assets converted using a 0.10 SEK/USD exchange rate. GBP denominated assets converted using a 1.21 GBP/USD exchange rate. AUD denominated assets converted using a 0.68 AUD/USD exchange rate.

1. Targeted returns are shown for illustrative purposes only and there can be no assurance that such targets can be achieved. Actual results may be materially different. No guarantee target fundraise can be achieved.
2. As of December 2022.
3. As of December 31, 2022. Includes realized and unrealized investments.

ARES

Look-through Diversification

» Each Pathfinder Core investment is collateralized by a highly granular, diversified asset pool representing tens of thousands of underlying obligors



Highlights from 15 Select Investments
4.3 million total member accounts and 1.2 million consumer loans
1.6mm eligible credit card receivables
420,000+ individual policy holders diversified across 14 states and 22,000+ independent agents
200,000+ fiber / telecommunications subscribers
153,205 homes across eight European jurisdictions[1]
Cash flows associated with ~132.5k licensed locations, ~30k artists and publishers, and more 210k songs
76,000+ works by 137 songwriters[2]
75,000+ commercial vehicles
18,000+ mortgage loans
5,625 eligible automobile-secured installment sale contracts
5,023 franchise locations across 28 brands
Consumers loans to 50,000+ individual consumers in 2 countries
6,696 eligible automobile-secured retail installment sale contracts
2,900+ vehicles across 11 U.S. markets
500+ borrowers across leveraged lending, ABLs, lender finance, life science, technology, real estate, and franchise finance with an average of $20mm per name

As of December 31, 2022 unless otherwise noted. Diversification does not assure profit or protect against market loss.
Reflects top 15 investments with highest quantity of underlying assets. Reflects investment and other figures for the Class M, or Main Class, Limited Partners only.
1. As of June 30, 2022.
2. As of October 21, 2022.

ARES

Ares Pathfinder Core Team

62 Alt Credit specialists in collaboration with ~905 investment professionals across Credit, Real Estate, Private Equity, Secondary Solutions and Strategic Initiatives

Portfolio Managers

Keith Ashton Partner, Co-Head of Alternative Credit (24 years)	**Joel Holsinger** Partner, Co-Head of Alternative Credit (25 years)	**Jeffrey Kramer** Partner, Head of ABS (36 years)

Ares Pathfinder Core Additional Investment Committee Members

Kevin Alexander Partner (25 years)	**Eli Appelbaum** Partner (17 years)	**Charles Arduini** Partner (22 years)
Craig Cortright Partner (22 years)	**David Ells** Partner (30 years)	**Joshua Mason** Managing Director (26 years)
Ankur Patel Partner (23 years)	**Vincent Salerno** Partner (25 years)	

Operations & Quantitative Analytics

Jason Cohen Partner, Chief Operating Officer (22 years)	**Dongning Luo** Vice President (11 years)	**Shashwat Singh** Vice President (13 years)
Hank Tai Vice President (8 years)	**Juna Iafelice** Senior Associate (7 years)	**Nate Kim** Senior Associate (5 years)
Julia Lin Senior Associate (6 years)	**Raghav Chawla** Associate (4 years)	

Product Management & Investor Relations

Sonya Lee Partner (21 years)	**Lauren Thomas** Principal (12 years)	**Brenda Barnum** Vice President (8 years)
David Walla Vice President (9 years)	**Ejona Murataj** Senior Associate (6 years)	**Hunter Westerberg** Associate (4 years)
	Elley Song Analyst (2 years)	

Investment & Asset Management Team

Scott Rosen Partner (22 years)	**Ian Smith** Partner, Trader (21 years)	**Michael Flynn** Managing Director (26 years)	**Benjamin Fox** Managing Director (22 years)	**Andie Goh** Managing Director (11 years)
Jeffrey Hughes Managing Director (29 years)	**Sara McGinty** Managing Director (23 years)	**Kristofer Pritchett** Managing Director, Trader (15 years)	**Richard Sehayek** Managing Director (21 years)	**Alex Smit** Managing Director (11 years)
Joel Tomlinson Managing Director (24 years)	**Lisa Trolson** Managing Director (26 years)	**Benjamin Tyszka** Managing Director (22 years)	**Felix Zhang** Managing Director (12 years)	**Austin DeLana** Principal (12 years)
Stephen Gardner Principal (13 years)	**Peter Keane** Principal (20 years)	**Elizabeth Legunn** Principal (9 years)	**Cathy Lu** Principal (10 years)	**Greg Spilberg** Principal (23 years)
Cheng Zeng Principal (16 years)	**Bharat Chandrasekaran** Vice President (12 years)	**Linyi Chen** Vice President (10 years)	**Greg Eacho** Vice President (9 years)	**Ari Feldman** Vice President (9 years)
Ludo Hashemi Vice President (9 years)	**Haakim Nainar** Vice President (9 years)	**Eric Tang** Vice President (7 years)	**Patrick Yu** Vice President (7 years)	**Marta Aguiar** Senior Associate (9 years)
Aaron Chan Senior Associate (7 years)	**Jacky Jiang** Senior Associate (5 years)	**Allen Lo** Senior Associate (5 years)	**Maksym Petrus** Senior Associate (7 years)	**Carlos Rosario** Senior Associate (6 years)
Sameer Abbasi Associate (4 years))	**Jesse Aghadjian** Associate (3 years)	**Noah Gelman** Associate (2 years)	**Yanying Hao** Associate (5 years)	**Olivia Johnson** Associate (2 years)
Finian McAfee Associate (5 years)	**Jason Zhang** Associate (3 years)	**Payal Chowbey** Analyst (1 year)		

+ 280 Direct Lending professionals	**+ 45** Liquid Credit professionals	**+ 100** Private Equity professionals	**+ 300** Real Assets professionals	**+ 75** Secondary Solutions professionals	**+ 20** Strategic Initiatives professionals

As of May 2023 unless otherwise noted. Please refer to Endnotes for additional important information. Years referenced represents number of years of relevant experience.

Endnotes

Ares Pathfinder Core Team Endnotes

Additional professionals figures: As of September 30, 2022. Employee numbers are rounded down to the nearest 0/5. As such, numbers may not foot due to rounding. Additional Strategy & Distribution professionals figure is inclusive of Relationship Management, Strategy, Investor Relations, and Wealth Management Solutions.

Mssrs. Ashton, Holsinger and Kramer serve on Ares' Alternative Credit Executive Committee.

In addition to responsibilities on the Alternative Credit team, Mr. Rosen is a Partner focusing on U.S. Direct Lending.

In addition to responsibilities on the Alternative Credit team, Mr. Smith serves as a Portfolio Manager of U.S. Liquid Credit.

In addition to responsibilities on the Alternative Credit team, Mssrs. Case, Fox, Tomlinson, and DeLana focus on net lease and related investments that also span the Ares Real Estate Group.

In addition to responsibilities on the Alternative Credit team, Mr. Hughes serves as a Portfolio Manager of U.S. Direct Lending.

ARES

Crestline Investors, Inc.

Relevant Mandate: **Private Debt and Opportunistic** **Hired:** **2004**

Firm Information

Founded in 1997 and based in Fort Worth, Texas, Crestline is an institutional alternative investment management firm with approximately $16.9 billion* of assets under management. Crestline specializes in credit and opportunistic investments, including financing and restructuring solutions for mature private equity funds. In addition, the firm manages a multi portfolio manager equity market-neutral hedge fund and provides beta and hedging solutions for institutional clients. The company maintains affiliate offices in New York City, London, Toronto, and Tokyo.

*as of 12/31/2022.

Key Executives:

Doug Bratton, Founding Partner, CEO & Co-CIO

Keith Williams, Managing Partner & Co-CIO

John Cochran, Partner & COO

Investment Approach

Crestline believes that protecting capital will always be critical to the objective of achieving alpha relative to peers. Investing in areas where less capital is deployed will continue to provide the best opportunity to generate better returns with less overall risk.

Opportunistic Strategy (BGF):

The Opportunistic strategy is an all-weather strategy built upon a philosophy of capital preservation. The strategy is designed to capitalize on market inefficiencies and dislocations caused by banking regulations, rules-based investors in private debt, private equity, venture capital, and hedge fund strategies that eliminate investments outside of tightly defined mandates, and market volatility across all market cycles. Capital preservation serves as the foundation of the investment process resulting in focus on defensive attributes through credit-oriented attachment points, primarily first lien or first dollar risk. Crestline has significant structural controls to protect and enhance outcomes. Crestline brings unique sourcing capabilities to generate off the run, below the radar opportunities in both the liquid and illiquid, performing and distressed, markets in the U.S. and Europe.

Portfolio Financing Strategy (BGF):

The Portfolio Financing strategy aims to achieve attractive risk adjusted returns by providing low loan-to-value bespoke financing solutions to mature private equity funds, collateralized by portfolio net asset value. These solutions meet an array of investor, manager, and portfolio company needs including, but not limited to, liquidity and growth capital.

Direct Lending Strategy (SLF):

The Direct Lending strategy is focused primarily on senior secured, first lien lending to lower-middle and middle market companies in North America with borrowing needs between $20-100 million.

Benchmark: T-Bills + 5%

Total ARMB Mandate

Assets Under Management:

3/31/2023: $829 million**

Assets managed includes net asset values for opportunistic, portfolio financing, and direct lending mandates.

**Specialty Lending NAV is as of 3/31/2023; BGF NAV is as of 12/31/2022

Concerns: None

3/31/2023 Performance

	1-Year	3-Year	5-Year	6-Year
BGF Net IRR	3.36%	7.28%	6.57%	6.56%
Specialty Lending I Net IRR	3.58%	11.65%	12.56%	12.50%
Specialty Lending II Net IRR	3.89%	16.46%	11.38%	11.28%
Specialty Lending III Net IRR	13.36%	13.05%	N/A	N/A
T-Bills + 5%	7.50%	5.89%	6.41%	6.36%

Specialty Lending I & II: 6-Year period represents inception to date; Specialty Lending III: 3-Year period represents inception to date.

BGF performance figures are as of 12/31/2022; Specialty Lending performance figures are as of 3/31/2023 except for Specialty Lending I which is as of 12/16/2022 (liquidation date of fund).

Crestline

Alaska Retirement Management Board – Crestline Overview

JUNE 2023

Performance Disclaimers

Crestline

Performance Disclosures

Per US GAAP, fair value estimates are made at a point in time, based on relevant market data as well as the best information available about the financial instrument. These estimates involve significant uncertainties and judgments and cannot be determined with precision. Because of the inherent uncertainty of valuation, this estimated value may differ from the value that would have been used had a ready market for these investments existed, and the differences could be material. Valuations reflect fair value estimates determined as of the dates indicated within this document.

Performance information is unaudited and subject to revision. Past performance as well as third party awards and ratings are not a guaranty of future results. Additionally, some of the track records include unrealized investments. As discussed below, the values of unrealized investments are speculative and there is risk that unrealized investments will not be liquidated for their currently held value that is reflected in the track record. Current and prospective investors should not assume that the future performance of any Crestline fund will equal its prior performance results or the results of any previous fund with a similar strategy, and investors risk loss of their entire investment. Each fund's performance results portrayed reflect the deduction of that fund's advisory fees, brokerage commissions and other expenses. The performance results also include the reinvestment of income and dividends, in investment vehicles where such are applicable. For each Crestline fund, an individual investor's returns will vary from the historical performance due to restrictions on participation in certain types of investments and due to the timing of subscriptions, withdrawals, and redemptions; further, the general economic conditions during extreme highs and lows may have affected the returns of the funds.

Crestline is an institutional investment adviser who markets to sophisticated investors who are able to understand the limitations and risks associated with the use of hypothetical performance. Upon request, Crestline will provide information on the criteria used and assumptions made in calculating hypothetical performance.

Targeted returns are hypothetical returns and are forward-looking statements that are subject to uncertainties described further in the relevant offering memorandum. The targeted returns are based on research conducted by Crestline and the conclusions are Crestline's opinions based on its own independent study. The return targets are supported by various quantitative measures including one or more of the following: 1) the actual track record of the funds, 2) back-tested returns of a pro-forma portfolio using the fund's current asset allocation and/or 3) a forecast return calculated using a third-party risk model. For further information on targeted returns including input data and calculation methodology please contact Client Servicing at CrestlineInvestors@crestlineinc.com. While Crestline believes that the return targets are supportable, there is no guarantee that the funds will achieve the targeted returns. The targeted rates of return included herein are hypothetical returns, and are for illustrative purposes only. Accordingly, no assumptions or comparisons should be made based upon these returns. Targeted returns are subject to inherent risks and limitations, including but not limited to the fact that the returns do not take into account the impact that market and economic risks may have on investment decisions and that criteria and assumptions used in generating targeted returns may not prove to be correct. In no circumstances should the targeted returns be regarded as a representation, warranty or prediction that the fund will reflect any particular performance or that it will achieve or is likely to achieve any particular result or that investors will be able to avoid losses, including total losses of their investment.

The proposed allocations, proforma illustrations and/or back-tested performance are hypothetical, are shown for illustrative purposes only and do not represent actual performance of any client account. Crestline does not represent that the hypothetical returns would be similar to actual performance had the firm actually managed the accounts in this manner.

Hypothetical, back-tested or simulated performances have many inherent limitations only some of which are described as follows: (i) It is designed with the benefit of hindsight, based on historical data, and does not reflect the impact that certain economic and market factors might have had on the decision-making process. No hypothetical, backtested or simulated performance can completely account for the impact of financial risk in actual performance. Therefore, it will invariably show positive rates of return. (ii) It does not reflect actual client asset trading and cannot accurately account for the ability to withstand losses. (iii) The information is based, in part, on hypothetical assumptions made for modeling purposes that may not be realized in the actual management of investments, indices or accounts. No representation or warranty is made as to the reasonableness of the assumptions made or that all assumptions used in achieving the returns have been stated or fully considered. Assumption changes may have a material impact on the model returns presented. This material is not representative of any particular client's experience. Investors should not assume that they will have an investment experience similar to the hypothetical, back-tested or simulated performance shown. There are frequently material differences between hypothetical, back-tested or simulated performance results and actual results subsequently achieved by any investment or investment strategy.

Performance Disclaimers

Unlike an actual performance record, hypothetical, back-tested or simulated results are achieved by means of the retroactive application of a model itself designed with the benefit of hindsight. Hypothetical, back-tested or simulated performance does not reflect the impact that material economic or market factors might have on Crestline's decision making process. The back-testing of performance differs from actual account performance because the investment strategy may be adjusted at any time, for any reason and can continue to be changed until desired or better performance results are achieved. The hypothetical performance includes proforma fees and expenses. No representation is made that any investment, index or account described herein will or is likely to achieve profits or losses similar to those shown. Alternative modeling techniques or assumptions might produce significantly different results and prove to be more appropriate. Past hypothetical, back-test or simulated results are neither indicators nor guarantees of future returns. In fact, there are frequently sharp differences between hypothetical, back-tested and simulated performance results and the actual results subsequently achieved. As a sophisticated investor, you accept and agree to use such information only for the purpose of discussing with Crestline your preliminary interest in investing in the investment described herein.

Crestline makes no representations or warranties, express or implied, to you on which you may rely with respect to the information contained herein (including without limitation, as to accuracy or completeness, the inclusion or omission of any facts or information, or as to its suitability, sufficiency or appropriateness for your purposes). The information contained herein may contain forward looking statements, which statements are not guarantees of future performance and involve certain risks and uncertainties which are difficult to predict. Therefore, actual future results and trends may differ materially from what is described in forward-looking statements due to a variety of factors. This presentation has been designed for informational purposes only and under no circumstances should any information contained herein be used or considered to be an offer to sell or solicitation of any offer to buy any securities or any other instruments. Crestline does not undertake any obligation to update or provide to you any revisions to the information contained herein to reflect events, circumstances or changes in expectations after the date such information was derived, developed, reviewed or created by Crestline.

Agenda

Crestline Attendees

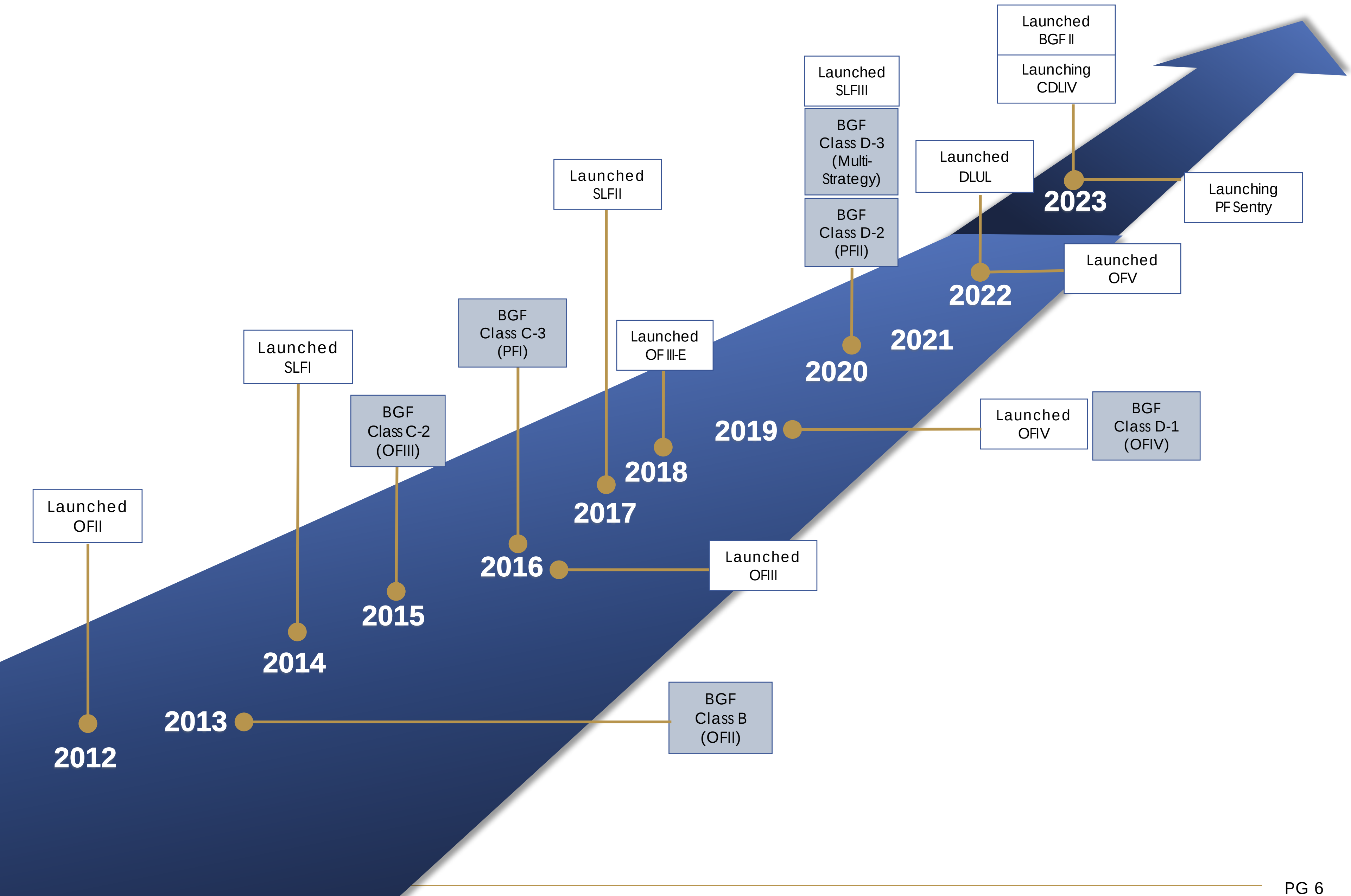
- Doug Bratton – *Founding Partner, Chief Executive Officer & Co-Chief Investment Officer*
- Keith Williams - *Managing Partner & Co-Chief Investment Officer*

Crestline

I. History, Team and Approach

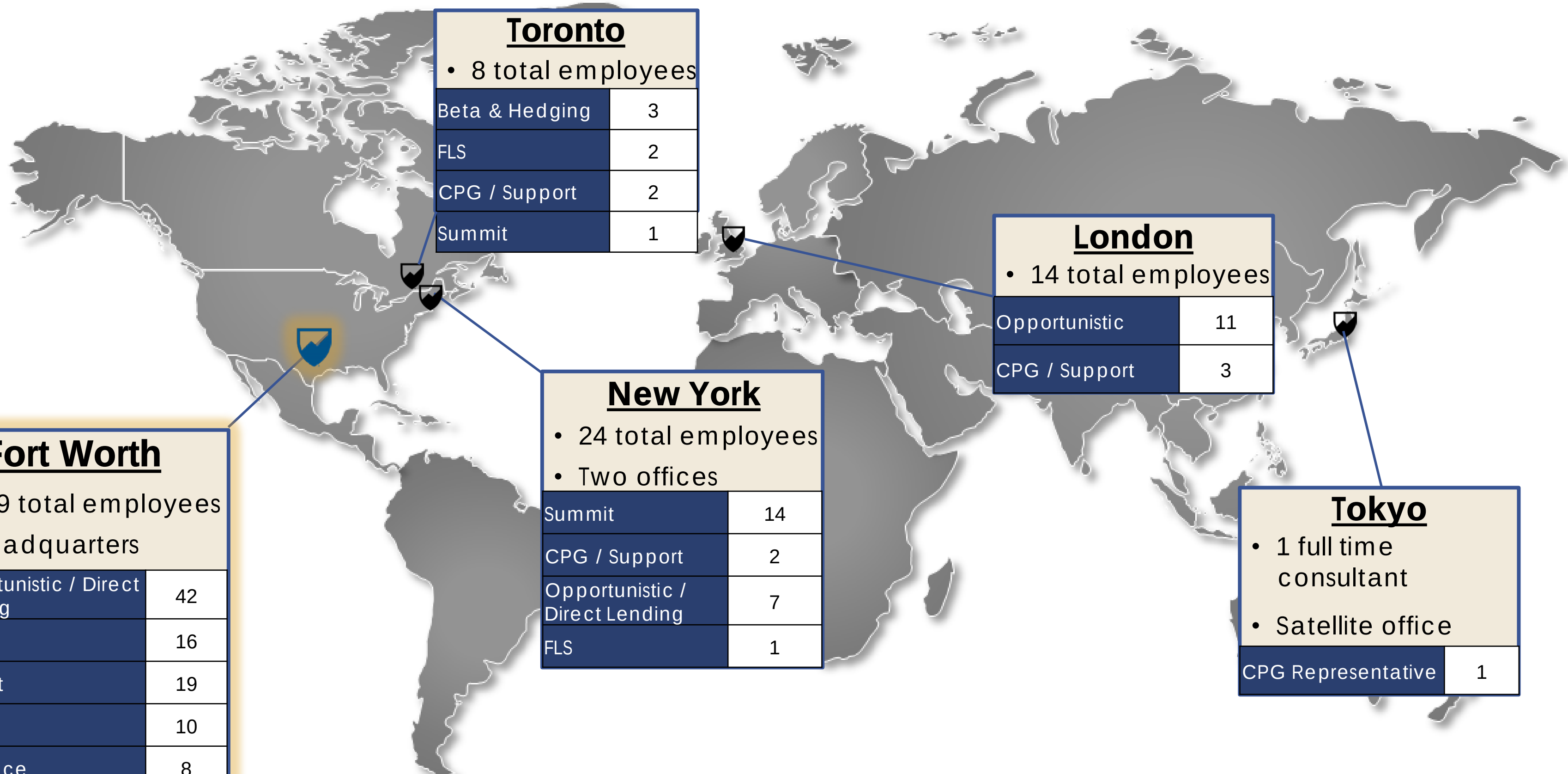
Credit Strategies Timeline

Crestline



Crestline

180+ GLOBAL EMPLOYEES | Five OFFICES | ONE TEAM CULTURE



Toronto

- 8 total employees

Beta & Hedging	3
FLS	2
CPG / Support	2
Summit	1

London

- 14 total employees

Opportunistic	11
CPG / Support	3

Fort Worth

- 139 total employees
- Headquarters

Opportunistic / Direct Lending	42
CPG	16
Summit	19
FLS	10
Insurance	8
Back Office / Support	43

New York

- 24 total employees
- Two offices

Summit	14
CPG / Support	2
Opportunistic / Direct Lending	7
FLS	1

Tokyo

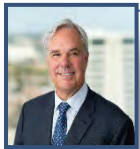
- 1 full time consultant
- Satellite office

CPG Representative	1

As of 4/30/2023. CPG: Client Partnership Group. FLS: Fund Liquidity Solutions.

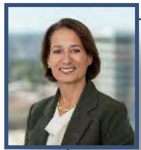
Crestline Introduction

Crestline

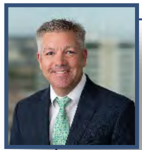


Doug Bratton
Founding Partner, CEO & Co-CIO

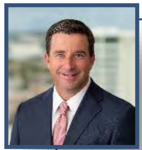
Keith Williams
Managing Partner & Co-CIO



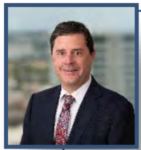
Caroline Cooley
Managing Partner, CIO, Crestline Summit



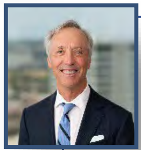
Dave Philipp
Partner, Fund Liquidity Solutions



Chris Semple
Partner, US Credit



John Cochran
Partner & COO



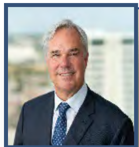
Frank Jordan
Partner, Head of Client Partnership Group

- **Seven** partners have over **230 years** of cumulative experience investing, trading, managing alternative investment strategies and in building and managing in the alternatives and asset management business
- **Keith Williams** and **Chris Semple**, former Goldman Sachs Special Situation Group (“Goldman SSG”) members, were hired in 2012 to build out Crestline’s private credit platform
- European Opportunistic Team of **Michael Guy**, **Sanjeev Sarkar**, and **Andrey Panna** joined Crestline in 2015 and have worked together for 18 years
- **Nine of the Senior Private Credit Members** together since 2015, **Will Palmer** and **Alfonso Ramirez** also former Goldman SSG members
- **Investment team has extensive restructuring experience** – ~1/3 of the team previously worked in the restructuring industry
- **Industry specialization groups** or “pods” formed to **drive sourcing** and **enhance execution**

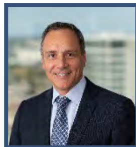
Crestline Key Investment Officers – Private Credit Investing

Crestline

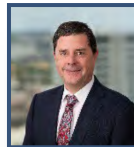
Opportunistic Group



Doug Bratton
Founding Partner, CEO & Co-CIO



Keith Williams
Managing Partner & Co-CIO



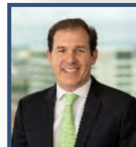
John Cochran
Partner & COO

Chris Semple
Partner, US Credit

Michael Guy
CIO, Europe

Will Palmer
Managing Director

Michael Aingorn
Managing Director

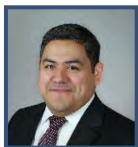


James Delaune
Managing Director

Steven List
Managing Director

Jon Norton
Managing Director, Europe

Andrey Panna
Managing Director, Europe



Alfonso Ramirez
Managing Director

Jonathan Redman
Managing Director, Europe

Sanjeev Sarkar
Managing Director, Europe

Marc Strauss
Managing Director

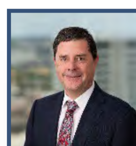
Rahul Vaid
Managing Director

Clark Wen
Managing Director

Fund Liquidity Solutions Group

Doug Bratton
Founding Partner, CEO & Co-CIO

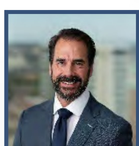
Keith Williams
Managing Partner & Co-CIO



John Cochran
Partner & COO

Dave Philipp
Partner, Fund Liquidity Solutions

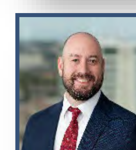
Amit Mahajan
Managing Director & Senior Portfolio Manager



GR Christon
Managing Director

Paul Choy
Managing Director

Michael Rich
Managing Director



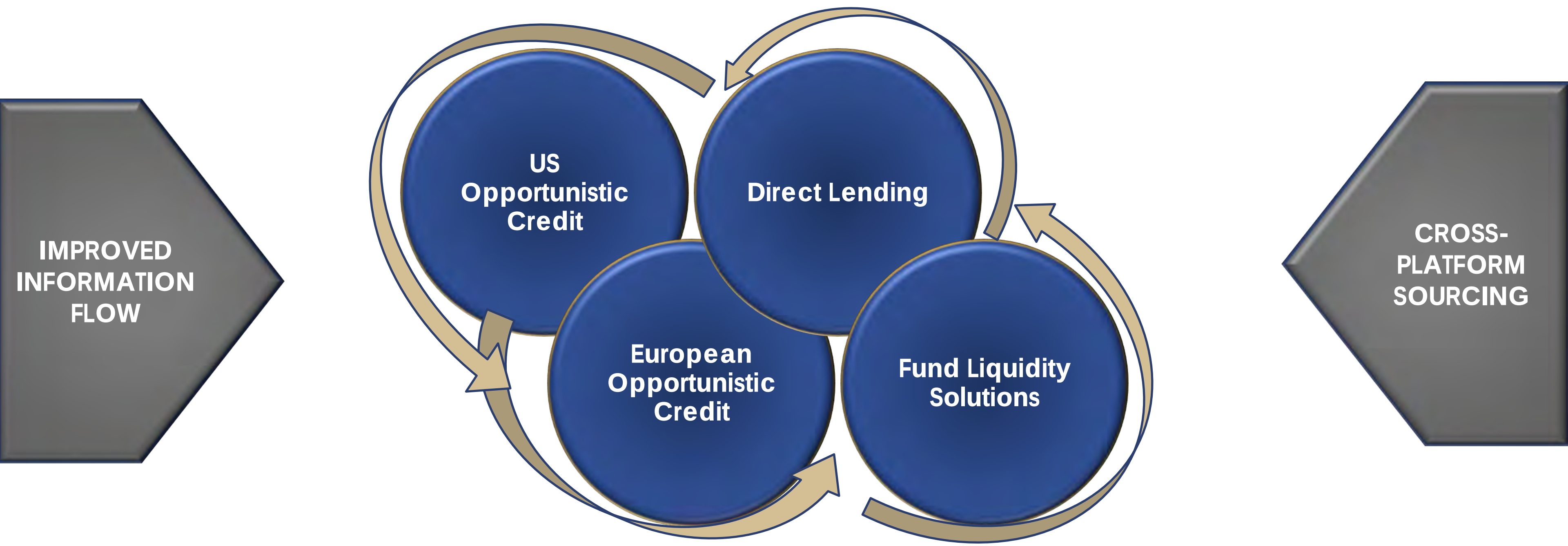
Bryan Fischer
Director

*Shaded box indicates Investment Committee Member

Crestline's Multi- Strategy Private Credit Focus

Allows Crestline to provide a broad range of capital solutions ranging from 7% - 20%+ IRR pricing to the Middle Market

Crestline's One Firm approach creates information flow and enables cross platform sourcing and execution



Capital Preservation Approach

We target opportunities with defensive attributes and credit oriented attachment points while applying significant structuring enhancements to control and enhance the outcome.

Three Attributes

- **Recurring Revenue**
- **Asset Backed**
- **Multiple Pools**

Attachment Points

- What are Crestline's attachment points?
- What is our security?

Capital Preservation Thesis

- What are Crestline's structural protections?
- Is there one or more paths to exit?
- How does it restructure?

Risk / Return

- Is Crestline receiving adequate return for risk?
- Is there equity upside potential?

Focus on investing in top of the capital structures to defensible companies with strong and sustainable fundamentals and the following investment attributes:

- **Recurring revenue businesses with min. attrition**
- **Substantial asset value or EV relative to attachment point**
- **Multiple exit or de-risking alternatives**
- **Defensible niche product or service**
- **Highly diverse customer bases**
- **Market leaders with high barriers to entry**
- **Low technology and market risk**
- **Low to moderate capex requirements**
- **Key structural protections**

Investment strategy is based on current expectations

Key Investment Attributes and Core Industry Focus

Crestline

Lessons learned from the GFC and past restructuring experiences have directly influenced our focus on core attributes and industries that align with our capital preservation approach

INDUSTRY DRIVEN APPROACH

- Scalable investment verticals built around sectors with historically low default rates
- Deep industry sourcing networks help create first call advantage
- Industry expertise increases the likelihood of execution and incremental resources
- Seek to drive absolute risk-adjusted returns in all market environments

THREE CORE ATTRIBUTES	RECURRING REVENUE	MULTI-SITE / DISCRETE POOLS OF VALUE	ASSET-BACKED
INDUSTRY EXAMPLES	SOFTWARE	HEALTHCARE SERVICES	LEASING
	DATA CENTERS	HEALTH & WELLNESS	FACTORING
	ALARM MONITORING	BUSINESS-TO-CONSUMER	SPECIALTY FINANCE
	TECH-ENABLED SERVICES	ENVIRONMENTAL/INDUSTRIAL SERVICES	INFRASTRUCTURE
	PAYMENT PROCESSING	EDUCATION	TRANSPORTATION
	BUSINESS SERVICES	FINANCIAL/INSURANCE	REAL ESTATE
	FINANCIAL/INSURANCE SERVICES		

Industry driven approach derived from core attributes fosters a disciplined investment selection process, keeping capital preservation at the forefront of portfolio construction

The above reflects Crestline's opinion and subjective assessments and is not intended to be a factual statement on the condition of any market or industry.

Benefits of Pod System

Crestline

Crestline's pod system not only drives sourcing and execution, but creates deal ownership that promotes accountability and brings only the highest quality investments to the table

Crestline Pods

- Technology/ Business Services
- Healthcare
- Industrial / Environmental Services
- Specialty Finance
- Asset Backed
- Real Estate
- Financial / Insurance Services

Sourcing

- Deep industry expertise drives deal sourcing in specific verticals
- Industry teams creates more sourcing breadth and depth.
- Board seats drive unique sourcing opportunities.
- Speaking opportunities for industry events drives sourcing opportunities.

Accountability & Culture

- Constant communication leads to increased knowledge in each vertical.
- Communication within pods creates better team dynamics, culture and morale.
- Pod leaders and senior members help drive the responsibilities and communication, creating ownership over the investments in their industry verticals.

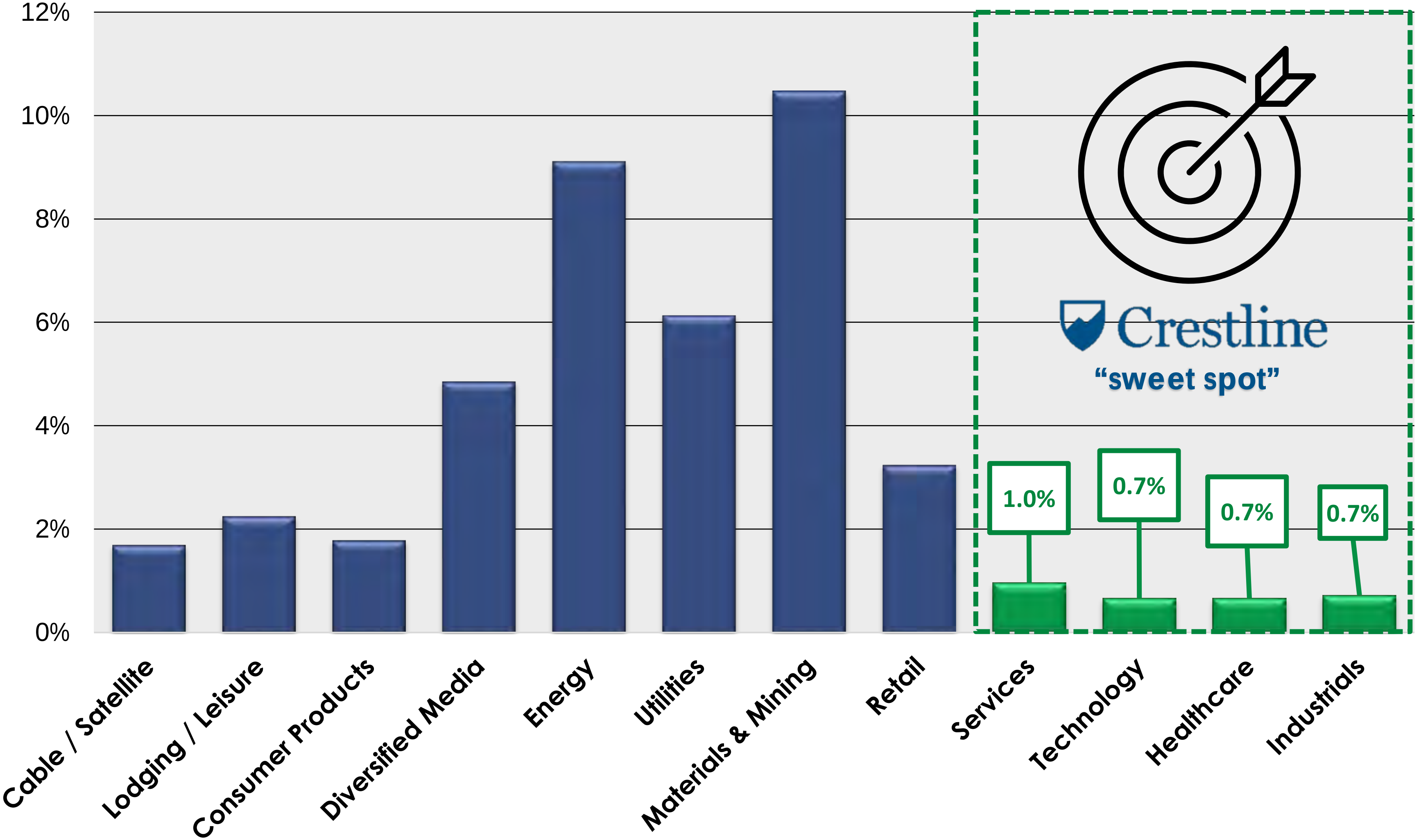
Underwriting

- Deeper industry knowledge drives better risk assessment capabilities
- With more reps, the knowledge base grows and leads to higher quality underwriting
- Crestline pods know what industry "quirks" to look for in each investment

Default Resistant Industries Through Market Cycles

By focusing on our core attributes, we are intentionally investing in areas with a lower default rate on average.

Leveraged Loan 11-Year Average Default Rates by Industry[1,2]



[1] Source: JPMorgan Default Monitor (2022 Year End). [2] The chart represents Industry-wide default rates of the sectors listed therein.

II. Strategies

Crestline

Direct Lending Strategy (aka "Specialty Lending") Overview

Direct Lending Overview

INVESTMENT PHILOSOPHY

- Capital Preservation / 1st Dollar Risk
- Control of Outcome / Structural Protections
- Risk-adjusted Returns

CORE ATTRIBUTES

- Recurring Revenue
- Multi-site / Pools of Value

Senior Debt

North America

Lower & Middle Market

EXPERIENCED TEAM

- Goldman Sachs SSG Roots
- Industry Specializations
- Restructuring & Workouts
- 40 Direct Lending Investment Professionals

CAPITAL SOLUTIONS

- Growth Capital & Expansion
- Refinancings & Recapitalizations
- Acquisitions & LBOs
- Sponsor/Non-Sponsor & Liquid/Illiquid

As of 3/31/2023

Crestline Direct Lending Strategy – Middle and Lower-Middle Market

Crestline

Over 90% 1st Lien < 10% 2nd Lien/Minority Equity	Target Enterprise Value: $30 – $200mm+	North American Focus
Emphasis on capital preservation through first dollar of risk attachment points	Large, underserved and attractive opportunity set in the middle and lower-middle market	Established jurisdictions for creditor rights

Differentiated Sourcing Network

- Industry specializations
- Private equity sponsors
- Cross platform synergies
- Investment banks
- Board seats
- Cap market/trading desks
- Accounting firms & rstructuring advisors

Structuring, Protections & Control

- Floating rates mitigate risk of rising interest rates
- 100% maintenance covenants
- 100% call protection
- Significant negative controls

Capital Preservation

- We underwrite to a full return of principal
- We take senior most position in the capital structure
- Focus on conservative attachment points
- Covenants are critical to controlling outcomes

Investment strategy is based on current expectations

Alpha Approach to Direct Lending

Crestline

Seek sources of inefficiency that drive excess yields per unit of risk

+

Focus on high quality assets, with covenants and negative controls

Flexible Across the Middle Market

- Expands lending opportunities
- Avoids "bucketing" around what is Lower vs. Middle vs. Upper Market

Industry Specific / Cross Platform Sourcing

- Simple Formula -- Invest in businesses with defensive characteristics: recurring revenues or multiple pools of value
- Direct Lending and Opportunistic "One team approach" aligns team to source across the capital structure…seeing deal flow we otherwise wouldn't have

Sub-$100mm Deals

- Willing to lend to smaller businesses opens up sourcing spigot where many peers will not lend given inflexible leverage governors

Not an Index

- Originate15-25 loans per year
- 50-70 positions in a fully ramped portfolio

Agnostic to Sponsor vs Non-Sponsor

- Typically, 70%-85% sponsor; 15%-30% non-sponsor
- Majority of direct lending capital raised around 100% sponsor-backed model which opens up a huge opportunity for non-sponsor-backed lending
- Credit team staffed to replicate diligence of a sponsor

Prefer Seniority and Structure

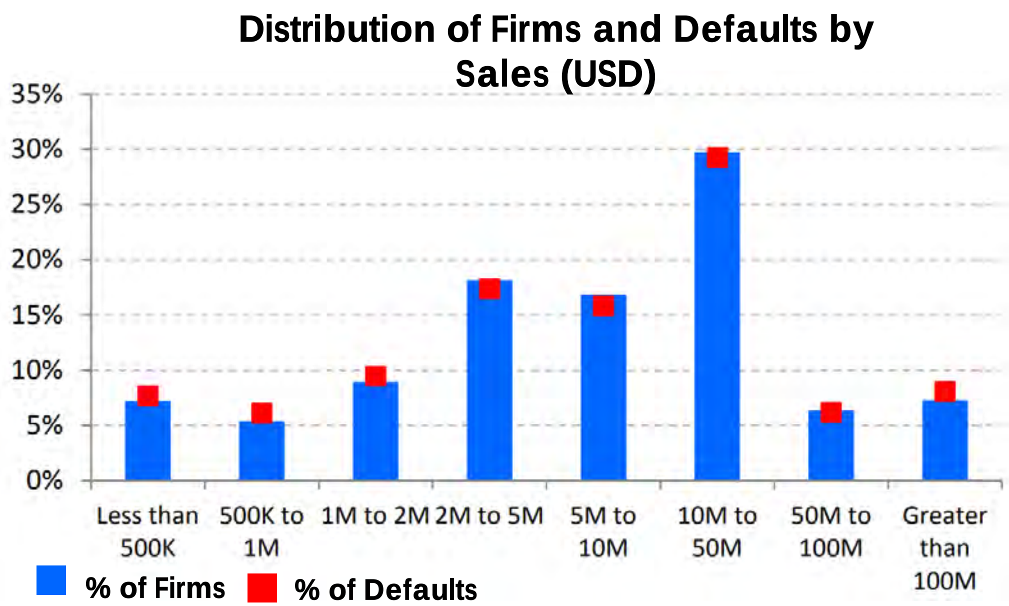
- 95%+ true first lien risk, 50% LTV attachment points
- All private loans must have financial maintenance covenants and substantial negative controls
- Limited use of leverage enables creativity around structuring (e.g., ARR lending, PIK vs. Cash tradeoffs

Are Lower Middle Market Loans More Risky Than Upper Middle Market Loans?

Crestline

No. During multiple choppy credit cycles from 1994-2010 companies of various sizes defaulted at roughly the same rate.

- Moody's data measures the proportion of total companies within each revenue bucket and the proportion of defaults within each bucket
- Across all revenue buckets, the proportion of firms is roughly the same as the proportion of defaults, meaning that companies default at aproximately the same rate
  - For example, companies with less than $500k in sales are ~7% of the total number of firms and also ~7% of total defaults
  - Likewise, companies with greater than $100mm in sales are ~8% of the total number of firms and also ~8% of the total defaults



Source: Moody's Analytics RiskCalc 4.0 U.S., April 30th, 2012

ARMB – Crestline Direct Lending Funds

Crestline

As of 3/31/2023 ($mm); except for Specialty Lending I

Product	Status	Investor Commitment	Commitment Date	Net Capital Called	Return of Capital (Recallable)	Uncalled Capital Commitments	Non-Recallable Distributions	NAV	Net P&L	Net IRR	Realized Net MOIC (incl. Recallable ROC)	Unrealized Net MOIC	Total Net MOIC
Specialty Lending I	Liquidated 12/2022	50,000,000	4/1/2015	37.7	-	12.3	57.3	-	19.6	12.50%	1.52x	0.00x	1.52x
Specialty Lending II	Harvesting	60,000,000	11/1/2017	56.1	10.8	14.7	25.4	38.0	18.2	11.28%	0.65x	0.68x	1.33x
Specialty Lending III	Investing	100,000,000	6/1/2021	60.3	-	39.7	4.5	63.5	7.8	13.05%	0.08x	1.05x	1.13x

All values are as of March 31, 2023, except for Specialty Lending I which is as of December 16, 2022.
Net values are net of all fees and expenses (including carried interest) borne by ARMB
Totals may not add up precisely due to rounding

Past performance is not indicative of future results.

Crestline Direct Lending Summary

Crestline

Consistent credit fundamentals drive consistent outcomes

	SLFI	SLFII	SLFIII
First Lien	98%+	98%+	98%+
LTV at U/W	~51%	~49%	~49%
Avg Covenants	3.3	2.7	2.2
Credit summary	0.0% Payment Defaults 0.0% Realized Loss Rate	1.9% Payment Defaults 0.0% Realized Loss Rate	0.0% Payment Defaults 0.0% Realized Loss Rate
Active Positions	0 (Fully Realized)	31	50
Realizations	42	33	9
Realizations: WA LTV	Entry: 51.0% Exit: 43.8%	Entry: 47.6% Exit: 47.6%	Entry: 49.8% Exit: 39.7%
Realizations: WA Gross IRR	12.5%	12.8%	17.2%

**WA Cumulative since fund inception. All figures as of 3/31/2023, unless otherwise noted. Average Covenants excludes broadly syndicated loans and equity positions. Expected/Targeted returns are forward-looking statements that are subject to uncertainty as described further in the relevant offering memorandum and should not be regarded as a representation, warranty or prediction of any particular performance. Hypothetical returns are subject to inherent risks and limitations. Crestline is an institutional investment adviser who markets to sophisticated investors who are able to understand the limitations and risks associated with the use of hypothetical performance. Upon request, Crestline will provide information on the criteria used and assumptions made in calculating hypothetical performance. Please see Performance Disclaimers at the front of this document for further information. Past performance not indicative of future results. See Disclaimers for further information.

Opportunistic and Fund Portfolio Finance Overview

- Blue Glacier Fund II
- Blue Glacier Fund D Update
- Blue Glacier Fund C Update

Opportunistic Strategy Overview

Crestline

- "All weather" strategy looking to take advantage of market inefficiencies and dislocations
- Designed to solve complex problems typically not met by traditional market sources
- Emphasis on capital preservation – focus on highly structured transactions with first dollar risk
- Focus on providing flexible capital solutions to underserved, complex or special situations
- Lower middle market and middle market focus provides a larger and less competitive opportunity set – focus on opportunities ranging from $20mm - $100mm

Corporate Capital Solutions

- Storied, out-of-favor, complex transactions
- Companies seeking non-control growth capital
- Flexible, yet highly structured solutions
- Typically, top of the capital structure risk
- Focused on structured returns plus equity optionality
- Industry focus provides ability to execute with certainty

Underwriting Target:
13-20%+ gross IRR

Special Situations Credit

- Dislocation driven
- Target opportunity set:
  - o Core industry focus
  - o Smaller, Underfollowed
  - o Mispriced securities
- Significant cash yield
- Mostly senior in capital structure
- Secondary market

Underwriting Target:
10-20%+ gross IRR

Asset Backed

- Loan or asset purchase
- Niche Assets:
  - o Infrastructure
  - o Logistics
  - o Litigation finance
- Specialty Finance
  - o Re-discount finance
  - o Leasing / factoring
- Niche Real Estate (loan or re-performing asset purchase)
- Covenants & corporate gov. rights

Underwriting Target:
10-20%+ gross IRR

Portfolio Finance

- NAV based loans and bespoke financing solutions for mature PE funds:
  - o Low LTV structures (10-30%)
  - o Short duration (2.5 years on average)
  - o Multiple assets supporting each transaction
- Tailored covenants and defined use of proceeds
- Contractual returns and make-whole provisions
- Alignment of interest across stakeholders

Underwriting Target:
10-20%+ gross IRR

Expected/Target returns are forward-looking statements that are subject to uncertainties and should not be regarded as a representation, warranty, or prediction of any particular performance.

Hunting Grounds

Multiple issues in the economy are driving capital formation changes, risk re-pricing and new opportunities

Bank Pullback

- Regional banks (and non bulge banks) are pulling back on new loans to manage Loan to Deposit ratios
- Moreover, the regionals are also trying to sell higher risk and/or RE loans
- Traditional banks are not providing capital to construction and development projects
- Traditional RE direct lenders pulling back due to current exposures and fund leverage providers clamping down

Raising Rate Induced Capital Needs

- Rising rates and decreased valuations will lead to a wave of stressed situations. The bad will fall first, but with patience there should be "good company, bad balance sheet" opportunities
- Rising rates and pressure on cap rates (valuations). This reduces lending capability of regulated lenders due to debt service coverage ratios and LTVs

Sponsor Capital Constraints

- Sponsors out of capital due to realizations slowing (less recycling) and also fundraising is negatively impacted from valuation pressures (decreasing)
- Late in their fund life and unable to invest in upsizes or new opportunities

Growth / Structured Solution

- Growth businesses valuations declining
- Multiple compression causing lenders to decrease leverage & increase pricing
- Cash burning, growth focused companies facing down rounds

Non-Sponsor

- Banks pulling back from market
- Traditional direct lender pull back beginning with COVID
- Traditional direct lenders mainly focus on sponsor market – easier and more abundant deal flow
- Direct lenders believe sponsors will bail out underperformers (not always true)
- Founders looking to maintain control with less dilutive capital

NAV Lending Growing Opportunity Set and Current Trends

Crestline

Expanding Asset Classes

- Middle Market Buyout
- Growth and Venture
- Real Estate & Infrastructure
- Fund of Funds Secondaries & Family Offices

Market Drivers ▶ Trends

Slowdown in M&A Activity and Exits

- Sponsors holding assets longer
- Using NAV loans to support existing companies

Headwinds in Fundraising

- Sponsors delaying new fund launches
- Using NAV loans to continue investing from current vintages

Pullback in Credit Markets

- Upcoming asset level debt maturities / refinancings
- Using NAV loans to invest more equity to secure capital / terms

Liquidity Management

- Portfolios of private assets not generating sufficient liquidity from early vintages to support recent capital commitments.
- Using NAV loans to satisfy capital commitments

Crestline

Blue Glacier Fund II

- **Opportunistic Strategy:**
  - Offers capital solutions, ranging from $20 to $100 million, to underserved or capital constrained asset classes, including SME's, out-of-favor sectors, stressed or special situations
- **Portfolio Financing Strategy:**
  - Provides custom financing and capital solutions to private equity funds and other private asset vehicles seeking additional capital to support, grow and protect underlying portfolio companies and opportunistically providing liquidity to investors.

- Launch Date: May 2023
- Commitment: $200mm
- Term: Evergreen

Blue Glacier Fund Class D

- **Opportunistic Strategy:**
  - Offers capital solutions, ranging from $20 to $100 million, to underserved or capital constrained asset classes, including SME's, out-of-favor sectors, stressed or special situations

- **Portfolio Financing Strategy:**
  - Provides custom financing and capital solutions to private equity funds and other private asset vehicles seeking additional capital to support, grow and protect underlying portfolio companies and opportunistically providing liquidity to investors.

- **LPA excerpt below:**
  - *The Partnership's investment objective with respect to Class D Investments is to achieve superior capital appreciation over a finite period of time utilizing a flexible and opportunistic investment mandate. The Partnership seeks to realize its objective by investing in investments that seek to take advantage of market dislocations and inefficiencies through investments in opportunistic investment strategies, that focus on a variety of equity investments and debt investments designed to capitalize on market dislocations; in addition, the Partnership may also seek to achieve its investment objective by pursuing financing strategies that focus on providing financing to private equity, special purpose vehicles and private investment funds in need of additional capital through the provision of loans to such funds, the acquisition of preferred equity in such funds or the provision of financings to underlying portfolio companies of such funds or other similar transactions ("Portfolio Financing Transactions"). Class D Assets will be Class D Investments that are direct investments as set forth generally in (including through any special purpose entities) private funds, operating companies, securities or other assets, and any cash proceeds therefrom.*

Blue Glacier Fund Class D

As of 12/31/2022 ($mm)

- **Net Capital Called of $373.4mm**
- **Remaining Uncalled Capital of $168.4mm**
- **NAV - $403.9mm**
- **Realized MOIC - .12x; Unrealized 1.08x**
- **Net IRR – 13.86%**

Date Funded: August 2019
Investment Period Ends: August 2023

Total Investor Commitments	$500.0	NAV	$403.9
Gross Capital Called	$373.4	P&L	$76.3
Sub-Close Distributions (Recallable)	$0.0	Net IRR	13.86%
Net Capital Called	$373.4	Realized Net MOIC (incl. Recallable ROC)	0.12x
Return of Capital (Recallable)	$41.8	Unrealized Net MOIC	1.08x
Uncalled Capital Commitments	$168.4	Total Net MOIC	1.20x
Non-Recallable Distributions	$4.0		

Data shown above represents only LP's interest unless otherwise noted.
Due to rounding, numbers presented may not add up precisely to the totals.
Past performance is not indicative of future results.

Crestline

- **Blue Glacier Fund Class D (as of December 31, 2022)**
  - Vehicle has current committed $408 million and cumulatively invested $429 million; 91 investments closed
  - Investment Period ends 8/7/2023
  - 24 realized investments through 12/31/2022
    - **WA realized Gross IRR: 38.48%**
  - 47% Corporate / 36% Asset-Backed / 17% Fund Liquidity Solutions[1]
  - 64% North America, 20% EMEA and 16% global exposure[1]
  - Top 5 industries by commitment:
    - 20% Real Estate Management, 7% Diversified Financial Services, 7% Media, 6% Software, 5% Health Care Providers & Services
    - **ARMB Current Net IRR: 13.86%**

Security Type	Committed[1]
Senior Secured	66%
Asset-Based/Cash Flowing - Unlevered	9%
Mezzanine/Structured Equity – First Out	18%
Asset-Based/Cash Flowing - Levered	4%
Mezzanine/Structured Equity – Junior	2%
Common Equity	1%
Total	**100%**

93% 1st Out Assets

Expected/Targeted returns are forward-looking statements that are subject to uncertainty as described further in the relevant offering memorandum and should not be regarded as a representation, warranty or prediction of any particular performance. Hypothetical returns are subject to inherent risks and limitations. Crestline is an institutional investment adviser who markets to sophisticated investors who are able to understand the limitations and risks associated with the use of hypothetical performance. Upon request, Crestline will provide information on the criteria used and assumptions made in calculating hypothetical performance. Please see Performance Disclaimers at the front of this document for further information. Past performance not indicative of future results. See Disclaimers for further information. Portfolio Gross IRR measures performance across all assets based on cash flows between each asset and the fund. LP Gross IRR measures performance based on cash flows between the investors and the fund. Since investor performance is calculated on cash flows between investors and the fund, it is necessary to display gross performance on an LP Gross IRR basis calculated using the same type of return and methodology. The performance figures presented are for the entire fund and do not reflect the return for any specific investor. An individual investor's return would differ from what is presented herein based upon a variety of factors, including but not limited to, when the investor was admitted to the Fund and whether the investor is subject to certain fees and expenses.

[1] Based on cumulative commitments.

2023 Activity & Expectations

Crestline

Crestline expects multiple realizations in 2023 with plans on how to put the realized capital to use

Realizations

- Three realizations thus far in 2023 (Feffer, Bucs, Hamlet)
- In addition to the above three, Crestline expects another five investments in 2023 (Pace 1 &2, Sobe, Cartier, Ventus, Mateo, Wahoo, Herschel). These investments are either in a in a sale or refinancing process

New Investments

- Only three new transactions closed into SMA in 2023 (as of 5/1/2023), committing $33mm
- Fund is currently full and will not make new investments; new series to begin investing

Past performance is not a guaranty of future results. Expected/Target returns are forward-looking statements that are subject to uncertainties and should not be regarded as a representation, warranty, or predication of any particular performance. Gross-of-fee IRR performance figures represent deal level performance and do not include the deduction of fund level fees and expenses and do not represent the performance of any investor. An individual investor's returns will be reduced by advisory fees and other expenses incurred in the management of its account.

Blue Glacier Fund Class C

BGF Class C – Opportunistic and Portfolio Financing

Crestline

- **Opportunistic Strategy:**
  - Offers capital solutions, ranging from $20 to $100 million, to underserved or capital constrained asset classes, including SME's, out-of-favor sectors, stressed or special situations

- **Portfolio Financing Strategy:**
  - Provides custom financing and capital solutions to private equity funds and other private asset vehicles seeking additional capital to support, grow and protect underlying portfolio companies and opportunistically providing liquidity to investors.

- **LPA excerpt below**
  - *"The Partnership's investment objective with respect to Class C Investments is to achieve superior capital appreciation over a finite period of time utilizing a flexible and opportunistic investment mandate. The Partnership seeks to realize its objective by investing in investments that seek to take advantage of market dislocations and inefficiencies through investments in (i) niche strategies such as asset-based royalty streams and other cash-flow strategies as well as structured finance, (ii) private credit strategies such as loans (direct origination and trading), performing and non-performing loan pools, trade claims, distressed and structured credit and (iii) hedge fund secondaries, which include both fund interests and liquidating assets generally purchased at a discount to a fund's net asset value. [..] Class C-2 Assets will be Class C Investments that are direct investments in asset portfolios (including through any special purpose entities), operating companies, securities or other assets […]."*
  - *"In addition, the Partnership may also seek to achieve its investment objective by pursuing financing strategies that focus on providing financing to private equity, special purpose vehicles and private investment funds in need of additional capital through the provision of loans to such funds, the acquisition of preferred equity in such funds or the provision of financings to underlying portfolio companies of such funds or other similar transactions ("Portfolio Financing Transactions")"*

Blue Glacier Fund Class C

Crestline

As of 12/31/2022 ($mm)

- **Net Capital Called of $479.6mm**
- **Non-Recallable Distributions of $333.5mm**
- **NAV – $232.4mm**
- **Realized MOIC - .85x; Unrealized .48x**
- **Net IRR 8.82%**

Date Committed: April 2015
Investment Period Ended: September 2020

Total Investor Commitments	$490.0	NAV	$232.4
Gross Capital Called	$479.6	P&L	$160.5
Sub-Close Distributions (Recallable)	$0.0	Net IRR	8.82%
Net Capital Called	$479.6	Realized Net MOIC (incl. Recallable ROC)	0.85x
Return of Capital (Recallable)	$74.1	Unrealized Net MOIC	0.48x
Uncalled Capital Commitments	$84.6	Total Net MOIC	1.33x
Non-Recallable Distributions	$333.5		

Data shown above represents only LP's interest unless otherwise noted.
Due to rounding, numbers presented may not add up precisely to the totals.
Past performance is not indicative of future results.

- **Blue Glacier Fund Class C (as of December 31, 2022)**
  - Vehicle has current committed $267 million[1] and cumulatively invested $626 million; 64 investments closed
  - 34 realized investments through 12/31/2022
    - **WA Realized IRR: 16.58%**
    - **Near term expected realizations: Caretaker, Powers, Urology, Propane, Pace, Kirby, Lion King, Advance, Flip 1.0**
  - 40% Corporate / 35% Asset-Backed / 25% Fund Liquidity Solutions[1]
  - 88% North America, 12% Global[1]
  - Top 5 industries by commitment:
    - 15% Consumer Finance, 12% Software, 9% Oil, Gas, & Consumable Fuels, 8% Healthcare Providers & Services, 8% IT Services
  - **ARMB Current Net IRR: 8.82%**

Security Type	Committed[1]
Senior Secured	38%
Asset-Based/Cash Flowing - Unlevered	10%
Mezzanine/Structured Equity – First Out	20%
1st Lien / Structured Equity	10%
Unrealized Warrant Value	1%
Asset-Based/Cash Flowing - Levered	11%
Mezzanine/Structured Equity – Junior	9%
Common Equity	1%
Total	**100%**

78% 1st Out Assets (incl. Unrealized Warrants)

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[1] Based on cumulative commitments.

Crestline

Blue Glacier Fund Class B – Predecessor Strategy

BGF Class B – Share Class Description

Crestline

- **Class B was a different strategy relative to current strategy, i.e. Fund of Fund investing**
  - **We invested in other private credit managers, Crestline Recovery Fund III and co-investments**
  - **2 direct lending managers; 10 opportunistic or niche managers; 2 co-investments; 2 direct deals and Crestline Recovery Fund (purchasing hedge fund secondaries)**
- LPA excerpt below
  - *“The Partnership’s investment objective with respect to Class B Investments is to achieve superior capital appreciation over a finite period of time utilizing a flexible and opportunistic investment mandate. The Partnership seeks to realize its objective by investing in investments that seek to take advantage of market dislocations and inefficiencies through investments in (i) niche strategies such as asset-based royalty streams and other cash-flow strategies as well as structured finance, (ii) private credit strategies such as loans (direct origination and trading), performing and non-performing loan pools, trade claims, distressed and structured credit and (iii) liquidating or secondary assets generally purchased at a discount to net value.”*

BGF Class B – Product Summary

Crestline

As of 12/31/2022 ($mm)

- **Net Capital Called of $200.9mm**
- **NAV - $90.7mm**
- **Realized MOIC - .81x; Unrealized MOIC .45x**
- **Net IRR 4.30%**

Date Committed: May 2013
Investment Period Ended: May 2015

Total Investor Commitments	$264.4	NAV	$90.7
Gross Capital Called	$200.9	P&L	$53.1
Sub-Close Distributions (Recallable)	$0.0	Net IRR	4.30%
Net Capital Called	$200.9	Realized Net MOIC (incl. Recallable ROC)	0.81x
Return of Capital (Recallable)	$0.0	Unrealized Net MOIC	0.45x
Uncalled Capital Commitments	$63.5	Total Net MOIC	1.26x
Non-Recallable Distributions	$163.3		

Data shown above represents only LP's interest unless otherwise noted.
Due to rounding, numbers presented may not add up precisely to the totals.
Past performance is not indicative of future results.

Performance Disclosures

Per US GAAP, fair value estimates are made at a point in time, based on relevant market data as well as the best information available about the financial instrument. These estimates involve significant uncertainties and judgments and cannot be determined with precision. Because of the inherent uncertainty of valuation, this estimated value may differ from the value that would have been used had a ready market for these investments existed, and the differences could be material. Valuations reflect fair value estimates determined as of the dates indicated within this document.

Performance information is unaudited and subject to revision. Past performance as well as third party awards and ratings are not a guaranty of future results. Additionally, some of the track records include unrealized investments. As discussed below, the values of unrealized investments are speculative and there is risk that unrealized investments will not be liquidated for their currently held value that is reflected in the track record. Current and prospective investors should not assume that the future performance of any Crestline fund will equal its prior performance results or the results of any previous fund with a similar strategy, and investors risk loss of their entire investment. Each fund's performance results portrayed reflect the deduction of that fund's advisory fees, brokerage commissions and other expenses. The performance results also include the reinvestment of income and dividends, in investment vehicles where such are applicable. For each Crestline fund, an individual investor's returns will vary from the historical performance due to restrictions on participation in certain types of investments and due to the timing of subscriptions, withdrawals, and redemptions; further, the general economic conditions during extreme highs and lows may have affected the returns of the funds.

Crestline is an institutional investment adviser who markets to sophisticated investors who are able to understand the limitations and risks associated with the use of hypothetical performance. Upon request, Crestline will provide information on the criteria used and assumptions made in calculating hypothetical performance.

Targeted returns are hypothetical returns and are forward-looking statements that are subject to uncertainties described further in the relevant offering memorandum. The targeted returns are based on research conducted by Crestline and the conclusions are Crestline's opinions based on its own independent study. The return targets are supported by various quantitative measures including one or more of the following: 1) the actual track record of the funds, 2) back-tested returns of a pro-forma portfolio using the fund's current asset allocation and/or 3) a forecast return calculated using a third-party risk model. For further information on targeted returns including input data and calculation methodology please contact Client Servicing at CrestlineInvestors@crestlineinc.com. While Crestline believes that the return targets are supportable, there is no guarantee that the funds will achieve the targeted returns. The targeted rates of return included herein are hypothetical returns, and are for illustrative purposes only. Accordingly, no assumptions or comparisons should be made based upon these returns. Targeted returns are subject to inherent risks and limitations, including but not limited to the fact that the returns do not take into account the impact that market and economic risks may have on investment decisions and that criteria and assumptions used in generating targeted returns may not prove to be correct. In no circumstances should the targeted returns be regarded as a representation, warranty or prediction that the fund will reflect any particular performance or that it will achieve or is likely to achieve any particular result or that investors will be able to avoid losses, including total losses of their investment.

The proposed allocations, proforma illustrations and/or back-tested performance are hypothetical, are shown for illustrative purposes only and do not represent actual performance of any client account. Crestline does not represent that the hypothetical returns would be similar to actual performance had the firm actually managed the accounts in this manner.

Hypothetical, back-tested or simulated performances have many inherent limitations only some of which are described as follows: (i) It is designed with the benefit of hindsight, based on historical data, and does not reflect the impact that certain economic and market factors might have had on the decision-making process. No hypothetical, backtested or simulated performance can completely account for the impact of financial risk in actual performance. Therefore, it will invariably show positive rates of return. (ii) It does not reflect actual client asset trading and cannot accurately account for the ability to withstand losses. (iii) The information is based, in part, on hypothetical assumptions made for modeling purposes that may not be realized in the actual management of investments, indices or accounts. No representation or warranty is made as to the reasonableness of the assumptions made or that all assumptions used in achieving the returns have been stated or fully considered. Assumption changes may have a material impact on the model returns presented. This material is not representative of any particular client's experience. Investors should not assume that they will have an investment experience similar to the hypothetical, back-tested or simulated performance shown. There are frequently material differences between hypothetical, back-tested or simulated performance results and actual results subsequently achieved by any investment or investment strategy.

Performance Disclaimers

Crestline

Unlike an actual performance record, hypothetical, back-tested or simulated results are achieved by means of the retroactive application of a model itself designed with the benefit of hindsight. Hypothetical, back-tested or simulated performance does not reflect the impact that material economic or market factors might have on Crestline's decision making process. The back-testing of performance differs from actual account performance because the investment strategy may be adjusted at any time, for any reason and can continue to be changed until desired or better performance results are achieved. The hypothetical performance includes proforma fees and expenses. No representation is made that any investment, index or account described herein will or is likely to achieve profits or losses similar to those shown. Alternative modeling techniques or assumptions might produce significantly different results and prove to be more appropriate. Past hypothetical, back-test or simulated results are neither indicators nor guarantees of future returns. In fact, there are frequently sharp differences between hypothetical, back-tested and simulated performance results and the actual results subsequently achieved. As a sophisticated investor, you accept and agree to use such information only for the purpose of discussing with Crestline your preliminary interest in investing in the investment described herein.

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General Risks of Investing in the Crestline Funds

An investment in the Funds is speculative and involves a high degree of risk. The Funds are generally not subject to regulatory restrictions or oversight. Crestline Management, L.P., is a federally registered investment adviser and provides investment advice through various affiliates and subsidiaries. Crestline Canada, Inc. and its subsidiary Crestline Canada Sub, L.P. are investment managers doing business in Canada that provide the "beta" overlay advice to Crestline Management, L.P. and certain Canadian trusts. Crestline Europe, LLP, registered with the Financial Conduct Authority ("FCA"), serves as the European investment adviser and is helping Crestline with investment diligence and analysis for its clients on certain primarily European opportunities. The Funds may employ leverage, which among other investment techniques, can make their investment performance volatile. Opportunities for redemptions and transferability of interests in the Funds are restricted so investors may not have access to their capital if and when it is needed. There is generally no secondary market for an investor's interest in the Funds and none is expected to develop. The Funds' management fees, incentive fees/allocations, and expenses, may offset their trading profits. An investor should not invest in the Funds unless it is prepared to lose all or a substantial portion of its investment.

Principal executive officers of Crestline are also associated with Bratton Capital Management, LP ("BCM") a firm that acts as the investment adviser and general partner to single family-office-related investments. Crestline and BCM are under common control.

This document is a summary, is for informational purposes only and does not constitute an offer to sell or a solicitation of any offer to buy or sell securities of any entity, investment product or investment advisory service. Any offer will be made only pursuant to a confidential offering memorandum. There can be no guarantee that the Funds will achieve their investment objective. An investment in the Funds is speculative and involves a high degree of risk, and investors risk loss of their entire investment. Past performance is not indicative of future performance.

Some information contained in this document is based on data received from third parties that we consider reliable and is accurate to the best of Crestline's knowledge. However, Crestline has not independently verified the information and does not otherwise give any warranty as to the truth, accuracy, or completeness of such third party data, and it should not be relied upon as such. The material is not intended to be a formal research report and nothing in this presentation should be interpreted to state or imply that past results are an indication of future performance.

Any opinions expressed herein are our current opinions only. There can be no assurance or guarantee that Crestline's investment strategy will achieve its stated goal. All information provided in this presentation is for informational purposes only. In addition, it should not be assumed that any of the securities and/or strategies discussed herein were or will prove to be profitable. Crestline accepts no liability for loss arising from the use of this material.

Crestline is a provider of customized beta solutions. Beta and hedging solutions include customized beta overlay services (derivative based strategies for currency hedging, liability-matching and duration targeting, cash management, and index equity exposure management) and portfolio hedging solutions using equity, commodity, currency and credit-based hedges.

General Risks of Investing in the Crestline Funds

Within a particular strategy, Crestline may offer a domestic fund and an offshore fund (“Funds”) that are managed pari passu. In such cases the Funds managed by Crestline will have investment objectives that are identical or substantially similar. It is not anticipated, however, that the Funds managed by Crestline having identical or substantially similar investment objectives will have identical or substantially similar investment portfolios. Differing investment portfolios can be expected to result from several factors, including, without limitation, the following:

- Regulatory constraints that apply to the Funds managed by Crestline;
- Investment constraints imposed by the Investment Managers of the underlying fund that the Funds may invest in;
- The availability of underlying funds for investment at certain times but not at others; and
- The amount of cash available for investment at certain time by the Funds.

As a result of factors such as these, Funds that are managed pari passu may have a different investment portfolio (and, as a result, different performance results) even though the funds may have identical or substantially similar investment objectives.

This document may contain "forward-looking statements" within the United States Private Securities Litigation Reform Act of 1995. Statements that are predicative in nature, that depend upon or refer to future events or conditions or that include words such as “aims,” “expects,” “anticipates,” “intends,” “plans,” “believes,” “estimates,” “seeks,” “thinks,” and similar expressions are forward-looking statements. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results and performance to be materially different from any future results or performance expressed or implied by these forward-looking statements. Forward-looking statements are not guarantees, and they involve risks, uncertainties and assumptions. Although we make such statements based on assumptions that we believe to be reasonable, there can be no assurance that actual results will not differ materially from those expressed in the forward-looking statements.

ARMB Multi-Asset

Asset Class

June 2023

Shane Carson, CAIA, CFA
State Investment Officer, Treasury Division
Alaska Department of Revenue

Agenda

- Year in review
- Asset class defined
- Current structure
- Managers
- Manager allocation process
- Performance
- Considerations for upcoming year

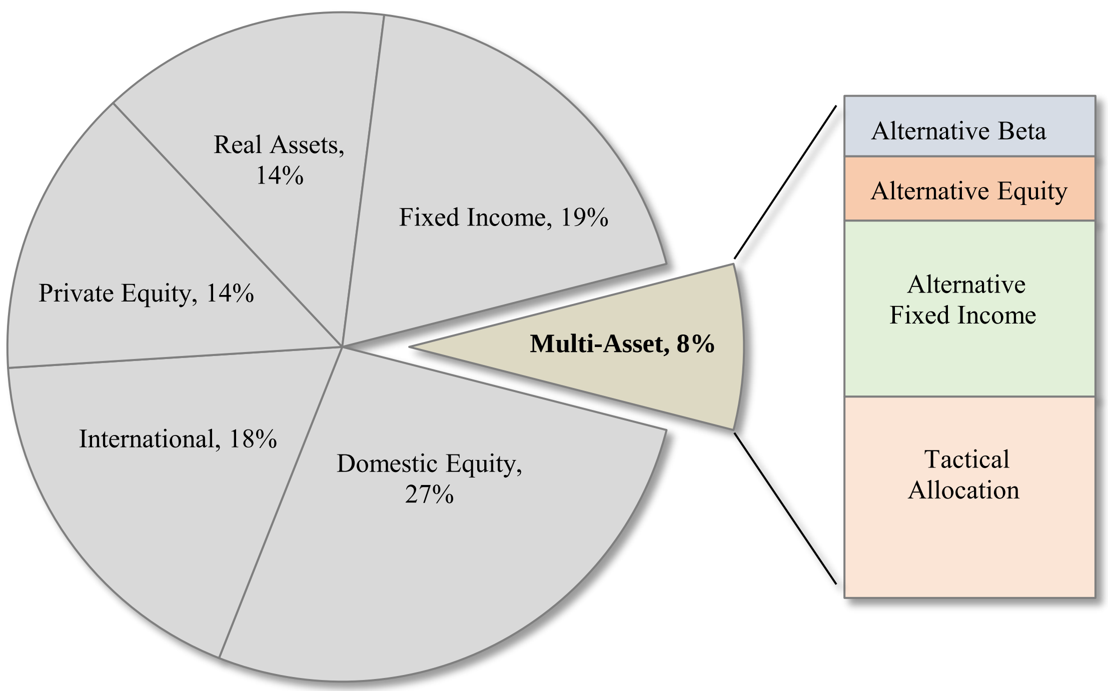
Year in Review

- Changed the name from Opportunistic to Multi-Asset
- Transitioned Alternative Fixed Income (private debt) from the Fixed Income asset class to Multi-Asset
- Executed a search, due diligence, and hiring of two private debt managers.
- Modified the contract with Crestline to eliminate closed-end classes and transitioned into an evergreen structure.
- Conducted on-sites with PineBridge, Fidelity, Crestline, and Man Group (Man).

Multi-Asset – Defined

- The asset class is expected to provide accretive returns to the overall portfolio through differentiated investments:
  - Specialized and/or diversifying sources of return
  - Single and multi-asset investments
  - Public and private
- Fiscal year target asset allocation is 8% of the total ARMB portfolio.
- Multi-Asset benchmark is a blend of 60% MSCI ACWI and 40% Bloomberg US Aggregate Bond Index.

Fiscal Year 2023 Asset Class Targets

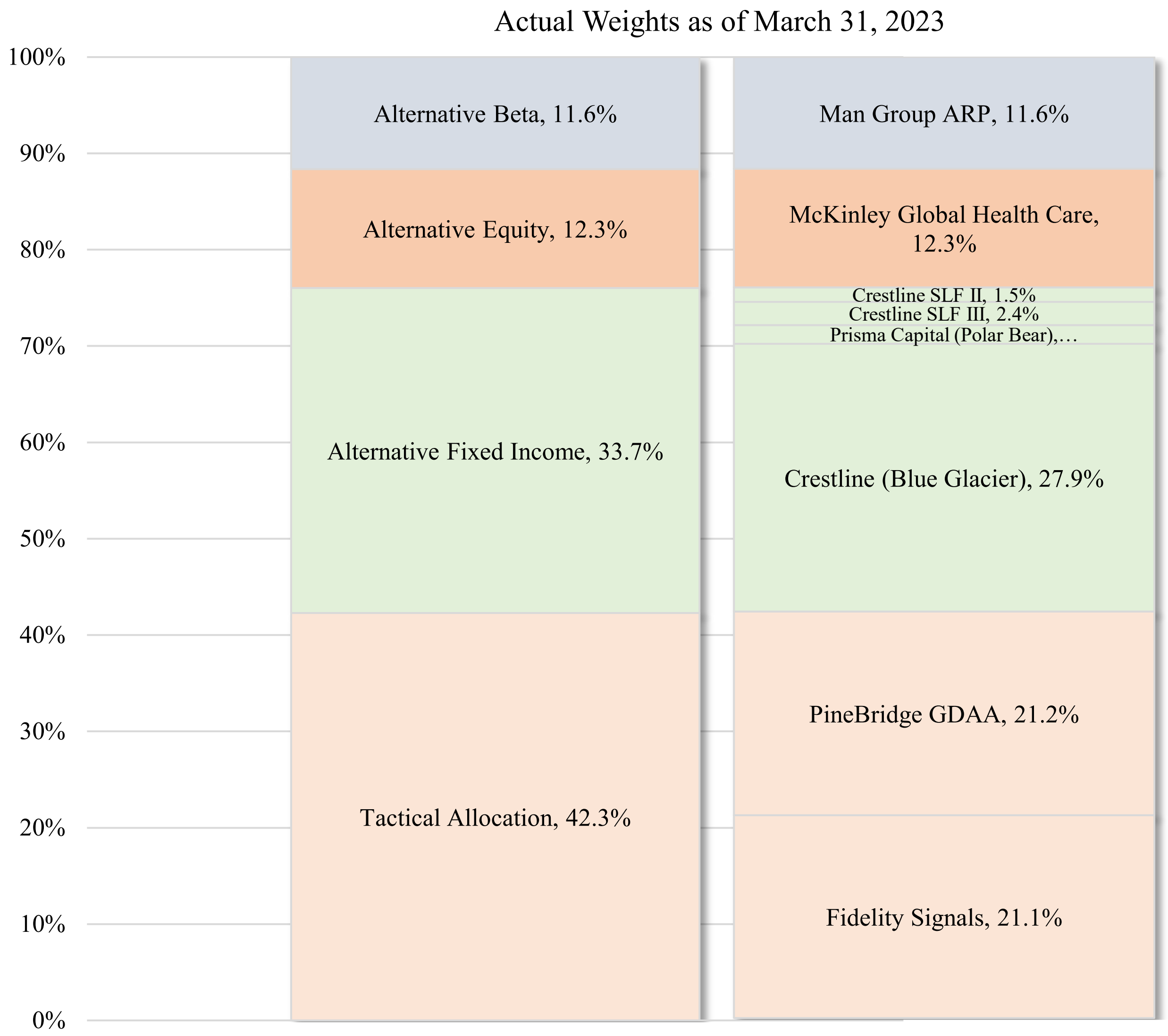


Multi-Asset – Defined

- Asset class is comprised of different strategies and risk exposures.
  - Alternative Beta
    - *Capture non-traditional risk premia with proven positive and diversifying returns in a risk managed and cost-efficient manner.*
  - Alternative Equity
    - *Provide equity exposure that is thematic, opportunistic, and high tracking error compared to more traditional ARMB equity benchmarks.*
  - Alternative Fixed Income
    - *Generate net of fee returns in excess of traditional fixed income by way of compensation for illiquidity and/or complexity.*
  - Tactical Asset Allocation
    - *Target returns in excess of a blended benchmark by identifying and taking advantage of market opportunities and provide ARMB with market intelligence and forecasting.*

Multi-Asset – Current Structure

- Multi-Asset is comprised of several strategic themes including Alternative Beta, Alternative Equity, Alternative Fixed Income, and Tactical Allocation.
  - Tactical Allocation strategies may include, but are not limited to, equity, fixed income, and exposure to liquid alternative asset classes such as currencies and commodities.
  - Private Debt is comprised of multiple strategies including, but not limited to, corporate direct lending, opportunistic, real assets lending, specialty finance, and asset-backed.



Multi-Asset – Portfolio Allocation Process

- Process starts with Callan's capital market assumptions for applicable asset classes.
- Modify assumptions given:
  - Manager return and risk forecasts
  - Historical data
  - Market and current events
- Then, optimize allocations targeting similar expected risk and maximizing expected excess return.
- Continually, monitor performance and allocations versus modeled expectations.

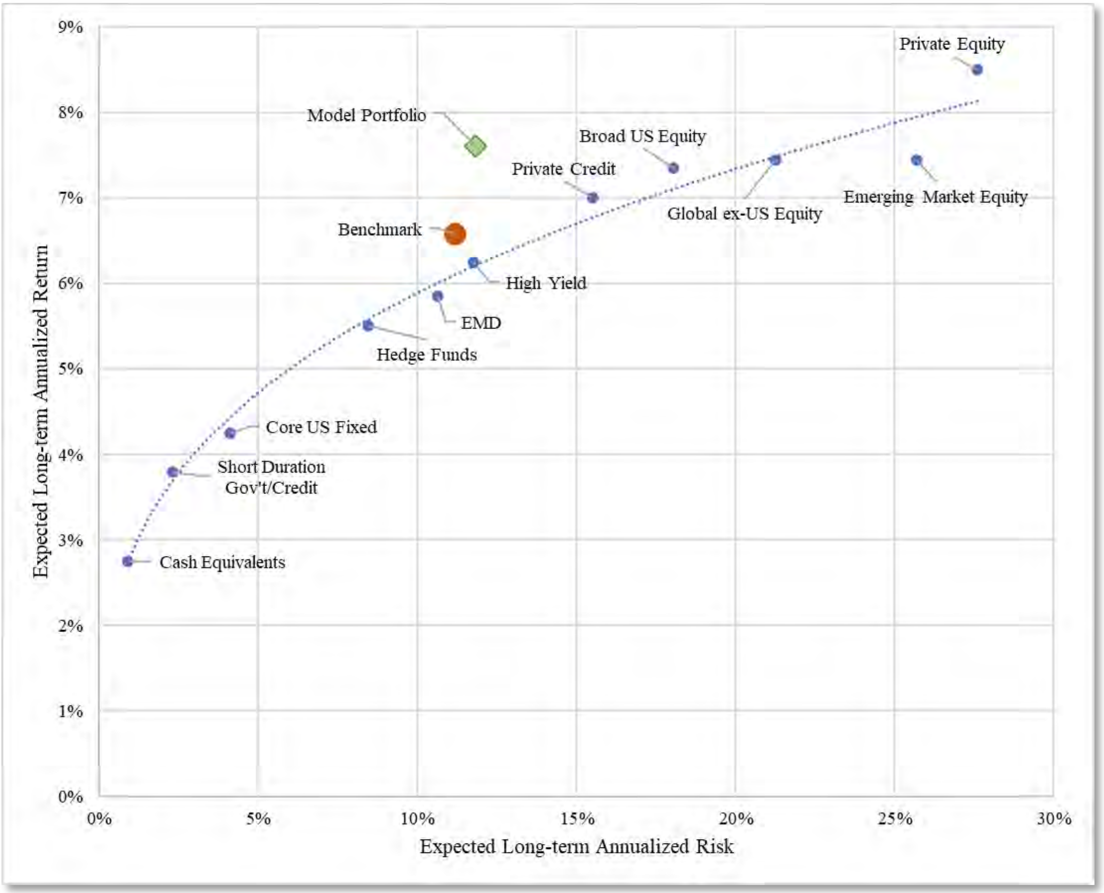


Chart shows select 10-year return and risk assumptions provided by Callan.

Multi-Asset – Alternative Beta

Capture non-traditional risk premia with proven positive and diversifying returns in a risk managed and cost-efficient manner.

Man Group Alternative Risk Premia

- Funded in 2017
- Combines the resources and strategies of Man Group’s quantitative macro and quantitative equity expertise
- Focuses on underlying strategies that meet the following criteria:
  - Positive expected return
  - Low cost of execution
  - Highly liquid and high capacity
  - Transparent

Multi-Asset – Alternative Equity

Provide equity exposure that is thematic, opportunistic, and high tracking error compared to more traditional ARMB equity benchmarks.

- McKinley Global Healthcare Transformation
  - Funded in 2019
  - Benchmarked to the MSCI All Country World Index
  - Utilizes McKinley's quantitative and qualitative methodologies designed to capture growth acceleration, momentum, and selection bias.
  - Strategy seeks to identify and target critical innovation healthcare themes believed to have the greatest potential to propel transformation and impact the industry. Focused on implementation of new technologies, practices and business models that make the delivery of patient care better, faster, and cheaper.
  - Strategy invests in US and non-US, publicly traded equities. There is no constraint regarding sectors.

Multi-Asset – Alternative Fixed Income

Generate net of fee returns in excess of traditional fixed income by way of compensation for illiquidity and/or complexity.

- PAAMCO Prisma Polar Bear Fund
  - Fund is in wind down
  - Forecast ~75% of remaining AUM distributed by end of 2023
- Crestline Specialty Lending Funds
  - Committed $50m to SLF in 2015; $60m to SLF II in 2017; and $100m to SLF III in 2021.
  - The strategy makes senior secured loans to middle market companies in North America with at least one of the following attributes: recurring revenue, sticky client base, and mission critical services or products.
- Crestline Blue Glacier Fund
  - Multiple classes of strategies. Class B was funded in 2013.
  - Finished contract for Class E in May 2023.
    - Evergreen structure
    - Committed $200m
    - Contributions dependent on distributions from existing classes
  - The Fund invests in opportunistic private debt and portfolio fund financing.

Multi-Asset – Alternative Fixed Income

- Ares Pathfinder Core Fund
  - Contracted in 2023
  - Evergreen structure
  - Committed $100m
  - The strategy focuses on assets that generate contractual cash flows and stable performance through cycles.
  - Using a relative value lens, the strategy will rotate across investment opportunities in areas such as, but not limited to, fund finance, REIT financing, asset portfolios, renewables, legal assets, etc.
  - Type of assets includes loans, leases, receivables, and royalties and fees.

- Comvest Credit Partners Evergreen Fund
  - Contracted in 2023
  - Evergreen structure
  - Committed $100m
  - The strategy invests in mostly senior secured loans to middle-market companies with an EBITDA of $15m to $50m.
  - Borrowers are private equity sponsored, non-sponsored, and non-traditionally (family office/fund-less) sponsored.
  - Industries of focus include, but are not limited to, healthcare, financial services, business and technology services, and industrials.

Multi-Asset – Tactical Asset Allocation

Target returns in excess of a blended benchmark by identifying and taking advantage of market opportunities and provide ARMB with market intelligence and forecasting.

- Fidelity Signals
  - Funded in 2018
  - The strategy analyzes economic and market indicators and using Fidelity's proprietary business cycle, value, and momentum models, positions the portfolio in asset classes depending on the assessment of those models.
- PineBridge Global Dynamic Asset Allocation
  - Funded in 2018
  - The strategy starts by analyzing forward fundamentals and their relative pricing, investing in those asset classes that are undervalued with an expectation that their prices will converge to fundamental value in the intermediate (9-18 months) time frame.

Performance

Returns for Periods Ended March 31, 2023

	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years
Multi-Asset (T)	**2.73%**	**3.33%**	**(4.94%)**	**7.69%**	**4.67%**
Alternative Equity Strategies	**1.84%**	**(1.31%)**	**(14.26%)**	**11.45%**	**6.47%**
McKinley Healthcare Transformation	1.84%	(1.31%)	(14.26%)	11.45%	-
McKinley Healthcare Transformation(net)	1.72%	(1.68%)	(14.61%)	10.95%	-
MSCI ACWI	7.31%	9.75%	(7.44%)	15.36%	6.93%
Tactical Allocation Strategies	**4.59%**	**4.85%**	**(5.73%)**	**9.61%**	**-**
PineBridge	4.02%	4.00%	(3.72%)	9.93%	-
PineBridge(net)	3.97%	3.84%	(3.91%)	9.71%	-
Pine Bridge Benchmark	5.76%	6.82%	(6.60%)	8.20%	4.13%
Fidelity Signals	5.16%	5.71%	(7.67%)	9.32%	-
Fidelity Signals(net)	5.08%	5.47%	(7.95%)	9.00%	-
Fidelity Signals Benchmark	5.76%	6.82%	(6.60%)	8.43%	4.76%
Alternative Beta	**0.57%**	**6.96%**	**12.67%**	**4.02%**	**0.68%**
Man Group Alternative Risk Premia	0.57%	6.96%	12.67%	6.07%	2.92%
T-Bills + 5%	2.26%	6.10%	7.50%	5.89%	6.41%
Alternative Fixed Income	**1.67%**	**2.03%**	**6.67%**	**7.58%**	**-**
Crestline (Blue Glacier)	1.23%	2.54%	8.63%	8.01%	6.92%
Prisma Capital (Polar Bear)	7.37%	(10.71%)	(18.08%)	0.90%	1.79%
Crestline Specialty Lndg Fd II	1.40%	4.07%	10.30%	10.75%	11.03%
Crestline Specialty Lndg Fd III	2.85%	7.83%	11.69%	-	-
HFRI Fund of Funds Idx	0.71%	2.09%	(1.93%)	7.17%	3.10%
T-Bills + 5%	2.26%	6.10%	7.50%	5.89%	6.41%

Market Value

	March 31, 2023 Market Value	December 31, 2022 Market Value
Multi-Asset (T)	**$2,533,409,905**	**$2,494,690,514**
Alternative Equity Strategies (T)	**$312,687,262**	**$307,042,324**
McKinley Healthcare Transformation	312,687,262	307,042,324
Tactical Allocation Strategies	**$1,071,266,256**	**$1,024,282,174**
PineBridge	536,305,632	515,576,326
Fidelity Signals	534,960,624	508,705,848
Alternative Beta	**$294,406,949**	**$292,747,916**
Man Group Alternative Risk Premia	294,406,949	292,747,916
Alternative Fixed Income*	**$854,909,006**	**$868,461,154**
Crestline (Blue Glacier)	706,345,566	727,530,212
Prisma Capital (Polar Bear)	49,053,152	45,687,027
Crestline Specialty Lndg Fd II	38,008,329	39,230,811
Crestline Specialty Lndg Fd III	61,501,959	56,013,103
Other Opportunities	**$140,432**	**$2,156,946**
Schroders Insurance Linked	140,432	2,156,946

Considerations for Upcoming Year

- Evaluate usage and structure of Tactical Allocation strategies
- Modify Fidelity Signals contract and guidelines to allow for expanded investment universe
  - **Action Memo: Direct staff to make the necessary changes to the Fidelity Signals investment guidelines and contract to add additional underlying funds.**
- Consider adding additional private debt manager(s)
  - Prospects from existing search
- Commit to Crestline Direct Lending Fund IV
  - **Action Memo: Direct staff to negotiate with Crestline Investors for a commitment of up to $100 million to the Crestline Direct Lending Fund IV.**
- Improve the portfolio allocation process
  - Return, risk, and correlation forecasts

Questions?

Man Group

Mandate: **Alternative Risk Premia** **Hired:** **2017**

Firm Information

Man is a global investment management firm with a large institutional client base, including sovereign wealth funds, endowments, and pension funds. Man is headquartered in London, with a network of global offices.

As of 3/31/2023, the firm had $144.7 billion in assets under management.

Key Executives:
Richard Barclay, Managing Director
Jens Foehrenbach, Managing Director
Trey Heiskell, Managing Director

Investment Approach

Man Alternative Risk Premia seeks to offer absolute returns with low correlation to traditional asset classes through liquid and cost-effective investments. The strategy seeks positive returns in all market environments. The investment approach allocates across four alternative risk premia – momentum, carry, value and defensive. Man uses systematic trading strategies with multi-level risk management and controls.

Benchmark: T-Bills + 5%

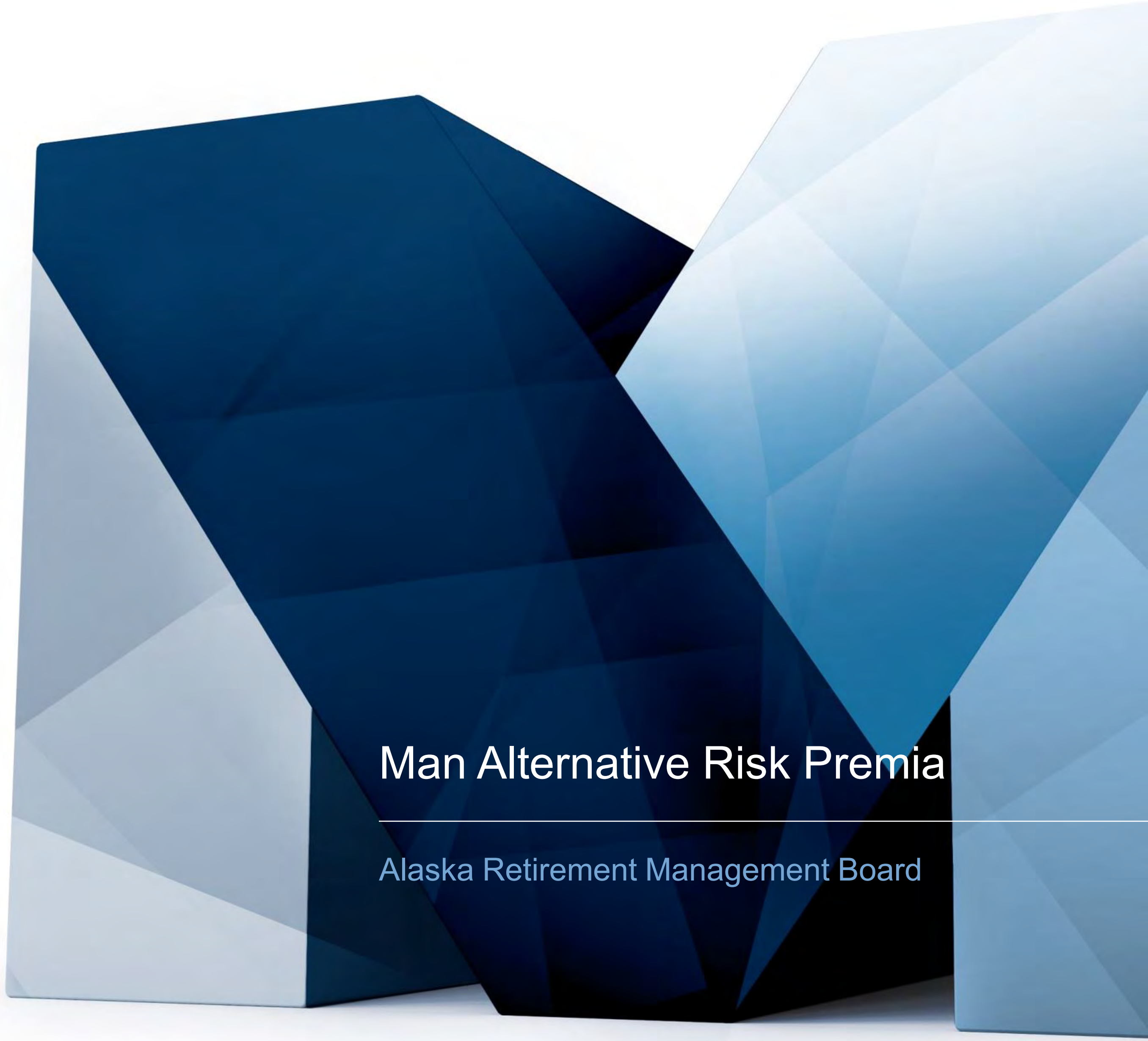
Total ARMB Mandate

Assets Under Management ($millions):
3/31/2023: $289

Concerns: None

3/31/2023 Performance (net of fees)

	Last Quarter	1-Year	3-Years Annualized	5-Years Annualized
ARP	-0.93%	7.39%	5.71%	2.39%
Benchmark	2.30%	7.63%	5.93%	6.48%



Man Alternative Risk Premia

Alaska Retirement Management Board

June 2023

Marketing Communication.

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Man

Aims to offer access to a diversifying return stream in a highly transparent, liquid and cost-effective manner

Proposed Investment Approach

- **Multi-premia, multi-strategy, multi-asset approach**
- Allocates to **systematic alpha** sources applied in **high capacity** markets
- Systematic trading strategies **with multi-level risk management** and controls

Value Proposition

- Targets **6–8% return volatility**[1]
- Multi-strategy approach seeks to allow for **performance across varied market conditions**
- Aims to be **uncorrelated** to traditional assets; potential diversifier for other style investments
- Management fee only and continuous **fiduciary oversight**

Why Man Group?

- **Long history** of researching, implementing and executing alternative risk premia
- Leverages one of the world's largest quantitative R&D groups into alternative risk premia investing
- Seeks **trading cost containment** via in-house systematic execution platform

1. These risk guidelines and/or limits are provided for information purposes only and represent current internal risk guidelines. There is no requirement that the Fund observes these limits, or that any action be taken if a guideline limit is reached or exceeded. Internal guidelines may be amended at any time without notice. Any descriptions involving investment process, portfolio characteristics, investment strategies, goals or risk management are provided for illustration purposes only, are not complete, will not apply in all situations, may not be fully indicative of any present or future investments and may be changed in the discretion of the Investment Manager. No representation is made that the Investment Manager's or the Fund's investment process, investment strategies, goals or risk management techniques will or are likely to be achieved or successful. See Important Information at the beginning of this document.

Man Alternative Risk Premia

Value proposition

A systematic, risk-managed strategy with an alpha focus that seeks to provide:

Diversification

- Diversification that matters:
  - Returns that are independent of stocks and bonds
  - Independent on average and in the extremes
  - Aims to enhance overall portfolio predictability by reducing drawdowns and increasing Sharpe ratios

Liquidity

- Diversification is predicated on the ability to rebalance effectively
- Liquid market focus enables the delivery of cash when it is needed most

Cost-effective pricing

- Management fee only structure that is consistent with a very liquid, high-capacity strategy

Transparency

- Better understanding of strategy behaviour through access to holdings, exposures and risk reporting
- Provide access to Man Group research and firmwide expertise

Source: Man Group

The strategy leverages the breadth of Man's systematic investment and trading capabilities across markets

Investment approach

- **Multi-strategy, multi-asset approach a**llocating across **eight liquid alpha strategies**
- Executed within **five asset classes**: Single Stocks, Equity Indices, Fixed Income, Currencies and Commodities
- **Systematic trading** combining expertise in both equity and macro strategies
- Utilizes a **unique risk allocation methodology** focusing on managing tail losses
- Employs **multi-level risk management** and controls, targeting **6–8% annualized volatility**[1]

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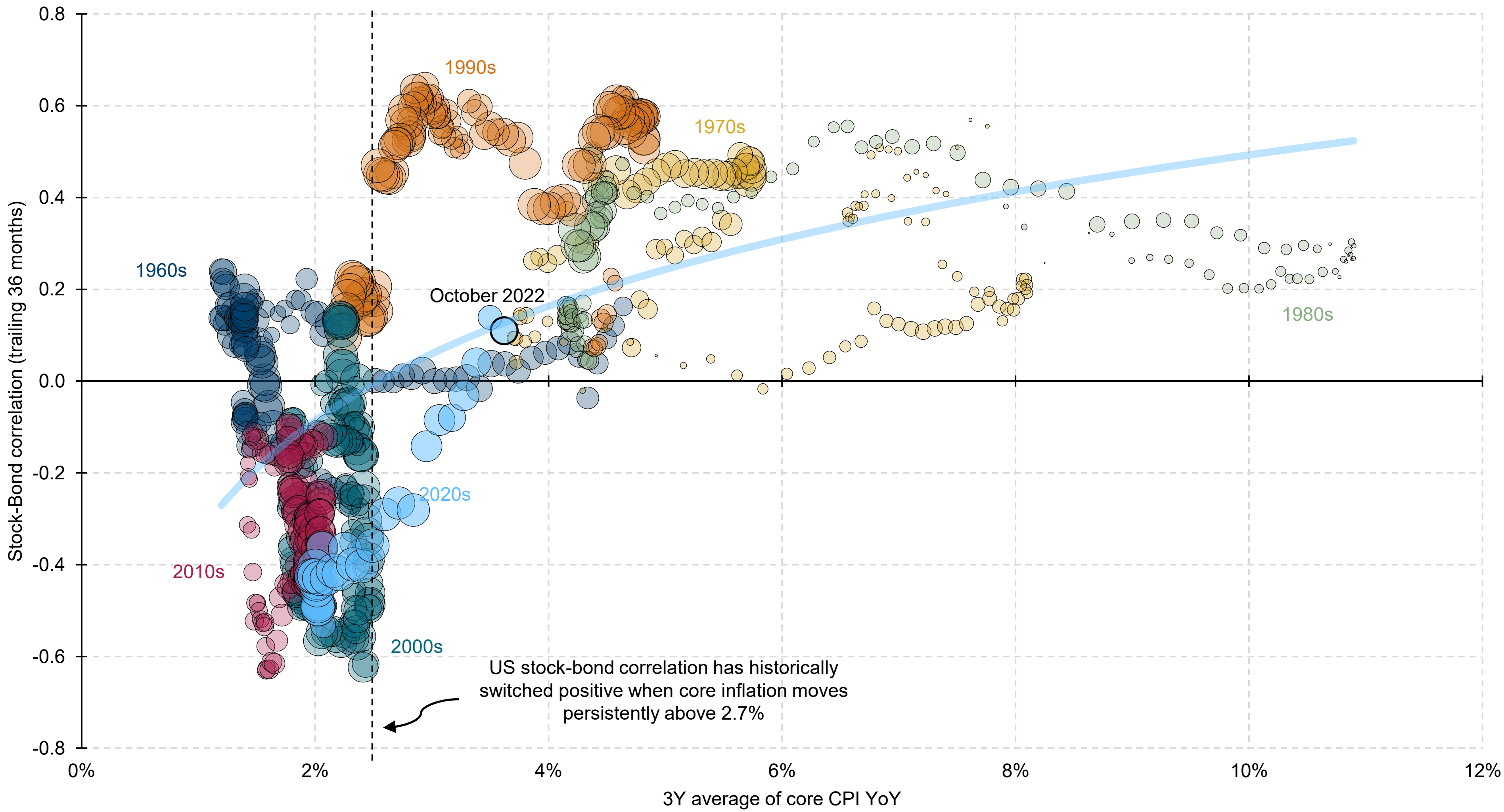
Challenges facing traditional asset classes

Higher inflation has historically been associated with higher correlations between stocks and bonds

Man

Elevated valuations, tightening monetary policy and higher inflation will challenge traditional sources of diversification

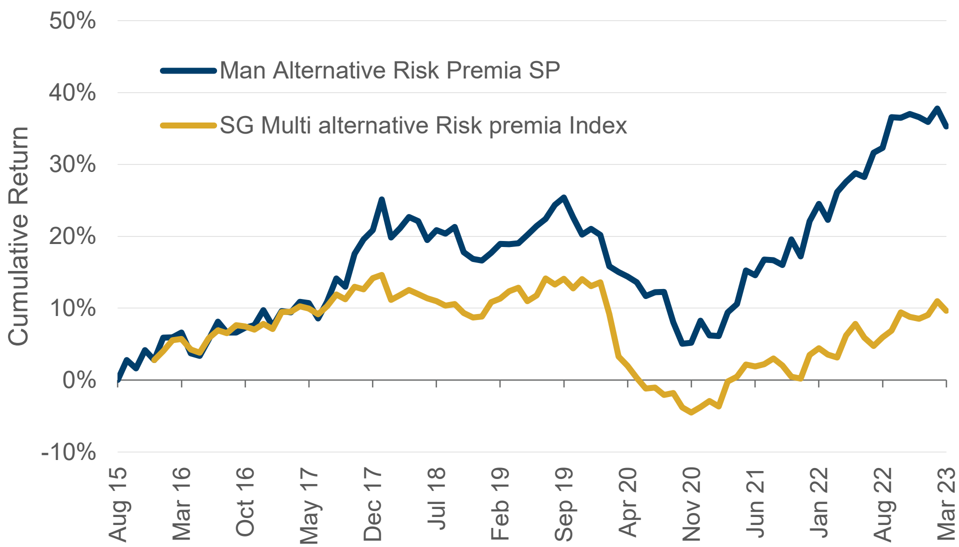


Source: Stock-bond correlation is between the S&P 500 Total Return and the Bloomberg Barclays US Treasury Aggregate Total Return indices. Valuation calculated as the percentile monthly P/E from January 1960 to October 2022. Core CPI from the Bureau of Labor Statistics

Man Alternative Risk Premia Strategy

Man Alternative Risk Premia ('Man ARP') seeks to provide attractive diversifying returns

Man Alternative Risk Premia – Class A (USD) - Inception (11 September 2015) to 31 March 2023



	Net Realized	Expected
Annualized return	4.09%	-
Annualized volatility	6.44%	6% to 8%
Sharpe ratio[1]	0.40	0.5 to 0.7
Beta to World Stocks[2]	0.08	-0.2 to +0.2
Beta to World Bonds[2]	-0.02	-0.2 to +0.2

	1-Year	5-Year	Since Inception
Annualized Return	7.23%	2.23%	4.09%

Past performance is not indicative of future results. Returns may increase or decrease as a result of currency fluctuations.

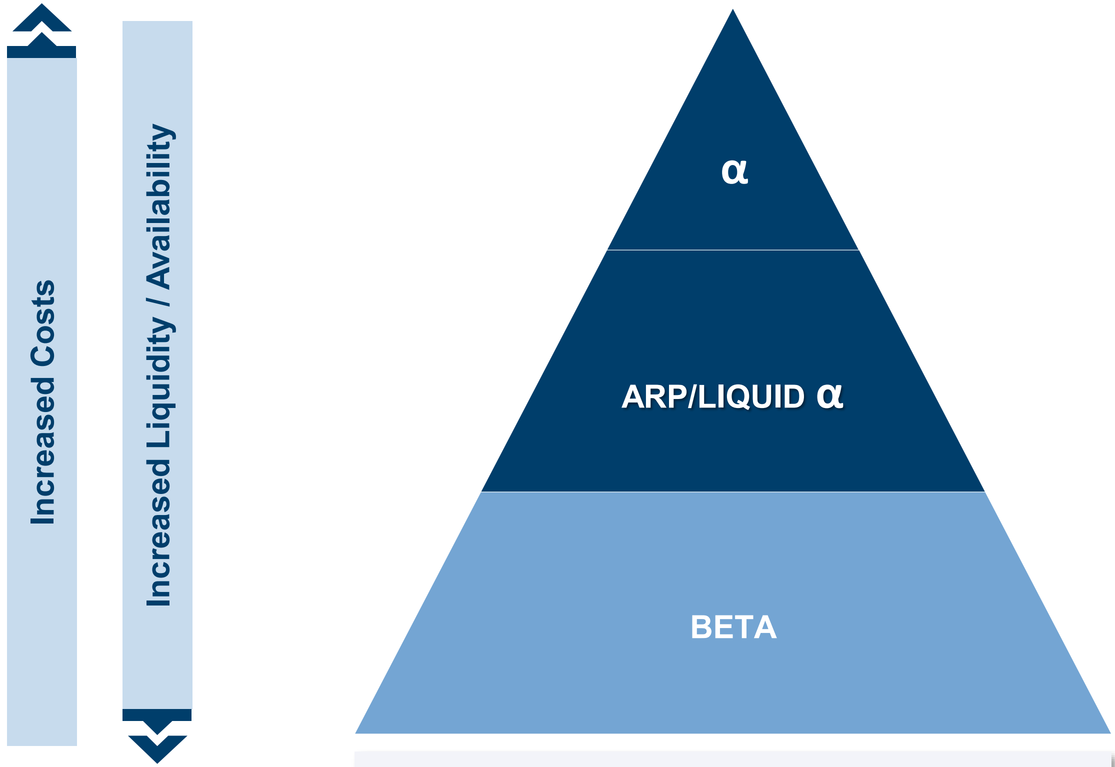
As of 31 March 2023. Man Alternative Risk Premia SP – Class A USD. Performance data is shown net of the maximum 1% management fee with income reinvested, and does not take into account sales and redemption charges where such costs are applicable. These risk guidelines and/or limits are provided for information purposes only and represent current internal risk guidelines. There is no requirement that the Fund observes these limits, or that any action be taken if a guideline limit is reached or exceeded. Internal guidelines may be amended at any time without notice. Any descriptions involving investment process, portfolio characteristics, investment strategies, goals or risk management are provided for illustration purposes only, are not complete, will not apply in all situations, may not be fully indicative of any present or future investments and may be changed in the discretion of the Investment Manager. No representation is made that the Investment Manager's or the Fund's investment process, investment strategies, goals or risk management techniques will or are likely to be achieved or successful. See Important Information at the beginning of this document. 1. Sharpe ratio is a measure of risk-adjusted performance that indicates the level of excess return per unit of risk. It is calculated using the risk-free rate in the appropriate currency over the period analyzed. Where an investment has underperformed the risk-free rate, the Sharpe ratio will be negative. As the Sharpe ratio is an absolute measure of risk-adjusted return, negative Sharpe ratios can be misleading and are therefore shown as n/a. The risk free rate is typically Libor/Euribor 3month deposit rate (in the appropriate currency) until such time as that rate is discontinued when it will be replaced by the alternative risk free rate (all in ISDA fallback rate) compounded 3m in arrears. 2. World Stocks: MSCI World Net Total Return Index hedged to USD World Bonds: Bloomberg Barclays Capital Global Aggregate Bond Index. The indices shown are not benchmarks and are not representative of the Fund's investment strategy. Certain indices/measures mentioned on this page have been provided for information purposes only. They are intended to provide a comparative indication of particular asset classes, investment sectors, or financial markets more widely ("market backdrop"). Unless indicated otherwise, the investment process of the Fund is independent of these indices/measures. Source: Man Group database.

Man Group's Universe of Alternative Risk Premia

A multi-strategy, multi-asset approach for better diversification

Man Group brings an *alpha focus* to ARP implementation

Examining Alternative Risk Premia



Alternative risk premia have historically been uncorrelated to traditional assets and to one another[1]

Man's ARP/Liquid Alpha

- Man ARP strategies are the systematic alpha strategies from across the firm available at scale
- These ARP strategies include both classic and less-ordinary strategies
- The high capacity means that ARP can be delivered more cost-effectively than capacity constrained alpha

Any schematics, descriptions or information involving investment process or strategies are provided for illustration purposes only, may not be fully indicative of any present or future investments, may be changed at the discretion of the investment manager and are not intended to reflect performance. There is no guarantee of trading performance and past performance is no indication of current or future performance/results. See Important Information at the beginning of this document.

1. Understanding Style Premia, Israel and Maloney (2014).

Source: Man Group Database.

Investment strategies

A multi-strategy, multi-asset approach for better diversification

Man

Man Alternative Risk Premia is a unique reflection of Man Group's capabilities, expertise and experience

Strategy[1]	Investment Aim	Implementation	Asset Class: Single Stocks	Asset Class: Equity Indices	Asset Class: Fixed Income	Asset Class: FX	Asset Class: Comm.	Strategy Experience
Trend	Seeking to capture trends across multiple markets	Directional		✓	✓	✓	✓	1987
Macro	Seeking returns associated with seasonality, inflationary changes and lead/lag effects	Directional		✓	✓	✓	✓	2011
Currencies	Seeking to capture FX risk premia associated with carry, value and relative economic strength	Directional				✓		1992
Fixed Income	Seeking to capture risk premium associated with yield curve carry	Directional & Relative Value			✓			2007
Volatility	Seeking to capture the volatility risk premium in equity indices	Directional		✓				2006
Equity Market Neutral	Seeking to capture numerous equity market neutral alpha sources, including momentum, quality, value, sentiment, short-term reversion, seasonality and ESG factors	Relative Value	✓					1989
Equity Size	Seeking to capture small cap and quality premia	Relative Value	✓					2010
Low Beta	Seeking to capture risk premium associated with low beta stocks	Directional & Relative Value	✓	✓				2014

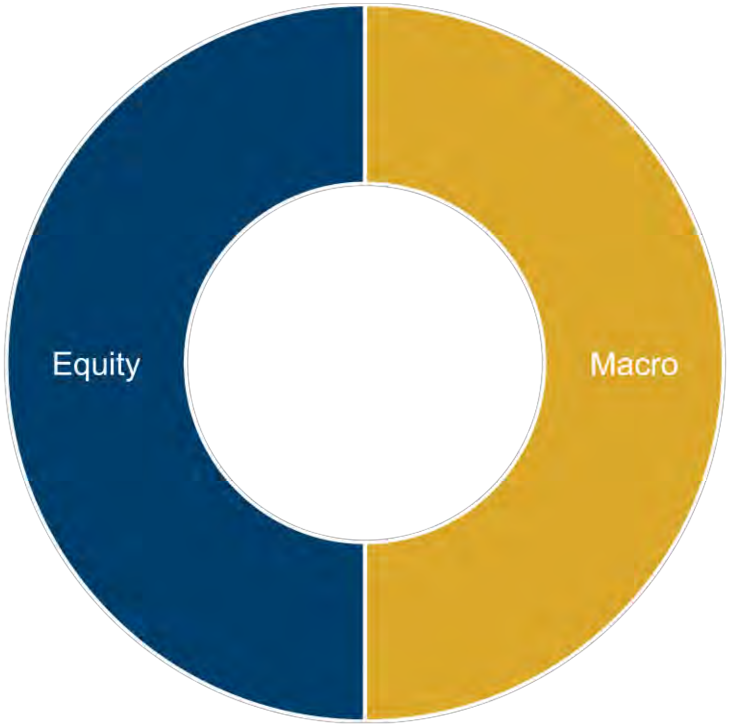
As at 31 March 2023. Any descriptions or information involving investment process or strategies are provided for illustration purposes only, may not be fully indicative of any present or future investments, may be changed at the discretion of the investment manager and are not intended to reflect performance. See Important Information at the beginning of this document. 1. The listed strategies are as follows: Trend, Macro, Currencies, Fixed Income and Volatility = AHL ARP Limited; Equity Market Neutral and Equity Size = Man Numeric Alternative Risk Premia Equities; and Low Beta = Man Numeric Alternative Risk Premia Low Beta. Please note these strategies are not available for separate investment.

Source: Man Group Database.

Applying proprietary portfolio construction techniques to achieve diversification

ARP's risk allocation methodology stands on Man Group's well-honed portfolio construction expertise

Risk allocation

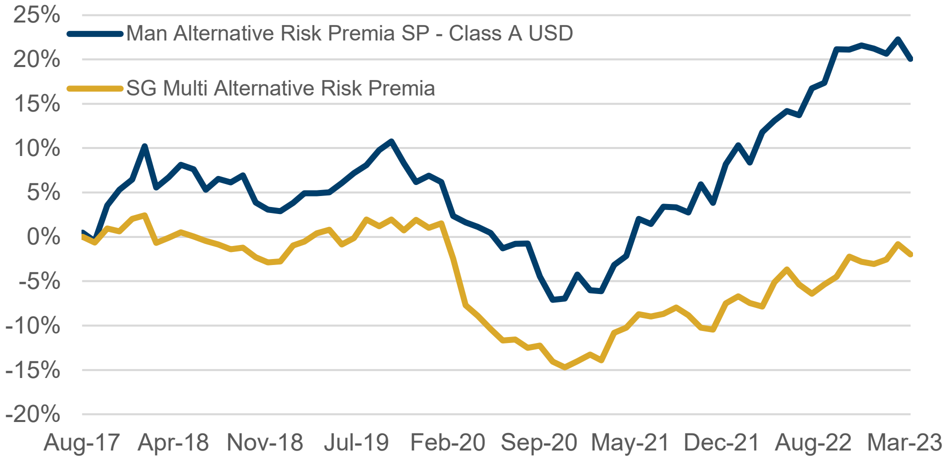


- The following strategies are extracted from both the Macro and Equity buckets:
  - Macro: Volatility, Macro, Fixed Income, Currencies & Trend
  - Equity: Equity Market Neutral, Size and Low Beta
- Risk balanced approach focuses on the propensity for extreme simultaneous losses
  - Strategy risk is not merely defined by volatility
- Strategies with greater tendency for concurrent loss are clustered to share a common risk budget
  - Not simple groupings by correlations
- Continuously rebalanced

Any descriptions or information involving investment process or strategies is provided for illustration purposes only, may not be fully indicative of any present or future investments, may be changed in the discretion of the investment manager and are not intended to reflect performance. Portfolio allocations are selected by, and will vary in the sole discretion of, the Fund's investment manager and are subject to availability and market conditions, among other things. Target allocations are subject to change without prior notice. Operational cash not shown. See Important Information at the beginning of this document. Source: Man Group Database.

Performance analysis

Performance (30 August 2017 – 31 March 2023)



	ARMB Alternative Risk Premia – Class A (USD)[1]	SG Risk Premia Index[2]
Total Return	**20.08%**	-1.97%
Man ARP Total Return Since Inception (Sep 2015)[3]	**35.26%**	6.76%
Annualized return	**3.33%**	-0.36%
Annualized volatility	**6.56%**	5.26%
Sharpe ratio[4]	**0.23**	-0.35
Beta to World Stocks[5]	**0.10**	0.08
Beta to World Bonds[5]	**-0.05**	-0.12
Maximum drawdown	**-16.25%**	-16.71%

Man ARP Class A USD Monthly Returns (%)[1]

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD	YTD SG Index[2]
2023[6]	-0.47	1.36	-1.80										**-0.93**	1.10
2022	1.98	-1.75	3.15	1.17	0.94	-0.41	2.68	0.51	3.22	-0.03	0.41	-0.32	**12.03**	4.83
2021	-1.86	-0.09	3.13	1.05	4.25	-0.56	1.91	-0.04	-0.57	3.09	-1.96	4.18	**12.98**	7.55
2020	-0.69	-3.59	-0.69	-0.51	-0.68	-1.71	0.52	0.03	-3.74	-2.77	0.16	2.91	**-10.43**	-14.87
2019	0.92	1.05	-0.01	0.11	1.00	1.06	0.82	1.59	0.86	-2.21	-1.95	0.67	**3.90**	3.88
2018	3.53	-4.22	1.09	1.32	-0.46	-2.15	1.16	-0.38	0.77	-2.86	-0.78	-0.18	**-3.37**	-4.68
2017[6]								0.48	-0.97	4.06	1.72	1.09	**6.46**	2.02

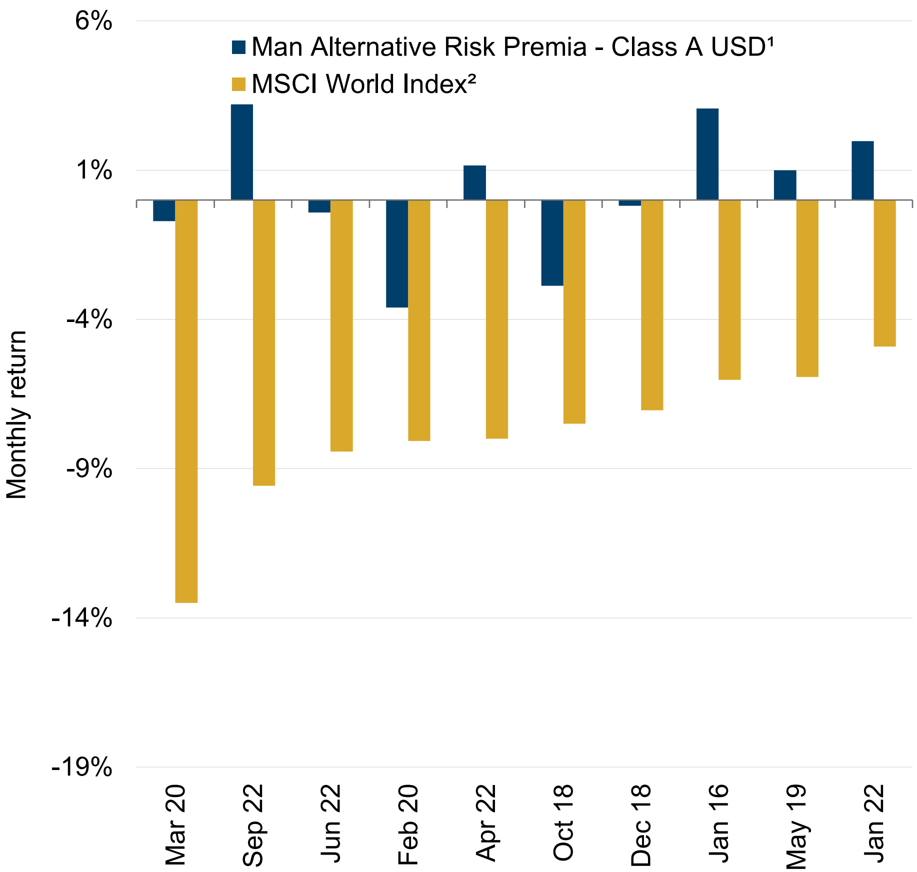
1. Performance data shown since ARMB initial investment August 30, 2017 to March 31, 2023. Represents Man Alternative Risk Premia Class A USD. The data is based on a representative investment product or products that follow the strategy. Other vehicles and/or mandates may have followed the same strategy over the period. ARMB's management fee structure has been applied to the returns data. 2. SG Multi Alternative Risk Premia Index. The indices shown are not benchmarks and are not representative of the Fund's investment strategy. Certain indices/measures mentioned on this page have been provided for information purposes only. They are intended to provide a comparative indication of particular asset classes, investment sectors, or financial markets more widely ("market backdrop"). Unless indicated otherwise, the investment process of the Fund is independent of these indices/measures. Returns have been calculated since September 1 2017 as daily returns are not available for selected indices. 3. Date range: 11 September 2015 – 31 March 2023. 4. Sharpe ratio is a measure of risk-adjusted performance that indicates the level of excess return per unit of risk. It is calculated using the risk-free rate in the appropriate currency over the period analyzed. Where an investment has underperformed the risk-free rate, the Sharpe ratio will be negative. As the Sharpe ratio is an absolute measure of risk-adjusted return, negative Sharpe ratios can be misleading and are therefore shown as n/a. The risk free rate is typically Libor/Euribor 3month deposit rate (in the appropriate currency) until such time as that rate is discontinued when it will be replaced by the alternative risk free rate (all in ISDA fallback rate) compounded 3m in arrears. 5. World Stocks: S&P 500 Net Total Return. World Bonds: Bloomberg Barclays Capital Global Aggregate Bond Index. 6. Part year performance. Source: Man Group Database and Bloomberg.

Man Alternative Risk Premia – upside / downside participation

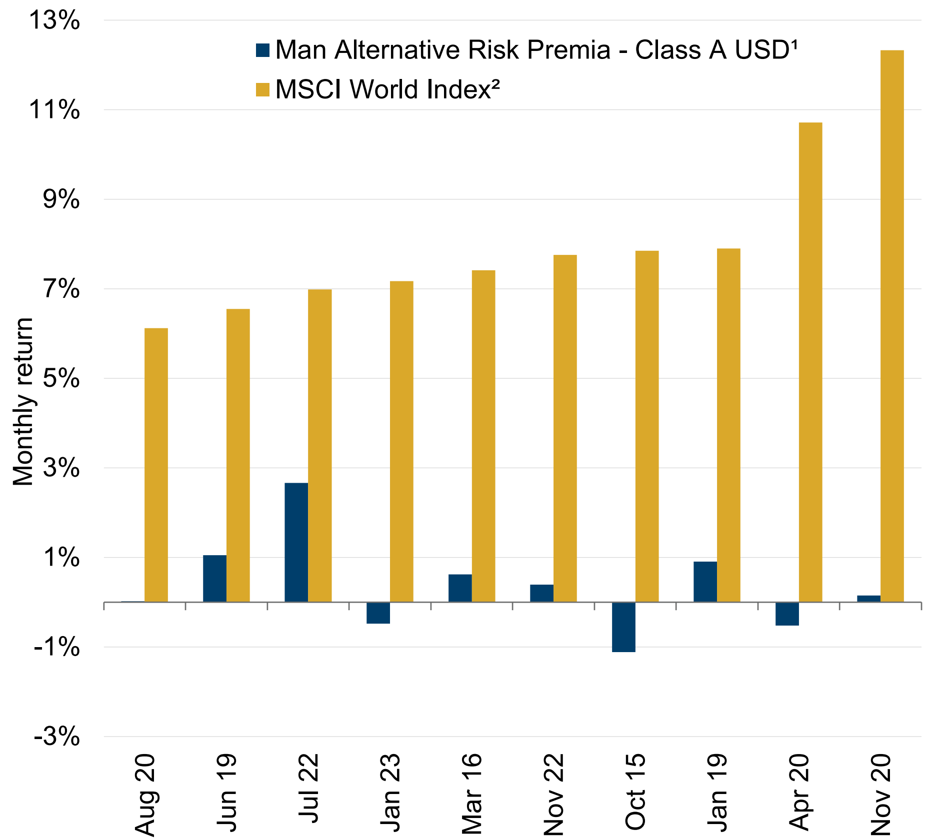
Versus MSCI World Index

Man ARP – Class A USD (11 September 2015 to 31 March 2023)

Monthly returns in 10 worst months for MSCI World Index



Monthly returns in 10 best months for MSCI World Index

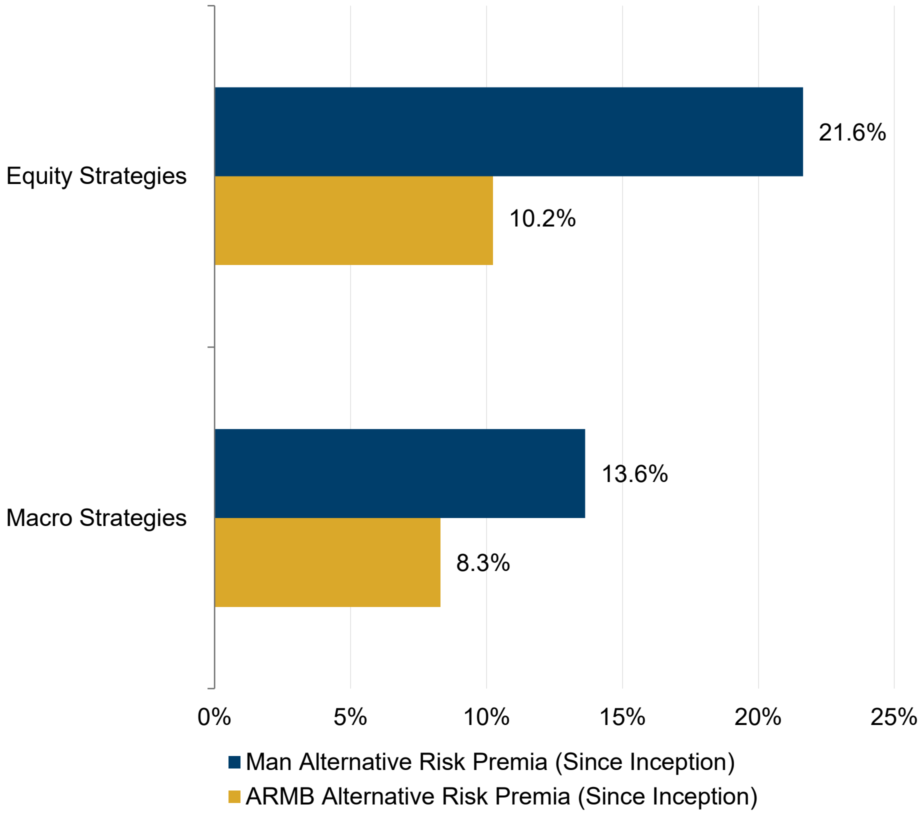


Past performance is not indicative of future results. Returns may increase or decrease as a result of currency fluctuations.

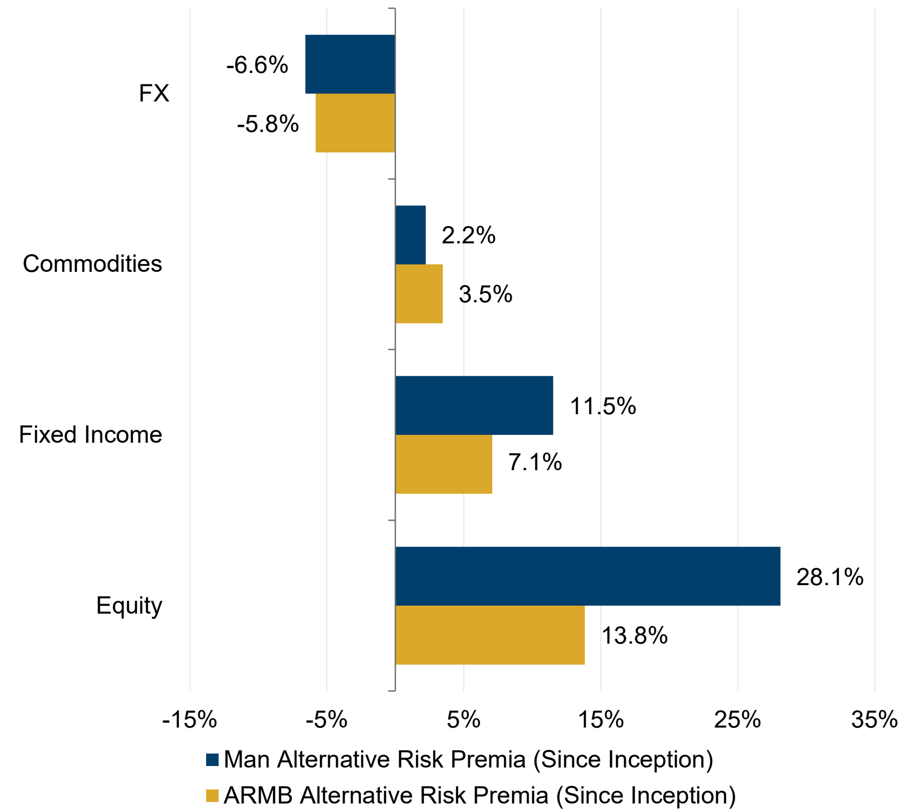
1. Man Alternative Risk Premia SP Class A USD. Performance data is shown net of the maximum 1% management fee with income reinvested, and does not take into account sales and redemption charges where such costs are applicable. 2. MSCI World Index. The index shown is not a benchmark and is not representative of the Fund's investment strategy. The information is shown for comparison purposes only. The periods selected are exceptional and the results do not reflect typical performance. Source: Man Group Database and Bloomberg.

Man Alternative Risk Premia

Net contributions by strategy type[1]



Net contributions by asset class[1]



Past performance is not indicative of future results. Returns may increase or decrease as a result of currency fluctuations.

1. Man Alternative Risk Premia SP Class A USD net contributions since inception 11 September 2015 to 31 March 2023. ARMB Alternative Risk Premia since inception 30 August 2017 – 31 March 2023. Please note the Strategies are not available for direct, separate investment. Strategy contributions shown are net of the maximum 1% management fee. Net-of-fees attribution and/or contribution figures have been included to meet regulatory requirements. The analysis is calculated on a gross basis with the difference between net and gross resulting from fees, expenses and other portfolio returns not captured by the underlying gross data. The net figures have been derived by apportioning this difference weighted by the underlying strategy allocations. Net-of-fee attribution and/or contribution is not representative of actual results, and should not be relied upon when making investment decisions. Source: Man Group Database.

Man Alternative Risk Premia

Expertise and technology seeking to offer high quality alternative risk premia strategies

Alpha Expertise

- Man Group runs approximately **USD 92.7 billion[1] in systematic strategies**
- Researching, developing and trading systematic strategies since 1987 – with emphasis on **diversification**
- 30 years' experience of **risk oversight and portfolio construction** helps implement strategies at high capacity
- Robust approval process and **fiduciary oversight**

Execution Technology

- We believe that state-of-the art systematic strategies necessitate **state-of-the art technology** at all stages
- Aim to **keep trading costs at an absolute minimum**
- Man Group's alternative risk premia strategies are therefore **executed in-house, on equal footing with other strategies**
- Pioneer in systematic trading for more than **35 years**
- Over **400 markets** traded daily, with 40 counterparties

Any descriptions or information involving investment process or strategies are provided for illustration purposes only, may not be fully indicative of any present or future investments, may be changed at the discretion of the investment manager and are not intended to reflect performance. See Important Information at the beginning of this document.

1. Combined Total Assets of Man AHL and Man Numeric as at 31 March 2023. AHL's Total Assets reflect AUM. Where a client's strategy has higher volatility than the program; AUM is a multiple of cash invested from the client reflecting the applied leverage factor. Man Numeric firm total assets are USD 36.8 billion (Total assets exclude approximately USD 1.3 billion in leveraged assets which are included on Man Group's trading statement). Total Assets reflect AUM which includes leveraged assets. Total Assets and AUM include assets under management and advisement. Assets under management represent the aggregate fair value of all discretionary and non-discretionary assets, including fee paying and non-fee paying portfolios. Assets under advisement represent advisory-only assets over which the firm has no decision making or trading authority. Source: Man Group Database

Appendix

An overview of Man Group[1]

- A global investment management firm focused on delivering performance for clients through a diverse spectrum of specialist active investment disciplines, empowered by the latest technology
- Individual performance-driven investment engines with centralized operations and services, managing around USD 144.7 billion[1]
- Large institutional client base, including sovereign wealth funds, endowments and pension funds
- Headquarters in London, with a network of global offices
- Actively engaged industry leader, a signatory of the UN-supported PRI and founding member of the Standards Board for Alternative Investments (former HFSB)

Man AHL	Man Numeric	Man GLG	Man GPM	Man FRM
▪ Systematic investment manager ▪ Offering absolute return and long-only quantitative funds ▪ One of the longest running systematic traders with over 30 years' experience ▪ Total assets USD 55.9 billion[2] ▪ Founded in 1987 ▪ 119 investment professionals	▪ Fundamentally driven quantitative asset manager ▪ Offering long-only, active extension and alternative equity and credit strategies across geographic regions, investment styles and capitalization strata ▪ Focus on risk adjusted alpha ▪ Total assets USD 36.8 billion[3] ▪ Founded in 1989 ▪ 53 investment professionals	▪ Discretionary investment manager ▪ Offering absolute return and long-only funds across asset classes, sectors and geographies ▪ Investment teams benefit from a collaborative environment and are unconstrained by a house view ▪ Total assets USD 27.0 billion[4] ▪ Founded in 1995 ▪ 116 investment professionals	▪ Private markets investment manager ▪ Offering residential real estate equity and debt, and credit risk sharing ▪ Investing across the capital structure in the US, UK and Europe ▪ Total assets USD 3.6 billion[5] ▪ Founded in 2010 ▪ 35 investment professionals[6]	▪ Global alternative investment specialist ▪ Flexible approach to building alternatives portfolio solutions through managed accounts, commingled strategies and advisory relationships ▪ Operates one of the largest independent dedicated managed account platforms ▪ Total assets USD 20.0 billion[7] ▪ Founded in 1991 ▪ 29 investment professionals

Man Solutions[8]

1. As at 31 March 2023. Throughout this presentation reference to 'Man' refers to all Man Group plc and its subsidiaries. Combined AUM of all affiliated Man investment managers. Unless otherwise stated Total Assets reflects the Assets Under Management (AUM) as stated and described in the Man Group Annual Report or the most recent Man Group Quarterly Trading Report and Statement. All investment management services are offered through Man affiliated investment managers. 2.Total Assets reflect AUM. Where a client's strategy has higher volatility than the program; AUM is a multiple of cash invested from the client reflecting the applied leverage factor. 3. Man Numeric firm total assets are USD 36.8 billion (Total assets exclude approximately USD 1.3 billion in leveraged assets which are included on Man Group's trading statement). Total Assets reflect AUM which includes leveraged assets. Total Assets and AUM include assets under management and advisement. Assets under management represent the aggregate fair value of all discretionary and non-discretionary assets, including fee paying and non-fee paying portfolios. Assets under advisement represent advisory-only assets over which the firm has no decision making or trading authority. 4. Total Assets reflect AUM which includes leveraged assets and includes advisory-only assets over which the firm has no decision making or trading authority. Total Assets and AUM include all affiliated GLG entities. 5. Total Assets include all commitments while AUM does not. Total assets and AUM include all affiliated GPM entities. This figure differs from Man Group's trading statement which excludes commitments. 6. As at 31 March 2023. 7. Man FRM firm total used here may be different from that quoted in the trading statement. Total Assets include assets managed by internal managers while AUM does not. Total Assets and AUM include investment management (advised) clients and dedicated managed account platform clients for whom FRM provides platform and risk management services but does not act as the investment manager. 8. Man Solutions primarily provides access to investment capabilities across the Man affiliated investment managers but from time to time may also provide access to non-affiliated investment managers on the FRM Approved List.

Risk Premia Strategy investment team

Experienced industry talent drawing from the wider resources of Man Group

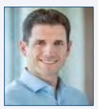
Man

Man Solutions Risk and Portfolio Committee

Darrel Yawitch	CRO	25 yrs experience
Rachael Herriott	Head of Investment Risk	16 yrs experience
Michael Turner	CEO Man Solutions	26 yrs experience
Adam Singleton	Head of Investment Solutions	21 yrs experience
Jens Foehrenbach	Managing Director	23 yrs experience
David Kingsley	Managing Director	21 yrs experience
Peter van Dooijeweert	Managing Director	28 yrs experience

Responsible for performance and management of Man Group's Risk Premia offering

Risk Management



Darrel Yawitch
CRO
25 yrs experience

+ 20 risk professionals

Risk Premia investment specialists

Man

Richard Barclay
Managing Director,
Man Solutions
11 yrs experience

Man | AHL

Otto van Hemert[1]
Director of Core Strategies,
Man AHL
15 yrs experience

Man | numeric

Jay Rajamony[1]
Head of Alternatives,
Man Numeric
23 yrs experience

+ 13 analysts

Trading Execution

Chris Woolley
Director of Trading
26 yrs experience

+ 59 trading professionals

Full support from Man Group's c. 1600 shared resources including:
Legal & Compliance (93) ■ Product & Client Operations (145) ■ Client Services (87) ■ Technology (422)

Schematic illustration. Headcount numbers as of 31 March 2023. 1. Investment specialists embedded within Man AHL and Man Numeric with specific responsibility for Risk Premia strategies.

Richard Barclay
Managing Director, Man Solutions

Richard Barclay is a managing director at Man Solutions, responsible for Man Group's Risk Premia portfolios.

Prior to his current role, Richard was working on portfolio construction within the investment solutions team at Man Solutions. Before that, he was responsible for due diligence on external quantitative hedge funds at Man FRM. Richard joined Man Group as a graduate in 2012.

Richard holds a BSc in Mathematics from the University of Southampton.

Trey Heiskell
Managing Director

Trey Heiskell is a Managing Director at Man Group, where he leads institutional business development and client relationship efforts in the Western United States.

He joined Man Group in January 2020. Before that, he was at BlackRock for 20 years, where he was most recently head of institutional investment strategy in the Americas for BlackRock's Factor-Based Strategies Group.

A former naval officer, Trey is a graduate of the United States Naval Academy. He is also a CFA charterholder.

Investor Considerations

Man

Prior to investing in the Fund investors should carefully consider the risks associated with investing, whether the Fund suits their investment requirements and whether they have sufficient resources to bear any losses which may result from an investment in the Fund. Investors should only invest if they understand the terms on which the Fund is offered. Investors should consider the following risks and where appropriate seek professional advice before investing:

Investment Objective Risk - There is no guarantee that the Fund will achieve its investment objective.

Market Risk - The Fund is subject to normal market fluctuations and the risks associated with investing in international securities markets. Therefore, the value of your investment and the income from it may rise as well as fall and you may not get back the amount originally invested.

Counterparty Risk - The Fund will be exposed to credit risk on counterparties with which it trades in relation to on-exchange traded instruments such as futures and options and where applicable, 'over-the-counter' ("OTC", "non-exchange") transactions. OTC instruments may also be less liquid and are not afforded the same protections that may apply to participants trading instruments on an organized exchange.

Currency Risk - The value of investments designated in another currency may rise and fall due to exchange rate fluctuations. Adverse movements in currency exchange rates may result in a decrease in return and a loss of capital. It may not be possible or practicable to successfully hedge against the currency risk exposure in all circumstances.

Liquidity Risk -The Fund may make investments or hold trading positions in markets that are volatile and which may become illiquid. Timely and cost efficient sale of trading positions can be impaired by decreased trading volume and/or increased price volatility.

Financial Derivatives Instruments - The Fund will invest financial derivative instruments ("FDI") (instruments whose prices are dependent on one or more underlying asset) to achieve its investment objective. The use of FDI involves additional risks such as high sensitivity to price movements of the asset on which it is based. The extensive use of FDI may significantly multiply the gains or losses.

Leverage Risk -The Fund's use of FDI may result in increased leverage which may lead to significant losses.

Emerging Markets - The Fund may invest a significant proportion of its assets in securities with exposure to emerging markets which involve additional risks relating to matters such as the illiquidity of securities and the potentially volatile nature of markets not typically associated with investing in other more established economies or markets.

Model and Data Risk - The Fund's Investment Manager relies on internally derived qualitative and quantitative trading models and algorithms. These quantitative trading models and algorithms may rely on data that is internally derived or provided by a third party. If a model or algorithm or the data consumed by these models or algorithms prove to be incorrect or incomplete, the Fund may be exposed to potential losses. The calculations and output of a models or algorithm can be impacted by unforeseen market disruptions and/or government or regulatory intervention, leading to potential losses.

A complete description of risks is set out in the Fund's prospectus.

www.man.com

Investment Policy

Man Alternative Risk Premia (the “Fund”) aims to achieve medium-term absolute returns in all market conditions across liquid asset classes. The Fund is managed to a set volatility target and aims to achieve a diversifying absolute return stream in a highly transparent, liquid and cost effective format. Our approach utilises a combination of Man Group's quantitative macro (Man AHL) and quantitative equity (Man Numeric) expertise and seeks to provide positive returns across varied market conditions, while remaining uncorrelated to traditional assets.

Given the systematic nature of the Fund, investment decisions and the asset allocation process is a systematic process, whereby Man Solutions' quantitative allocation framework is used to construct a portfolio targeting equal risk allocations, inversely weighted to inversely weighted to expected tail loss. At this stage of the process the Portfolio is subjected to a risk budgeting review through which the forecasted risks are studied to determine whether the overall risk target is being met; the expected returns justify the allocations and the downside risks that each position represents, and; whether there are any unacceptable concentrations of risk.

The Fund will seek to achieve its objective by allocating all or substantially all of its assets to underlying strategies which are grouped into four styles (i) Momentum, (ii) Carry, (iii) Value and (iv) Defensive. The underlying strategies invest in equities, fixed income, FX and commodities.

The Fund is actively managed. The Fund is not managed against any benchmark given it is an absolute return objective mandate.

Important disclosures

General

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Performance Disclosures

There can be no assurance that the Funds' investment objectives will be achieved, or that their historical performance is indicative of the performance they will achieve in the future. Performance for 2014 and 2015 is not yet audited and subject to change upon audit. Monthly performance numbers are not individually audited – just annual performance. Performance may differ based upon differences in contribution dates, fee structures and new issue eligibility. It should be noted that all performance reflects reinvestment of dividends and all other income and all performance is net of applicable fees and expenses. Net strategy attribution is calculated by allocating fees and expenses to each strategy on a pro rata basis according to the respective strategy's relative allocation size. Past performance is not indicative of future returns.

Risk Summary

All investments involve risks including the potential for loss of principal. Past performance does not guarantee similar future results. The Funds' investment objectives are not projections of expected performance or guarantees of anticipated investment results. Actual performance and results may vary substantially from the stated objectives with respect to risks. Investments in the Funds are speculative and are meant for sophisticated investors. Investors may lose all or a substantial part of their investment. There are no secondary markets for interests/shares in the Funds and none are expected to develop. There are also substantial restrictions on liquidity and transfers, so an investor may not have access to capital when it is needed. Certain of the Funds' managers may employ leverage or short selling, may purchase or sell options or derivatives and may invest in speculative or illiquid securities. It should be noted that fund of funds have multiple layers of fees and expenses that may offset profits.

Any projections, market outlooks or estimates made during this presentation are forward looking statements, are based upon the assumptions, views and analytical methods of Man, and should not be construed to be indicative of the actual events that will occur. Other events that were not taken into account may occur and may significantly affect the returns or performance of any Man fund. While all the materials prepared in connection with this presentation are believed to be accurate, and all data used in the preparation of such materials was obtained from sources that Man believes to be reliable, Man makes no express warranty as to the completeness or accuracy, nor can it accept responsibility for any errors, appearing in any of the materials used or otherwise discussed during this presentation. Any information regarding portfolio composition, investment restrictions or parameters discussed during this presentation can be changed at any time by Man in its sole discretion without notice to investors.

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Important Information

This material is of a promotional nature.

The value of an investment and any income derived from it can go down as well as up and investors may not get back their original amount invested. Alternative investments can involve significant additional risks.

This material is for information purposes only and does not constitute an offer or invitation to invest in any product for which any Man Group plc affiliate provides investment advisory or any other services. The content is not intended to constitute advice of any nature nor an investment recommendation or opinion regarding the appropriateness or suitability of any investment or strategy and does not consider the particular circumstances specific to any individual recipient to whom this material has been sent. Prior to making any investment decisions, investors should read and consider the fund's offering documents.

Opinions expressed are those of the author as of the date of their publication, and are subject to change.

Some statements contained in these materials concerning goals, strategies, outlook or other non-historical matters may be "forward-looking statements" and are based on current indicators and expectations at the date of their publication. We undertake no obligation to update or revise them. Forward-looking statements are subject to risks and uncertainties that may cause actual results to differ materially from those implied in the statements.

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Unless stated otherwise the source of all information is Man Group plc and its affiliates as of the date on the first page of this material.

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Unless otherwise indicated, any performance shown is unaudited, net of applicable management, performance and other fees, and expenses, presumes reinvestment of earnings and excludes investor specific sales and other charges. Fees may be modified or waived for certain investors. Please refer to each Investment Product's individual Investment Documents for more information regarding an Investment Product's fees, charges and expenses, which will offset an Investment Product's gains. Performance may vary substantially from year to year or even from month to month. An investor's actual performance and actual fees may differ from the performance information shown due to, among other factors, capital contributions and withdrawals/redemptions, different share classes and eligibility to participate in "new issues." The value of investments can go down as well as up.

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Portfolio, volatility or return targets or objectives, if any, are used solely for illustration, measurement or comparison purposes and as an aid or guideline for prospective investors to evaluate a particular investment program's strategies, volatility and accompanying information. Such targets or objectives reflect subjective determinations by the investment manager based on a variety of factors including, among others, the Investment Product's investment strategy and prior performance (if any), volatility measures, portfolio characteristics and risk, and market conditions. Volatility and performance will fluctuate, including over short periods, and should be evaluated over the time period indicated and not over shorter periods. Performance targets or objectives should not be relied upon as an indication of actual or projected future performance. Actual volatility and returns will depend on a variety of factors including overall market conditions and the ability of Numeric to implement an Investment Product's investment process, investment objectives and risk management. No representation is made that these targets or objectives will be achieved, in whole or in part, by any Investment Product.

Alternative investment risks and other disclosures

The investment products described herein are private investment funds and/or managed accounts sometimes referred to as "Alternative Investments". Alternative investments, depending upon their investment objectives and strategies, may invest and trade in many different markets, strategies and instruments (including securities, non-securities and derivatives) and are NOT subject to the same regulatory requirements as mutual funds, including mutual fund requirements to provide certain periodic and standardized pricing and valuation information to investors. There are substantial risks in investing in an Alternative Investment. You should note carefully the following:

- An Alternative Investment represents a speculative investment and involves a high degree of risk. Investors must have the financial ability, sophistication/experience and willingness to bear the risks of an investment in an Alternative Investment. An investor could lose all or a substantial portion of his/her/its investment.
- An investment in an Alternative Investment should be discretionary capital set aside strictly for speculative purposes.
- An investment in an Alternative Investment is not suitable for all investors. Only qualified eligible investors may invest in an Alternative Investment.
- An Alternative Investment's offering documents are not reviewed or approved by federal or state regulators and its privately placed interests are not federally or state registered.
- An investment in an Alternative Investment may be illiquid and there are significant restrictions on transferring or redeeming interests in an Alternative Investment. There is no secondary market for an investor's investment in an Alternative Investment and none is expected to develop. Substantial redemptions by shareholders within a limited period of time could compel an Alternative Investment to liquidate its positions more rapidly than otherwise would be desirable, which could adversely affect the value of the distribution proceeds and the value of the remaining interests in an Alternative Investment.
- The net asset value of an Alternative Investment may be determined by its administrator in consultation with its manager or advisor in certain cases. Certain portfolio assets may be illiquid and without a readily ascertainable market value. Since the value assigned to portfolio investments affects a manager's or advisor's compensation, the manager's or advisor's involvement in the valuation process creates a potential conflict of interest. The value assigned to such portfolio investments may differ from the value an Alternative Investment is able to realize.
- An Alternative Investment may have little or no operating history or performance and may use performance which may not reflect actual trading of the Alternative Investment and should be reviewed carefully. Investors should not place undue reliance on hypothetical, pro forma or predecessor performance.
- An Alternative Investment's manager or advisor has total trading authority over an Alternative Investment. The death or disability of the manager or advisor, or their departure, may have a material adverse effect on an Alternative Investment.
- An Alternative Investment may use a single advisor or employ a single strategy, which could mean a lack of diversification and higher risk. An Alternative Investment's performance may be volatile.
- An Alternative Investment may involve a complex tax structure, which should be reviewed carefully, and may involve structures or strategies that may cause delays in important tax information being sent to investors.
- An Alternative Investment's fees and expenses which may be substantial regardless of any positive return will offset such Alternative Investment's trading profits. If an Alternative Investment's investments are not successful, these payments and expenses may, over a period of time, deplete the net asset value of an Alternative Investment.
- An Alternative Investment and its managers/advisors may be subject to various conflicts of interest.

The above summary is not a complete list of the risks and other important disclosures involved in investing in an Alternative Investment and is subject to the more complete disclosures contained in such Alternative Investment's confidential offering documents, which must be reviewed carefully. This information is not intended to be or construed as an offer to sell, or a solicitation of an offer to buy, an interest in any Alternative Investment which may be made only by delivery of such Alternative Investment's confidential offering documents to qualified investors. Before making any investment, an investor should thoroughly review an Alternative Investment's confidential offering documents with their professional advisor(s) to determine whether an investment is suitable for them.

Each Fund's Offering Documents contain important information concerning risk factors, including a more comprehensive description of the risks and other material aspects of the investment (including a Fund's investment program and applicable fees and expenses), and should be read carefully before any decision to invest is made. You should not rely in any way on this summary.

MKT008120/NS/US/W

PineBridge Investments

Mandate: **Tactical Allocation** **Hired:** **2018**

Firm Information

PineBridge Investments is a private global asset manager focused on active high-conviction investing. The firm is majority-owned by a subsidiary of Pacific Century Group, an Asia-based private investment group. PineBridge was formerly the asset management division of AIG and has been independent since 2010.

As of 3/31/2023, the firm had $147 billion in assets under management.

Key Executives:
Michael Kelly, *Managing Director, Head of Multi Asset*
Sunny Ng, *Managing Director*
Deanne Nezas, *Managing Director*
Joy Booker, *Managing Director*
Joe Fague, *Senior Vice President*

Investment Approach

The PineBridge Global Dynamic Asset Allocation strategy is a multi-asset class portfolio whose objective is to deliver CPI +5% returns, with 200 bps of excess return over the benchmark, over a full market cycle.

The portfolio is constructed based on PineBridge's 5-year capital market line (CML). A portfolio risk level relative to the benchmark is set based on the assessment of the capital market line and investment convictions around an intermediate-term time horizon. An optimal portfolio is created based on this view with a preference for those asset classes with the highest expected Sharpe Ratios. The CML is updated on a quarterly basis.

The ARMB strategy allows for selective active management of underlying strategies resulting in more passive management than PineBridge's traditional portfolio. The purpose is to lower overall fees.

Benchmark: Blended Benchmark
60% MSCI ACWI and 40% Bloomberg Barclays Global Treasury until 3/31/2021 then, 70% MSCI ACWI, 30% Bloomberg Barclays US Aggregate Bond Index

Total ARMB Mandate

Assets Under Management ($millions):
3/31/2023: $536

Concerns: None

3/31/2023 Performance (net of fees)

	Last Quarter	1-Year	3-Years Annualized	5-Years Annualized
PineBridge	3.97%	-3.91%	9.71%	-
Benchmark	5.76%	-6.60%	8.20%	-

A Presentation to:

Alaska Retirement Management Board

June 2023

PineBridge Global Dynamic Asset Allocation

Joe Fague, CFA
Managing Director
Client Advisor
PineBridge Investments

Michael Kelly, CFA
Managing Director
Global Head of Multi-Asset
PineBridge Investments

Table of Contents

PineBridge® INVESTMENTS

Section I

Firm & Team Update

A Heritage of Active High Conviction Investing

PineBridge Investments

We are a **private, global asset manager** with a **focus on active, high conviction investing**

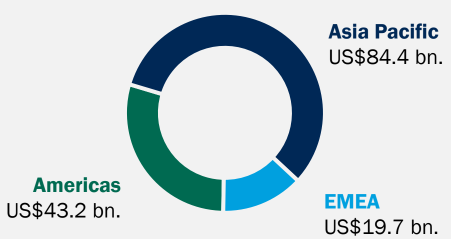
Independent since 2010, the firm draws on **decades of investment experience and a history** of managing money for sophisticated investors

Our clients include **corporate** and **public pensions, insurance companies, sovereign wealth funds, endowments and foundations, intermediaries** and **high net worth individuals**

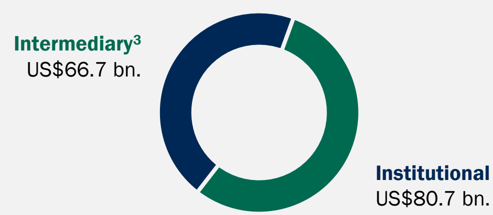
The firm has more than 700 employees, including approximately 230 investment professionals[1] in **25 office locations** around the world.

Total Firm AUM: US $147.4 bn.

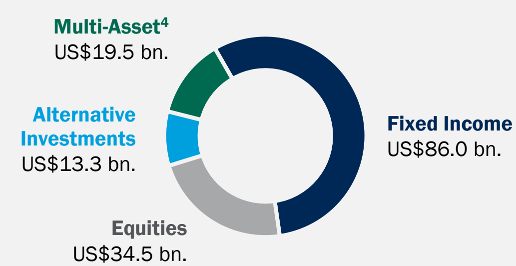
Client AUM By Region[2]



AUM by Channel[2]



Investment Capabilities[2]



Data as of 31 March 2023. [1] Investment professionals include portfolio managers, research analysts, traders, portfolio strategists and product specialists, and are subject to change. [2] US$47.3 billion (US$19.1 billion equities, US$20.3 billion fixed income, US$7.9 billion multi-asset) of assets managed by joint ventures or other entities not wholly owned by PineBridge Investments. Includes PineBridge Benson Elliot Real Estate AUM of US$4.1 billion. [3] Includes approximately US$400.0 million in retail assets. [4] Multi-Asset includes US$6.0 billion allocated opportunistically by the Multi-Asset team to PineBridge equity, fixed income and alternative strategies. Due to rounding totals are approximate.

A Global Team Approach

Experienced and Stable Team Leverages PineBridge's Ecosystem

Portfolio managers have an average of 25 years experience

Michael Kelly
Global Head of Multi-Asset
New York
38 Years of Experience

Strategy & Research

- **Hani Redha** – Managing Director, London
- **Steven Lin*** – Managing Director, New York
- **Mikhail Johaadien** – Senior Vice President, London
- **Jonathan DePeri** – Vice President, New York
- **Teresa Wang** – Senior Associate, London
- **Pranit Chordiya** – Senior Associate, Mumbai
- **Saurabh Gokhale** – Senior Associate, Mumbai
- **Ian Huynh** – Research Analyst, London

Manager Selection

- **Paul Mazzacano** – Managing Director, New York
- **Eric Hsing** – Assistant Vice President, Taipei
- **Henry Chang** – Assistant Vice President, Taipei
- **Allison Fang** – Assistant Vice President, Taipei
- **Priya Shah** – Associate, Mumbai

Portfolio Implementation

- **Peter Hu** – Managing Director, New York
- **Deanne Nezas** – Managing Director, New York
- **Austin Strube** – Senior Vice President, New York
- **Sean Jo** – Vice President, New York
- **Kaustubh Tiwari** – Associate, Mumbai
- **Mara Petersen** – Analyst, New York

Portfolio Strategy

- **Sunny Ng** – Managing Director, New York
- **Mary Nicola** – Managing Director, Singapore
- **Jonathan DiMola** – Senior Vice President, New York
- **Kimberly Tong** – Associate, Hong Kong
- **Kaveri Bachchhav** – Associate, Mumbai

Utilizing PineBridge's global network of investment professionals[1]

- **Fixed Income**
- **Equity**
- **Rates and Macro**
- **Global FX**
- **Alternatives**

As of 31 March 2023. [1]Investment professionals include portfolio managers, research analysts, traders, portfolio strategists, and product specialists; subject to change.
* Steven Lin has a dotted reporting lines to Michael Kelly in his role as Head of Risk

PineBridge® INVESTMENTS

Investment Process

Established, Methodical, and Repeatable Process

	Capital Market Line (5-Year Fundamental View)	Multi-Asset Strategy (Intermediate View)	Rigorous Portfolio Implementation
OBJECTIVE	• Identify attractively valued asset classes • Model cashflow and capitalization rate of 80 asset classes	• Decide level of risk to take • Determine attractive asset class's outlook over 9-18 months	• Build efficient portfolio • Select/monitor underlying strategies
FREQUENCY	Quarterly	Monthly	Daily
OUTPUT	• Expected asset class return and risk • Correlation on 5-year, forward-looking basis	• Risk positioning, the Risk Dial Score (RDS)[1] • Asset class convictions	• Final portfolio position based on convictions

[1]Numeric score determined by Investment Team indicative of its relative preference towards risk; 1 – most risk-seeking; 3 – neutral; 5 – most risk-averse.

PineBridge® INVESTMENTS

Section II

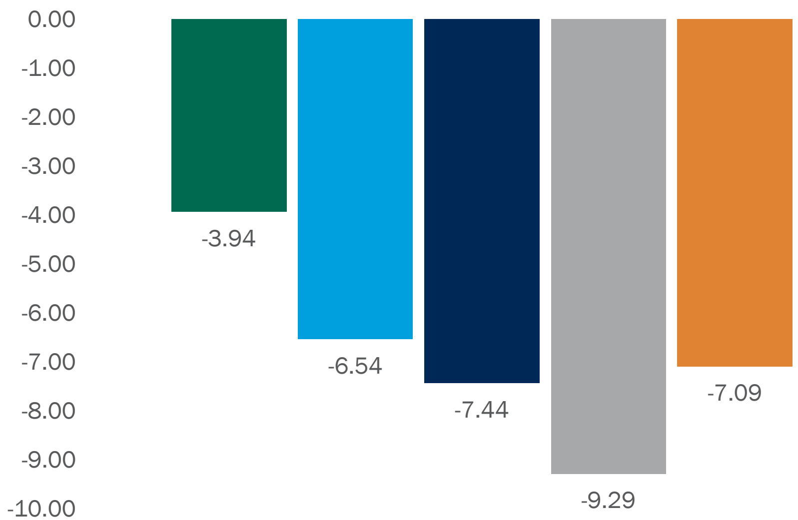
Performance Review

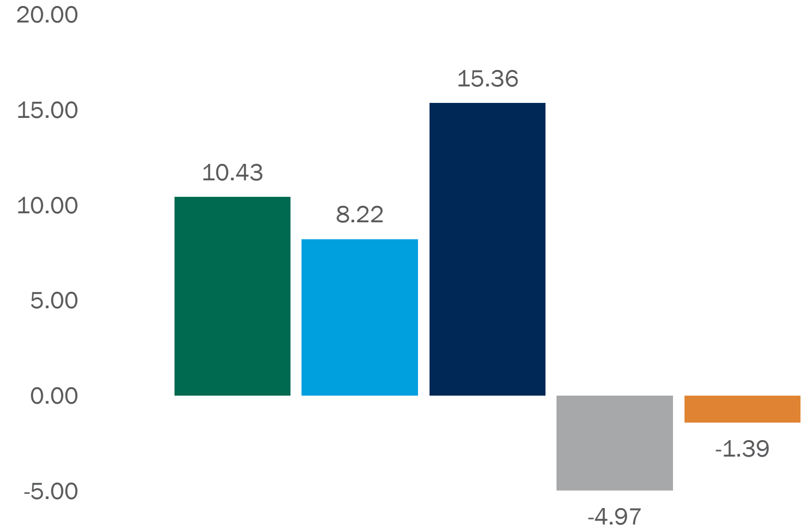
PineBridge® INVESTMENTS

Alaska Retirement Management Board
Performance as of 31 March 2023

Protecting on the downside when markets are challenged

Capturing most of the upside when markets are strong





ARMB (Net) | 70/30 | Global Equity[1] | Global Treasury[2] | Global Credit[3]

Annualized Volatility 1YR Rolling	
ARMB (Net)	12.55%
70/30 Risk Budget[4]	18.36%

Annualized Volatility 3YR Rolling	
ARMB (Net)	12.50%
70/30 Risk Budget[4]	13.57%

As of 31 March 2023. **Past performance is not indicative of future results.** [1]Based on MSCI ACWI NTR Index (USD Unhedged) [2]Based on Bloomberg Global Treasury TR Index (USD Unhedged) [3]Based on Bloomberg Global Agg Credit TR Index (USD Unhedged) 70/30 based on 70% MSCI All Country World IMI Index (Net) + 30% Bloomberg US Aggregate Index [4]The risk budget for the portfolio from inception through 3/31/2021 was 60% MSCI All Country World Index (Net) + 40% Bloomberg Global Treasury Total Return Index Value Unhedged. From 3/31/2021 to present the risk budget is 70% MSCI All Country World IMI Index (Net) + 30% Bloomberg US Aggregate Index.

PineBridge® INVESTMENTS

Alaska Retirement Management Board

As of 31 March 2023

	Market Value	Inception Date	QTD	1 Year	3 Year	Since Inception (Annualized)
Alaska Retirement (Net)	$ 535,344,793	10/31/2018	4.13%	-3.94%	10.43%	4.39%
70/30 Risk Budget (1)			5.80%	-6.54%	8.22%	5.88%
CPI +5% (2)			2.01%	7.97%	7.39%	7.28%
Over/Under Performance of CPI +5%			2.12%	-11.91%	3.04%	-2.89%

(1) The risk budget for the portfolio from inception through 3/31/2021 was 60% MSCI All Country World Index (Net) + 40% Bloomberg Global Treasury Total Return Index Value Unhedged. From 3/31/2021 to present the risk budget is 70% MSCI All Country World IMI Index (Net) + 30% Bloomberg US Aggregate Index. Performance for periods less than one year is not annualized. Past performance is not indicative of future results.

(2) CPI measured as the 5-year rolling average US Consumer Price Index ("CPI") Urban Consumers, less Food and Energy, plus 5% annualized ("CPI+5%"); rebalanced monthly. The CPI is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services.

*Performance includes the period October 31, 2018 – Current report date.

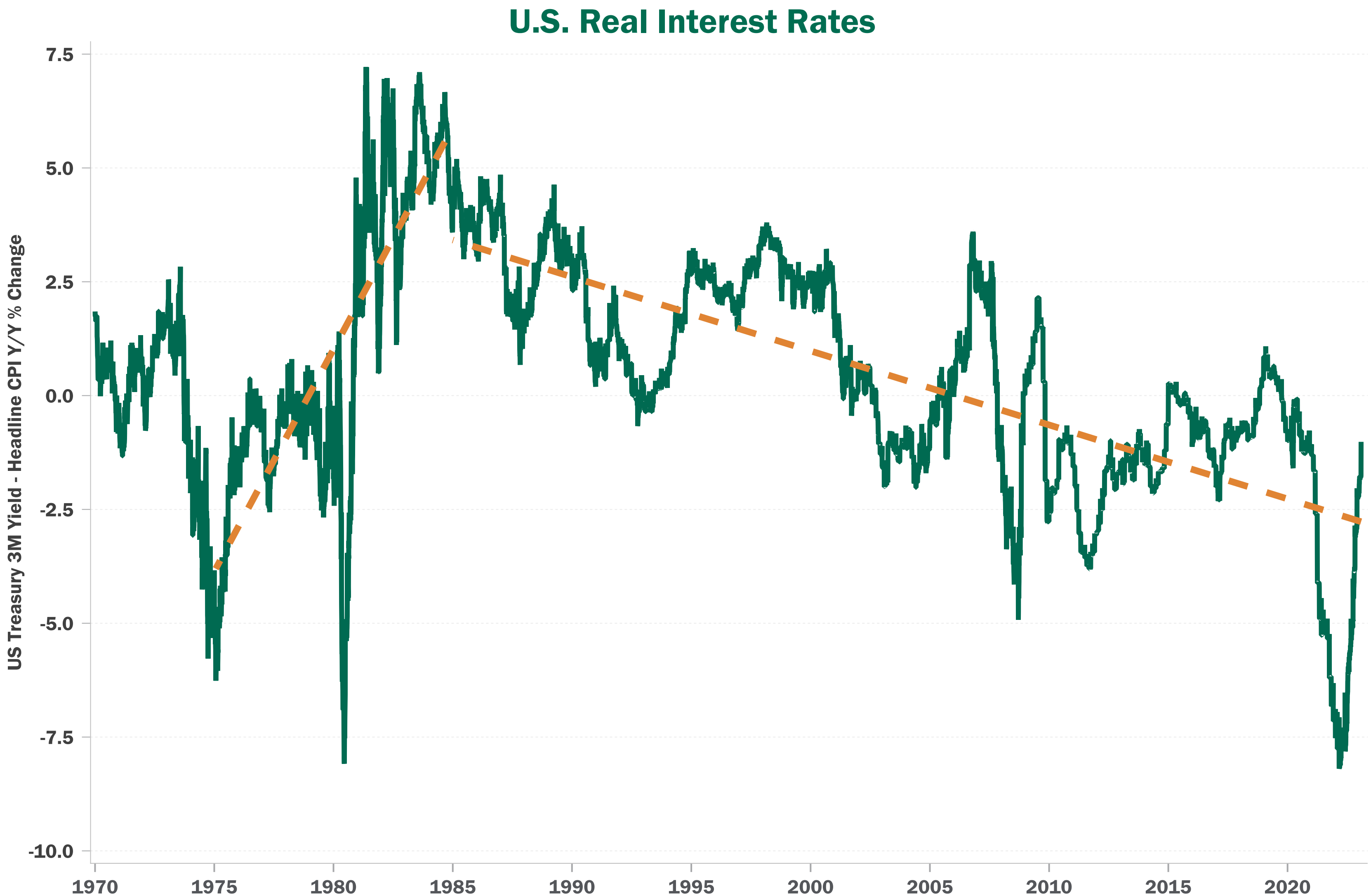
PineBridge® INVESTMENTS

Section III

Investment Outlook

2022 = Rapid Transition In Valuations Into Rising Real Yield Regime

2023 = Slower Transition to Fallout From Economy and Related Repricing of Risk

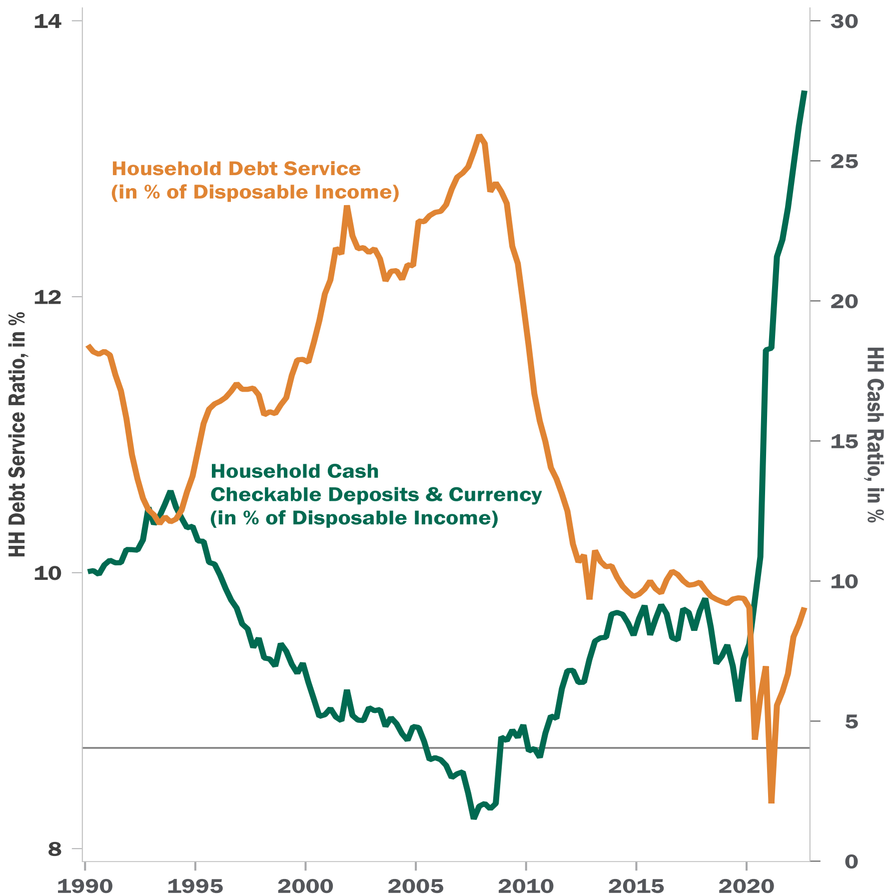


Source: March 1st, 2023. Bloomberg, Macrobond, US Real Interest Rates. For illustrative purposes only. We are not soliciting or recommending any action based on this material. Any opinions, projections, forecasts, or forward-looking statements represent the views of the manager, are valid only as of the date of this presentation and are subject to change.

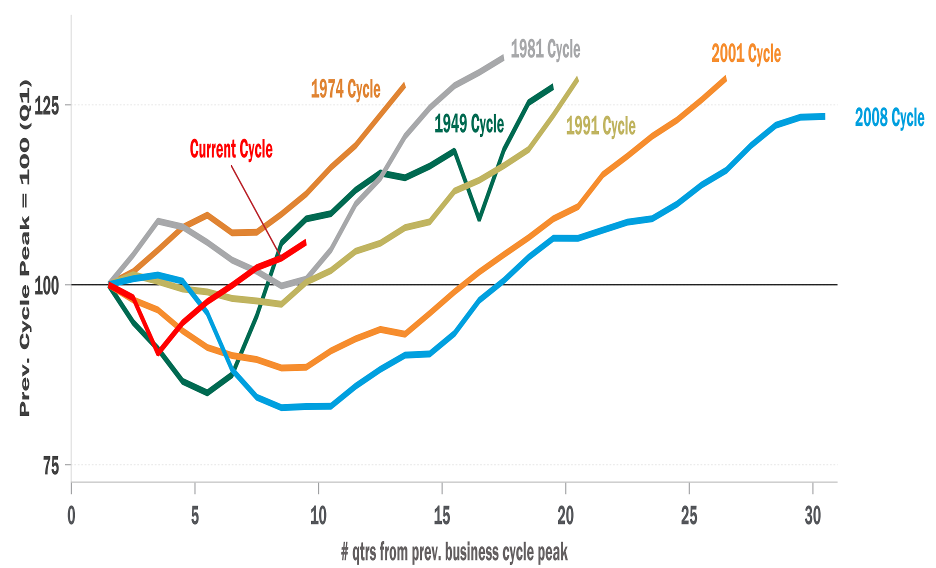
Never Faced Secular Stagnation Nor The Need For Perpetual Monetary Crisis Mode

Slow Fall Out in 2023 Since Consumers & Business are No Longer Fragile

Low US household debt service and cash as a % of income signals there is plenty of fire power to spend



US Seeing Strongest Capex Cycle in 25 Years

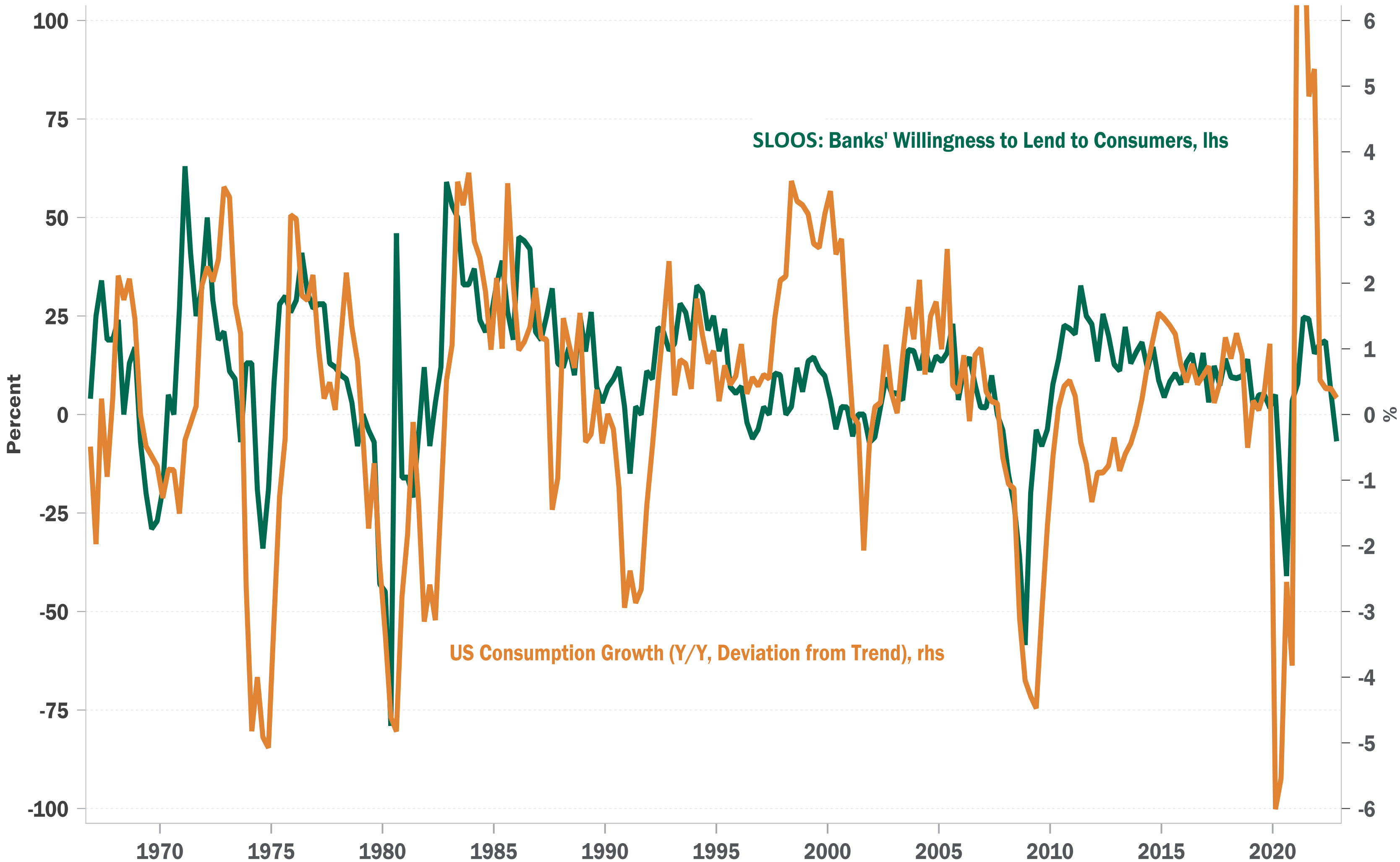


Source: 4Q 2022. Macrobond, Eurostat. US Household Debt Service, US Household Cash, Europe Household and Non-Financial Corporation Deposits. For illustrative purposes only. We are not soliciting or recommending any action based on this material. Any opinions, projections, forecasts, or forward-looking statements represent the views of the manager, are valid only as of the date of this presentation and are subject to change.

PineBridge® INVESTMENTS

Monetary Policy Lags

Credit cycle is turning on the Consumer

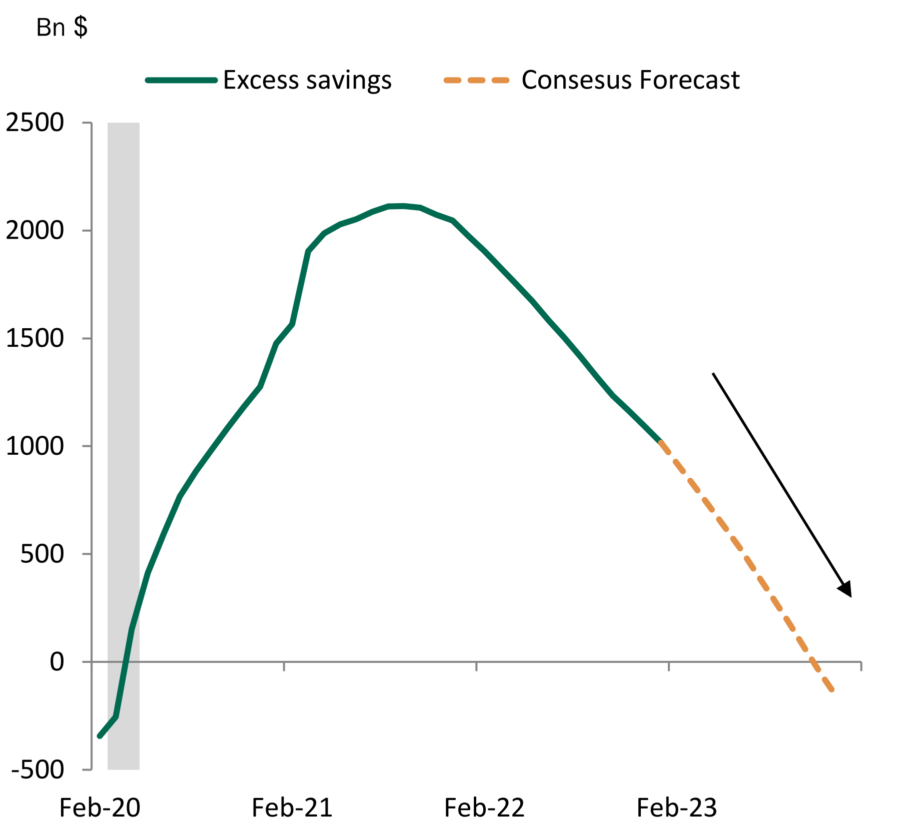


Source: February 28th 2023. Bloomberg, Macrobond, SLOOS and US Consumption Growth. For illustrative purposes only. We are not soliciting or recommending any action based on this material. Any opinions, projections, forecasts, or forward-looking statements represent the views of the manager, are valid only as of the date of this presentation and are subject to change.

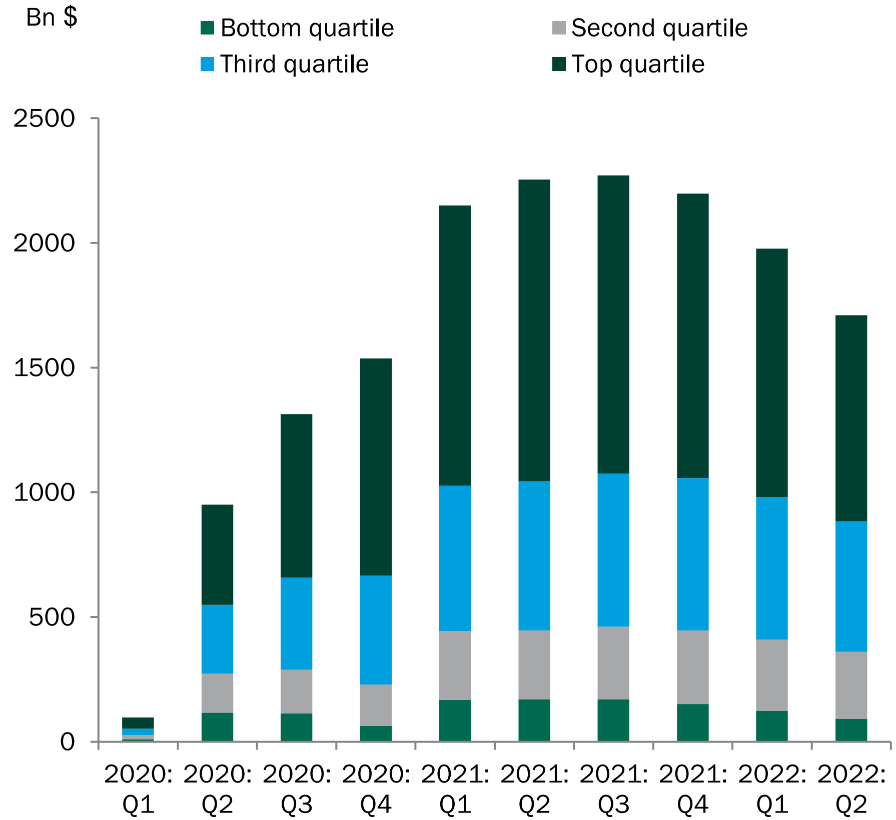
Excess Savings will run out by Q3 2023

Run Rate of Loan Growth from Cards Currently 20%

Excess savings



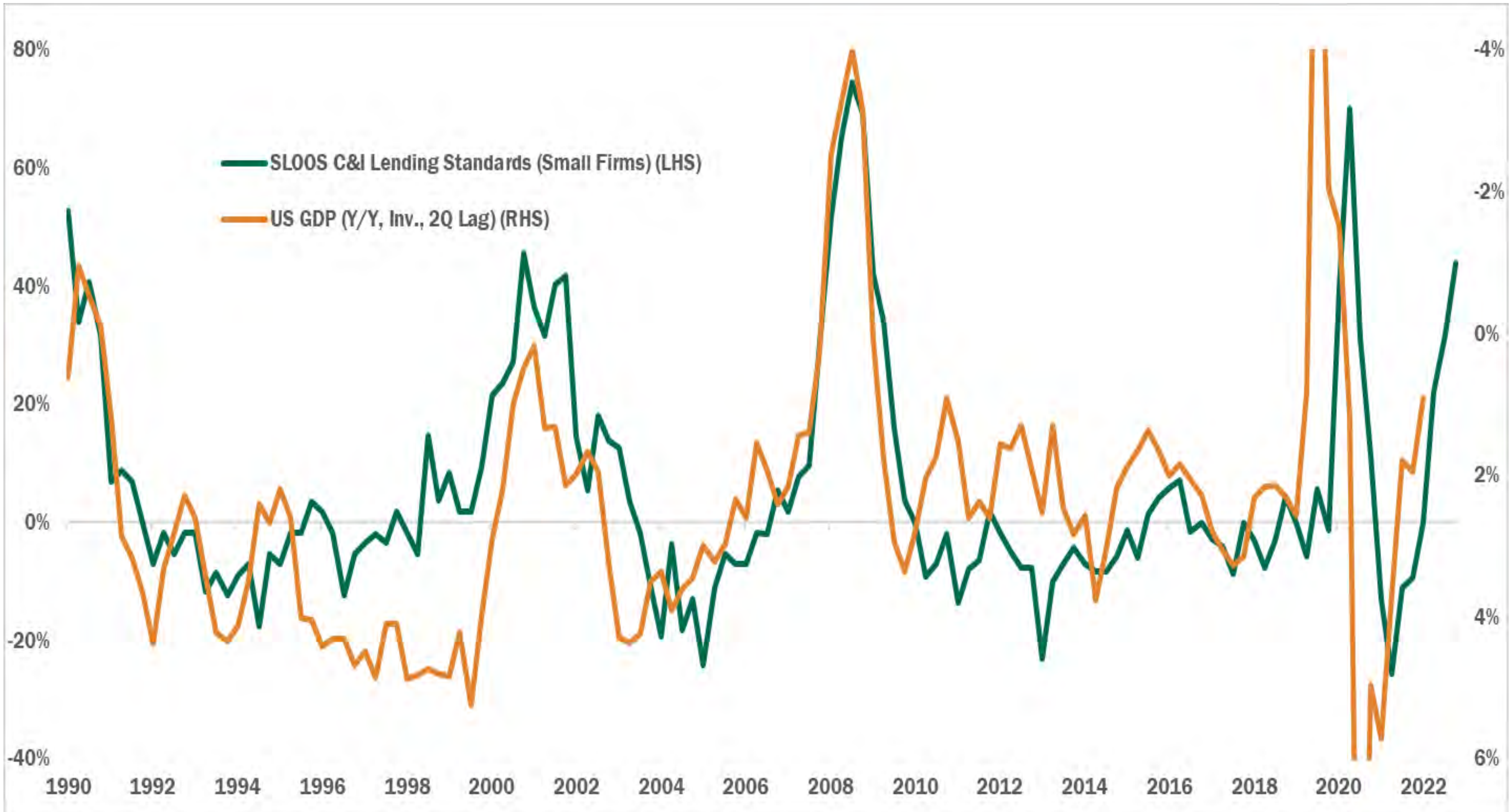
Stock of excess savings by income quartile:



Source: February 28th, 2023. Deutsche Bank. For illustrative purposes only. We are not soliciting or recommending any action based on this material. Any opinions, projections, forecasts, or forward-looking statements represent the views of the manager, are valid only as of the date of this presentation and are subject to change.

Monetary Policy Lags

Credit cycle is turning on C&I growth (before nuancing for CRE and SME)



Source: February 28th 2023. Bloomberg, Macrobond, SLOOS and US GDP. For illustrative purposes only. We are not soliciting or recommending any action based on this material. Any opinions, projections, forecasts, or forward-looking statements represent the views of the manager, are valid only as of the date of this presentation and are subject to change.

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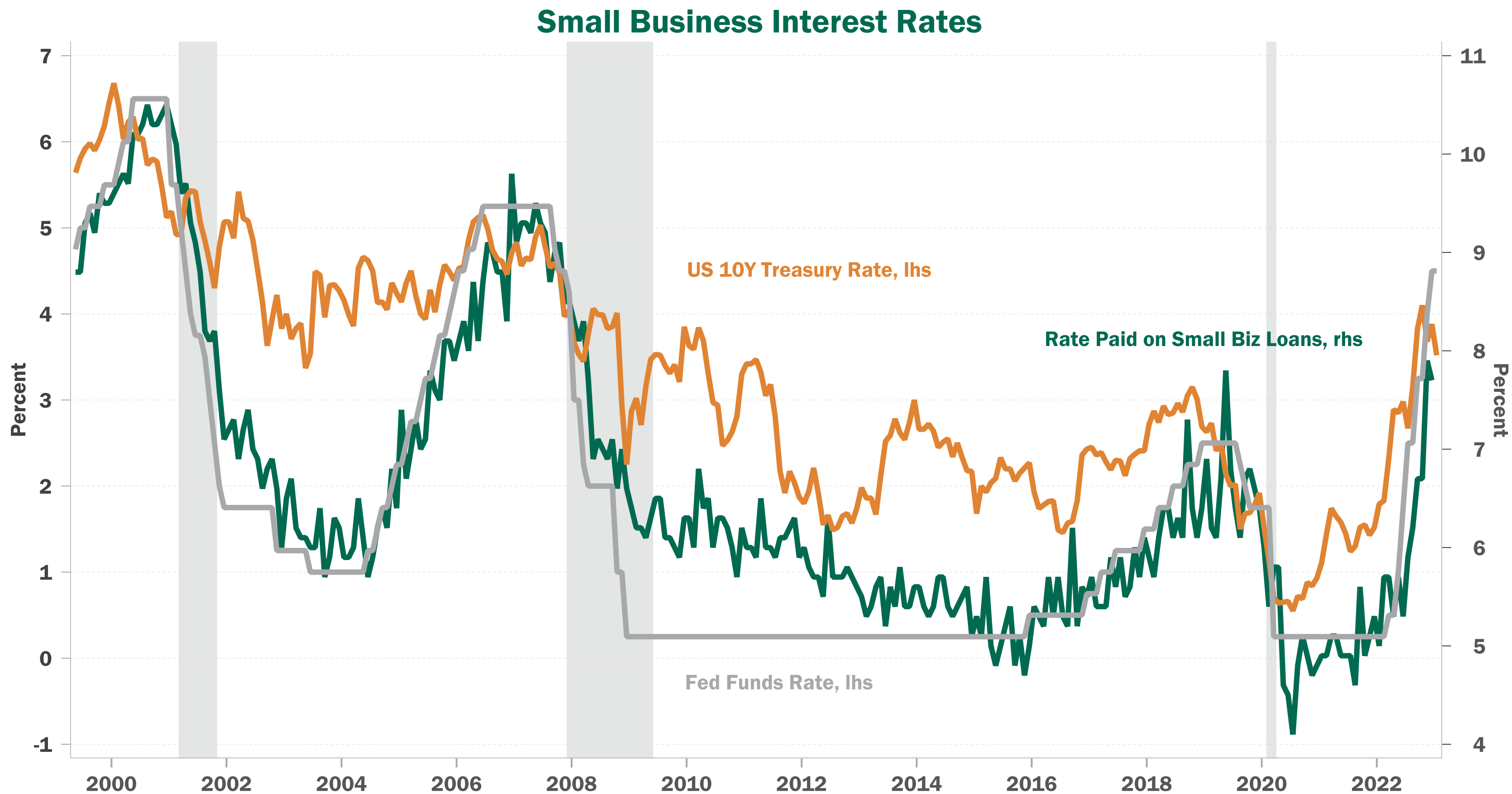
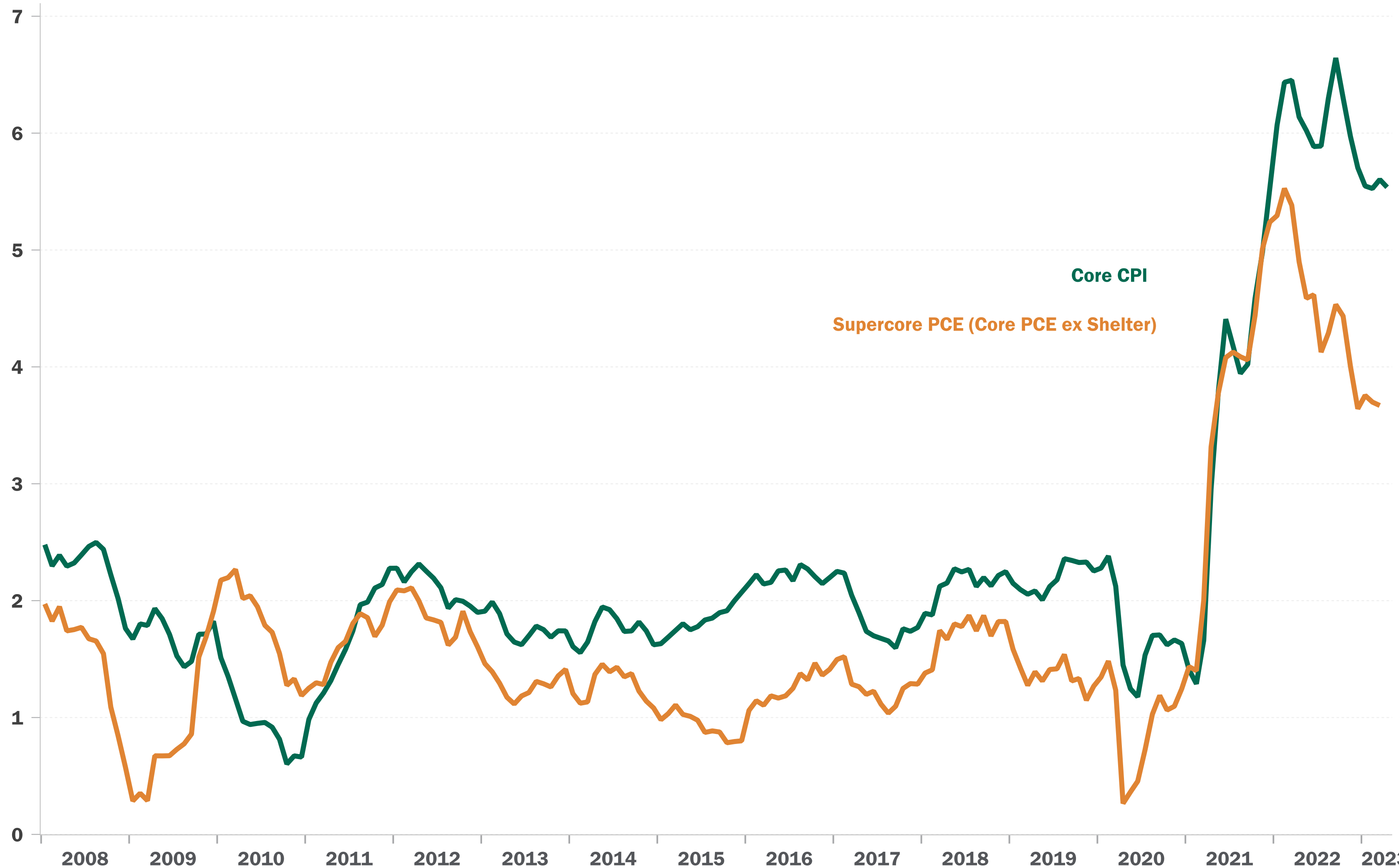
Small Business:
Pain is coming



Source: February 28th 2023. Bloomberg, Macrobond, US 10Y Treasury Rate, Rate Paid on Small Business Loans. For illustrative purposes only. We are not soliciting or recommending any action based on this material. Any opinions, projections, forecasts, or forward-looking statements represent the views of the manager, are valid only as of the date of this presentation and are subject to change.

Sticky Supercore Inflation: Low Odds of BS Recession with Delevering
(1950's into 60's; New Cold War Driving De-globalization; Shrunken Work Forces)

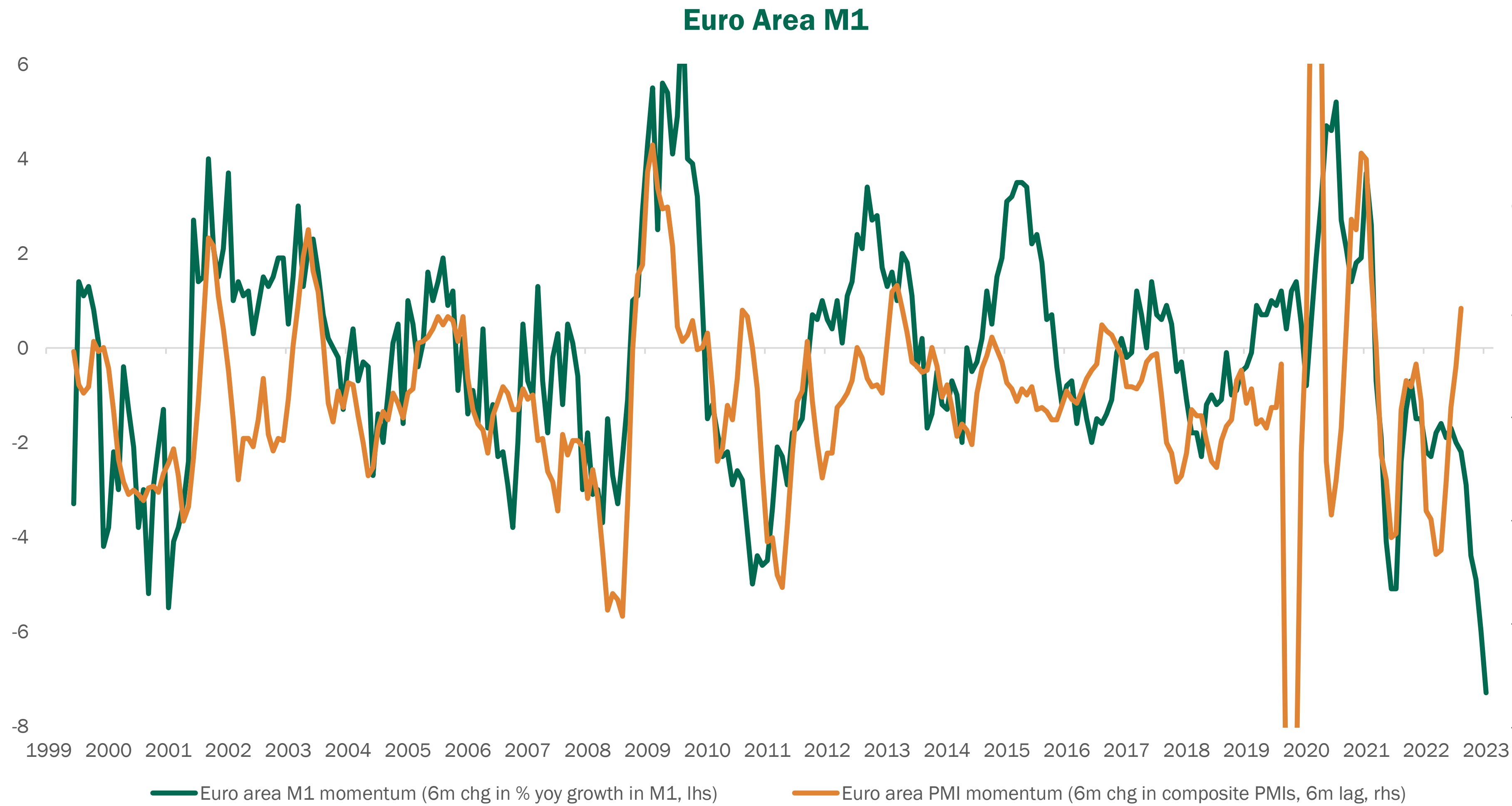


Source: April 30th 2023. Macrobond, Core CPI, Supercore PCE. For illustrative purposes only. We are not soliciting or recommending any action based on this material. Any opinions, projections, forecasts, or forward-looking statements represent the views of the manager, are valid only as of the date of this presentation and are subject to change.

PineBridge® INVESTMENTS

Euro Area PMI vs Euro Area Credit Conditions

Lags take a bit longer, US is the weak spot for a change

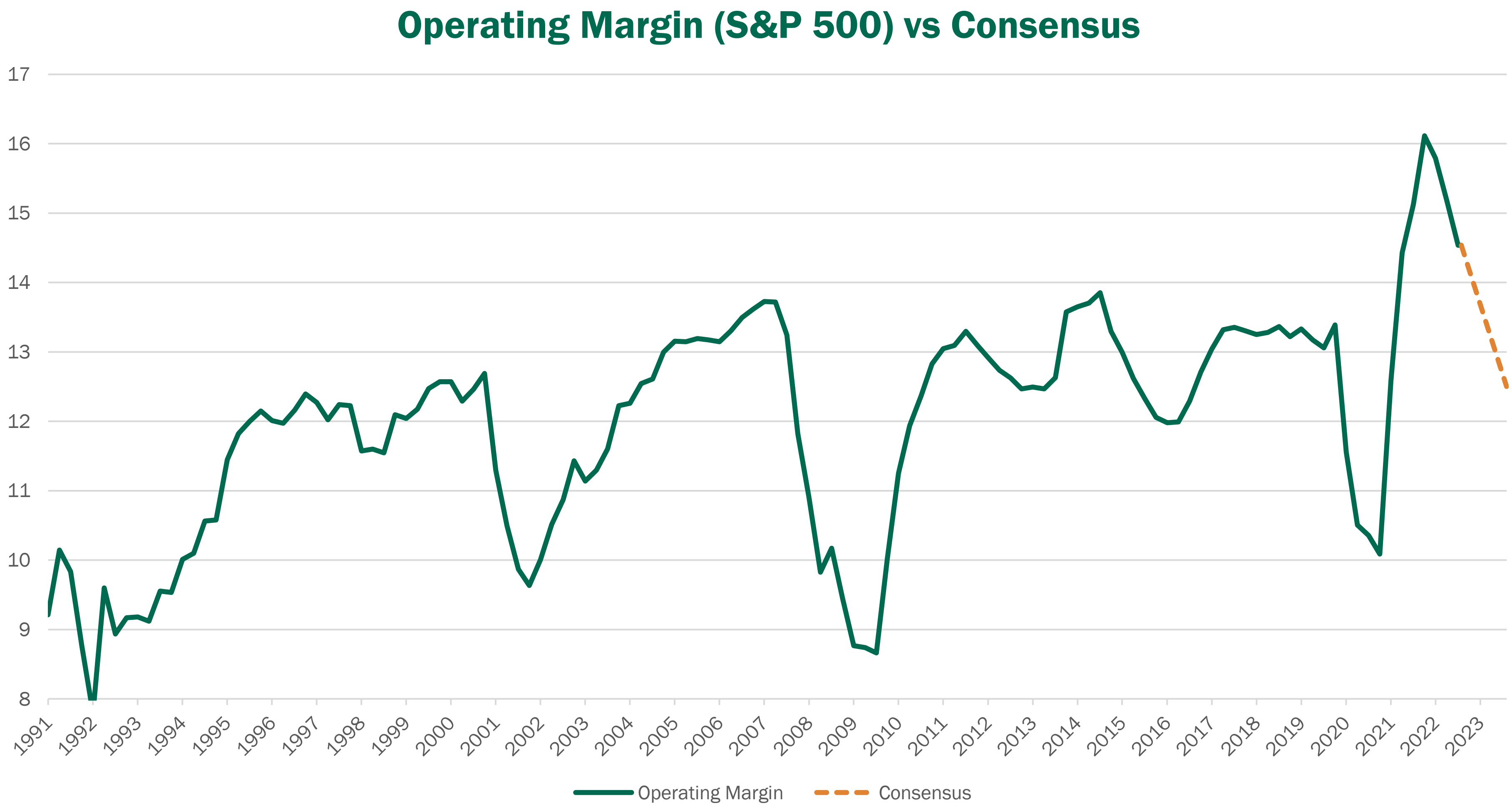


Source: February 28th 2023. Macrobond, Euro Area M1 Momentum & Euro Area PMI Momentum. For illustrative purposes only. We are not soliciting or recommending any action based on this material. Any opinions, projections, forecasts, or forward-looking statements represent the views of the manager, are valid only as of the date of this presentation and are subject to change.

PineBridge® INVESTMENTS

Consensus prices in margins just below prior cycle highs

Why isn't the mild 2001-2002 Income Statement recession a better barometer?

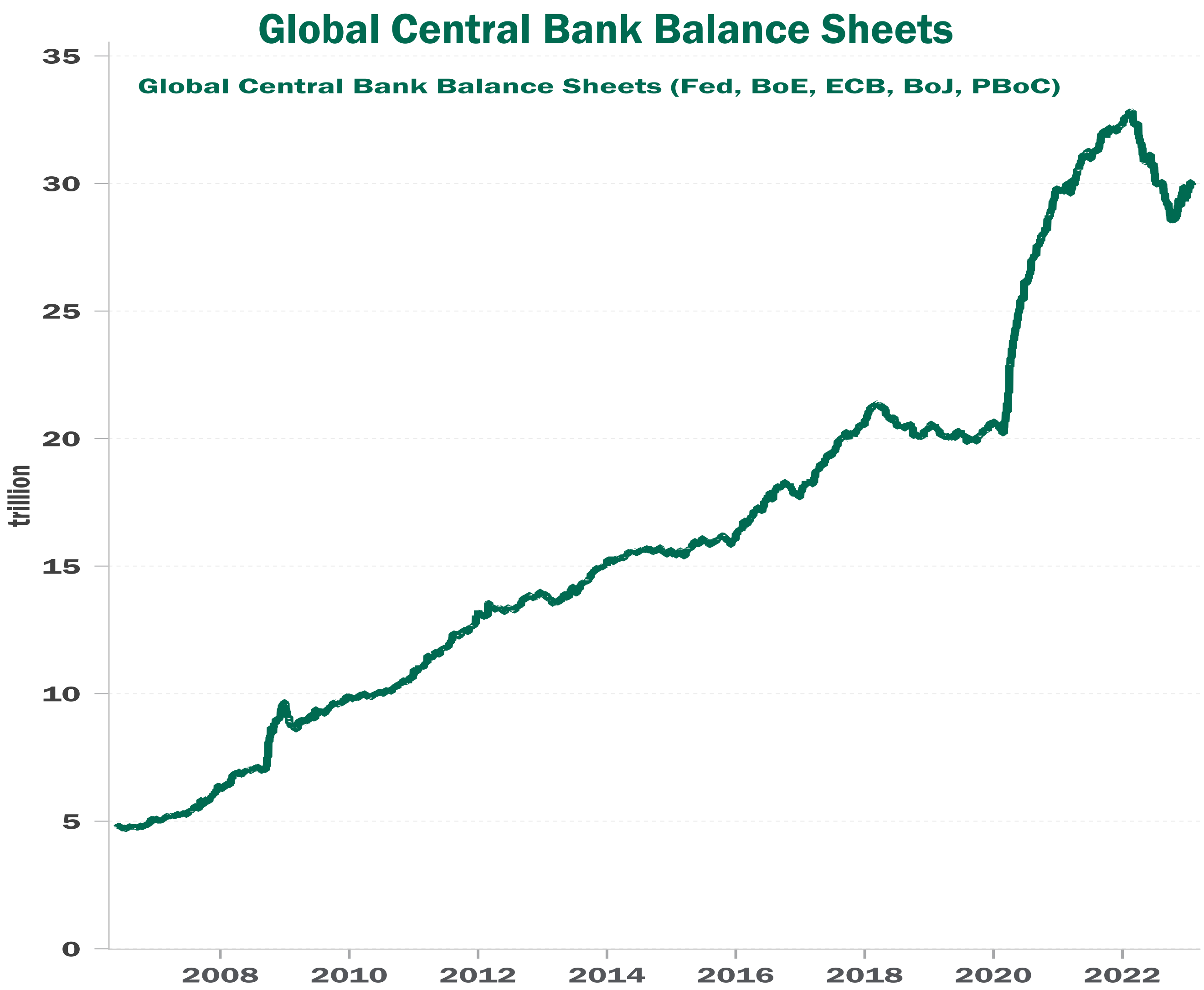


Source: BCA, 31 January 2023. For illustrative purposes only. We are not soliciting or recommending any action based on this material. Any opinions, projections, forecasts, or forward-looking statements represent the views of the manager, are valid only as of the date of this presentation and are subject to change.

PineBridge® INVESTMENTS

Global Liquidity: Uptick in the midst of a long downward trend

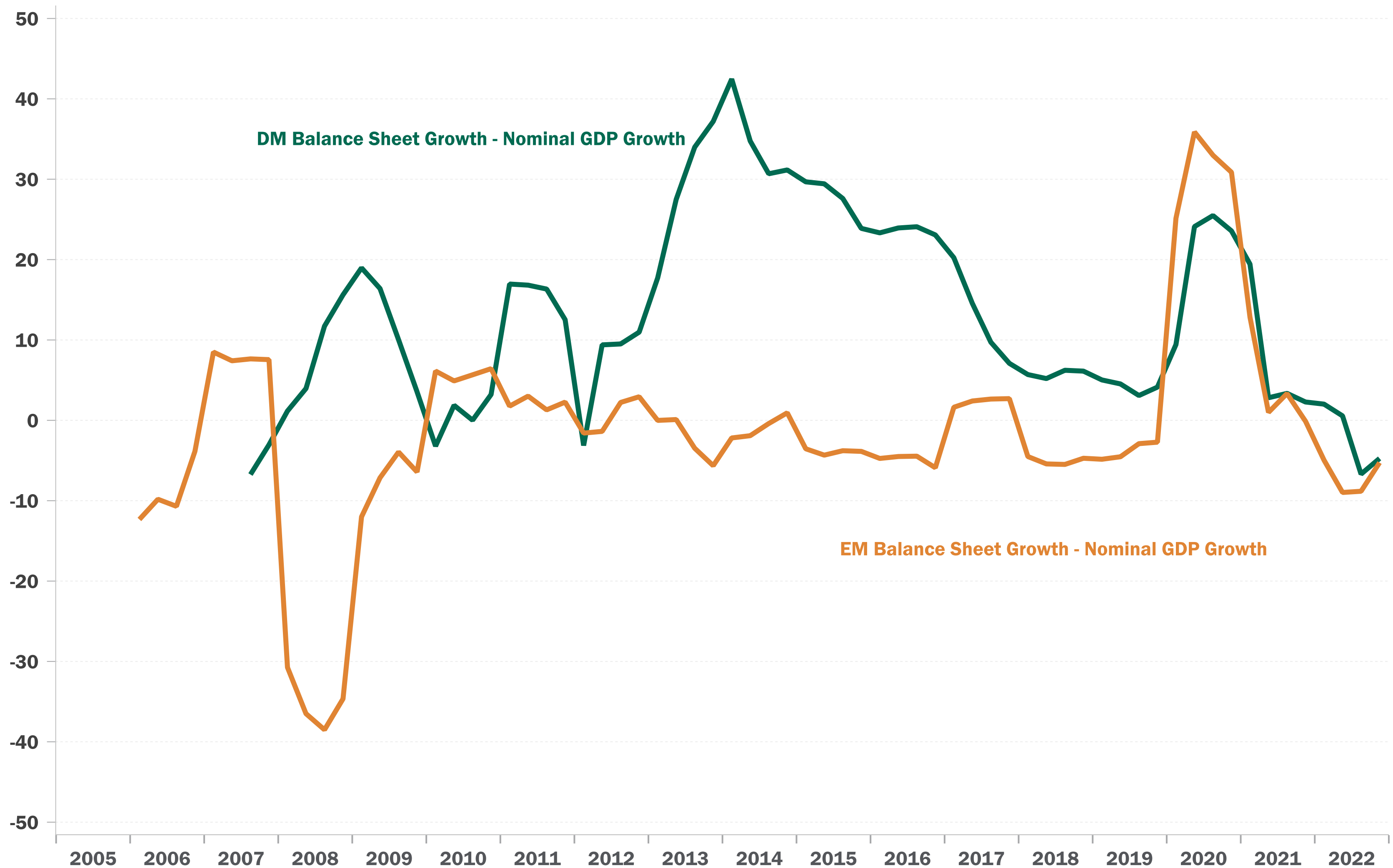
BOJ weaning off of YCC in H2 is coming = upcoming deflationary to asset prices



Source: January 31st 2023. Macrobond, Global Central Balance Sheets. For illustrative purposes only. We are not soliciting or recommending any action based on this material. Any opinions, projections, forecasts, or forward-looking statements represent the views of the manager, are valid only as of the date of this presentation and are subject to change.

Upward Inflection in Balance Sheet Growth vs Nominal GDP Growth

DM vs EM Balance Sheet vs Nominal GDP Growth

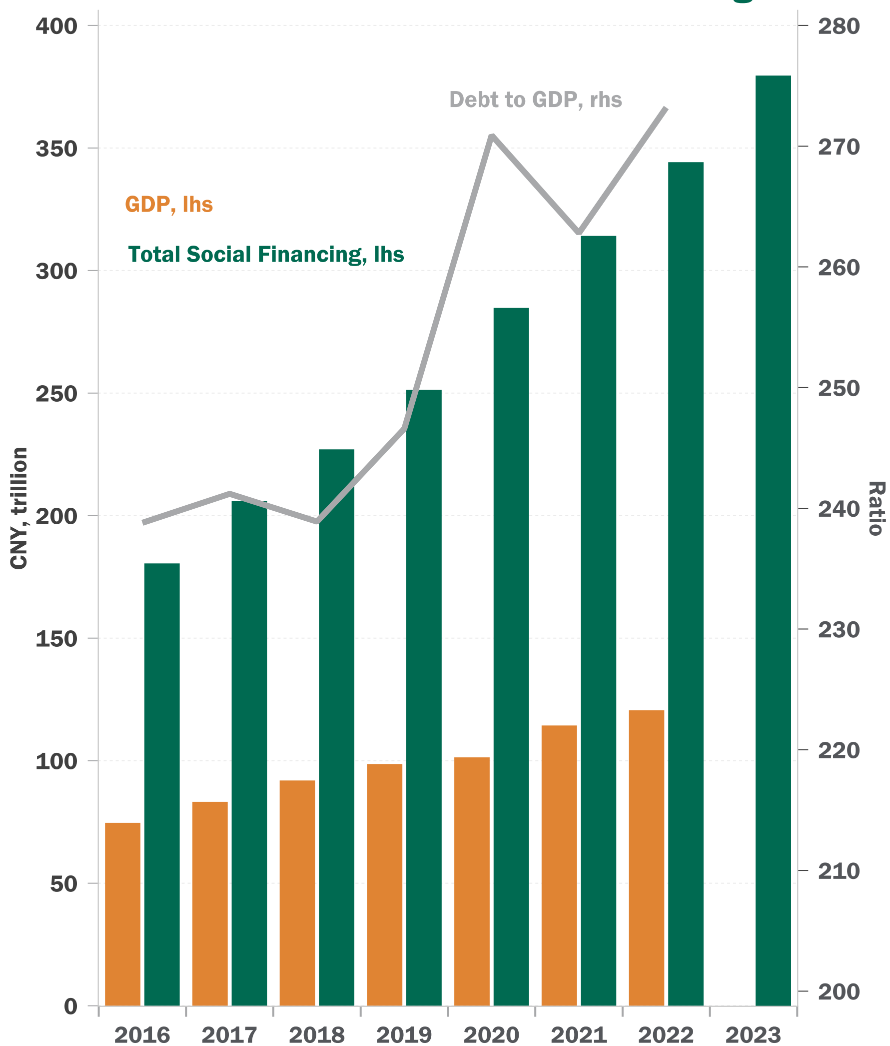


Source: December 31st 2022. For illustrative purposes only. We are not soliciting or recommending any action based on this material. Any opinions, projections, forecasts, or forward-looking statements represent the views of the manager, are valid only as of the date of this presentation and are subject to change.

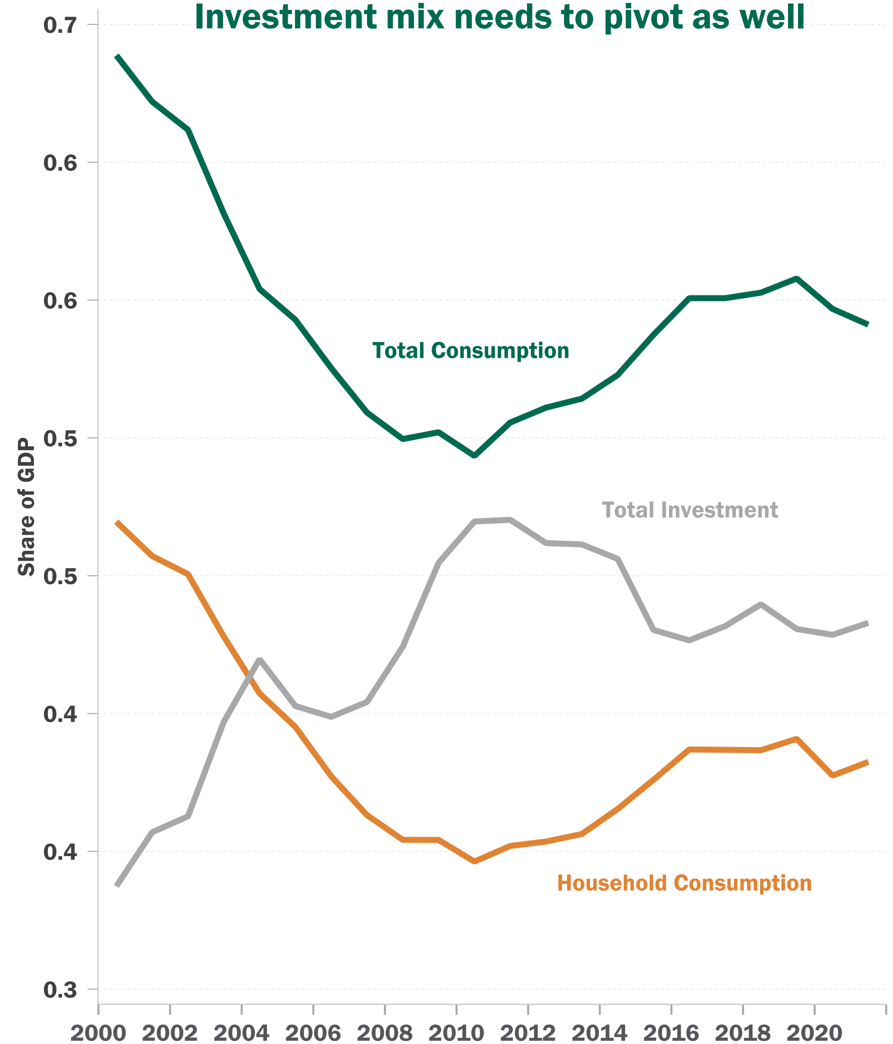
PineBridge® INVESTMENTS

China is transitioning from investment to consumption driven GDP growth

China's debt burden needs to be managed



Increasing role of household consumption in GDP
Investment mix needs to pivot as well

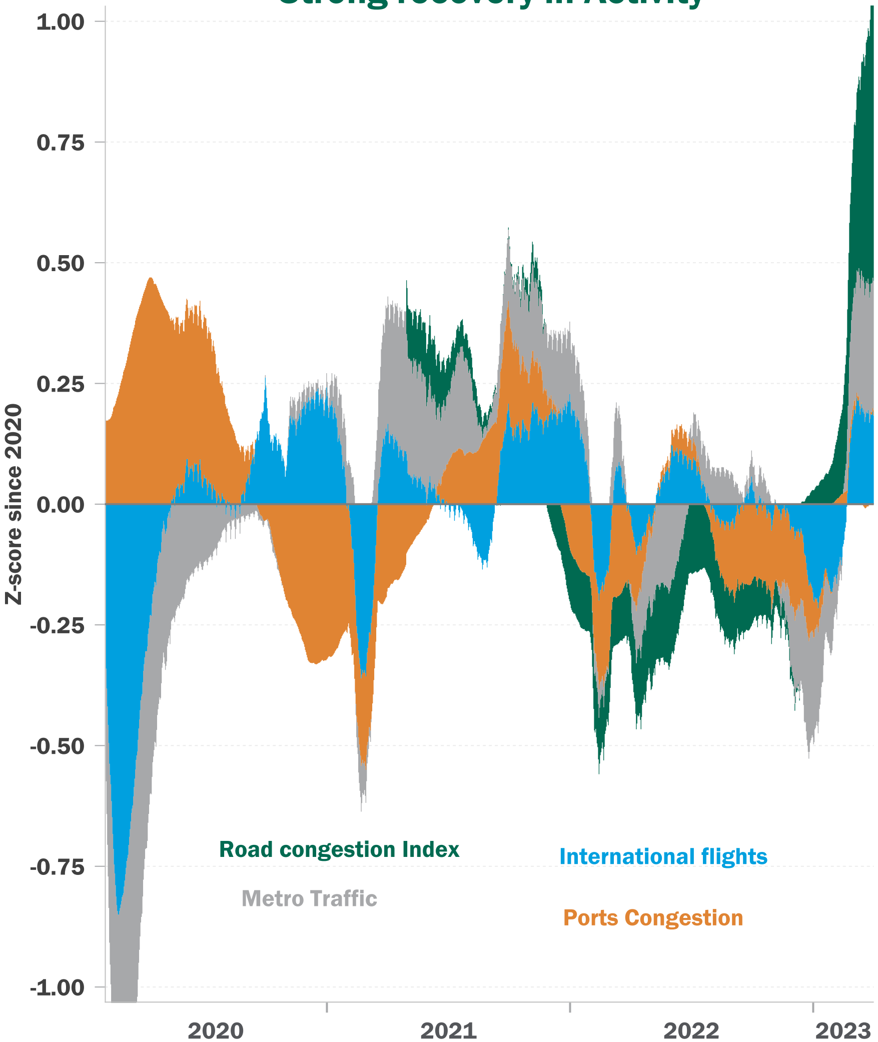


Source: December 31st 2022, Macrobond, China's GDP, China Total Social Financing, China Total Consumption, China Total Investment, China Household Consumption. For illustrative purposes only. We are not soliciting or recommending any action based on this material. Any opinions, projections, forecasts, or forward-looking statements represent the views of the manager, are valid only as of the date of this presentation and are subject to change.

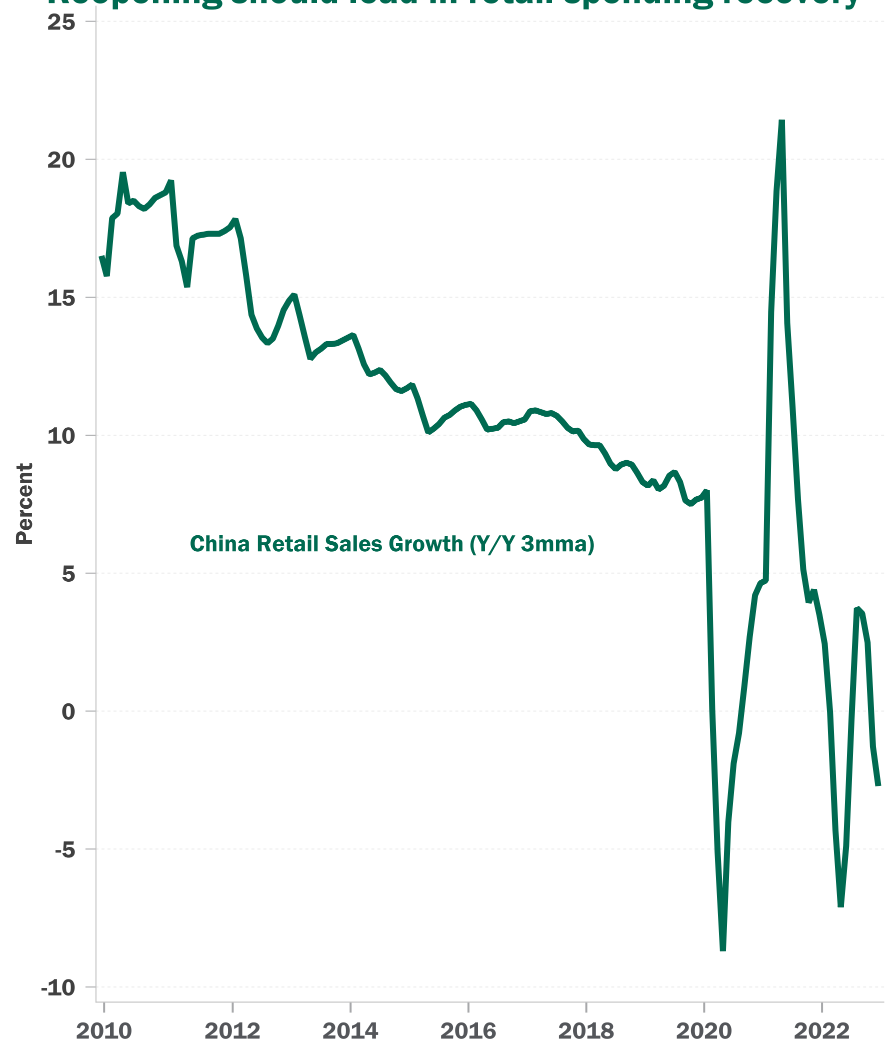
PineBridge® INVESTMENTS

China's strong reopening should lead to recovery in domestic spending

Strong recovery in Activity



Reopening should lead in retail spending recovery



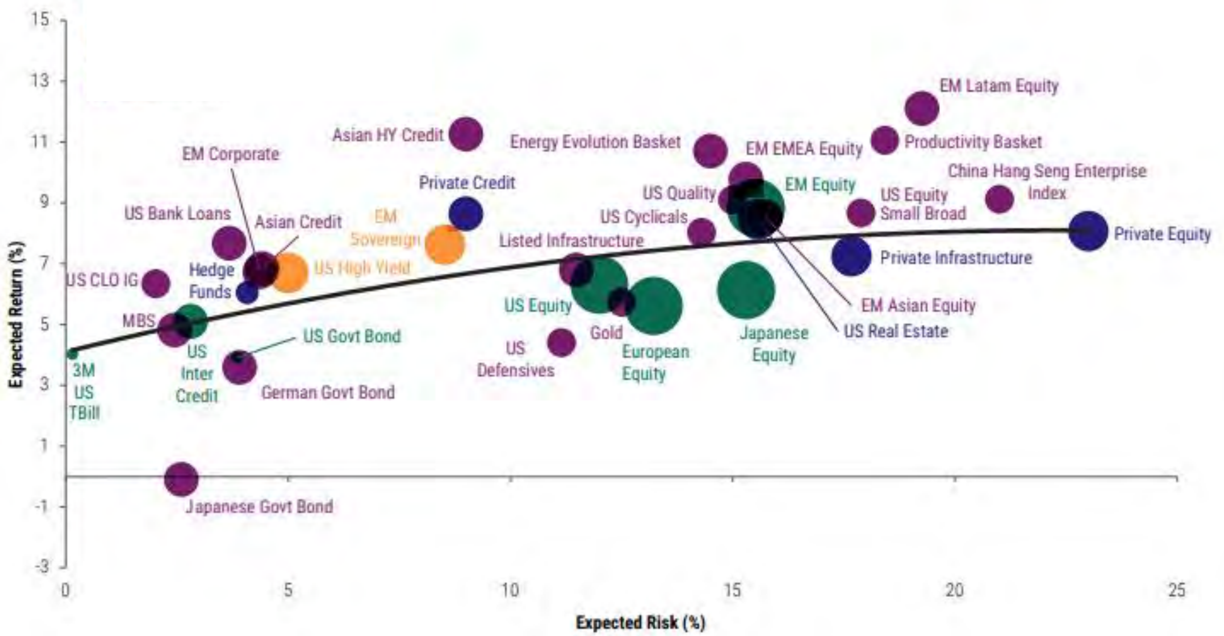
Source: December 31st 2022, Macrobond, PineBridge Investments Calculations. For illustrative purposes only. We are not soliciting or recommending any action based on this material. Any opinions, projections, forecasts, or forward-looking statements represent the views of the manager, are valid only as of the date of this presentation and are subject to change.

PineBridge® INVESTMENTS

Current Positioning

As of 30th April 2023

Capital Market Line (Local Currency View)



Dot Color = Liquidity	**Dots** =	**Dot Size** = Degree of Correlation	**Position** = Valuation
● Most Liquid ● Less Liquid ● Least Liquid	Select Asset Class	Large: More Correlated Small: Less Correlated	Above Line: Attractively valued On Line: Fairly valued Below Line: Unattractively valued

Multi-Asset Strategy

Risk Dial Score[1]: 3.5

	Positive Convictions	Negative Convictions
Equity	• US Quality • Productivity Basket • Chinese Equity	• European Equity • Japanese Equity • US Equity
Fixed Income	• Asia HY Credit • US Treasuries	• Japanese Govt Bond • German Govt Bond
Alternatives	• Private Credit • Eq Mkt Neutral	• Private Equity

As of 30 April 2023. For illustrative purposes only. We are not soliciting or recommending any action based on this material. Past performance is not indicative of future results. There is no assurance that any investment objective will be achieved. Represents the local currency view of the PineBridge Capital Market Line (CML). Based on PineBridge's estimates of forward-looking 5-year returns and standard deviation. The CML is not intended to represent the return prospects of any PineBridge products, only the attractiveness of asset class indexes, compared across the capital markets. There can be no assurance that the expected returns will be achieved over any time horizon. This information may constitute "projections," "forecasts" or other "forward-looking statements" which do not reflect actual results and are based primarily upon applying a set of assumptions to certain financial information. See Multi-Asset Endnotes for further information. Note that the CML's shape and positioning were determined based on the larger categories and do not reflect the subset categories of select asset classes, which are shown to relative to other asset classes only.

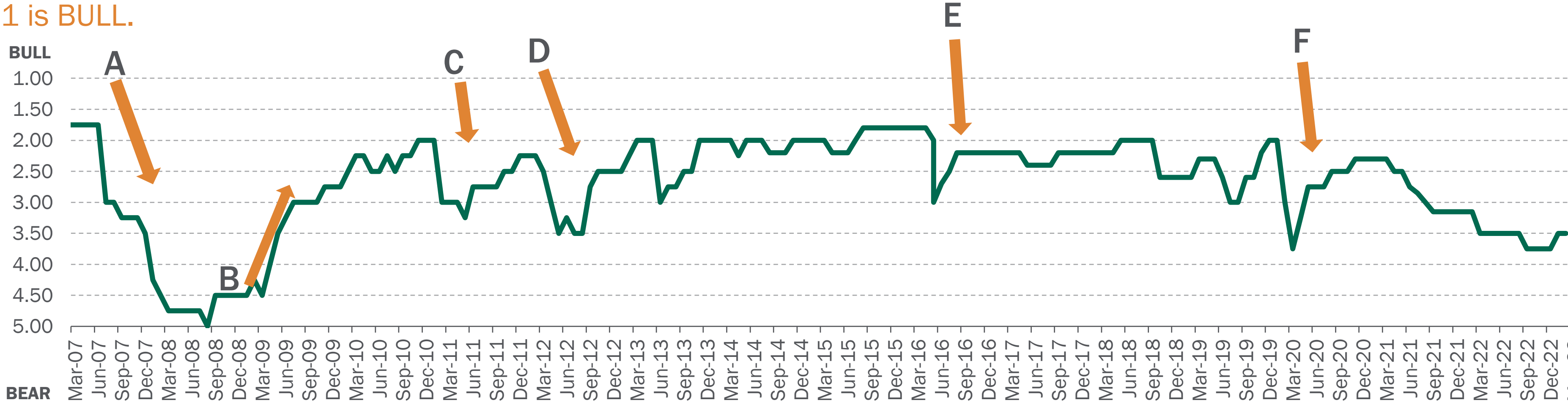
[1] Numeric score determined by Investment Team indicative of its relative preference towards risk; 1 – most risk-seeking; 3 – neutral; 5 – most risk-averse.

PineBridge® INVESTMENTS

Investment Process

Historical Risk Dial Scores

The Risk Dial Score (RDS) is a qualitative assessment of the team's relative preference towards risk and is based on the CML slope and dispersion in conjunction with the direction of fundamentals over the next 9-18 months; 5 is BEAR, 1 is BULL.



	Time Period	Description
A	**De-risking** Q3 2007 to Q2 2008	Inverted CML, combined with growing uncertainty in market sentiment across PineBridge's set of monthly asset class meetings was indicative of need to de-risk over the intermediate-term. Started de-risking in late 2007 and the pace of de-risking was increased in 2008.
B	**Re-risking** Q1 2009 to Q2 2009	A steep, positively sloped CML combined with strong central bank and Treasury support indicative of rapidly strengthening fundamentals over the intermediate-term. Translated into an upswing of recovery.
C	**De-risking** Q4 2010 to Q1 2011	Feared downdraft in fundamentals over 9-18 month period. Forecasted slower period going forward for risk assets, as nearly all countries entered or broadened their monetary exit strategies.
D	**De-risking** Q4 2011 to Q2 2012	Feared downdraft in fundamentals over 9-18 month period. Throughout recovery from 2011, many including the Team had concerns around the sputtering out of the global economy.
E	**De-risking** June 2016	Based on asymmetric risk return profile between the binary unknowable outcomes of "Remain" and "Leave", we de-risked in advance of Brexit to RDS 3.0, and then ending the month with RDS 2.7 on the basis of growth, albeit at a shallower trajectory going forward.
F	**De-risking** Q1 2020	The exogenous shock of the lockdowns in response to COVID-19 led us to de-risk the portfolio materially as the economy abruptly moved from mid to early cycle. As a result we moved our RDS from 2.0 to 3.75 over the quarter.

As of 31 March 2023. For illustrative purposes only. We are not soliciting or recommending any action based on this material. Any views represent the opinion of the investment manager and are subject to change.

Section IV

Appendix & Disclosures

Productivity Basket

Reflects Rising Business Investment in Corporate-Focused Technology Sectors

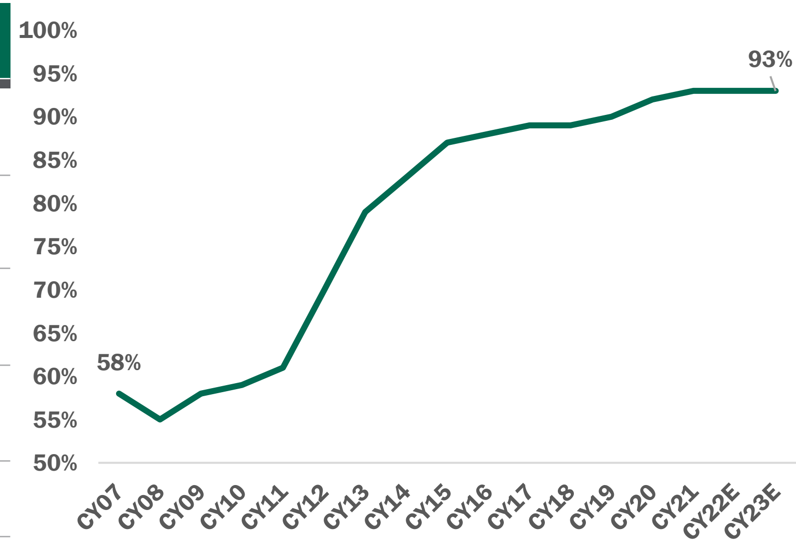
Key Drivers:

- Rising global business investment activity intentions are reflected in corporate-focused technology sectors such as cloud computing, software as a service, and cyber security.
- While these concepts have existed for many years, we believe this has reached critical mass and are now prioritized in IT spending budgets to protect margins and counter disruption in several industries.
- Confirmation of this is reflected in the clear upward inflection in sales growth for these sub-sectors.
- While the longer-term impacts of Covid-19 are not certain, these companies are well placed to benefit from any increase in working from home. Cloud computing in particular should remain resilient.
- ESG has been trending positive over the last year. Software companies are setting carbon emission targets. Increased focus on using renewable energy when selecting data providers.

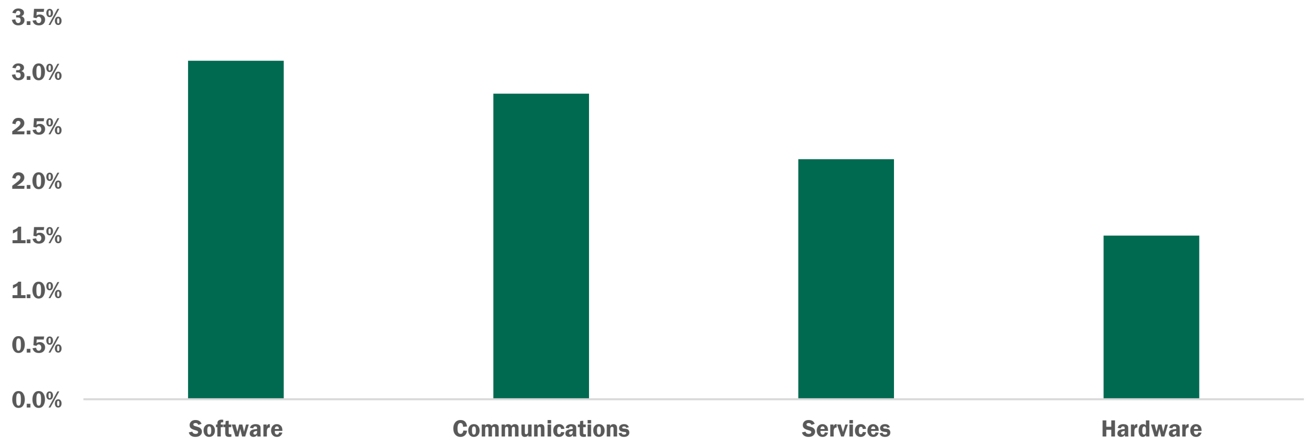
PineBridge Productivity Basket[1]

Component	Weights
Cyber Security	36%
Automation	21%
Cloud Computing	26%
AI & IOT	11%
SaaS	6%

% of Revenue from Recurring Sources in Software[2]



2023 External IT Spending Growth Expectations by Sector[3]



Source: [1]IMF, Bloomberg, Macrobond, PineBridge Investments Calculations as of 18 January 2022. [2]Morgan Stanley Research as of July 2022. [3]Morgan Stanley Research as of October 11th 2022 Any views are the opinion of the investment manager and are subject to change. There can be no assurance that the target will be opinion of the investment manager, are valid only as of the date indicated, and are subject to change.

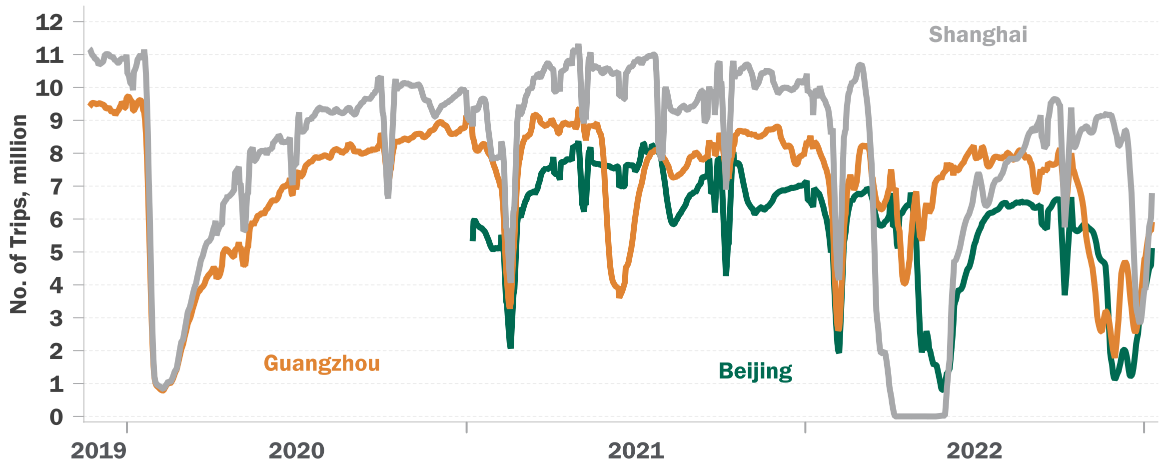
China Equities

Rebound in Chinese growth driven by reopening and credit impulse

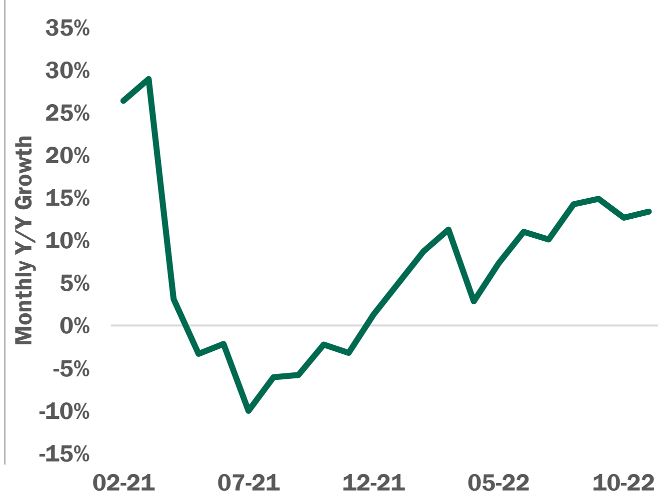
Key Drivers:

- A dynamic reopening and improving credit impulse are now driving a rebound in China's leading growth indicators. These positive trends should persist into the 20th Party Congress and will have momentum beyond.
- Locally transmitted COVID-19 cases have subsided in recent months, leading to a reversal of city-wide lockdowns and an acceleration in local activity.
- The Chinese government is supporting growth through infrastructure investments, reflected in a rebound of monthly fixed asset investment and total social financing.
- There is also a significant acceleration in China's credit impulse, which usually leads China PMIs by around 6 months.

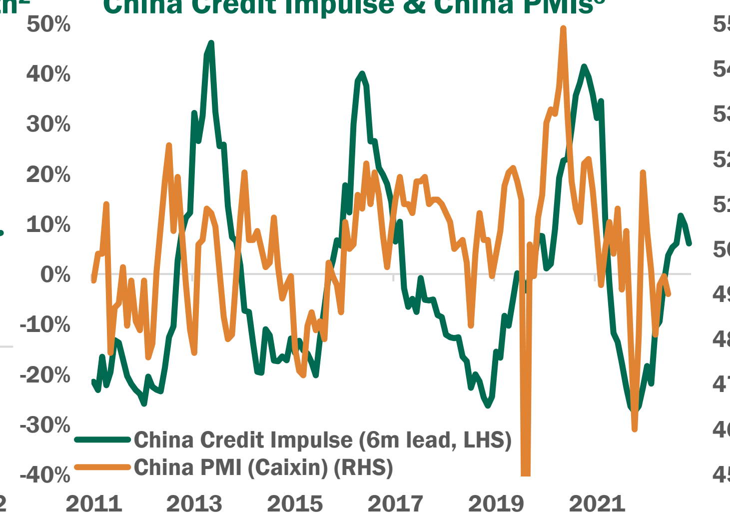
Metro Passenger Trips (7-day MA)[1]



Infrastructure Fixed Asset Investment Growth[2]



China Credit Impulse & China PMIs[3]



Source: [1]December 31st 2022, Macrobond, Shanghai, Guangzhou, Beijing Metro Passenger Trips [2]November 1st 2022, MacroBond, China Infrastructure Investments. [3]Bloomberg Any views are the opinion of the investment manager and are subject to change. There can be no assurance that the target will be opinion of the investment manager, are valid only as of the date indicated, and are subject to change.

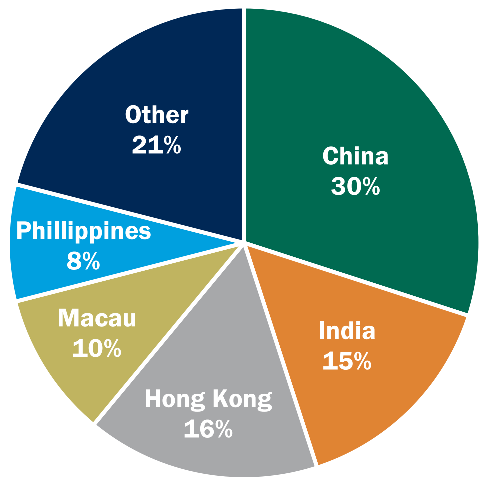
Asia High Yield

Attractive yields and an improving credit profile

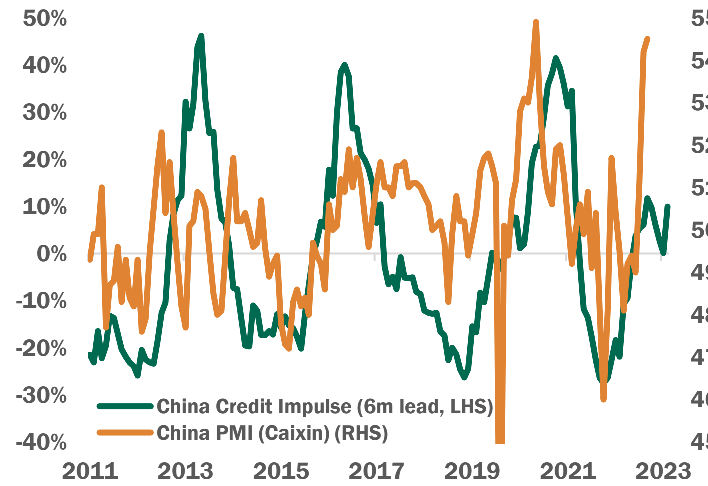
Key Drivers:

- A dynamic reopening and improving credit impulse are now driving a rebound in China's leading growth indicators.
- Continued policy support, especially at the local level, are limiting further downside in the property sector.
- Less exposed to the deteriorating macroeconomic backdrop in developed markets.
- Despite recent spread compression, JACI HY spread is attractive with relatively low exposure to the rising rate environment (duration of less than 3 years).

Geographic Composition[1]



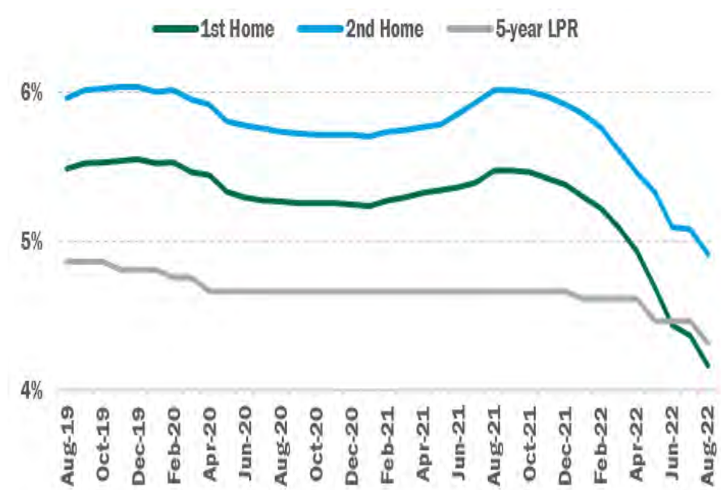
China Credit Impulse & China PMIs[2]



Asia HY Fundamentals[3]

	JACI HY
Spread	870bps
Yield	13.66%
Duration	2.7 years
Market Capitalization	$104.8B
Number of Issues	329
Average Rating	BB- / Ba3

Mortgage Rates Gradually Declining[1]



Source: [1]China National Bureau of Statistics, October 31st 2022. [2]March 31st 2023 Bloomberg [3]JP Morgan, PineBridge, March 31st, 2023. For illustrative purposes only. We are not soliciting or recommending any action based on this material. Any views represent the opinion of the manager and are subject to change. Any opinions, projections, forecast, or forward looking statements presented are valid only as of the indicated and are subject to change.

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Last updated 04 January 2022.

Fidelity Institutional Asset Management

Mandate: Tactical Allocation | **Hired:** 2018

Firm Information	Investment Approach	Total ARMB Mandate
Fidelity Investments was founded in 1946 by Edward C. Johnson II. Fidelity is one of the largest independently owned investment management organizations in the world. The Johnson family owns 49% of the firm; Fidelity employees own the remainder. As of 3/31/2023, the firm had $332.4 billion in institutional assets under management. **Key Executives:** ***Jordan Alexiev***, Portfolio Manager ***Robert Lindberg,*** Investment Director ***Kristin Shofner,*** Senior Vice President ***Melissa Moesman,*** VP, Account Executive	The Fidelity Signaling strategy is a multi-asset, tactical allocation strategy based on Fidelity's proprietary business cycle, value and momentum models. The stage of the business cycle is an important driver of asset class performance and risk; similarly, the relative valuation and momentum of asset classes provide additional uncorrelated sources of return. Consequently, overall portfolio risk and allocation decisions are made depending on the specific assessment of the business cycle, valuations, momentum, and portfolio manager discretion using a quantitative risk-aware optimization framework. **Benchmark:** Blended Benchmark 60% MSCI ACWI IMI and 40% Bloomberg US Aggregate Bond Index until 3/31/2021 then, 70% MSCI ACWI, and 30% Bloomberg US Aggregate Bond Index	**Assets Under Management ($millions):** 3/31/2023: $535

Concerns: None

3/31/2023 Performance (net of fees)

	Last Quarter	1-Year	3-Years Annualized	5-Years Annualized
Signaling	5.08%	-7.95%	9.00%	-
Benchmark	5.76%	-6.60%	8.43%	-

Presentation to:

State of Alaska

June 16, 2023

Fidelity Signaling Portfolio

Jordan Alexiev, CFA
Portfolio Manager

Melissa Moesman
Vice President,
Account Executive

Kristin Shofner
Senior Vice President,
Business Development

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See "Important Information" for a discussion of performance data, some of the principal risks related to any of the investment strategies referred to in this presentation, professional designations and how they are obtained, and other information related to this presentation.

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202305-31807

Global Institutional Solutions

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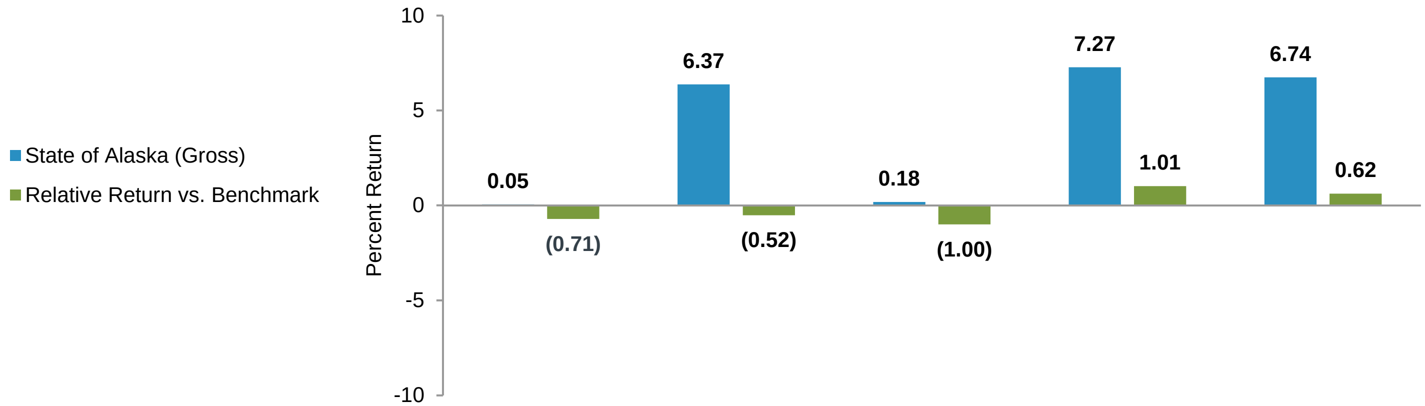
Performance

Portfolio Performance (Gross)

As of April 30, 2023



	CUMULATIVE		ANNUALIZED		
	3-Month	YTD	1-Year	3-Year	Since Inception
State of Alaska (Gross)	**0.05**	**6.37**	**0.18**	**7.27**	**6.74**
Custom Blended Benchmark*	0.76	6.89	1.18	6.26	6.12
Relative Return vs. Benchmark (Gross)	*(0.71)*	*(0.52)*	*(1.00)*	*1.01*	*0.62*

*Custom blended benchmark consists of 70% MSCI All Country World IMI and 30% Bloomberg Aggregate Bond Index.

Client data shown. Portfolio Inception Date: 10/31/18.

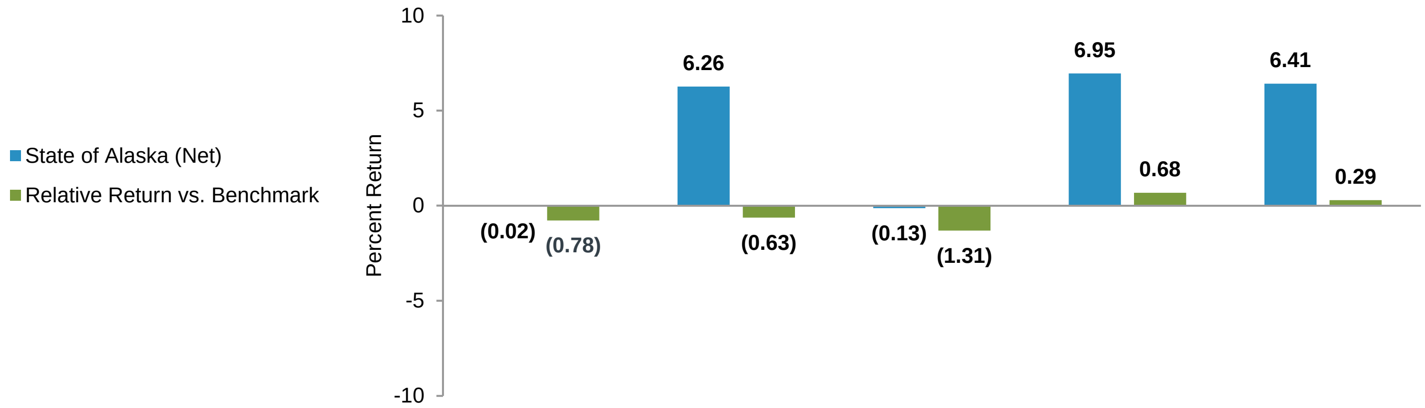
Performance data is shown gross of any fees and expenses, including advisory fees, which when deducted will reduce returns.

Past performance is no guarantee of future results.

Source: FIAM Performance Reporting Group.

Portfolio Performance (Net)

As of April 30, 2023



	CUMULATIVE		ANNUALIZED		
	3-Month	YTD	1-Year	3-Year	Since Inception
State of Alaska (Net)	**(0.02)**	**6.26**	**(0.13)**	**6.95**	**6.41**
Custom Blended Benchmark*	0.76	6.89	1.18	6.26	6.12
Relative Return vs. Benchmark (Net)	*(0.78)*	*(0.63)*	*(1.31)*	*0.68*	*0.29*

*Custom blended benchmark consists of 70% MSCI All Country World IMI and 30% Bloomberg Aggregate Bond Index.

Client data shown. Portfolio Inception Date: 10/31/18.

Performance data is shown net of any fees and expenses.

Past performance is no guarantee of future results.

Source: FIAM Performance Reporting Group.

Process and Positioning

Components of Alaska RMB Investment Process

Uncorrelated sources of return

BUSINESS CYCLE

- Asset prices are influenced by the constant flow from economic expansion to contraction and back
- Early | Mid | Late | Recession

VALUE

- Assets tend to mean-revert over time towards their Fair Value levels
- Leverage long-term capital market assumptions to harvest secular themes

DISCRETION

- Cycles rhyme but carry important nuances
- Portfolio Managers incorporate additional macroeconomic and fundamental information

MOMENTUM

- Assets that are outperforming may potentially continue to outperform, and vice versa
- Generates active weights using momentum signal over the prior 12 months

Correlation of Signal Returns

Jan '01 - Sep '21

	Business Cycle	Value	Momentum
Business Cycle	1.0		
Value	0.1	1.0	
Momentum	0.1	-0.3	1.0

For illustrative purposes only. Past performance is no guarantee of future results. Diversification does not ensure a profit or guarantee against a loss.
Fidelity proprietary analysis based on data from Bloomberg Finance L.P, FactSet., as of 9/30/21.

Fidelity INVESTMENTS

Less Synchronized Global Business Cycle

Many economies face headwinds related to persistent inflationary pressures and tightening monetary and financial conditions. However, the global cycle has become less synchronized, with China accelerating amid a post-COVID reopening and Europe stabilizing amid falling energy prices. We believe the U.S. is in the late-cycle expansion phase, with a significant likelihood that recessionary pressures may increase in 2023.

BUSINESS CYCLE FRAMEWORK

Cycle Phases

EARLY
- Activity rebounds (GDP, IP, employment)
- Credit begins to grow
- Profits grow rapidly
- Policy still stimulative
- Inventories low; sales improve

MID
- Growth peaking
- Credit growth strong
- Profit growth peaks
- Policy neutral
- Inventories, sales grow; equilibrium reached

LATE
- Growth moderating
- Credit tightens
- Earnings under pressure
- Policy contractionary
- Inventories grow, sales growth falls

RECESSION
- Falling activity
- Credit dries up
- Profits decline
- Policy eases
- Inventories, sales fall

A growth recession is a significant decline in activity relative to a country's long-term economic potential. Note: The diagram above is a hypothetical illustration of the business cycle, the pattern of cyclical fluctuations in an economy over a few years that can influence asset returns over an intermediate-term horizon. There is not always a chronological, linear progression among the phases of the business cycle, and there have been cycles when the economy has skipped a phase or retraced an earlier one. Source: Fidelity Investments (AART), as of 3/31/23.

Active Portfolio Weights

As of March 31, 2023

		Active Weights
Asset Class	**Pool**	**Underweight/Overweight Relative to Benchmark***
Capital Appreciation		3.1%
US Equity	Spartan S&P 500 Index Pool	-9.4%
	FIAM Small/Mid Cap Pool	0.4%
	FIAM Small Cap Core Pool	0.0%
Non-US Developed Equity	Spartan Dev Intl Index	6.6%
	FIAM Select International Small Cap Pool	-0.1%
Emerging Market Equity	FIAM Select EM Pool	2.9%
Commodities	Spartan Commodity Index Pool	2.7%
US REITS	FIAM U.S. Real Estate Pool	0.0%
High Yield	FIAM High Yield Bond Pool	0.0%
Capital Preservation		-3.1%
Core Bonds	FIAM BMD Pool	-7.3%
TIPS	FIAM Interm Inflation Protected Index Pool	0.0%
Treasury Strips	FIAM Long Strips Pool	1.7%
Cash	FIAM Institutional Cash	2.5%

*Custom blended benchmark consists of 70% MSCI All Country World IMI and 30% Bloomberg Aggregate Bond Index.

Source: FIAM Performance Reporting Group.

Capital Markets Update

Current Opportunities and Risks

Opportunities

Strong consumer and economic resiliency

- **Strong US. Consumer**: US households buoyed by still favorable employment conditions, near record high net worth and still elevated excess savings

- **China Policy Easing:** A solid Q1 upswing in Chinese economic data due to post-COVID reopening and policy stimulus; magnitude and length remain uncertain

- **Sentiment**: Corporate fundamentals remain solid, markets expecting a soft landing and market volatility, as measured by the VIX index, remains relatively calm. Falling inflation may provide more policy space for the Fed.

Risks

Deceleration in growth and declining liquidity

- **Maturing cycle**: The US is in late-cycle expansion with moderate recession risk for 2023. Continued stress in the banking system would increase risk of a hard landing. Corporate earnings are challenged by slowing growth, still high inflation and policy tightening

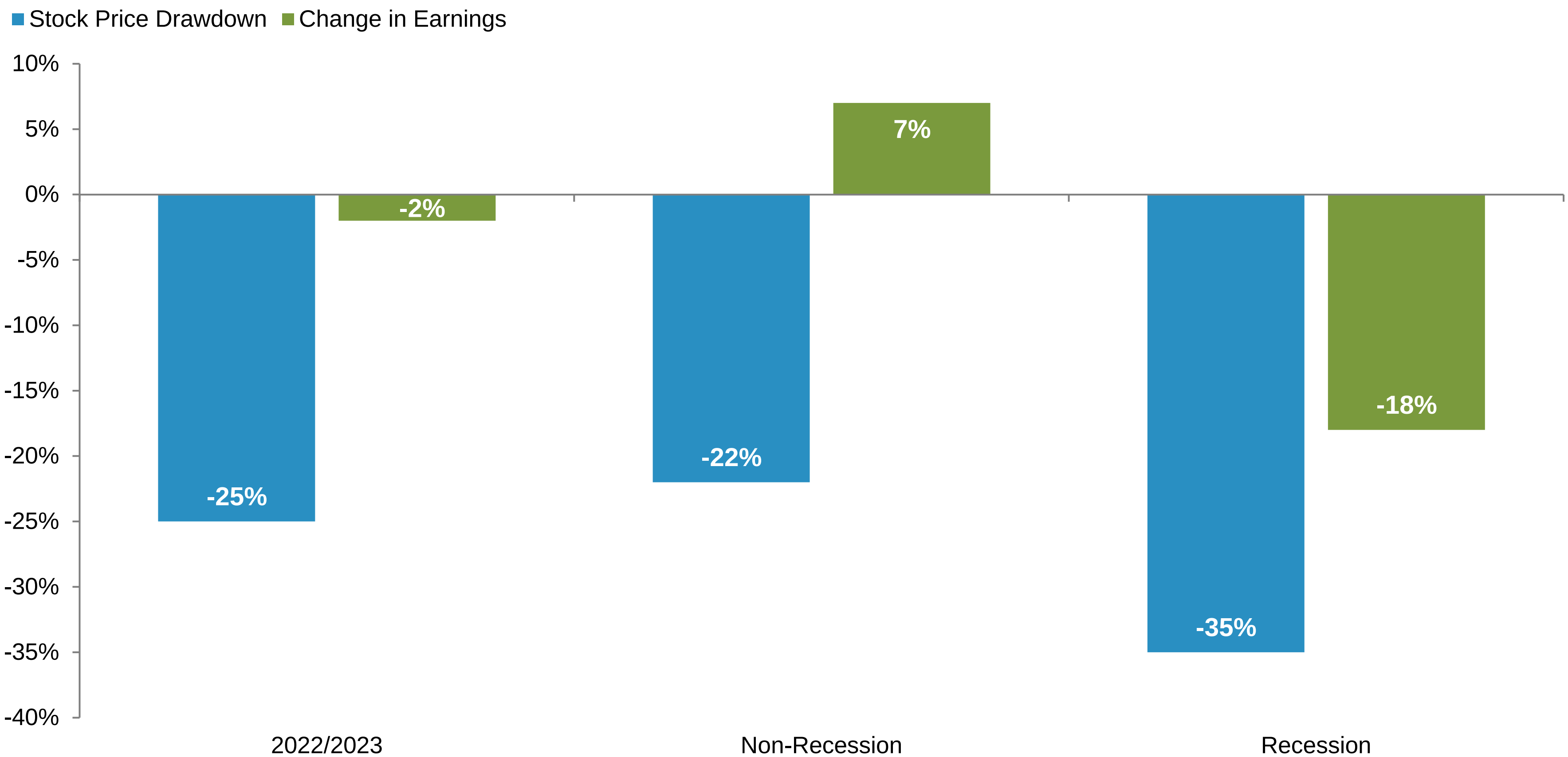
- **Policy Error**: Markets still appear overly sanguine about how quickly and painlessly the Fed can pivot to easing Monetary policy. Slower growth, banking stress, stubborn inflation and policy uncertainty raise the likelihood of higher market volatility

- **Geopolitical Risks** deepening US-China rivalry creates friction in the global trading system and implies continued political risks for commercial activity; risks to increased global inflationary and profit-margin pressures.

How Much Bad News Has the U.S. Bear Market Priced In?

Historically, most bear markets for stocks (declines of 20% or more) coincide with recessionary contractions in the economy and corporate profits. Sometimes bear markets occur without a recession, typically with positive earnings growth and lesser stock-price declines. Since the start of 2022, stock prices and earnings forecasts have been somewhere in the range between historical recession and non-recession bear markets.

MEDIAN STOCK-PRICE DRAWDOWNS AND EARNINGS CHANGES DURING BEAR MARKETS (1872–2023)



Price changes include intraday trading for the S&P 500 index. 2022/2023 change in earnings is the consensus forecast for 2023.

Source: NBER, FactSet, Bloomberg Finance LLC, Haver Analytics, as of 3/31/23.

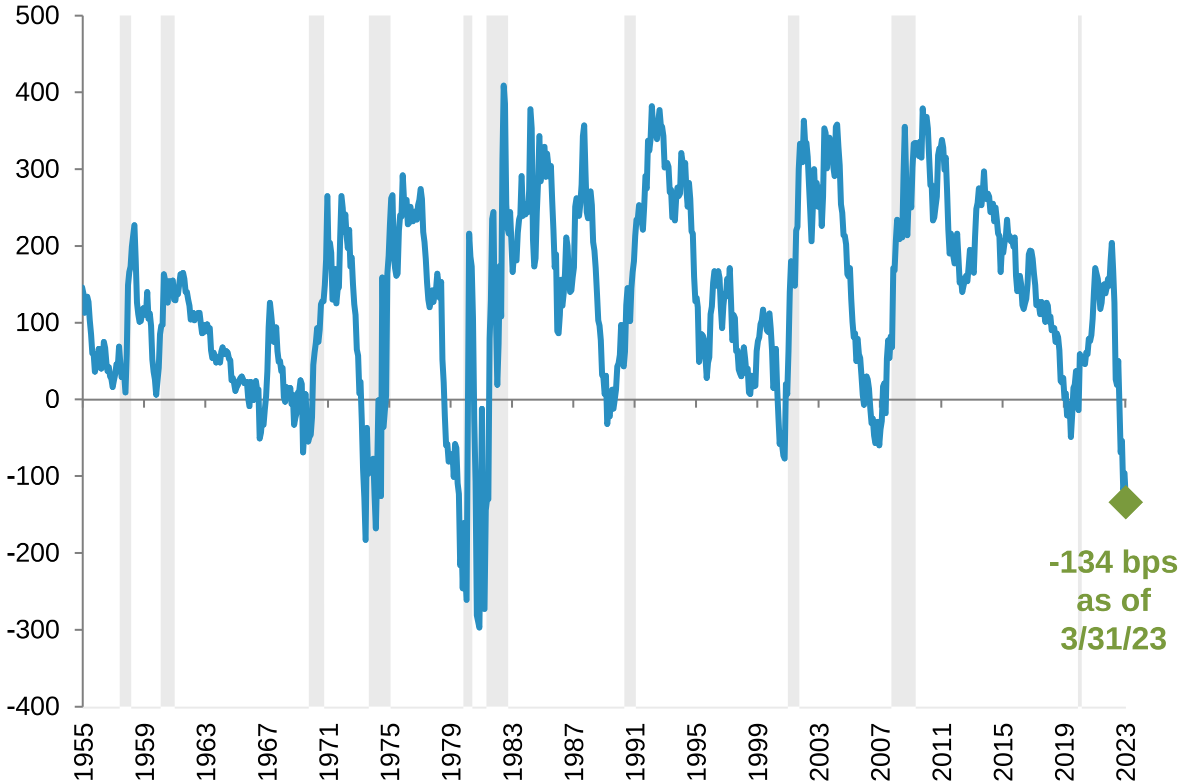
Inverted Yield Curve Is a Reliable Recession Indicator

Our preferred yield curve—the 10-year less 3-month Treasury yield—experienced its greatest inversion since 1981, as the Fed hiked short-term rates and longer-term rates fell due to growth concerns. Historically, the yield curve has been a reliable leading indicator of economic weakness, inverting before the last 8 recessions. The timing of recession after curve inversions is variable, ranging between 4 and 21 months historically.

TREASURY YIELD-CURVE SPREAD

10-Year minus 3-Month

Basis Points



YIELD-CURVE INVERSIONS SINCE 1950 (10-YEAR MINUS 3-MONTH)

Occurred before the last 8 recessions
Occurred twice without a recession (1966,1998)
Peak inversion ranged from 35 to 373 basis points
Recessions started 4 to 21 months after, averaging ~1 year

Bps: basis points. Shaded areas denote U.S. recession. Source: U.S. Federal Reserve Board, NBER, Haver Analytics, Fidelity Investments (AART), as of 3/31/23.

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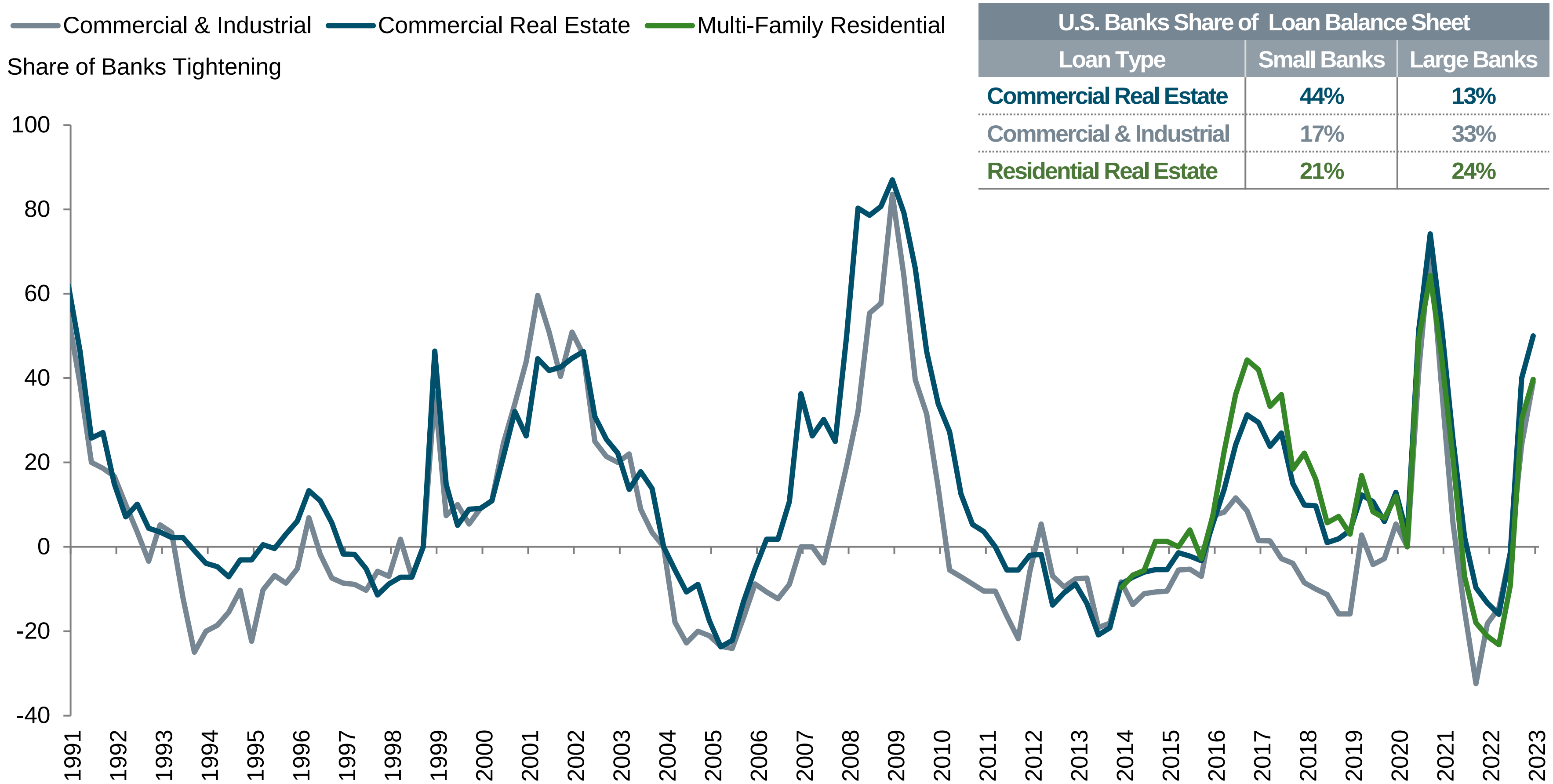
Fidelity INVESTMENTS

Regional Bank Failures May Exacerbate Credit Tightening

In a typical late-cycle pattern, U.S. banks tightened lending standards in the latter half of 2022 across multiple loan categories. The banking stress experienced during Q1, highlighted by the failure of two regional banks, is likely to generate even greater caution and lead to further credit tightening. On average, smaller regional banks are more exposed to commercial real estate loans compared with large banks.

U.S. BANKS LENDING STANDARDS BY LOAN TYPE



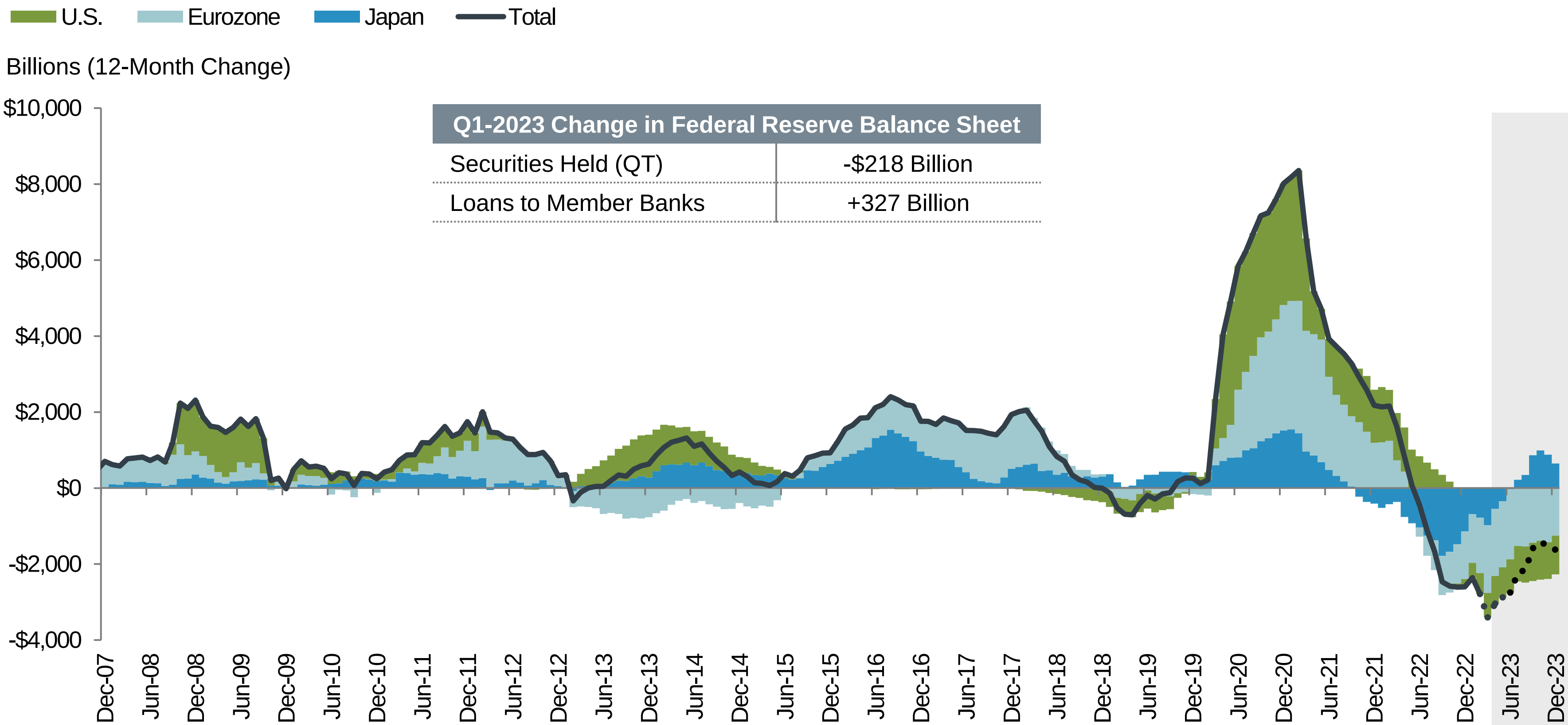
U.S. Banks Share of Loan Balance Sheet		
Loan Type	Small Banks	Large Banks
Commercial Real Estate	44%	13%
Commercial & Industrial	17%	33%
Residential Real Estate	21%	24%

TABLE: Large Banks: Top 25 U.S. Domestically Chartered ranked by domestic assets. Source: Federal Reserve Board, Haver Analytics, Fidelity Investments (AART), as of 3/31/23.

Central Bank Tightening Implies Elevated Volatility

The Fed and European Central Bank employed quantitative tightening (QT) during Q1 aimed at reducing their balance sheets. The Fed also addressed banking turmoil by injecting liquidity via bank loans, including a new facility. The Bank of Japan may further adjust its Yield Curve Control policy at some point, and the generally tighter global monetary conditions may weaken global liquidity and contribute to elevated market volatility.

CENTRAL BANK BALANCE SHEETS



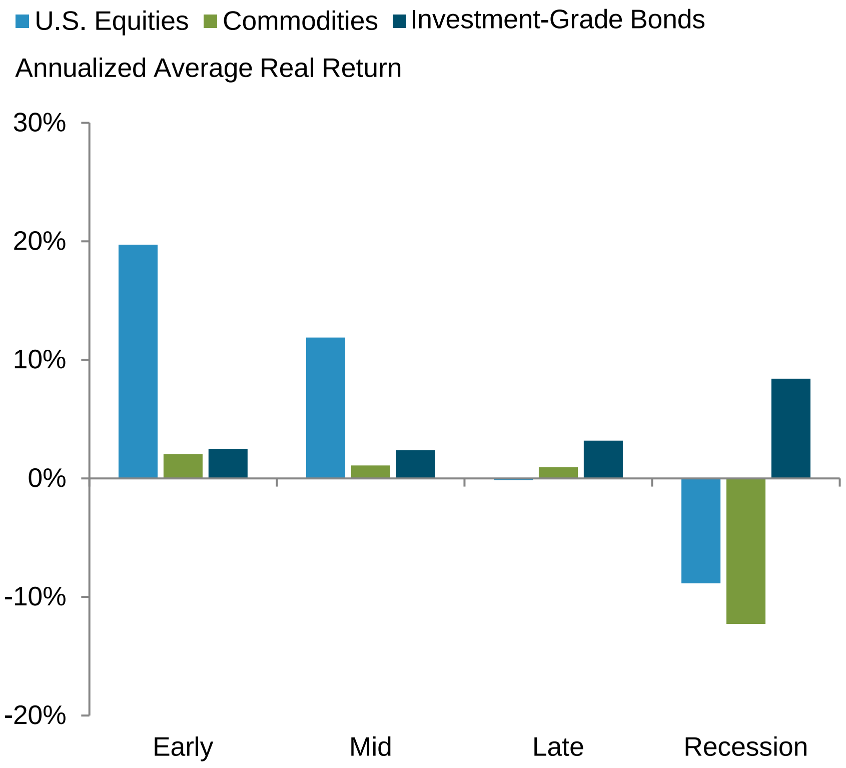
Q1-2023 Change in Federal Reserve Balance Sheet	
Securities Held (QT)	-$218 Billion
Loans to Member Banks	+327 Billion

CHART: Gray bar to the right represents projected balances. QT: Quantitative Tightening. Dashed line and shaded area represent estimates based on the U.S. Federal Reserve conducting $80 billion of Quantitative Tightening per month, the European Central Bank conducting 15 billion euro of quantitative tightening per month and redeeming Targeted Long-Term Refinancing Operations throughout 2023 based on expected loan maturities, and the Bank of Japan purchasing assets at an average of the prior six months. Source: Federal Reserve, Bank of Japan, European Central Bank, Haver Analytics, Fidelity Investments (AART), as of 11/30/22.
TABLE: Loans include discount window and FDIC-related borrowing. Source: U.S. Federal Reserve Board, Fidelity Investments (AART), as of 3/31/23.

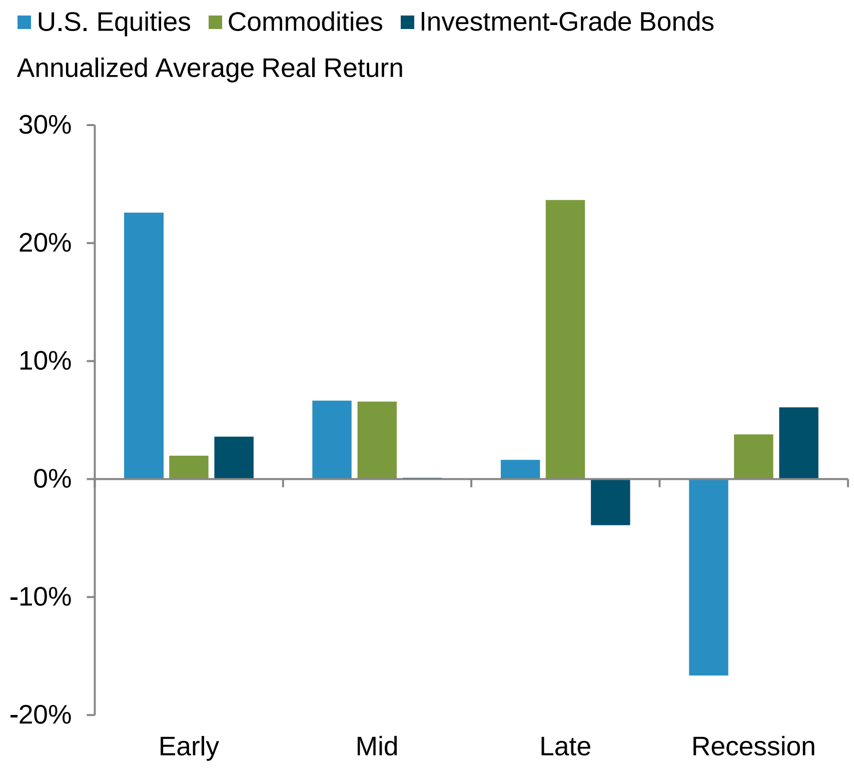
What High Inflation Implies for a Maturing Business Cycle

Unlike recent business cycles, high inflation has taken root. Historically, during high-inflation regimes, commodities tended to perform better than bonds during late-cycle expansion. However, fixed income tended to outperform once recession risk became dominant. Tilting a portfolio toward more-defensive exposures during recessions may provide diversification benefits regardless of the inflation regime.

REAL RETURNS IN LOW-INFLATION REGIMES (1950–2020)



REAL RETURNS IN HIGH-INFLATION REGIMES (1950–2020)



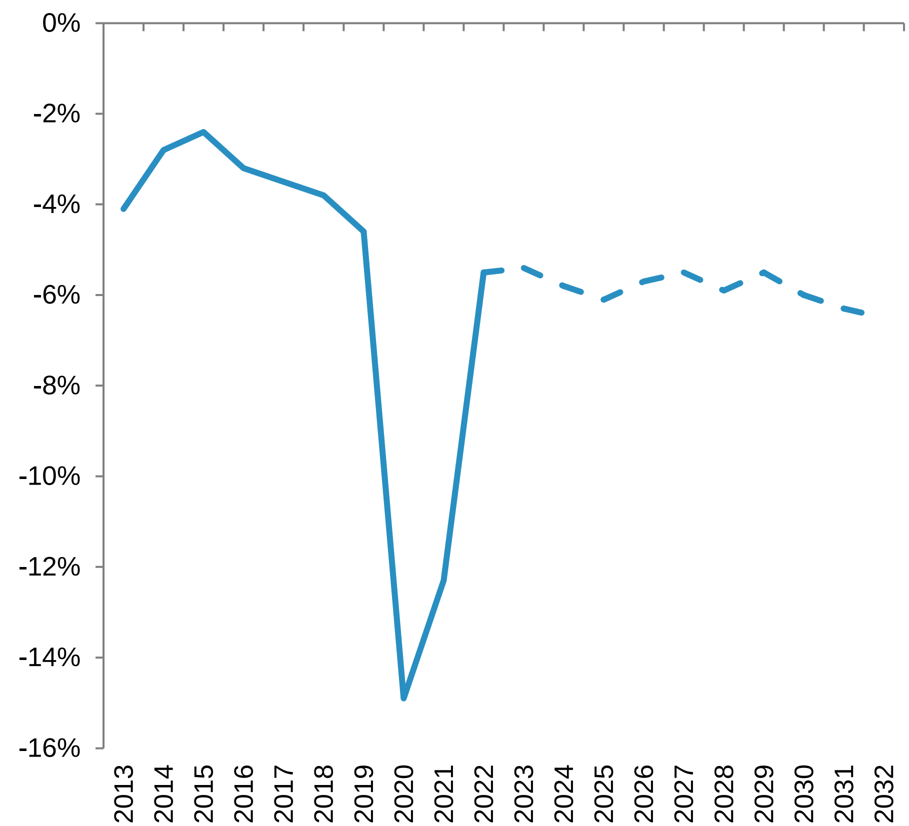
For illustrative purposes only. Past performance is no guarantee of future results. Diversification does not ensure a profit or guarantee against a loss. It is not possible to invest directly in an index. Fidelity proprietary analysis using historical index returns. Domestic Equity—Dow Jones U.S. Total Stock Market Index; Commodities—Bloomberg Commodity Total Return Index; Investment-Grade (IG) Bonds—Bloomberg U.S. Aggregate Bond Index. Source: Fidelity Investments (AART), as of 4/30/22. Regimes: A period is categorized as a high-inflation regime if the secular component is greater than the long-term average inflation, or a low-inflation regime otherwise.

Debt Ceiling Looming; Fiscal Policy in Neutral Territory

The debt ceiling must be raised at some point (likely this summer) to enable the government to meet its existing obligations. The U.S. Treasury began taking extraordinary measures during Q1 and drawing down its cash account at the Fed. Market uncertainty could create volatility, and rebuilding the Treasury account will likely be a subsequent headwind for liquidity. The year-over-year deficit outlook is relatively neutral for 2023.

TREASURY GENERAL ACCOUNT AT THE FED

U.S. FISCAL DEFICIT

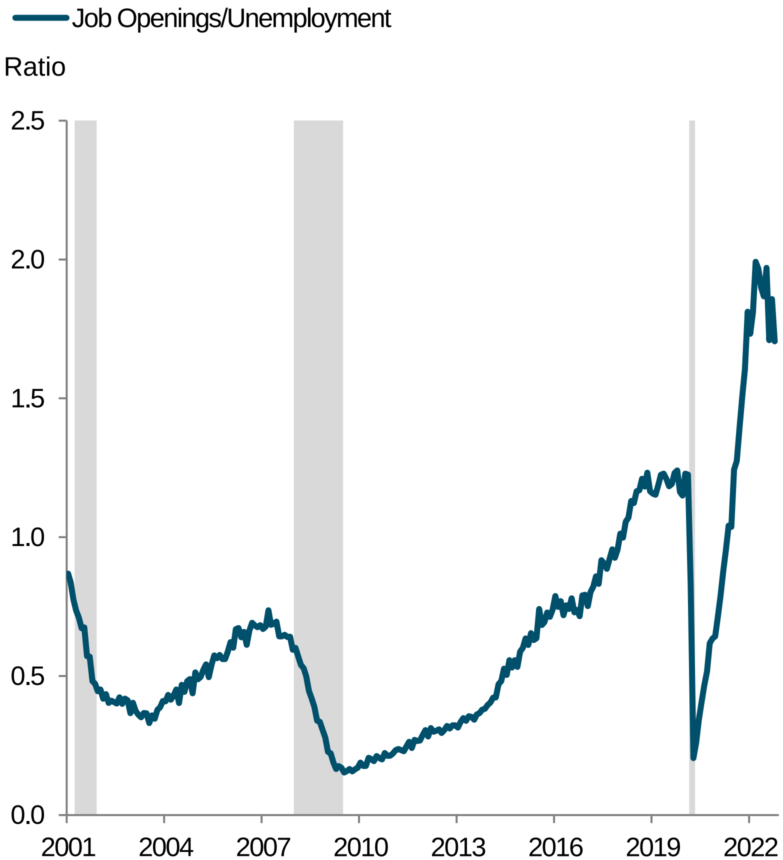


LEFT: Source: Federal Reserve Board, Haver Analytics, Fidelity Investments (AART) as of 3/29/23. **RIGHT:** Dashed line projection represents deficit baseline from the CBO. Source: Congressional Budget Office, Haver Analytics, Fidelity Investments (AART), as of 2/15/23.

Labor-Market Conditions Easing but Still Tight

Labor markets showed signs of cooling as 2022 drew to a close. Job openings dropped from all-time highs, although there remained many more unfilled openings than unemployed workers. Several long-term trends may keep labor conditions tighter than usual, including demographic factors, such as slower working-age population growth and aging demographics that lead to lower labor-force participation rates.

U.S. Unemployment and Job Openings



Secular Influences on U.S. Labor Markets

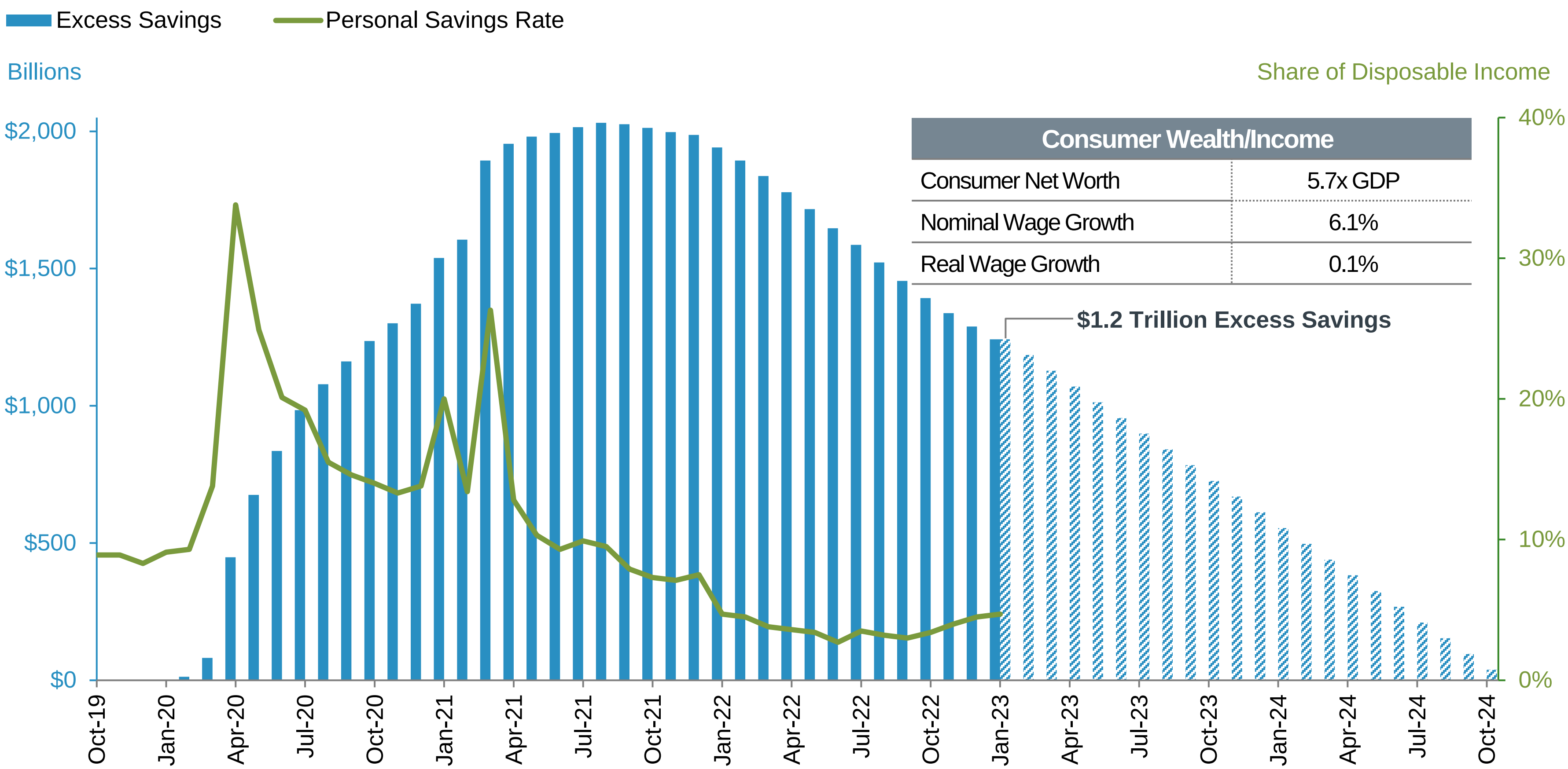
Secular Factors	Long-Term Trends
RESTRAINED SUPPLY	
Demographics	• Aging population: Lower participation rate • Slower working-age population growth
Immigration	• Slower pace of inbound migrant workers
Income Gains for Lower Tiers	• Higher wages lead to reduced hours, fewer multiple job workers
Health Headwinds	• Long COVID • Rising disabilities, deaths of despair[1]
INCREASED DEMAND	
Onshoring/ Reshoring	• Increased demand for domestic manufacturing workers
Fiscal Policy	• Multiyear spending on infrastructure, manufacturing, clean energy, etc.
Employer Hoarding	• Higher threshold for layoffs?

LEFT: Shaded areas denote U.S. Recession. Source: Bureau of Labor Statistics, NBER, Haver Analytics, Fidelity Investments (AART), as of 12/31/22. **RIGHT:** 1) Deaths of despair refers to deaths related to substance abuse or suicides. Source: Fidelity Investments (AART), as of 12/31/22.

Consumers Still Solid, Spending Down Pandemic Savings

Over the past two years, rising prices ate into households' disposable incomes and wage gains, and consumers responded by lowering their savings rates and spending a good chunk of the excess savings accumulated during the pandemic. However, households still enjoy favorable employment conditions, near record high-net-worth levels, and roughly $1.2 trillion in excess savings.

CONSUMER SAVINGS



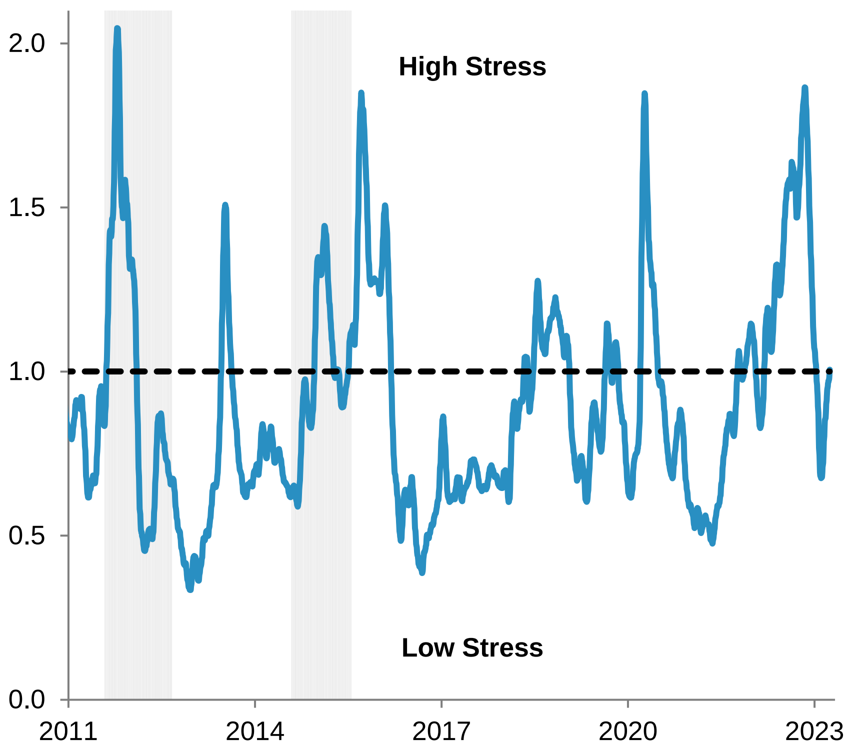
Consumer Wealth/Income	
Consumer Net Worth	5.7x GDP
Nominal Wage Growth	6.1%
Real Wage Growth	0.1%

CHART: Excess savings are relative to 2019. Estimates assume savings rate continues at the average rate over last 6 months. Source: Bureau of Economic Analysis, Haver Analytics, Fidelity Investments (AART), as of 3/31/23. **TABLE:** Nominal Wage Growth: Atlanta Fed Wage Growth Tracker. Source: Federal Reserve Bank of Atlanta, Federal Reserve Board, Haver Analytics, Fidelity Investments (AART), as of 3/31/23.

China: Traction amid Policy Easing but Risks Remain

China's economy gained steam in Q1 amid tailwinds from reopening and policy stimulus. In contrast to much of the rest of the world, China continued to ease monetary, fiscal, and regulatory policies aimed at boosting the property, manufacturing, and consumer sectors. The strength and length of China's upward momentum remain uncertain, with structural imbalances, such as excess leverage, acting as counterweights.

CHINA: FINANCIAL STRESS



CHINA: OTHER TRENDS

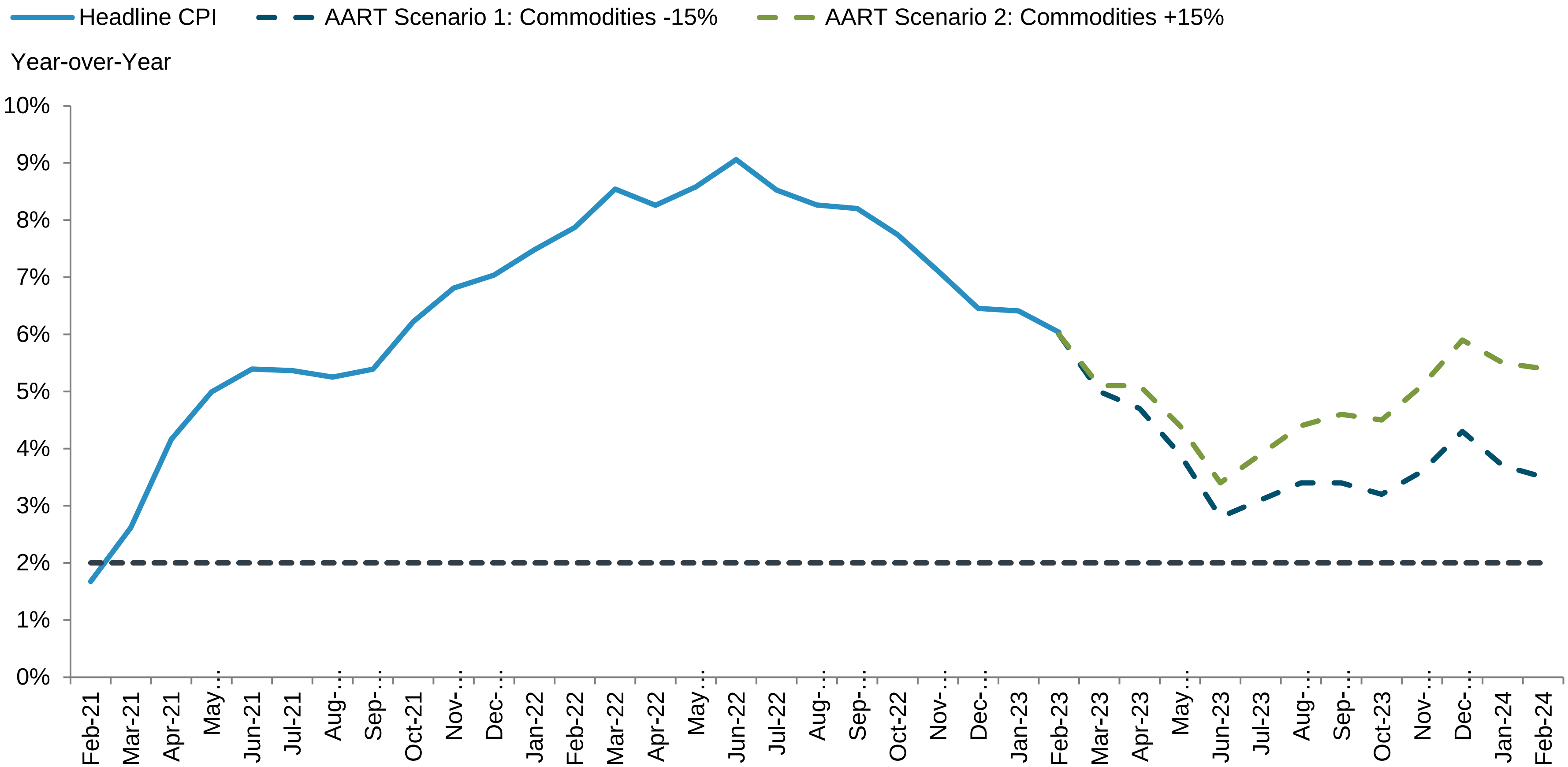
Positive	Negative
Removal of COVID restrictions	Structural imbalances (excess leverage, property overhang)
Property sector easing (fewer home buying restrictions, relaxation of three red lines)	Geopolitical risk
Monetary policy easing	Regulatory risk (focus on "common prosperity")
Fiscal policy support and infrastructure investments	
Policy easing in manufacturing and consumption sectors (tax cuts, EV subsidies)	

LEFT: Gray bars represent growth recessions as defined by AART. The AART China Stress Index is a proprietary measure of Chinese financial markets. The chart presents the series as a 20-day moving average. Source: China National Bureau of Statistics, People's Bank of China, Fidelity Investments (AART), as of 3/31/23.

Inflation to Moderate but May Be Tough to Reach 2%

U.S. consumer inflation rates continued to decelerate after reaching a multi-decade peak of 9.1% last year. We believe the moderating trend will continue in 2023, but it may be difficult to return to the stable, low-inflation environment of the past two decades. Energy prices ended the quarter well below their 2022 highs, but the potential for volatile commodity markets broadens the range of inflation outcomes.

INFLATION ESTIMATES UNDER DIFFERENT COMMODITY PRICE SCENARIOS



CPI: Consumer Price Index. Commodity prices are represented by the Bloomberg Commodity Index (BCOM) and their hypothetical changes over the next year are assumed to occur equally throughout the year. Source: Bureau of Labor Statistics, Bloomberg, Haver Analytics, Fidelity Investments (AART), as of 2/28/23.

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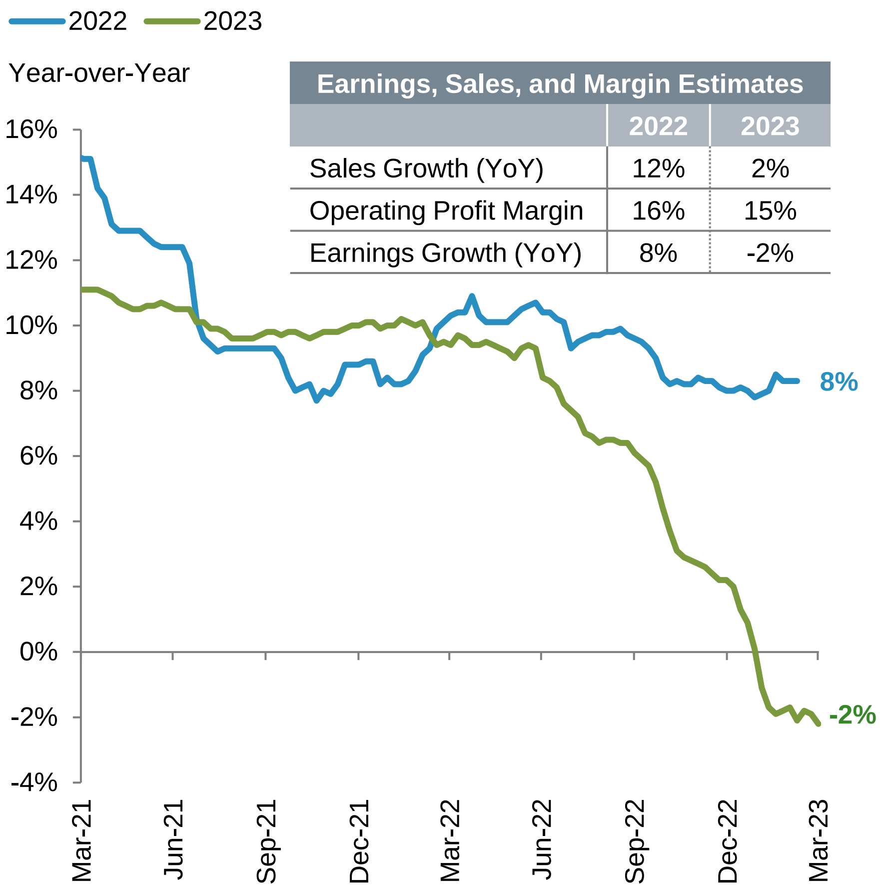
Market Expects Weak Sales and Negative Earnings Growth

During a typical late cycle, top-line sales tend to hold up, but rising input costs reduce profit margins and pressure earnings growth. Despite rising costs in 2022, companies were generally able to pass along higher prices to grow earnings and maintain high profit margins. However, the earnings outlook deteriorated during Q1, with investors expecting slower sales growth and negative earnings growth for calendar-year 2023.

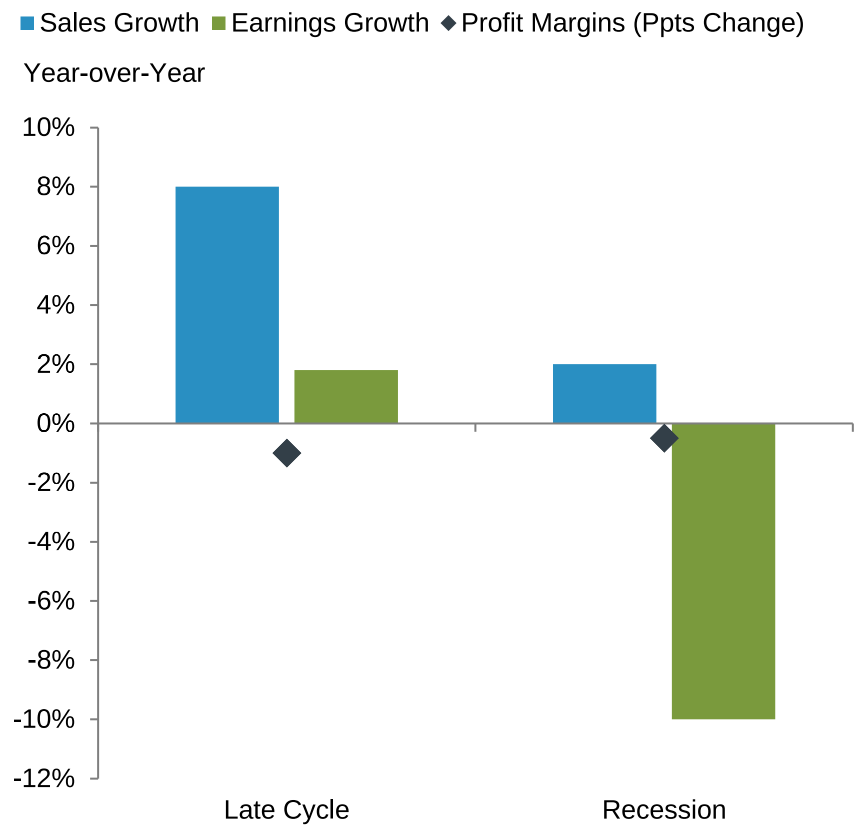
S&P 500 EARNINGS GROWTH EXPECTATIONS



Earnings, Sales, and Margin Estimates

	2022	2023
Sales Growth (YoY)	12%	2%
Operating Profit Margin	16%	15%
Earnings Growth (YoY)	8%	-2%

BUSINESS CYCLE AVERAGES (1950–2020)

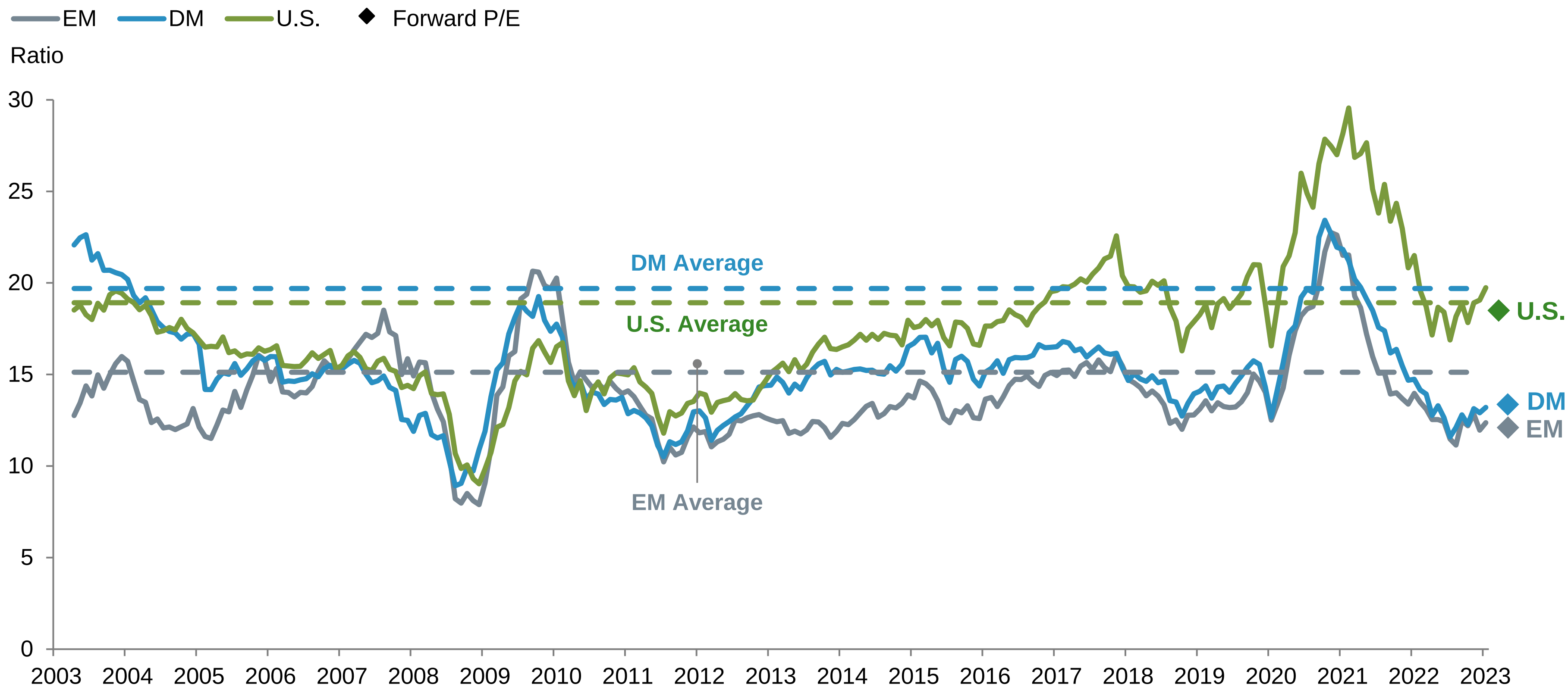


LEFT: Street estimates. Source: Bloomberg Financial LP, Fidelity Investments (AART), as of 3/31/23. **RIGHT:** Ppts: percentage points. Source: Bureau of Economic Analysis, Fidelity Investments (AART), as of 3/31/23.

Valuations Compressed; Non-U.S. Equities More Attractive

Valuations moved higher for U.S. and non-U.S. developed markets as stocks rallied during Q1. The trailing, one-year price-to-earnings (PE) ratios for non-U.S. stocks (developed markets and emerging markets) remained below their long-term averages, while the U.S. finished roughly in line with its long-term average.

GLOBAL STOCK MARKET P/E RATIOS

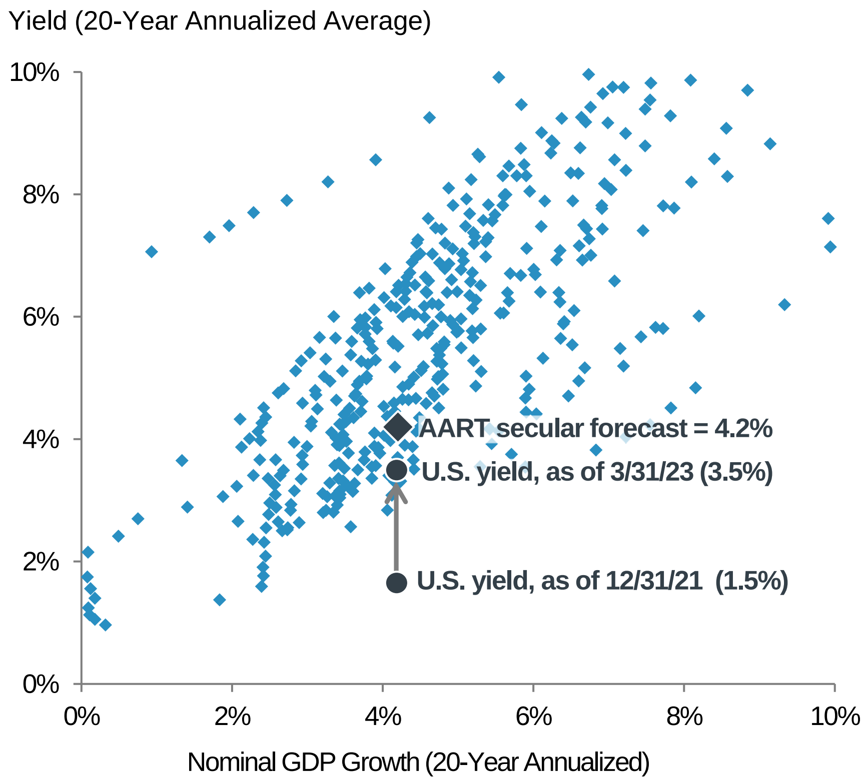


DM: Non-U.S. developed markets. EM: Emerging markets. Chart includes Trailing 12-month P/Es. Past performance is no guarantee of future results. It is not possible to invest directly in an index. All indexes are unmanaged. Price-to-earnings (P/E) ratio (or multiple): Stock price divided by earnings per share, which indicates how much investors are paying for a company's earnings power. Long-term average P/E includes data from 9/30/95 to 9/30/22. Indexes: DM—MSCI EAFE Index; EM—MSCI Emerging Markets Index; U.S.—S&P 500. Source: Factset, Bloomberg Finance L.P., Fidelity Investments (AART), as of 3/31/23.

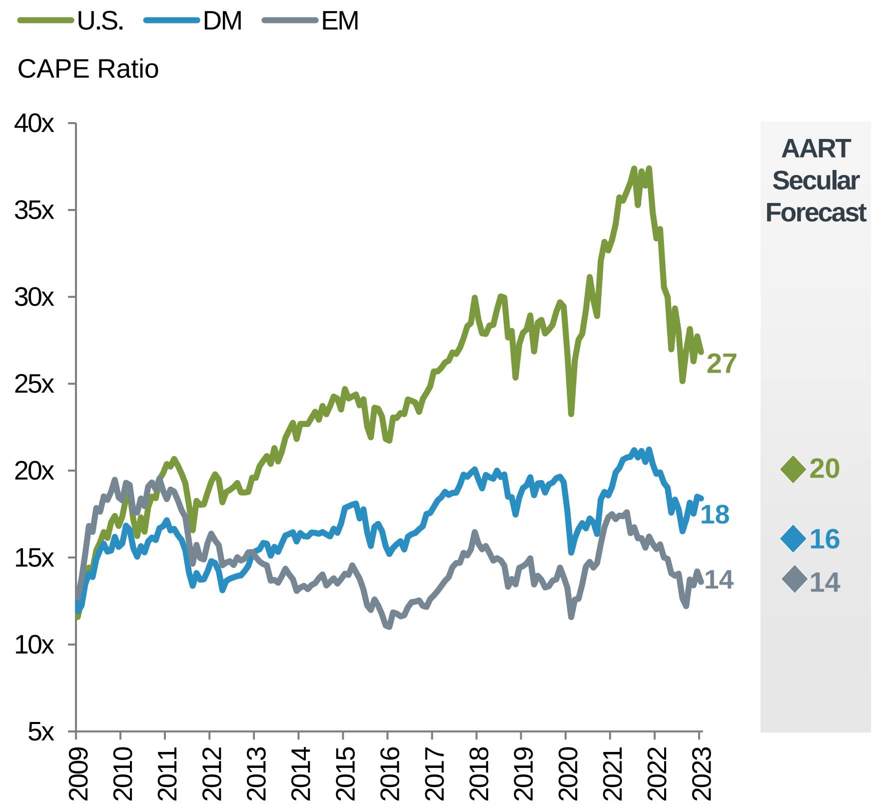
Relative Valuations May Provide Opportunities Ahead

Rising bond yields and equity volatility have provided a more attractive entry point for long-term stock and bond investors. Ten-year Treasury yields are much closer to our secular forecast of 4.2%, a huge improvement from the extreme valuations of the past decade. Based on our long-term expectations, cyclically adjusted price-to-earning ratios for non-U.S. markets provide more attractive opportunities.

10-YEAR SOVEREIGN BOND YIELDS VS. GDP



EQUITY VALUATIONS



Past performance is no guarantee of future results. It is not possible to invest directly in an index. All indexes are unmanaged. **LEFT:** Highlighted dots are U.S. 10-year Treasury bond yields. AART secular forecast refers to an estimate for U.S. nominal GDP (4.2%). Source: Official Country Estimates, Haver Analytics, Fidelity Investments (AART), as of 3/31/23. **RIGHT:** DM: Developed markets. EM: Emerging markets. Price-to-earnings (P/E) ratio (or multiple): Stock price divided by earnings per share, which indicates how much investors are paying for a company's earnings power. Cyclically adjusted earnings are 10-year averages adjusted for inflation. Source: FactSet, countries' statistical organizations, MSCI, Fidelity Investments (AART), as of 2/28/23.

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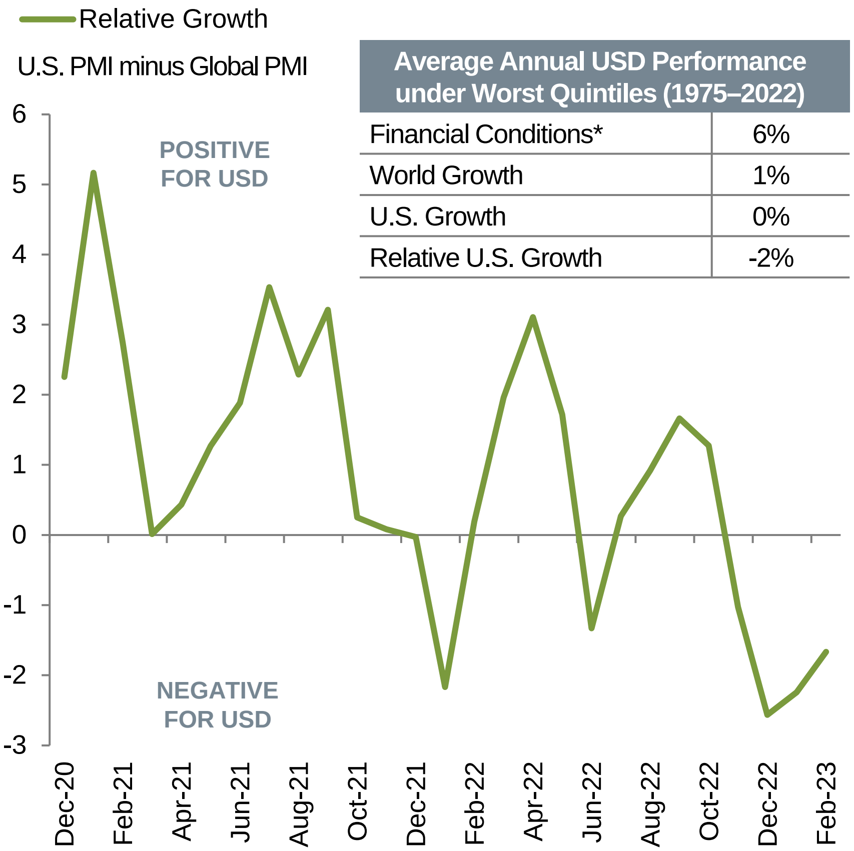
Non-U.S. Currencies Appear Relatively Attractive

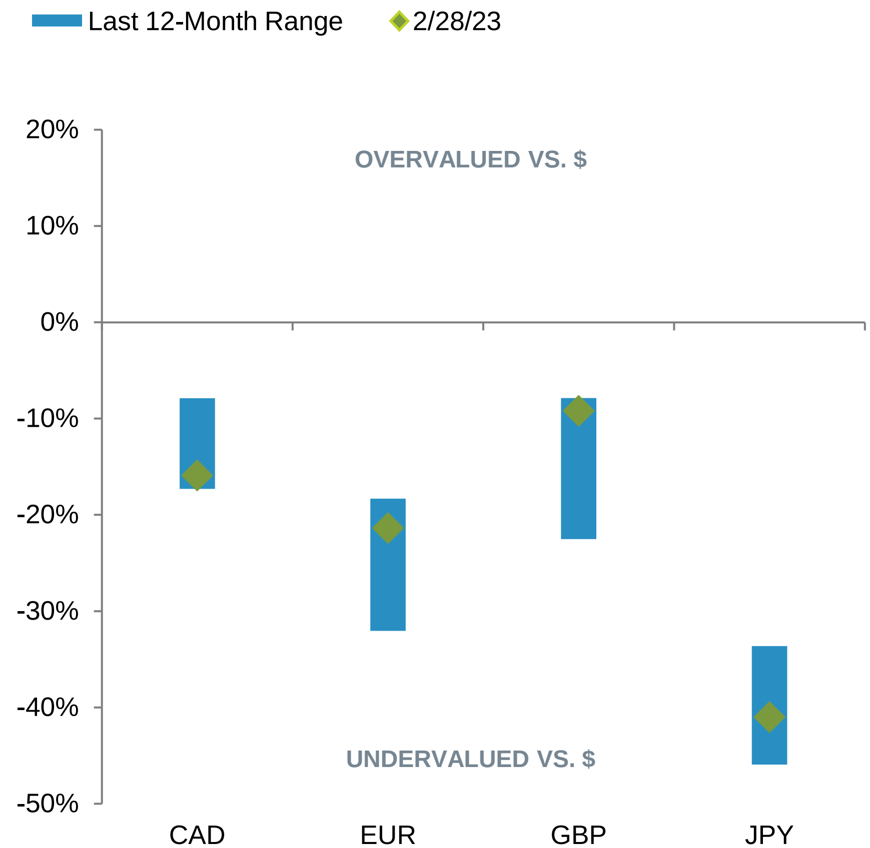
On a cyclical basis, weaker U.S. growth trends relative to the rest of world implies a more favorable medium-term outlook for non-U.S. currencies. On a long-term basis, non-U.S. currencies appear undervalued relative to the dollar. Historically, extreme financial turbulence or a severe global recession boosted the dollar, but we generally expect non-U.S. currencies to provide potential upside and portfolio diversification benefits.

GROWTH INFLUENCES ON U.S. DOLLAR



Average Annual USD Performance under Worst Quintiles (1975–2022)	
Financial Conditions*	6%
World Growth	1%
U.S. Growth	0%
Relative U.S. Growth	-2%

FX VALUATION: PURCHASING POWER PARITY (PPP)



LEFT: FX: Foreign currency exchange rate. PMI: Purchasing Managers Index of manufacturing activity. TABLE: GDP measures span 1975–2022, *Financial Conditions measured by Citigroup's Macro Risk Index span 1997–2022. Sources: Bloomberg, Fidelity Investments, Haver Analytics, Markit IPM, and MSCI, as of 2/28/23. **RIGHT:** Sources: Bloomberg Finance L.P., Haver Analytics and Fidelity Investments, as of 2/28/23.

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Fidelity INVESTMENTS

Challenging Secular Trends Turbocharged by Pandemic

We believe the longstanding regime of investment-friendly political and economic conditions is under increasing duress. Many secular trends that suggest rising long-term risks have been exacerbated during the pandemic, including record-high debt and inequality, extraordinary monetary and fiscal policies, and rising deglobalization pressures. Inflation, policy, and profit risks warrant high levels of strategic diversification.

Broad Secular Changes	Secular Factors	Pre-Pandemic Trends	Pandemic Impact
Unprecedented Accumulation of Debt	Debt	Record high levels	Even higher
	Monetary policy	Financial repression Tolerance for higher inflation	Even more extreme
Rising Populist Demands	Fiscal policy	Large deficits	More public spending, higher multiplier
Geopolitical Instability	De-globalization pressures	Goods/labor disinflation ending	Even greater: Supply-chain shocks, self-sufficiency motivation
Anti-Globalization Pressure	Inequality	Record high levels	Wages/labor share rising
Widespread Aging Demographics	Aging demographics	Elderly people spend less (reducing demand) and work less (reducing supply)	Older workers leave labor force

RESULTS

- Inflation Risk
- Policy Risk
- Financial Fragility
- Profit-Margin Pressures
- Higher Nominal Growth

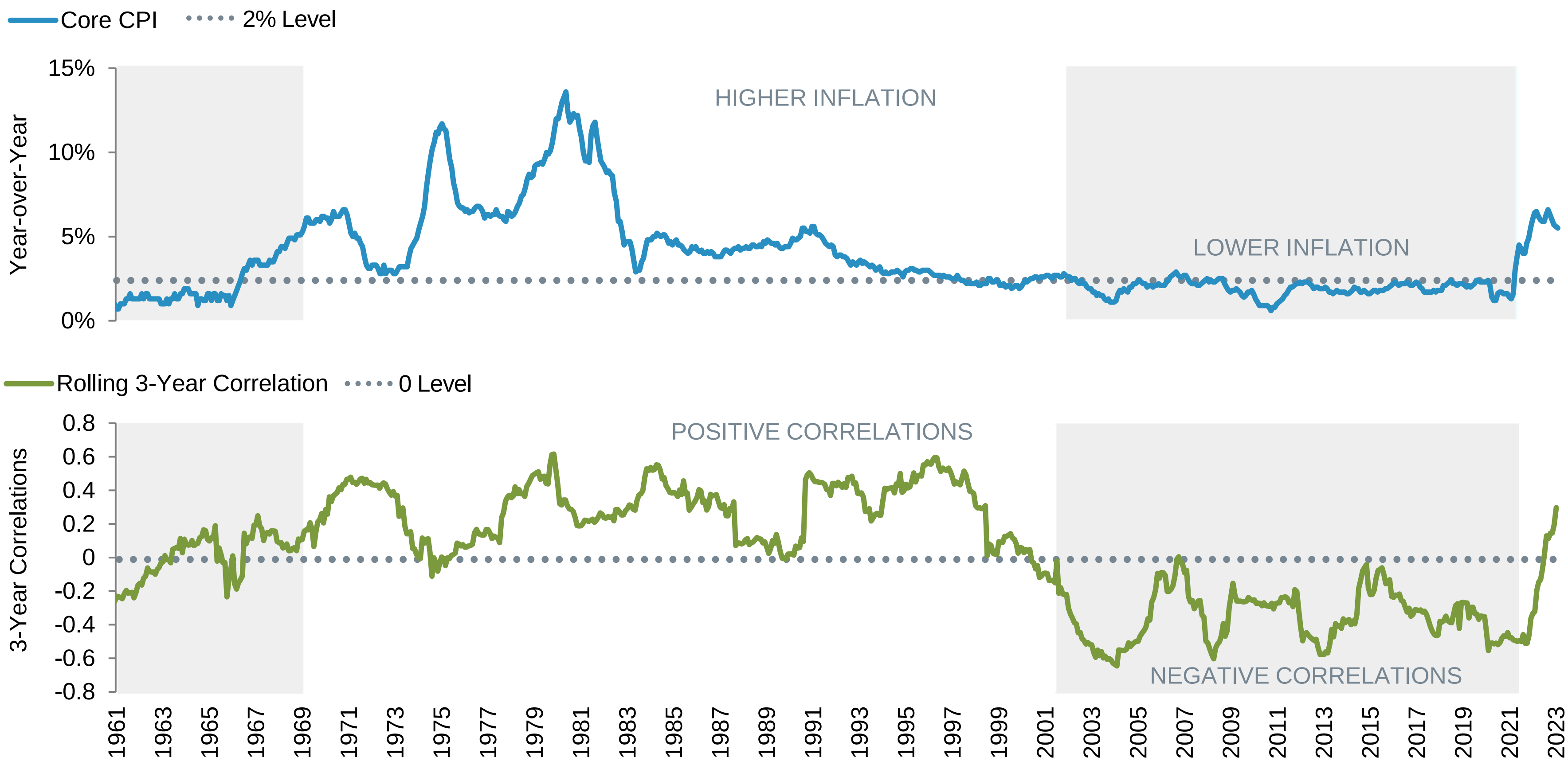
Shows Need for Strategic Diversification

Diversification does not ensure a profit or guarantee against a loss. Source: Fidelity Investments (AART), as of 3/31/23.

High Inflation Drives Positive Stock-Bond Correlations

Over the past 20 years, subdued U.S. core inflation averaged about 2% and facilitated an environment of negative correlations between U.S. stocks and Treasury bonds, leading to strong portfolio diversification. Since 2021, the backdrop has been more akin to prior periods of high inflation and positive stock-bond correlations, where the performance of stocks and bonds moved in the same direction.

STOCK AND TREASURY BOND CORRELATIONS VS. INFLATION

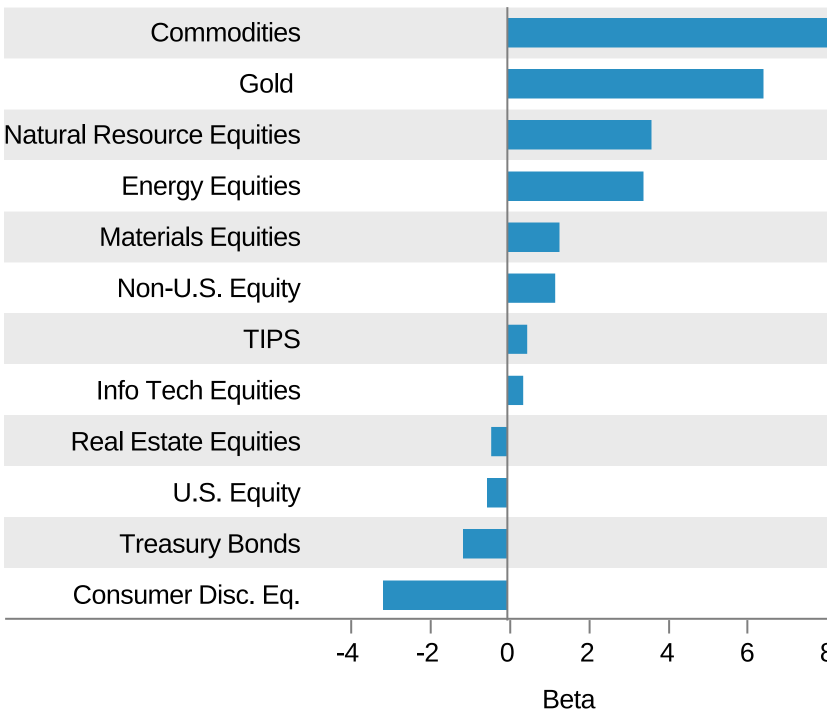


Past performance is no guarantee of future results. Fidelity Investments proprietary analysis of historical asset class performance is not indicative of future performance. Source: Bureau of Labor Statistics, Haver Analytics, Bloomberg Finance L.P., Fidelity Investments (AART), as of 2/28/23.

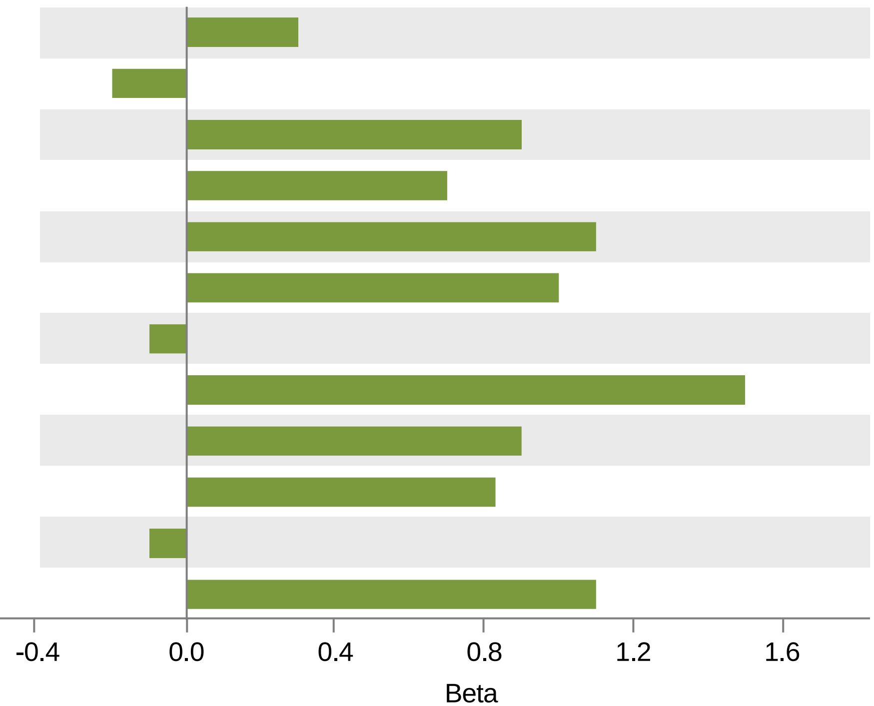
Inflation-Sensitive Assets Can Help Provide Diversification

The potential for a sustained period of higher inflation presents risks for a multi-asset portfolio. Inflation-resistant assets, including commodities and commodity-producer equities, can help hedge against surprise increases in inflation while providing potential for capital appreciation in a high nominal-growth environment. Inflation-hedging fixed-income assets, such as TIPS, have provided better diversification than Treasury bonds.

RETURN SENSITIVITY TO INFLATION SURPRISES (1972–2022)



RETURN SENSITIVITY TO GROWTH SURPRISES (1972–2022)



Past performance is no guarantee of future results. Diversification does not ensure a profit or guarantee against loss. Inflation sensitivity measured relative to CPI, an index that tracks the percentage change in the price of a specified "basket" of consumer goods and services. Growth sensitivity measured relative to the Purchasing Manager's Index (PMI) that shows the prevailing trends in the manufacturing and service sectors. Beta is a measure of a variable's sensitivity (response) relative to changes (volatility) in a reference (benchmark), which has a beta of 1. Indexes: U.S. Equity—Dow Jones U.S. Total Stock Market Index℠; Non-U.S. Equity (EM+DM)--MSCI ACWI ex USA Index; Commodities—Bloomberg Commodity Index Total Return℠. Commodity sectors represent categories within the Bloomberg Commodity Index Total Return℠. Equity sectors represent categories within MSCI as defined by the Global Industry Classification Standard (GICS®). Source: Bureau of Labor Statistics, Fidelity Investments; data 1/1/72 through 2/28/22.

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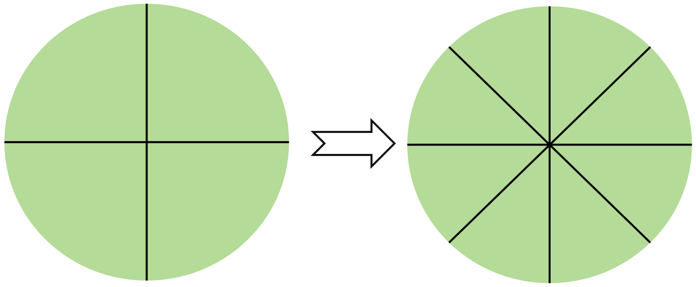
Additional Asset Classes

Rationale for Expanding the Investment Universe

- Most investments are already in the Alaska RMB benchmark
- Over time we've worked with the RMB investment staff to include new assets (e.g. REITS) and better express the fund's risk tolerance
- The additional granularity will allow us to capitalize on mispricings/ trends within more targeted sub-asset class exposures
- It will also allow us to better hedge some adverse tail scenarios (e.g. US imposing a ban on Chinese investments)
- Overall fee for the signaling mandate would not change



Diversification does not ensure a profit or guarantee against a loss.

List of New Investments

Similar universe – cut into finer increments

GIS Additional Vehicle Analysis - Alaska RMB

Vehicle	Ticker	Vehicle Type	Benchmark	Fee (bps)
Factor Family				
Value				
Fidelity Large Cap Value Index Fund	FLCOX	Mutual Fund	Russell 1000 Value	3.5
Fidelity Mid Cap Value Index Fund	FIMVX	Mutual Fund	Russell Midcap Value	5
Fidelity Small Cap Value Index Fund	FISVX	Mutual Fund	Russell 2000 Value	5
iShares MSCI EAFE Value ETF	EFV	ETF	MSCI EAFE Value	33
Growth				
Fidelity Large Cap Growth Index Fund	FSPGX	Mutual Fund	Russell 1000 Growth	3.5
Fidelity Mid Cap Growth Index Fund	FMDGX	Mutual Fund	Russell Midcap Growth	5
Fidelity Small Cap Growth Index Fund	FECGX	Mutual Fund	Russell 2000 Growth	5
iShares MSCI EAFE Growth ETF	EFG	ETF	MSCI EAFE Growth	36
Low Volatility				
FIAM Global Low Volatility Pool		Commingled Pool	MSCI World Minimum Volatility	25
FIAM US Low Volatility Pool		Commingled Pool	MSCI US Minimum Volatility	25
iShares MSCI Global Min Vol Factor ETF	ACWV	ETF	MSCI ACWI Minimum Volatility	32
iShares MSCI USA Min Vol Factor ETF	USMV	ETF	MSCI US Minimum Volatility	15
iShares MSCI EAFE Min Vol Factor ETF	EFAV	ETF	MSCI EAFE Minimum Volatility	20
Commodity Equities/Commodities				
Fidelity Global Commodity Stock Fund	FFGCX	Mutual Fund	MSCI ACWI Commodity Producers	67
Fidelity Select Gold Portfolio	FSAGX	Mutual Fund	S&P BMI Gold Capped	52
SPDR S&P Global Natural Resources ETF	GNR	ETF	S&P Global Natural Resources	40
iShares MSCI Global Gold Miners ETF	RING	ETF	MSCI ACWI Select Gold Miners	39
VanEck Gold Miners ETF	GDX	ETF	NYSE Arca Gold Miners	50
Equity Sectors				
Fidelity MSCI Communications Services ETF	FCOM	ETF	MSCI Communication Services	8.4
Fidelity MSCI Consumer Discetionary ETF	FDIS	ETF	MSCI Consumer Discretionary	8.4
Fidelity MSCI Consumer Staples ETF	FSTA	ETF	MSCI Consumer Staples	8.4
Fidelity MSCI Energy ETF	FENY	ETF	MSCI Energy	8.4
Fidelity MSCI Financials ETF	FNCL	ETF	MSCI Financials	8.4
Fidelity MSCI Health Care ETF	FHLC	ETF	MSCI Health Care	8.4
Fidelity MSCI Industrials ETF	FIDU	ETF	MSCI Industrials	8.4
Fidelity MSCI Information Technology ETF	FTEC	ETF	MSCI Information Technology	8.4
Fidelity MSCI Materials ETF	FMAT	ETF	MSCI Materials	8.4
Fidelity MSCI Utilities ETF	FUTY	ETF	MSCI Utilities	8.4
Fidelity MSCI Real Estate ETF	FREL	ETF	MSCI Real Estate	8.4
iShares Global Infrastructure ETF	IGF	ETF	S&P Global Infrastructure	40
SPDR S&P Global Infrastructure ETF	GII	ETF	S&P Global Infrastructure	40
Fixed Income Sectors				
FIAM Emerging Market Debt Pool		Commingled Pool	J.P.Morgan EMBI Global Diversified	65
Fidelity New Markets Income Fund	FNMIX	Mutual Fund	J.P.Morgan EMBI Global Diversified	65
iShares J.P. Morgan USD Emerging Markets Bond ETF	EMB	ETF	J.P.Morgan EMBI Global Core	39
FIAM Floating Rate High Income Pool		Commingled Pool	Morningstar LSTA US Loan	50
Invesco Senior Loan ETF	BKLN	ETF	Morningstar LSTA US Loan	65
Regional Equities				
iShares MSCI Emerging Markets ex China ETF	EMXC	ETF	MSCI Emerging Markets ex China	25
iShares MSCI China ETF	MCHI	ETF	MSCI China	57
iShares MSCI Japan ETF	EWJ	ETF	MSCI Japan	50
Fidelity Advisor Japan Fund Class I	FJPIX	Mutual Fund	Tokyo Stock Price	84
Fidelity Advisor Canada Fund Class I	FICCX	Mutual Fund	S&P/TSX Composite	55
FIAM Select Canada Equity Pool		Commingled Pool	S&P/TSX Composite	45
iShares MSCI Canada ETF	EWC	ETF	MSCI Canada	50

Value, Growth, Low Vol slices of Developed Market Equities

Commodity equities and Gold

US equity sectors

Leveraged Loans and Emerging Markets Debt

Regional equities; separate China from Emerging Markets

Diversification does not ensure a profit or guarantee against a loss.

Business Cycle Approach to Equity Sectors

A disciplined business cycle approach to sector allocation seeks to generate active returns by favoring industries that may benefit from cyclical trends. Economically sensitive sectors historically have performed better in the early- and mid-cycle phases of an economic expansion. Meanwhile, companies in defensive sectors with relatively more stable earnings growth have tended to outperform in weaker environments.

BUSINESS CYCLE APPROACH TO SECTORS

Sector	EARLY CYCLE Rebounds	MID CYCLE Peaks	LATE CYCLE Moderates	RECESSION Contracts
Financials	+			-
Real Estate	++	-	+	--
Consumer Discretionary	++		--	
Information Technology	+	+	-	--
Industrials	++			--
Materials	+	--		-
Consumer Staples	--	-	+	++
Health Care	--			++
Energy	--		++	--
Communication Services		+		-
Utilities	--	-	+	++
	Economically sensitive sectors have tended to outperform, while more defensive sectors have tended to underperform.	Making marginal portfolio allocation changes to manage drawdown risk with sectors may enhance risk-adjusted returns during this cycle.	Defensive and inflation-resistant sectors have tended to perform better, while more cyclical sectors underperform.	Since performance generally has been negative during recessions, investors should focus on the most defensive, historically stable sectors.

Past performance is no guarantee of future results. Sectors as defined by GICS. White line is a theoretical representation of the business cycle as it moves through early, mid, late, and recession phases. Green- and red-shaded portions above respectively represent over- or underperformance relative to the broader market; unshaded (white) portions suggest no clear pattern of over- or underperformance. Double +/– signs indicate that the sector is showing a consistent signal across all three metrics: full-phase average performance, median monthly difference, and cycle hit rate. A single +/– indicates a mixed or less consistent signal. Return data from 1962 to 2021. Source: Fidelity Investments (AART), as of 3/31/23.

Equity Factors Through The Business Cycle

Similarly to equity sectors, factor performance tends to vary during the cycle

BUSINESS CYCLE FACTOR HEATMAP (1986-2022)

	Early	Mid	Late	Recession
Value	++	++		
Yield	+		-	+
Size	++		--	--
Momentum		++	++	+
Quality			++	++
Low Volatility	--			++

Past performance is no guarantee of future results. Source: Fidelity Investments (AART), as of 3/31/23.

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Appendix

Performance Attribution (Gross)

1Y period ending March 31, 2023

Attribution Themes

- Total alpha was negative for the one-year period, with active allocation constituting the full negative return.
- Active allocation (measured by the sum of “Extended Alpha” and “Positioning Alpha”) was negative for the one-year period. An allocation to commodities and investment grade bonds and long Treasuries were the largest detractors. Overweight to non-US equities and an underweight to US equities added value.
- Underlying manager alpha was neutral for the period.

Asset Class/Security Name	Benchmark Name	Policy Avg Wt	Policy Return	Fund Avg Wt	Extended Alpha	Positioning Return	Positioning Alpha	Alloc Alpha	Fund Return	Fund Ctrb	Select Alpha	Total Alpha
US EQUITIES	**Blended Component BM (1)**	**42.35**	**-8.91**	**38.47**	**0.08**	**-8.58**	**0.15**	**0.23**	**-9.02**	**-3.75**	**-0.15**	**0.08**
FIAM Smid Cap Core	Russell 2500			2.73		-10.39	-0.20		-15.01	-0.44	-0.15	
FIAM Sm Cap Core	Russell 2000			0.00		-9.91	0.00		-8.77	0.00	0.00	
Spartan 500 Index	S&P 500			35.74		-7.73	0.36		-7.74	-3.31	0.00	
US REAL ESTATE	**FTSE NAREIT Eq REIT Link**		**-23.03**	**0.72**	**-0.11**	**-23.03**	**0.00**	**-0.11**	**-23.49**	**-0.28**	**-0.02**	**-0.13**
FIAM Reit Commingled Pool	FTSE NAREIT Eq REIT Link			0.72		-23.03	0.00		-23.49	-0.28	-0.02	
COMMODITIES	**BBG Commodity Ind**		**-12.49**	**3.96**	**-0.37**	**-12.49**	**0.00**	**-0.37**	**-13.12**	**-0.58**	**-0.04**	**-0.41**
Spartan Commdity Idx	BBG Commodity Ind			3.96		-12.49	0.00		-13.12	-0.58	-0.04	
NON-US EQUITIES	**Blended Component BM (2)**	**28.04**	**-5.84**	**30.30**	**0.17**	**-5.48**	**0.18**	**0.35**	**-4.40**	**-4.88**	**0.17**	**0.52**
FIAM Sisc Pool	S&P EPAC SmallCap (N)			1.32		-8.88	-0.04		-5.66	-0.04	0.03	
Spartan Dev Intl Idx	MSCI Wld ex US (N)			19.88		-2.74	0.21		-1.56	-0.21	0.11	
FIAM Select Eme	MSCI Emerging Markets (N)			9.10		-10.70	0.01		-9.74	-0.57	0.03	
US INVESTMENT GRADE BONDS	**BBg US Agg Bond**	**29.61**	**-4.78**	**16.86**	**-0.38**	**-4.78**	**0.00**	**-0.38**	**-4.46**	**-0.65**	**0.05**	**-0.33**
FIAM Broad Market Duration	BBg US Agg Bond			16.86		-4.78	0.00		-4.46	-0.65	0.05	
US LONG-TERM TREASURIES	**BBg US LT Treasury Bond**		**-16.00**	**3.00**	**-0.32**	**-26.32**	**-0.47**	**-0.79**	**-26.57**	**-1.26**	**-0.02**	**-0.81**
FIAM Long U.S. Treasury Strips	BBg US STRIP 25-30 Cus			3.00		-26.32	-0.47		-26.57	-1.26	-0.02	
US INFLATION PROTECTED BONDS	**BBg 1-10 TIPS**		**-2.92**	**5.86**	**0.20**	**-2.92**	**0.00**	**0.20**	**-2.87**	**-0.34**	**0.00**	**0.20**
FIAM Int Infl Pr Idx Cp A	BBg 1-10 TIPS			5.86		-2.92	0.00		-2.87	-0.34	0.00	
SHORT-TERM/CASH	**BBG 3M t-bill Bellwether**		**2.60**	**0.83**	**-0.16**	**2.60**	**0.00**	**-0.16**	**3.03**	**0.03**	**0.00**	**-0.16**
FIAM Instl Cash	BBG 3M t-bill Bellwether			0.83		2.60	0.00		3.03	0.03	0.00	
TOTAL FUND	**Alaska R MGMT Board**	**100.00**	**-6.61**	**100.00**	**-0.90**	**-7.64**	**-0.13**	**-1.03**		**-7.65**	**0.00**	**-1.04**

Blended Component BM (1): 10.3% MSCI USA Small Cap (N) + 89.7% MSCI US (N).

Blended Component BM (2): 61.6% MSCI Wld ex US (N) + 10.3% MSCI Wld Sm Cap x US (N) + 28.1% MSCI EM IMI (N).

For illustrative purposes only. Client data shown. Performance shown is gross of any fees and expenses, including advisory fees, which when deducted will reduce returns. Past performance is no guarantee of future results. Performance shown is gross of any fees and expenses, including advisory fees, which when deducted will reduce returns.

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Alaska Portfolio Performance

Holdings performance summary

	Cumulative Returns		Annualized Returns				
Performance Returns of Underlying Portfolios†	3-month	YTD	1-year	3-year	5-year	10-year	Since Inception
CAPITAL APPRECIATION							
Spartan 500 Equity Index (Gross)	**2.72**	**9.18**	**2.66**	**14.52**	**11.45**	**---**	**11.72**
S&P 500	2.72	9.17	2.66	14.52	11.45	---	11.72
Relative Return (Gross)	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*	---	*0.00*
Small/Mid Cap Core (Gross)	**(9.68)**	**(0.63)**	**(8.62)**	**9.81**	**3.65**	**8.14**	**9.56**
Russell 2500	(7.23)	2.04	(3.32)	13.63	6.32	8.89	8.34
Relative Return (Gross)	*(2.45)*	*(2.67)*	*(5.30)*	*(3.82)*	*(2.67)*	*(0.75)*	*1.22*
Select International Small Cap Gross)	**1.13**	**8.56**	**3.45**	**11.41**	**3.05**	**7.05**	**10.04**
S&P EPAC Small Cap	(0.30)	8.18	(0.56)	8.76	0.53	5.37	8.08
Relative Return (Gross)	*1.43*	*0.38*	*4.01*	*2.65*	*2.52*	*1.68*	*1.96*
Spartan Dev Intl Idx (Gross)	**2.40**	**11.21**	**8.45**	**12.51**	**4.30**		**5.23**
MSCI World ex US (N)	2.67	11.09	7.05	12.01	3.91		4.85
Relative Return (Gross)	*(0.27)*	*0.12*	*1.40*	*0.50*	*0.39*		*0.38*
Spartan Commodity Index (Gross)	**(5.84)**	**(6.28)**	**(17.02)**	**20.62**	**4.37**		**5.34**
BBG Commodity Ind TR	(5.61)	(6.07)	(16.60)	21.14	4.67		5.65
Relative Return (Gross)	*(0.23)*	*(0.21)*	*(0.42)*	*(0.52)*	*(0.30)*		*(0.31)*
Select Emerging Market Equity (Gross)	**(5.92)**	**3.87**	**(4.08)**	**4.18**	**(0.39)**	**3.62**	**8.15**
MSCI Emerging Markets (N)	(4.74)	2.78	(6.51)	4.33	(1.05)	1.80	7.40
Relative Return (Gross)	*(1.18)*	*1.09*	*2.43*	*(0.15)*	*0.66*	*1.82*	*0.75*

As of 4/30/23. Client data shown. Inception date: 10/31/18.

† The underlying pools/portfolios reflect the portfolio composition only as of 4/30/23. Different portfolios and different asset allocations may have existed during the performance period, impacting the performance of the account. Funds/pools identified are for informational purposes only and do not necessarily reflect portfolio performance.

Performance shown is gross of any fees and expenses, including advisory fees, which when deducted will reduce returns.

Past performance is no guarantee of future results.

Source: Fidelity Investments.

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Alaska Portfolio Performance

Holdings performance summary, continued

	Cumulative Returns		Annualized Returns				
	3-month	YTD	1-year	3-year	5-year	10-year	Since Inception
CAPITAL PRESERVATION							
Broad Market Duration (Gross)	**0.54**	**4.08**	**(0.08)**	**(1.26)**	**2.29**	**2.23**	**5.31**
BBg U.S. Agg Bond	0.49	3.59	(0.43)	(3.15)	1.18	1.32	4.75
Relative Return (Gross)	*0.05*	*0.49*	*0.35*	*1.89*	*1.11*	*0.91*	*0.56*
US Long STRIPS (Gross)	**(1.01)**	**9.77**	**(15.25)**	**(17.53)**	**(0.90)**	**1.09**	**1.61**
BBg US STRIPS 25-30	(1.30)	8.53	(15.25)	(17.69)	(0.99)	1.17	1.79
Relative Return (Gross)	*0.29*	*1.24*	*0.00*	*0.16*	*0.09*	*(0.08)*	*(0.18)*
Institutional Cash (Gross)	**1.20**	**1.60**	**3.42**	**1.29**	**1.68**	**1.19**	**1.50**
BBg 3M T-Bill	1.12	1.46	2.94	1.03	1.47	0.92	1.17
Relative Return (Gross)	*0.08*	*0.14*	*0.48*	*0.26*	*0.21*	*0.27*	*0.33*

As of 4/30/23.

Client data shown. Inception date: 10/31/18.

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Active Portfolio Weights Through Time

Asset Class	Pool/Portfolio Statistic	Index Bands	5/31/2022	6/30/2022	7/29/2022	8/31/2022	9/30/2022	10/31/2022	11/30/2022	12/30/2022	1/31/2023	2/28/2023	3/31/2023	4/28/2023
Capital Appreciation		70 +/-15%	4.6%	4.9%	4.2%	2.2%	1.9%	1.7%	2.2%	3.9%	2.5%	2.6%	3.1%	4.2%
US Equity	Spartan S&P 500 Index Pool		1.92%	1.8%	0.8%	-1.3%	-1.7%	-3.2%	-3.6%	-4.0%	-7.2%	-10.4%	-9.4%	-6.4%
	FIAM Small/Mid Cap Pool		-3.12%	-3.0%	-2.5%	-2.7%	-1.8%	-1.3%	-1.7%	-1.3%	-0.5%	1.2%	0.4%	-2.0%
	FIAM Small Cap Core Pool		0.00%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Non-US Developed Equity	Spartan Dev Intl Index		2.77%	2.8%	2.2%	1.5%	1.0%	1.2%	2.3%	3.6%	3.7%	6.7%	6.6%	7.6%
	FIAM Select International Small Cap Pool		-1.79%	-1.8%	-2.4%	-2.7%	-2.7%	-1.5%	-1.5%	-1.4%	-0.9%	-0.6%	-0.1%	0.2%
Emerging Market Equity	FIAM Select EM Pool		-0.52%	-0.5%	0.6%	1.4%	1.3%	1.6%	2.2%	2.2%	2.5%	3.9%	2.9%	2.8%
Commodities	Spartan Commodity Index Pool		4.07%	4.2%	4.1%	4.7%	4.8%	4.7%	4.5%	4.9%	4.7%	1.6%	2.7%	1.9%
US REITS	FIAM U.S. Real Estate Pool		1.29%	1.3%	1.4%	1.2%	1.0%	0.3%	0.0%	0.0%	0.2%	0.2%	0.0%	0.0%
High Yield	FIAM High Yield Bond Pool		0.00%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Capital Preservation		30 +/-15%	-4.62%	-4.9%	-4.2%	-2.2%	-1.9%	-1.7%	-2.2%	-3.9%	-2.5%	-2.6%	-3.1%	-4.2%
Core Bonds	FIAM BMD Pool		-14.64%	-14.7%	-14.8%	-13.5%	-14.4%	-12.7%	-12.7%	-10.3%	-6.8%	-10.3%	-7.3%	-6.8%
TIPS	FIAM Interm Inflation Protected Index Pool		6.29%	7.0%	7.8%	7.6%	9.7%	8.6%	7.0%	2.0%	1.9%	0.2%	0.0%	0.0%
Treasury Strips	FIAM Long Strips Pool		3.73%	2.9%	2.8%	3.7%	2.7%	2.3%	2.1%	2.1%	2.2%	2.1%	1.7%	2.3%
Cash	FIAM Institutional Cash		0.00%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	2.4%	0.3%	5.3%	2.5%	0.3%
Portfolio Statistics														
	Expected Active Equity Beta		0.01	0.01	0.01	-0.02	-0.01	-0.01	0.00	0.01	0.00	0.02	0.02	0.03
	Expected Active Beta to 70/30		0.01	0.02	0.01	-0.02	0.03	0.03	0.00	0.01	0.00	0.03	0.03	0.04
	Expected Active Duration		0.34	0.14	0.16	0.48	0.29	0.24	0.11	0.01	0.25	-0.05	-0.02	0.18
	Expected Tracking Error		0.9%	0.8%	0.8%	1.0%	1.0%	1.0%	0.9%	1.0%	1.1%	1.1%	1.1%	1.1%
	Expected Std Deviation		11.2%	11.5%	11.5%	11.1%	13.9%	14.1%	11.6%	11.6%	11.6%	11.9%	11.8%	11.9%
	Expected Active cVAR		-1.5%	-1.5%	-1.4%	-1.9%	-1.9%	-1.8%	-1.6%	-1.7%	-1.9%	-1.6%	-1.7%	-1.6%

	Historical Stats Trailing 1 Year	Historical Stats Trailing 2 Year	Expected Stats (Current)	Expected Stats** (Long Term for Mandate)
Portfolio Std Deviation	18.0%	14.6%	11.9%	11.0%-12.0%
Benchmark Std Deviation	17.1%	13.9%	11.4%	11.2%
Tracking Error	1.3%	1.2%	1.1%	1.5%
Active Beta to 70/30	0.05	0.04	0.04	0-0.03
Alpha*	-0.86%	0.48%	N/A	90-100 bps

As of 4/30/23.

* Geometric calculation used for alpha

**These are the long-term expectations for the Alaska Signaling mandate based on current process. The column to the left of this are the expected stats using the current portfolio weights. We don't recalculate alpha expectations every month, hence N/A.

For illustrative purposes only. Table above shows active risk targets and resulting portfolio risk statistics. Actual portfolio weights and risk stats may differ due to implementation.

Portfolio Statistics: Barra Risk Summary

	Long-term risk (MAC.XL)		Medium-term risk (MAC.L)	
	April 28	March 31	April 28	March 31
Portfolio risk	12.50%	12.38%	13.40%	13.43%
Benchmark risk	12.05%	12.10%	13.14%	13.38%
Active risk	1.25%	1.22%	1.30%	1.35%
Active Allocation risk vs Benchmark	1.16%	1.13%	1.19%	1.24%
Manager Selection risk	0.31%	0.33%	0.32%	0.35%
Correlation of Mngr Sel and Active Alloc	19%	15%	24%	19%
Portfolio Benchmark beta	1.033	1.018	1.015	0.998
Overall Active MSCI ACWI IMI beta	0.022	0.014	0.010	0.001
Active Allocation MSCI ACWI IMI beta	0.017	0.007	0.006	-0.005
Overall Active Duration	0.22	0.03	0.22	0.03

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Portfolio Changes

Rationale for key changes/explanation for large active positions

- Business cycle transitioned from early to mid-cycle in the beginning of 2021. While both early and mid-cycle promote an OW to equities and an UW to Core Bonds, we tend to hold more High Yield bonds earlier in the cycle and transition to international equities as the cycle progresses.
- Reduction in EM equities OW throughout 2021 was due to momentum and discretion of GIS PM team regarding concerns about Chinese slowdown.
- Inflation protection (Commodities and TIPS OW) increased during 2021 largely due to momentum and PM discretion that the market was underestimating the longevity of higher inflation. Also, a rising late cycle signal contributed to increased inflation protection in October 2021.
- Tracking error and beta was reduced starting in September 2021 while duration was increased due to a rising late-cycle signal and our discretionary view that chances of a mid-cycle correction were increasing due to weakness in China and concerns around inflation.
- During Q1 2022, we maintained our neutral equity beta positioning with a bias towards inflation-hedging assets. A tightening labor market, rising inflationary pressures, and signs of peaking economic growth have led us to pursue a neutral stance towards equity risk while incrementally adding to inflation protection. Our team continues to think that inflation will remain higher than expected for longer than expected as the drivers of inflation become more persistent.
- During Q2 2022 we reduced a bit the overall tracking error to reflect the higher uncertainty driven by monetary tightening and exogenous shocks: war in Ukraine and zero-covid policy in China. We increased the exposure to inflation protection as we've started to see higher odds of late cycle coupled with strong momentum. More recently we've added to duration and reduced the equity beta as the U.S. cycle has continued to mature.
- In H2 2022 we've continued to maintain inflation tilts while reducing the overall position in U.S. equities on maturing cycle and waning momentum. We closed our EM underweight in July and have been increasing the overweight due to better valuations and incrementally more constructive PM discretion. Our equity and duration tilts have remained relatively small.
- Late in Q4 2022, we continued to maintain inflation tilts, however, we've decreased our TIPS allocation based on significant change in our momentum indicator and to a lesser extent, PM discretion.
- Early in Q1 2023, with the U.S. economy firmly in late cycle and with recession risk on the horizon we increased our UW to U.S. large cap equities. This was mainly an intra-equity positioning as we increased the exposure to Emerging Markets (ongoing China reopening), Non-US Developed equities (better activity numbers leading to lower recession risk), and US Small Cap equities (more discounted than Large Caps and offering better optionality in the event of cycle improvement).

Biographies

Jordan Alexiev, CFA
Portfolio Manager

Jordan Alexiev is a portfolio manager in the Global Institutional Solutions (GIS) group at Fidelity Investments. Fidelity Investments is a leading provider of investment management, retirement planning, portfolio guidance, brokerage, benefits outsourcing, and other financial products and services to institutions, financial intermediaries, and individuals. GIS is an investment team within Fidelity's Asset Management Solutions division, an integrated investment, distribution, and client service organization dedicated to meeting the unique needs of the institutional marketplace.

In this role, Mr. Alexiev manages the Fidelity and Fidelity Advisor Macro Opportunities Funds. He also manages custom multi-asset class mandates for institutional investors and financial intermediaries. The team is dedicated to serving the needs of institutional asset owners that seek strategic support, guidance, customization, and active allocation.

Prior to assuming his current role in January 2021, Mr. Alexiev was a team leader in the Asset Allocation Research Team (AART) and was responsible for analyzing and synthesizing investment perspectives across Fidelity's asset management unit to generate insights on macroeconomic and financial market trends and their implications for asset allocation.

Prior to joining Fidelity in 2011, Mr. Alexiev was vice president and head of currency research at State Street. In this role, Mr. Alexiev was responsible for quantitative asset allocation research and was involved with managing active currency programs. He has been in the financial industry since 2003.

Mr. Alexiev earned his bachelor of science degree in economics and marketing from West Virginia Wesleyan College and his master of business administration and master of science in finance degrees from Boston College. He is also a CFA® charterholder.

Biographies

Kristin Shofner

Senior Vice President, Business Development

Kristin Shofner is senior vice president of business development within the Asset Management Solutions division at Fidelity Investments. Fidelity Investments is a leading provider of investment management, retirement planning, portfolio guidance, brokerage, benefits outsourcing, and other financial products and services to institutions, financial intermediaries, and individuals. The Fidelity Asset Management Solutions division is an integrated investment, distribution, and client service organization dedicated to meeting the unique needs of the institutional marketplace.

In this role, Ms. Shofner leads the development of relationships with public pension plans.

Prior to joining Fidelity in 2013, Ms. Shofner served as director of institutional sales and marketing at Lord, Abbett & Co. LLC. Previously, she served as manager of institutional sales and client services and as a manager research associate at Asset Strategy Consulting, later acquired by InvestorForce. She has been in the financial industry since 1998.

Ms. Shofner earned her bachelor of arts degree in history and sociology from the University of California at Santa Barbara where she ran Division I Cross Country and Track & Field. She was also a member of our United States Ekiden Relay Team in China and ran in the US Olympic Trials Women's Steeplechase in Atlanta.

Biographies

Ian Johnson

Institutional Portfolio Manager

Ian Johnson is an institutional portfolio manager for global asset allocation strategies at Fidelity Investments. Fidelity Investments is a leading provider of investment management, retirement planning, portfolio guidance, brokerage, benefits outsourcing, and other financial products and services to institutions, financial intermediaries, and individuals. The institutional portfolio management team is a group within Fidelity's Asset Management Solutions division, an integrated investment, distribution, and client service organization dedicated to meeting the unique needs of the institutional marketplace.

In this role, Mr. Johnson is responsible for the development and oversight of investment strategies associated with the institutional custom solutions business.

Prior to assuming his current position, Mr. Johnson served as head of institutional investment services for Fidelity's custom solutions business with responsibility for all operational activities. Previously, he was senior vice president of investment capability management responsible for providing product leadership for institutional alternative products across Fidelity's distribution channels. He has also held positions as vice president of product development and implementation and as vice president of operations.

In addition to working at Fidelity, Mr. Johnson was director of operations at Harvard Management Company. He has been in the financial industry since 1990.

Mr. Johnson earned his bachelor of arts degree in economics from Eckerd College and his master of science degree in finance from Boston College.

Biographies

Melissa Moesman
Vice President, Account Executive

Melissa Moesman is a vice president account executive within the Asset Management Solutions division at Fidelity Investments. Fidelity Investments is a leading provider of investment management, retirement planning, portfolio guidance, brokerage, benefits outsourcing, and other financial products and services to institutions, financial intermediaries, and individuals. The Fidelity Asset Management Solutions division is an integrated investment, distribution, and client service organization dedicated to meeting the unique needs of the institutional marketplace.

In this role, Ms. Moesman is responsible for account management for both public and private institutional clients.

Prior to joining Fidelity in 2006, Ms. Moesman served as a relationship manager at Linedata Services. Previously, she held various client-related roles at Investors Bank & Trust Company, where she managed a corporate actions accounting group and the endowment, foundation, and institutional product line. Ms. Moesman also managed the donor relations program at Wellesley College. She has been in the financial industry since 2000.

Ms. Moesman earned her bachelor of arts degree from Wellesley College and her master of business administration degree from Babson College. She also holds the Financial Industry Regulatory Authority (FINRA) Series 7 and 63 licenses.

Important Information

Please read this information carefully. Speak with your relationship manager if you have any questions.

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ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	Crestline Direct Lending Fund IV	ACTION:	X
DATE:	June 15-16, 2023	INFORMATION:	

BACKGROUND:

In February 2015, the Alaska Retirement Management Board (ARMB) approved a commitment of $50 million to Crestline Investors' Specialty Lending Fund (SLF I). In June 2017, ARMB approved a commitment of $60 million to Crestline Investors' Specialty Lending Fund II (SLF II). In March 2021, ARMB approved a commitment of $100 million to Crestline Investors' Specialty Lending Fund III (SLF III). Crestline is currently fundraising for a fourth lending fund, Crestline Direct Lending Fund IV (DLF IV) with the same strategy.

Crestline's direct lending funds make strategic investments in sponsored and non-sponsored, directly originated senior secured loans to lower-middle and middle market companies. The strategy focuses on industries with recurring revenues, multi-site businesses, and/or with asset backing.

The direct lending investment team is composed of 40 investment professionals with significant credit and restructuring experience. Prior to joining Crestline, the direct lending leadership worked together at Goldman Sachs Special Situations Group between 2004 and 2011. At Crestline, they built out their direct lending team with other key members from the Goldman Sachs Special Situations Group.

STATUS:

The portfolio construction and performance of SLF I, SLF II and SLF III have been consistent with staff's expectations for targeted leverage, first lien exposure, default rates, and loss rates. The overall net IRR for SLF I was 12.50% as of December 16, 2022. The overall net IRR for SLF II and SLF III was 11.28% and 13.05% respectively, as of March 31, 2023.

Staff has regularly monitored and reviewed the performance of SLF I, SLF II and SLF III and has evaluated the investment opportunity for DLF IV, leading to the recommendation to make a commitment of up to $100 million to Crestline Direct Lending Fund IV, L.P.

RECOMMENDATION:

That the Alaska Retirement Management Board direct staff to negotiate with Crestline Investors for a commitment of up to $100 million to Crestline Direct Lending Fund IV, L.P. subject to successful contract and fee negotiations.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	Fidelity Signaling Portfolio Enhancements	ACTION:	X
DATE:	June 15-16, 2023	INFORMATION:	

BACKGROUND

Fidelity was hired by the Alaska Retirement Management Board (ARMB) in 2018 to invest in a global multi-asset strategy. The strategy is based on the expectation that the stage of the business cycle, valuation, and momentum drive asset class performance and risk characteristics. Portfolio risk and allocation is adjusted over time based on the assessment of the systematic drivers as well as portfolio manager discretion. The objective is to deliver 90-100 basis points of excess returns over a full market cycle.

The Fidelity Signaling portfolio is in ARMB's Multi-Asset Asset Class. The portfolio is composed of underlying funds. Originally, the portfolio was able to utilize the following building block portfolios: U.S. Equity, Developed Non-U.S. Equity, Emerging Market Equity, U.S. High Yield, U.S. Core Bonds, U.S. Long STRIPS, U.S. TIPS, Commodities, and Cash. In March 2021, two additional building blocks were added: FIAM Small Capitalization Core Commingled Pool and FIAM REIT Commingled Pool.

STATUS

As part of a portfolio improvement process, staff and Fidelity have collaborated to identify a broader set of investment funds which should improve overall portfolio diversification and increase prospects for generating alpha.

Staff recommends the board direct staff to make the necessary changes to the Fidelity Signaling investment guidelines and contract to add the underlying funds listed in Appendix A to the ARMB portfolio's investable opportunity set.

The addition of these funds will cause no change to the current fee structure.

RECOMMENDATION

The Alaska Retirement Management Board direct staff to make the necessary changes to the Fidelity Signaling investment guidelines and contract to add additional underlying funds as detailed in Appendix A.

Appendix A

FIAM Pools
FIAM Global Low Volatility Pool
FIAM US Low Volatility Pool
FIAM Emerging Markets Debt Pool
FIAM Floating Rate High Income Pool
FIAM Select Canada Equity Pool

Mutual Funds	
Fidelity Global Commodity Stock Fund	FFGCX
Fidelity Advisor Canada Fund Class I	FICCX
Fidelity Select Gold Portfolio	FSAGX
Fidelity Large Cap Growth Index Fund	FSPGX
Fidelity Advisor Japan Fund Class I	FJPIX
Fidelity Large Cap Value Index Fund	FLCOX
Fidelity Mid Cap Value Index Fund	FIMVX
Fidelity Small Cap Value Index Fund	FISVX
Fidelity Mid Cap Growth Index Fund	FMDGX
Fidelity Small Cap Growth Index Fund	FECGX
Fidelity New Markets Income Fund	FNMIX

ETFs	
VanEck Gold Miners ETF	GDX
Fidelity MSCI Communication Services ETF	FCOM
Fidelity MSCI Consumer Discretionary ETF	FDIS
Fidelity MSCI Consumer Staples ETF	FSTA
Fidelity MSCI Energy ETF	FENY
Fidelity MSCI Financials ETF	FNCL
Fidelity MSCI Health Care ETF	FHLC
Fidelity MSCI Industrials ETF	FIDU
Fidelity MSCI Information Technology ETF	FTEC
Fidelity MSCI Materials ETF	FMAT
Fidelity MSCI Utilities ETF	FUTY
Fidelity MSCI Real Estate ETF	FREL
iShares MSCI China ETF	MCHI
iShares MSCI Global Gold Miners ETF	RING
iShares MSCI USA Min Vol Factor ETF	USMV
SPDR S&P Global Natural Resources ETF	GNR
SPDR S&P Global Infrastructure ETF	GII
iShares Global Infrastructure ETF	IGF
iShares MSCI Global Min Vol Factor ETF	ACWV
Invesco Senior Loan ETF	BKLN
iShares MSCI EAFE Min Vol Factor ETF	EFAV
iShares MSCI EAFE Growth ETF	EFG
iShares MSCI EAFE Value ETF	EFV
iShares J.P. Morgan USD Emerging Markets Bond ETF	EMB
iShares MSCI Emerging Markets ex China ETF	EMXC
iShares MSCI Canada ETF	EWC
iShares MSCI Japan ETF	EWJ

Callan

2023 Asset Allocation Options

June 16, 2023

Alaska Retirement Management Board

Ivan Cliff, CFA
Head of Research

Jay Kloepfer
Capital Market Research

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Fund Sponsor Consulting

Adam Lozinski, CFA
Capital Market Research

Customized 10-Year ARMB Capital Market Projections – PERS & TRS Target

ARMB Asset Allocation Model 2023-2032

		PROJECTED RETURN		PROJECTED RISK	
Asset Class	**Target Weight**	**1-Year Arithmetic**	**10-Year Geometric Return**	**Annualized Standard Deviation**	**Projected Yield**
Public Equities	**45.0%**				
Broad US Equity	27.0%	8.75%	7.35%	18.05%	1.95%
Global Ex-US Equity	18.0%	9.45%	7.45%	21.25%	3.70%
Fixed Income	**19.0%**				
ARMB Core Fixed Income	19.0%	4.20%	4.15%	3.90%	4.20%
Multi-Asset	**8.0%**				
Multi-Asset	8.0%	7.10%	6.65%	11.05%	3.30%
Private Equity	**14.0%**				
Private Equity	14.0%	11.95%	8.50%	27.60%	0.00%
Real Assets	**14.0%**	**7.00%**	**6.35%**	**13.10%**	**4.35%**
Real Estate	4.90%	6.60%	5.75%	14.20%	4.40%
Timber	1.40%	6.45%	5.40%	15.60%	3.70%
Farmland	3.50%	6.65%	5.55%	15.95%	4.25%
Private Infrastructure	2.10%	7.15%	6.15%	15.45%	4.60%
REITs	2.10%	8.85%	6.90%	20.90%	4.65%
Cash Equivalents	**0.0%**				
Cash Equivalents	0.0%	2.75%	2.75%	0.90%	2.75%
Inflation			2.50%	1.60%	
Total Fund	**100.0%**	**8.10%**	**7.35%**	**13.97%**	**2.87%**

Projection set customized to reflect specific ARMB strategies:

- Real assets, opportunistic and fixed income

Current target projected to generate a return of 7.35% compounded over 10 years, at a risk (standard deviation) of 13.97%. This return is 110 bps higher than that projected last year for a slightly different target (6.25%).

Source: Callan LLC

2023 Correlation Assumptions for Customized ARMB Asset Class Set

Correlation Matrix	Broad US	Large	SMID	Glb ex US	Int'l	Emerge	Dom Fix	ARMB Fix	Multi-A	Priv Cred	Core RE	Timber	Farm	Priv Infra	US REITs	Real A	HF	PE	Cash	CPI
Broad US Equity	**1.000**																			
Large Cap US Equity	0.996	**1.000**																		
Small/Mid Cap US Equity	0.915	0.876	**1.000**																	
Global ex-US Equity	0.797	0.771	0.830	**1.000**																
Developed ex-US Equity	0.754	0.728	0.795	0.986	**1.000**															
Emerging Market Equity	0.817	0.795	0.835	0.953	0.890	**1.000**														
Core US Fixed	0.016	0.024	-0.019	-0.013	0.005	-0.044	**1.000**													
ARMB Fixed Income	0.016	0.023	-0.019	-0.014	0.003	-0.045	1.000	**1.000**												
Multi-Asset	0.951	0.938	0.912	0.922	0.895	0.904	0.153	0.152	**1.000**											
Private Credit	0.701	0.690	0.680	0.678	0.650	0.680	0.000	-0.001	0.719	**1.000**										
Core Real Estate	0.441	0.435	0.421	0.424	0.415	0.410	0.145	0.145	0.473	0.250	**1.000**									
Timber	0.528	0.520	0.510	0.493	0.480	0.480	0.150	0.150	0.556	0.350	0.660	**1.000**								
Farmland	0.559	0.550	0.540	0.509	0.505	0.480	0.130	0.129	0.580	0.340	0.600	0.640	**1.000**							
Private Infrastructure	0.487	0.480	0.470	0.472	0.460	0.460	0.150	0.149	0.523	0.270	0.760	0.630	0.590	**1.000**						
US REITs	0.785	0.770	0.775	0.760	0.735	0.750	0.010	0.009	0.808	0.580	0.490	0.450	0.480	0.460	**1.000**					
Real Assets II	0.674	0.664	0.654	0.640	0.626	0.620	0.141	0.141	0.708	0.427	0.893	0.784	0.828	0.830	0.706	**1.000**				
Hedge Funds	0.675	0.670	0.630	0.648	0.630	0.633	0.290	0.289	0.734	0.510	0.280	0.400	0.450	0.300	0.500	0.464	**1.000**			
Private Equity	0.804	0.795	0.767	0.778	0.761	0.753	-0.086	-0.086	0.814	0.670	0.550	0.570	0.560	0.600	0.770	0.738	0.480	**1.000**		
Cash Equivalents	-0.065	-0.060	-0.080	-0.103	-0.100	-0.100	0.150	0.161	-0.063	-0.040	0.000	-0.010	-0.030	-0.040	-0.050	-0.029	-0.040	0.000	**1.000**	
Inflation	-0.013	-0.020	0.020	0.011	0.000	0.030	-0.230	-0.229	-0.038	-0.050	0.200	0.100	0.060	0.100	0.100	0.148	0.050	0.060	0.050	**1.000**

Source: Callan LLC

Expanding the Length of the Forecast Horizon

10-Year vs. Equilibrium Capital Market Expectations

- As the time horizon grows beyond 10 years, our capital market expectations increasingly incorporate "equilibrium returns". Equilibrium returns reference ***long-term historical mean results***, with an overlay of informed judgment. Key elements to consider:
  - Nominal returns
  - Inflation
  - Real returns
  - Risk premium – bonds over cash, stocks over bonds, long duration over short
  - Long-term underlying economic growth (real GDP)
- 10-Year expectations:
  - Large Cap Stocks: 7.25% nominal, 4.75% real, 3.0% premium over bonds
  - Bonds: 4.25% nominal, 1.75% real, 1.50 % premium over cash
  - Cash: 2.75% nominal, .25% real
  - Inflation: 2.5%
  - Underlying economic growth (real GDP) – 2 to 2.5% per year
- Equilibrium expectations:
  - Large Cap Stocks: 8.50% nominal, 6.0% real, 3.4% premium over bonds
  - Bonds: 5.1% nominal, 2.6% real, 2.05% premium over cash
  - Cash: 3.05% nominal, 0.55% real
  - Inflation: 2.5%
  - Underlying economic growth (real GDP) – 3% per year

As Time Horizon Increases, Expected Returns Increase

Transition from 10-Year to 20-Year Horizon – Heading Toward LT Equilibrium

AssetClass	2023-2032 10-Year Annualized Return	2023-2042 20-Year Annualized Return	2023-2052 30-Year Annualized Return	Long-Term Annualized Equilibrium Return	Projected Standard Deviation
Broad US Equity	7.35%	7.65%	7.90%	8.55%	18.07%
Large Cap US Equity	7.25%	7.50%	7.75%	8.35%	17.75%
Small/Mid Cap US Equity	7.45%	7.85%	8.25%	9.05%	22.15%
Global ex-US Equity	7.45%	7.80%	8.15%	8.80%	21.26%
Developed ex-US Equity	7.25%	7.50%	7.75%	8.30%	20.15%
Emerging Market Equity	7.45%	8.00%	8.50%	9.40%	25.70%
Core US Fixed	4.25%	4.45%	4.65%	5.10%	4.10%
ARMB Fixed Income	4.15%	4.35%	4.55%	5.00%	3.90%
Multi-Asset	6.65%	6.95%	7.20%	7.75%	11.07%
Private Credit	7.00%	7.25%	7.55%	8.15%	15.50%
Core Real Estate	5.75%	6.15%	6.50%	7.35%	14.20%
Timber	5.40%	5.85%	6.25%	7.10%	15.60%
Farmland	5.55%	5.85%	6.35%	7.20%	15.95%
Private Infrastructure	6.15%	6.60%	7.00%	7.85%	15.45%
US REITs	6.90%	7.20%	7.45%	8.00%	20.90%
Real Assets	6.35%	6.70%	7.10%	7.90%	13.10%
Hedge Funds	5.55%	5.60%	5.70%	5.90%	8.45%
Private Equity	8.50%	8.85%	9.15%	9.55%	27.60%
Cash Equivalents	2.75%	2.85%	2.90%	3.05%	0.90%

Source: Callan LLC

Focus on 20-Year Horizon – PERS ($19.4 b) & TRS ($9.3b at 12/31/22)

Achieve 4.75% Real Return over 20-Year Horizon

ARMB adopted new target portfolio following the 2019 asset-liability study, and refined the target in the 2021 and 2022 asset allocation reviews

- Duration, cash flows and demographic forecasts suggest the investment time horizon for PERS and TRS remains long
- The 2023 10-year capital market forecasts gives investors some breathing room to meet a fixed return goal, with substantially higher return expectations for stocks and particularly for bonds
- Extending the forecast horizon enabled the plans to moderate exposure to risk assets while still meeting the return target over this longer horizon
- The target represents the risk posture of the plans and acknowledges future liquidity needs

Portfolios optimized using broad US and non-US equity, broad US fixed income, real assets and private equity

- Opportunistic is modeled as 60/40 exposure to public market stocks and bonds
- Real assets modeled using current target weights to each component within the total real asset composite
  - *35% Real estate*
  - *10% Timber*
  - *25% Farmland*
  - *15% Private Infrastructure*
  - *15% REITs*

Fixed income modeled as 95% broad market (BB Aggregate) and 5% cash

Customized 20-Year ARMB Capital Market Projections – PERS & TRS Target

ARMB Asset Allocation Model 2023-2042

		PROJECTED RETURN		PROJECTED RISK	
Asset Class	**Target Weight**	**1-Year Arithmetic**	**20-Year Geometric Return**	**Annualized Standard Deviation**	**Projected Yield**
Public Equities	**45.0%**				
Broad US Equity	27.0%	9.05%	7.65%	18.05%	1.95%
Global Ex-US Equity	18.0%	9.80%	7.80%	21.26%	3.70%
Fixed Income	**19.0%**				
ARMB Core Fixed Income	19.0%	4.45%	4.45%	4.10%	4.30%
Multi-Asset	**8.0%**				
Multi-Asset	8.0%	7.35%	6.95%	11.05%	3.30%
Private Equity	**14.0%**				
Private Equity	14.0%	12.30%	8.85%	27.60%	0.00%
Real Assets	**14.0%**	**7.40%**	**6.70%**	**13.10%**	**4.35%**
Real Estate	4.90%	7.00%	6.15%	14.20%	4.40%
Timber	1.40%	6.90%	5.85%	15.60%	3.70%
Farmland	3.50%	6.95%	5.85%	15.95%	4.25%
Private Infrastructure	2.10%	7.60%	6.60%	15.45%	4.60%
REITs	2.10%	9.15%	7.20%	20.90%	4.65%
Cash Equivalents	**0.0%**				
Cash Equivalents	0.0%	2.80%	2.85%	0.90%	2.75%
Inflation			2.50%	1.60%	
Total Fund	**100.0%**	**8.38%**	**7.64%**	**13.97%**	**2.87%**

Projection set customized to reflect specific ARMB strategies:

- Real assets, opportunistic and fixed income

Current target projected to generate a return of 7.64% compounded over 20 years, at a risk (standard deviation) of 13.97%. This return is 74 bps higher than that projected last year for the same target (6.90%).

Source: Callan LLC

Focus on 20-Year Time Horizon – PERS & TRS Target

Compare Return and Risk for 2023 vs. 2022 Capital Market Assumptions

- Target for 2023 (adopted in 2022) represents a portfolio designed to meet the goal of 7.25% nominal/4.75% real return over 20 years
- Inflation assumption is 2.5%, up from 2.25% projected in 2022
- 2023 assumptions suggest the target will generate a nominal return in excess of the 7.25%, an outperformance of 39 basis points (7.64%). Actuary's effective long term real return target is 4.75%
- Target shown at right is expected to generate a long-term (20-year) return that is above the plan's real return target (7.64% - 2.5% = 5.14%)
- Even with a higher inflation expectation, the real return of 5.14% is 49 bps above the projected real return in 2022.
- Target expected to generate a greater return for the same level of risk as a portfolio restricted to the public markets

	2023 Target for PRS/TRS	
	2023 Projection	2022 Projection
Broad US Equity	27	27
Global ex-US Equity	18	18
ARMB Fixed Income	19	19
Multi-Asset	8	8
Real Assets	14	14
Private Equity	14	14
Totals	100	100
Projected Arithmetic Return	8.08%	7.08%
10-year Compound Return	7.33%	6.29%
Projected Standard Deviation	13.97%	13.93%
Projected Arithmetic Return	8.38%	7.66%
20-year Compound Return	7.64%	6.90%
Projected Standard Deviation	13.97%	13.93%
Real Return (2.5% inflation for 2023, 2.25% for 2022)	5.14%	4.65%
Equity	59%	59%
Investment Grade Fixed Income	19%	19%
Alternatives	28%	28%

Source: Callan LLC

Alternative Asset Mixes 2023

ARMB Asset Allocation Model 10 and 20 years

	Mix 0 Target 7.25 20-yr	Mix 1 T23 + 3fix	Mix 2 T23 + 2fix	Mix 3 T23 + 1fix	Mix 4 FY 2023	Mix 5 T23 - 1fix
Broad US Equity	17.7	25	26	26	27	28
Global ex-US Equity	13.8	17	17	18	18	18
ARMB Fixed Income	32.5	22	21	20	19	18
Multi-Asset	8.0	8	8	8	8	8
Real Assets	14.0	14	14	14	14	14
Private Equity	14.0	14	14	14	14	14
Totals	100	100	100	100	100	100
10 Yr. Geometric Mean Return	6.95%	7.26%	7.28%	7.31%	7.33%	7.36%
Projected Standard Deviation	11.64%	13.44%	13.61%	13.80%	13.97%	14.14%
Projected Yield	3.10%	2.92%	2.90%	2.89%	2.87%	2.85%
Projected Sharpe Ratio	0.40%	0.39%	0.38%	0.38%	0.38%	0.38%
20 Yr. Geometric Mean Return	7.25%	7.56%	7.59%	7.62%	7.64%	7.67%
Projected Standard Deviation	11.64%	13.44%	13.61%	13.80%	13.97%	14.14%
Projected Yield	3.10%	2.92%	2.90%	2.89%	2.87%	2.85%
Real Return (2.5% inflation)	4.75%	5.06%	5.09%	5.12%	5.14%	5.17%
Equity (Public + Private + 60% Multi-Asset)	50%	61%	62%	63%	64%	65%
Fixed Income (ARMB fixed + 40% Multi-Asset)	36%	25%	24%	23%	22%	21%
Alts (Real + Private Equity)	28%	28%	28%	28%	28%	28%

Mix 4 is the ARMB FY 2023 portfolio

Alternative mixes 1 – 3 shift 1%, 2% and 3% into fixed income relative to the Target, funded from public equity, and mix 5 on the right reduces fixed income by 1%

Mix 0 is the portfolio that meets the nominal return target of 7.25% and real return target of 4.75%, using 20-year projections. The current exposures to multi-asset, real assets and private equity are held constant for this mix

Source: Callan LLC

Focus On 20-Year Horizon – Military

Compare Return and Risk for 2023 Capital Market Assumptions vs. 2022

- Current Target represents a portfolio expected to generate a nominal return of 6.80% over 20 years, or a real return of 4.30%
- 2023 assumptions suggest a nominal return that is 108 bps higher than that using the 2022 assumptions
- 2023 inflation assumption is 2.5%, up from 2.25% projected in 2022; despite this higher inflation projection, the expected real return is 83 bps higher than that projected in 2022

	2023 Projection	2022 Projection
Broad US Equity	20	20
Global ex-US Equity	13	13
ARMB Fixed Income	44	44
Multi-Asset	8	8
Real Assets	7	7
Private Equity	8	8
Totals	100	100
Projected Arithmetic Return	6.83%	5.36%
10-year Compound Return	6.53%	5.02%
Projected Standard Deviation	9.71%	9.48%
Projected Arithmetic Return	7.09%	6.04%
20-year Compound Return	6.80%	5.72%
Projected Standard Deviation	9.71%	9.48%
Real Return (2.25% inflation in 2022, 2.5% in 2023)	4.30%	3.47%
Equity	45%	45%
Fixed Income	47%	47%
Alts	15%	15%

Source: Callan LLC

Focus On 20-Year Horizon – Military Asset Mix Alternatives

Target 5.75% Nominal Return and a Range of Risk

		Mix 0 Target 5.75% Return	Mix 1 Target 6.7% Risk	Mix 2 Target 7.7% Risk	Mix 3 Target 8.7% Risk	Mix 4 Military 2023
	Broad US Equity	4	8	12	15	20
	Global ex-US Equity	3	6	9	12	13
	ARMB Fixed Income	70	63	56	50	44
	Multi-Asset	8	8	8	8	8
	Real Assets	7	7	7	7	7
	Private Equity	8	8	8	8	8
	Totals	100	100	100	100	100
10-Year Projection	Projected Arithmetic Return	5.57%	5.91%	6.25%	6.55%	6.83%
	10-year Compound Return	5.53%	5.82%	6.10%	6.33%	6.53%
	Projected Standard Deviation	5.66%	6.65%	7.74%	8.73%	9.71%
20-Year Projection	Projected Arithmetic Return	5.80%	6.15%	6.50%	6.81%	7.09%
	20-year Compound Return	5.77%	6.07%	6.36%	6.59%	6.80%
	Projected Standard Deviation	5.66%	6.65%	7.74%	8.73%	9.71%
	Real Return (2.5% Inflation)	3.27%	3.57%	3.86%	4.09%	4.30%
	Equity (Public + Private + 60% Multi-Asset)	19%	26%	33%	39%	45%
	Fixed Income (ARMB fixed + 40% Multi-Asset)	73%	66%	59%	53%	47%
	Alts (Real + Private Equity)	15%	15%	15%	15%	15%

Current policy target has an expected return of 6.80% over 20 years, 108 bps higher than that projected using the 2022 capital market assumptions

The alternative Mix 0 targets a 5.75% return, holding constant the current exposures to multi-asset, real assets and private equity. Given the higher projected return for all asset classes, and fixed income in particular, a portfolio targeting a 5.75% return target over 20 years would hold substantially more fixed income than the current portfolio.

Alternative Mixes 1 – 3 each target a risk that increases in steps of approximately 100 bps starting at Mix 0 and ending at the 2023 Military portfolio. These mixes represent potential steps to reduce risk compared to history. The Military plan's target asset allocation has had an expected risk around 9% for the past decade.

Source: Callan LLC

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THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Revenue
ALASKA RETIREMENT MANAGEMENT BOARD

Alaska Retirement Management Board

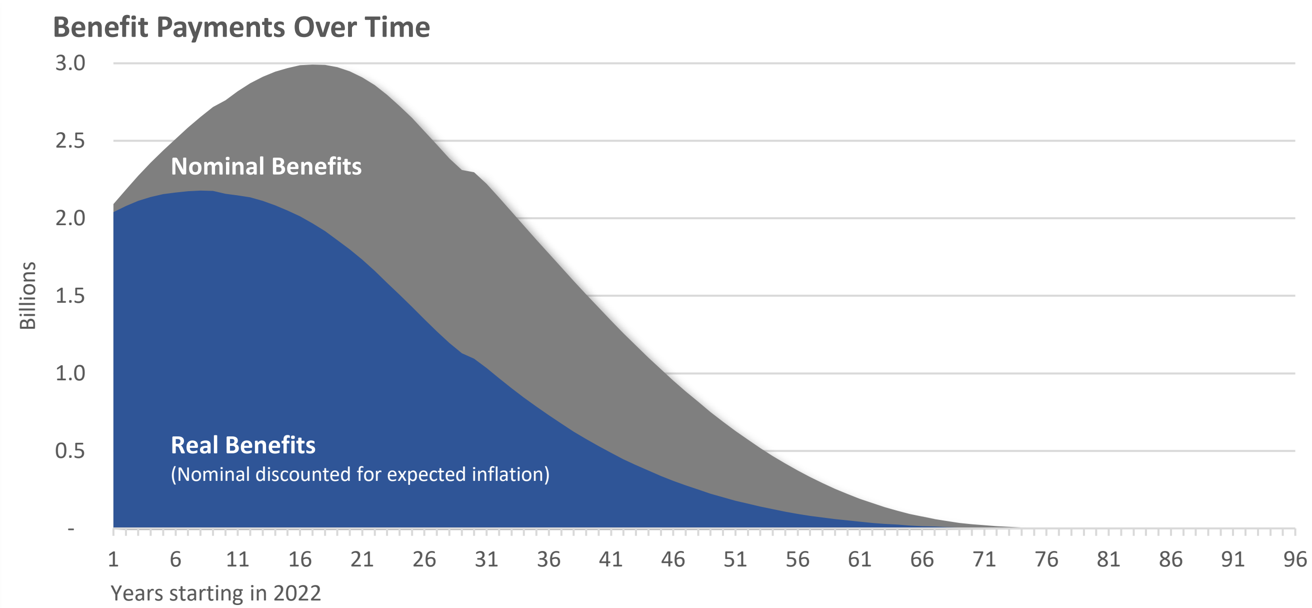
FY 2024 Asset Allocation

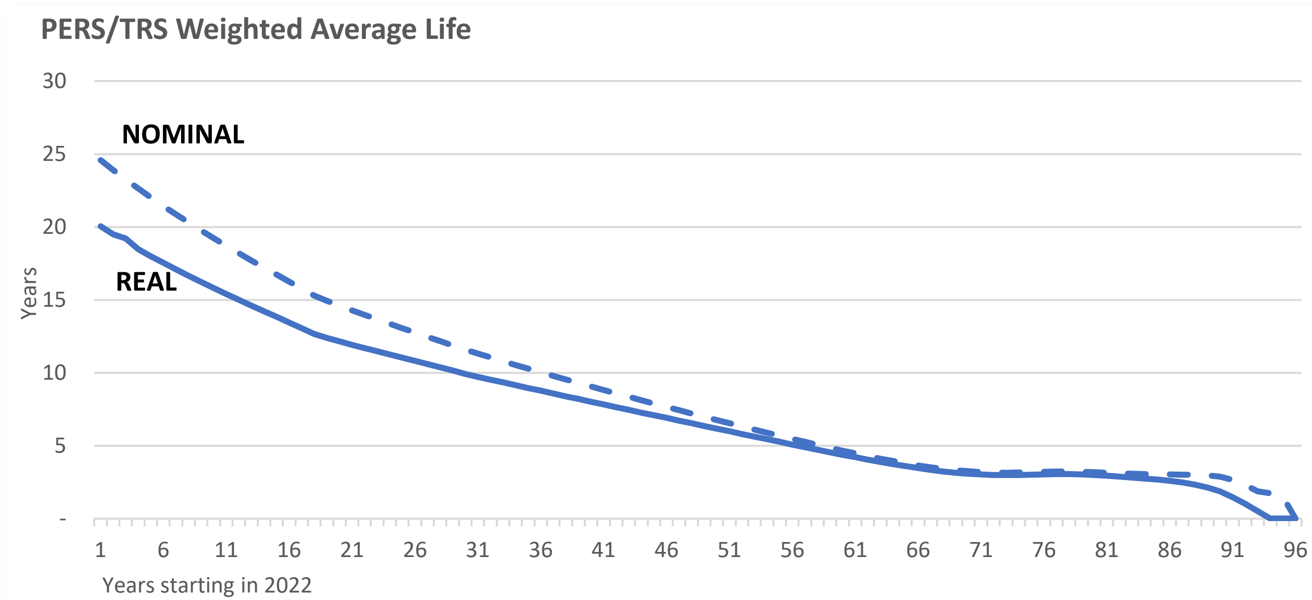
June 2023

Zachary Hanna, CFA
Chief Investment Officer, Treasury Division
Alaska Department of Revenue

Objective – Paying Benefits When They Are Due

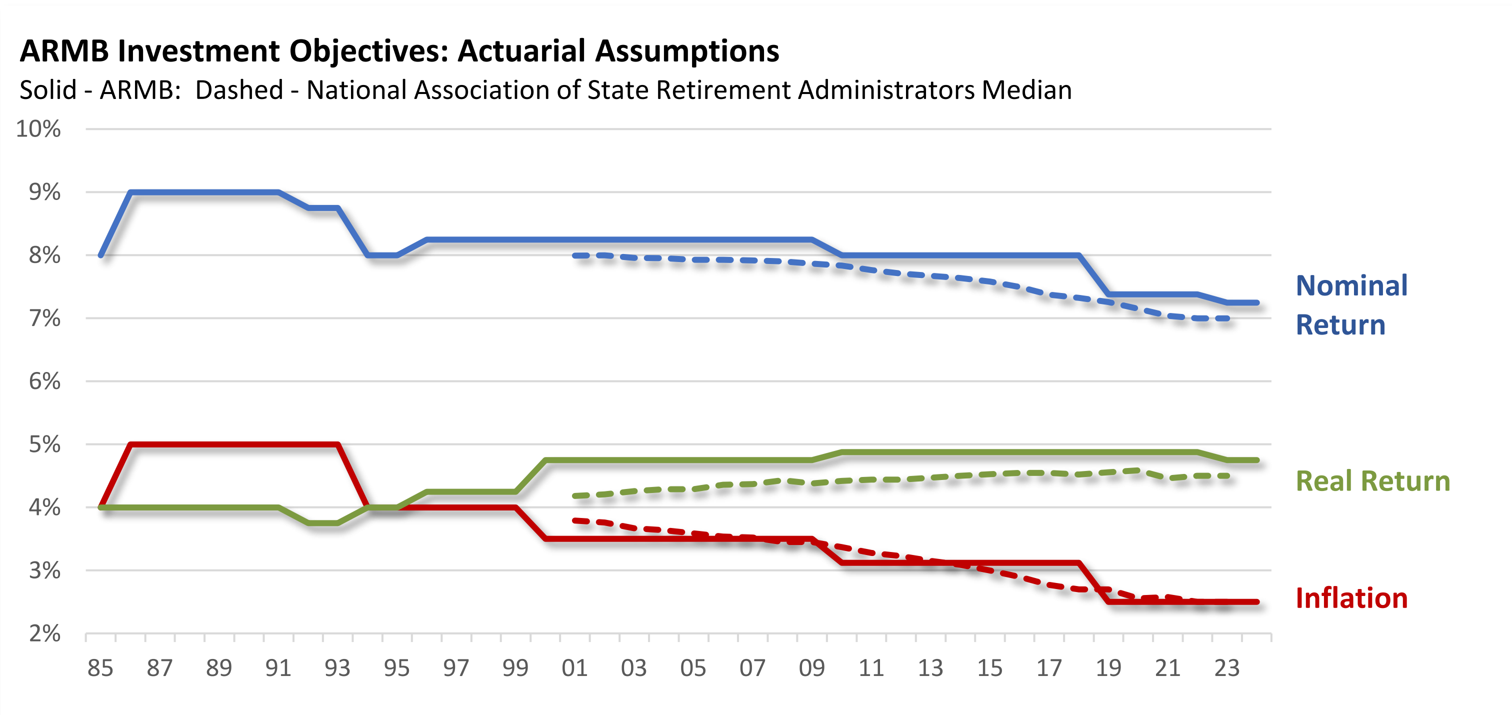
- The PERS and TRS defined benefit systems are closed and mature but expected payments do not peak for 10-20 years and extend 96 years into the future.
- Investment earnings are a critical bridge across the ~$30 billion gap between benefit payments and current assets.
- The systems are mature and have been closed since 2006. The weighted average life of the systems is 20-25 years.
- This is a reasonable estimate of the average investment time horizon of the funds.





Earnings Assumptions and Asset Allocation

- The ARMB sets earnings assumptions every four years and sets asset allocations annually.
- Asset allocation is the largest determinant of investment return and risk for the systems.
- The ARMB's asset allocation is the culmination of a process that includes capital market assumptions, evaluating time horizon, liquidity needs, and peer assumptions. The goal is to balance investment objectives, risk tolerance, and other attributes.
- The ARMB has typically focused on a combination of nominal and real return investment objectives depending on differences between actuarial and capital market assumptions.
- The current actuarial earnings expectations for PERS/TRS/JRS are a 7.25% nominal return and a 4.75% real return compared to the National Association of State Retirement Administrators (NASRA) averages of 7.00% and 4.50%.

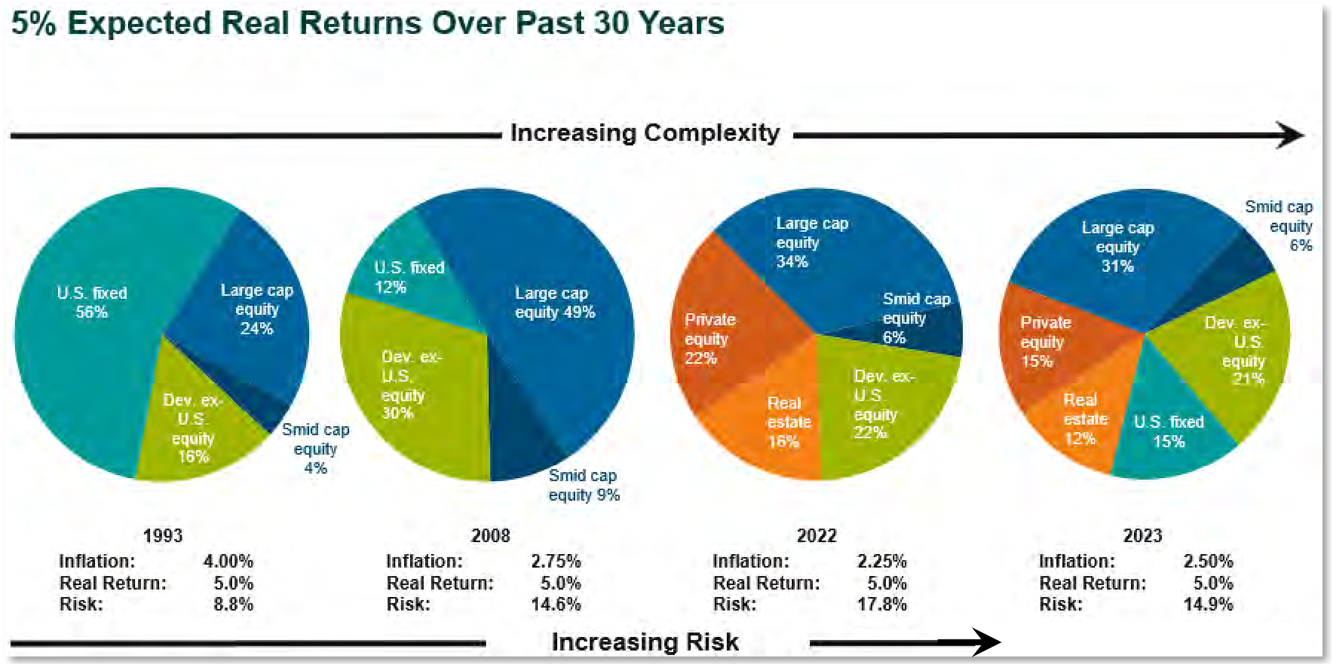


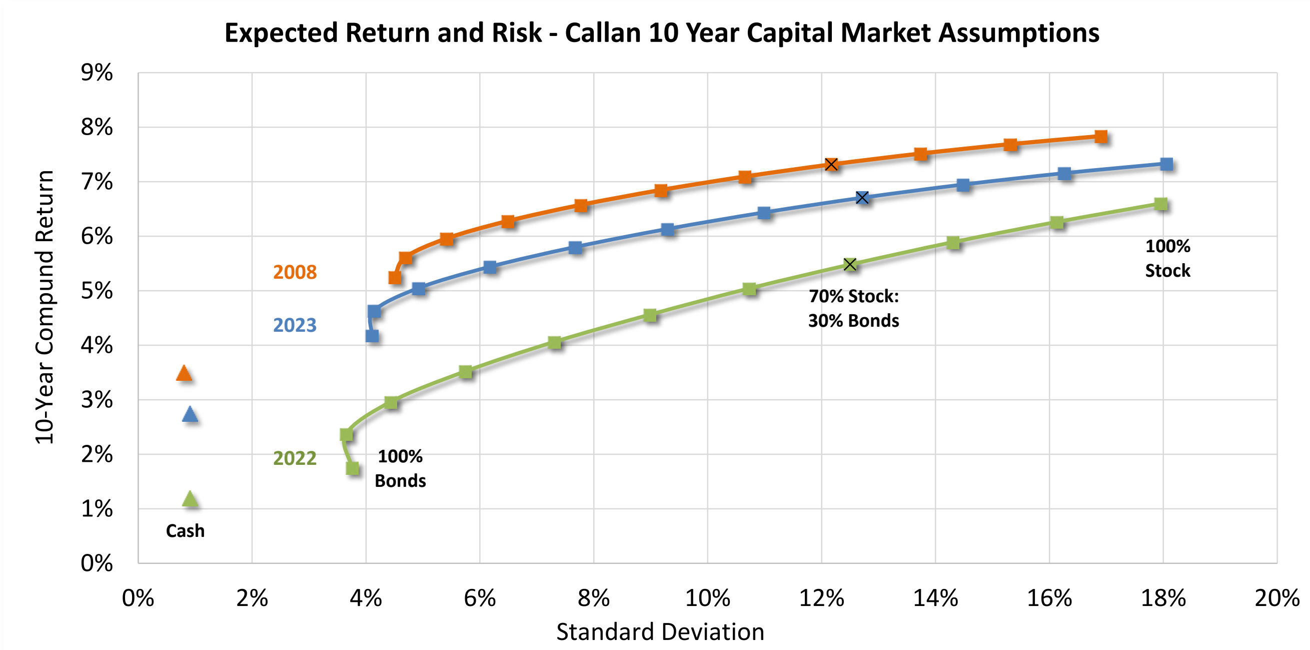
Earnings Expectations Over Time

- Positioning a portfolio to achieve a 5% real return has required increasing levels of risk and complexity over the past 30 years as interest rates have generally fallen.

- Forward return expectations have now increased due to inflation, higher starting interest rates and the pullback in equity markets.

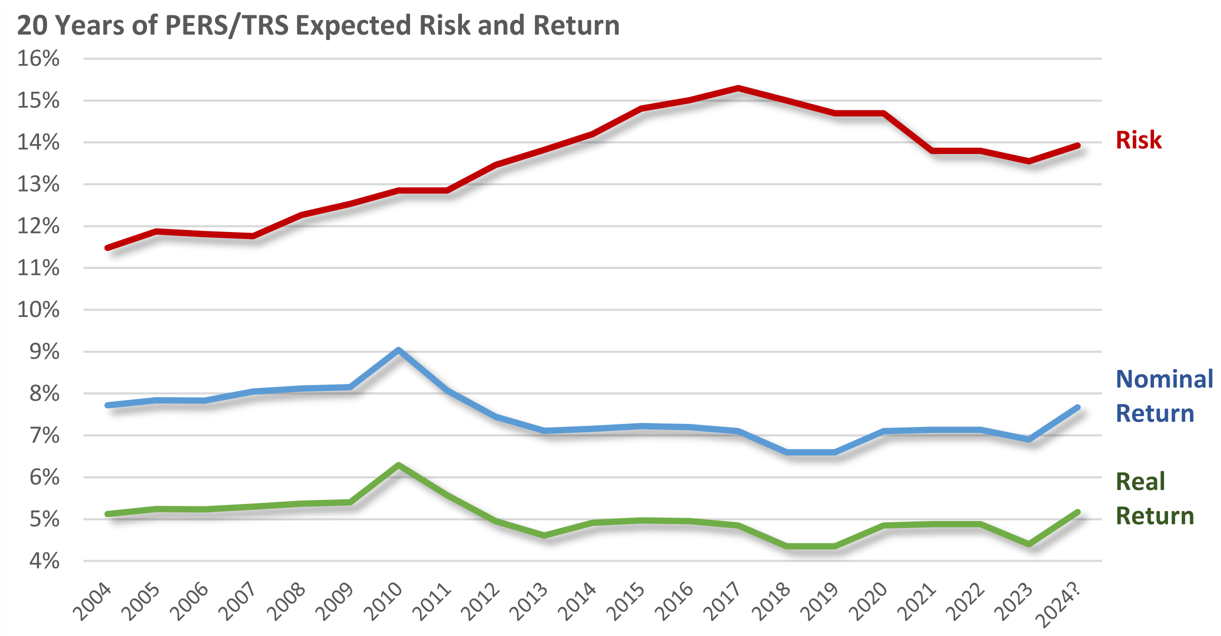
- Expected returns across the efficient frontier are now materially higher than last year, but less than expectations before the global financial crisis.





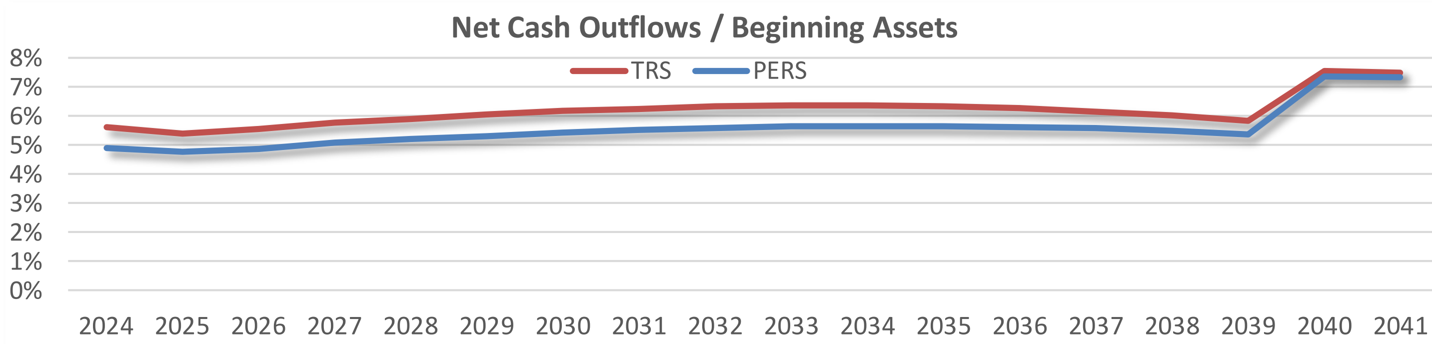
ARMB Asset Allocation Over Time

- Like most institutional investors, the ARMB's risk has generally risen over time, while real returns have remained relatively static.
- In 2020, the ARMB moved from Callan's standard 10-year asset allocation time horizon to a 20-year time horizon to better align assets and liabilities and moderate annual asset allocation changes.
- Forward return expectations have increased with a similar magnitude to 2009. Risk expectations have also increased.
- If the asset allocations for PERS, TRS, and NGNMRS remain the same, both expected risk and expected returns will increase for FY2024.
- The actuarial earnings assumption for PERS/TRS/JRS is 7.25% and 5.75% for NGNMRS.

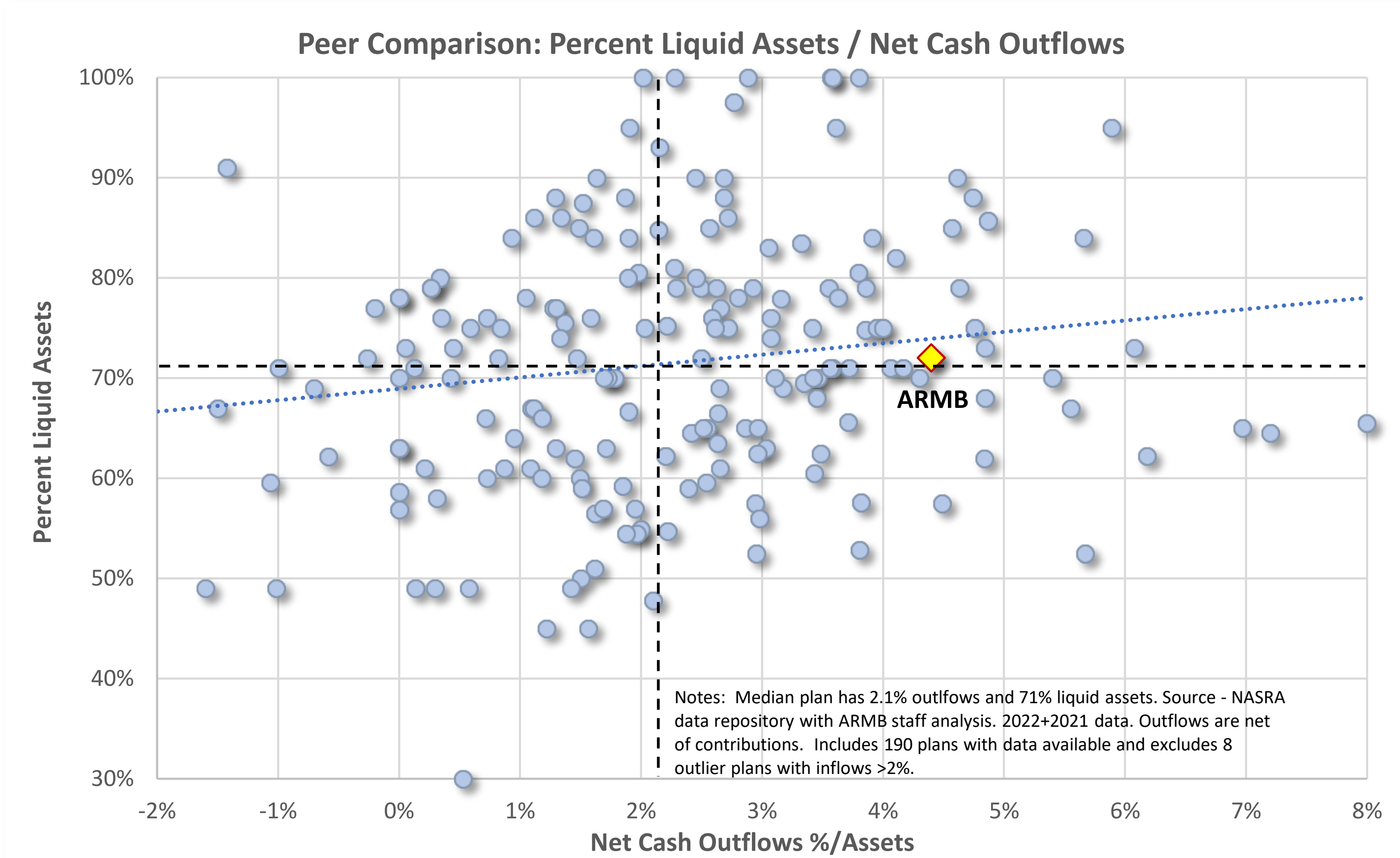


Liquidity Needs of a Maturing Retirement System

- PERS/TRS net cash outflows will increase over time, but the increase is expected to be relatively modest for the next 15 years.

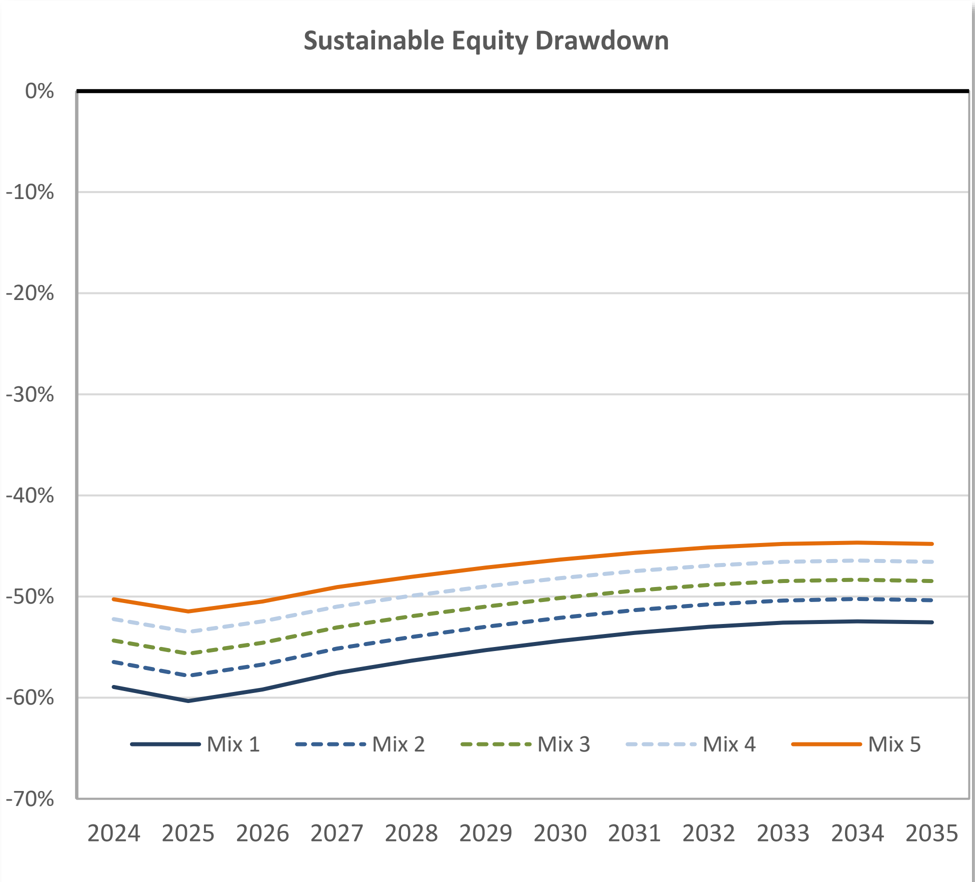


- The ARMB is closed with a shorter time horizon and higher liquidity needs than the median plan.
- The current level of liquid assets should be sufficient for medium-term plan needs.
- Liquidity plays two important roles:
  - Meeting fund outflows
  - Maintaining the ARMB's risk posture through rebalancing

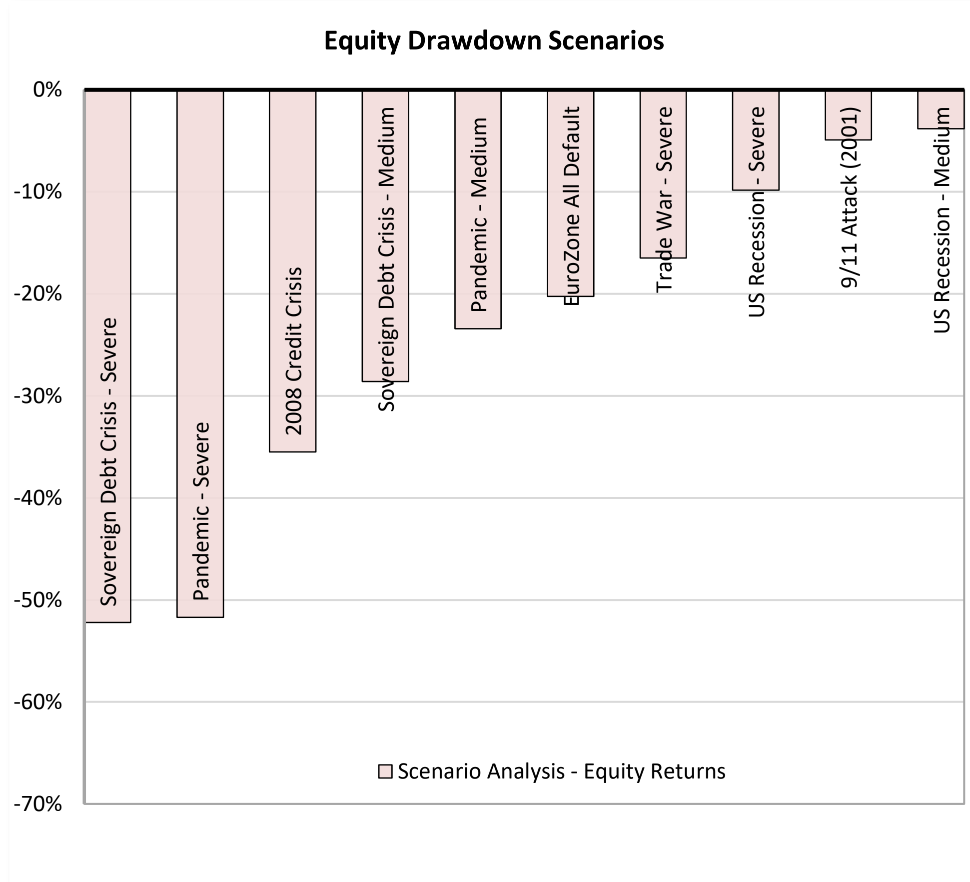


Liquidity, Market Stress, and Rebalancing

- The asset allocation mixes should allow the ARMB to rebalance during most periods of equity market stress.



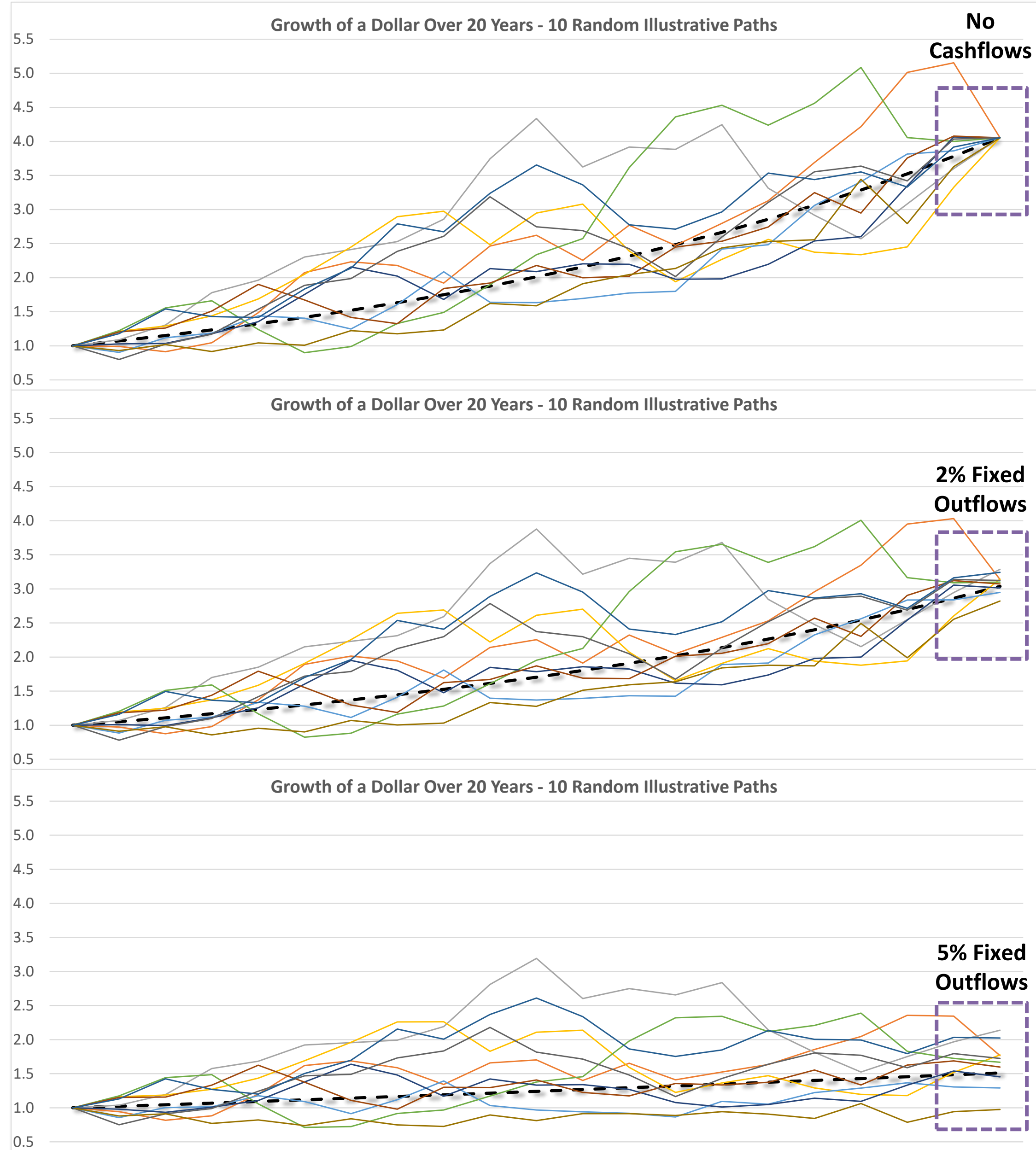
Note: This staff liquidity analysis has a 1-year time horizon and provides an estimate of the largest equity drawdown where the ARMB can still fully rebalance equities using the full fixed income rebalancing band with a 1-year reserve for benefit payments and a 1% reserve for alternative investments which are modeled with a 0.40 beta to equity markets.



Source: Staff and truView Risk Analytics

Outflows and Sequencing/Path Dependent Risk

- Returns are likely to vary above and below expectations over time in an unpredictable manner.
- With no cashflows, the path to the eventual compound return does not impact the ending value.
- Cashflows can have a large impact on ending values even if a fund achieves it's expected return over time, especially cashflows that are fixed or do not vary with fund balances.
- For the same eventual compound return, funds with cash outflows will generally have better outcomes with higher returns early and worse outcomes with lower returns early. The converse is true for funds with inflows.
- For the median fund with ~2% outflows, the variation in ending value over time between better and worse paths is not very material.
- For funds like the ARMB with ~5% outflows the difference between paths is more pronounced and this sequencing risk is another aspect of volatility faced by funds with higher outflows.
- Callan will be conducting an asset-liability study next year that will help to put the collective impact of downside risk and path dependence in context.

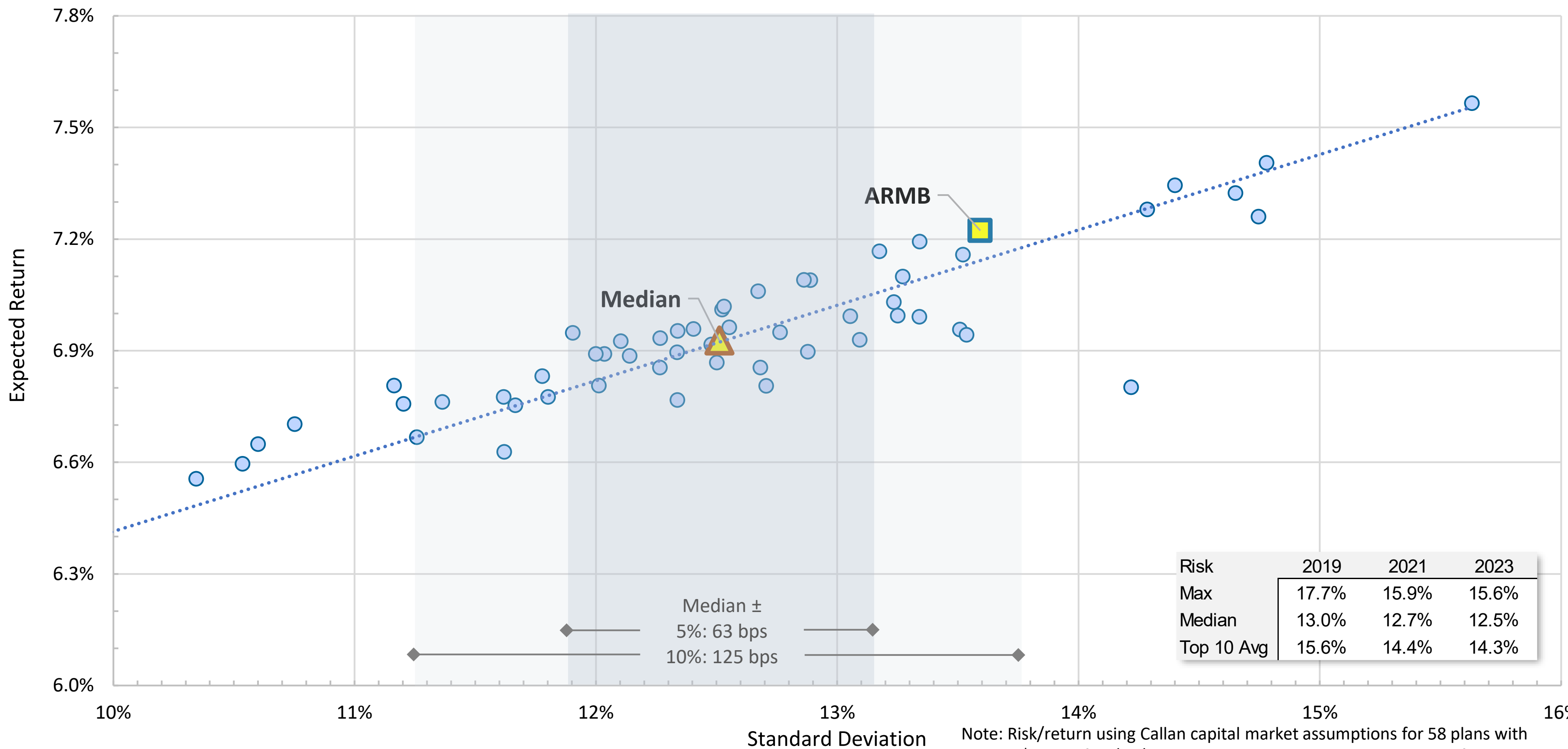


Note: These were the first 10 paths that yielded a 20-year compound return of 7.25% in a Monte Carlo simulation with the ARMB's risk and return. Cashflows were modeled as a percent of initial assets, increasing with 2.5% inflation annually.

Peer Risk Posture

- Comparing risk levels across plans is challenging since plan sponsor risk postures vary due to differing time horizons, asset/liability relationships, and other circumstances.
- The ARMB's risk posture is 9% higher than the median plan, up from 6% last year.

Peer Public Plan Risk and Return 2023
Callan 10 Year Capital Market Assumptions



Risk	2019	2021	2023
Max	17.7%	15.9%	15.6%
Median	13.0%	12.7%	12.5%
Top 10 Avg	15.6%	14.4%	14.3%

Note: Risk/return using Callan capital market assumptions for 58 plans with assets >$1B as of 12/31/22. 2 plans with risk below 10% excluded from display.

PERS/TRS/JRS Asset Allocation Recommendation

- Staff is recommending lowering the current risk of the portfolio modestly:
  - Callan's nominal and real return projections have increased materially – all the asset mixes are well in excess of last year's expected return of 6.9% and most are well above the 4.75% real return target.
  - The ARMB has a higher level of risk than most plans and fewer risk-enabling attributes.
  - The lower-risk mixes decrease equities and increase fixed income since fixed income has much higher yields after the correction in 2022 and alternative investments are relatively fixed in size over the shorter-term.

		Recommended			Current	
	Mix 0 Target 7.25 20-yr	Mix 1 T23 + 3fix	Mix 2 T23 + 2fix	Mix 3 T23 + 1fix	Mix 4 FY 2023	Mix 5 T23 - 1fix
Broad US Equity	17.7	25	26	26	27	28
Global ex-US Equity	13.8	17	17	18	18	18
ARMB Fixed Income	32.5	22	21	20	19	18
Multi-Asset	8.0	8	8	8	8	8
Real Assets	14.0	14	14	14	14	14
Private Equity	14.0	14	14	14	14	14
Totals	100	100	100	100	100	100
10 Yr. Geometric Mean Return	6.95%	7.26%	7.28%	7.31%	7.33%	7.36%
Projected Standard Deviation	11.64%	13.44%	13.61%	13.80%	13.97%	14.14%
Projected Yield	3.10%	2.92%	2.90%	2.89%	2.87%	2.85%
Projected Sharpe Ratio	0.40%	0.39%	0.38%	0.38%	0.38%	0.38%
20 Yr. Geometric Mean Return	7.25%	7.56%	7.59%	7.62%	7.64%	7.67%
Projected Standard Deviation	11.64%	13.44%	13.61%	13.80%	13.97%	14.14%
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Equity (Public + Private + 60% Multi-Asset)	50%	61%	62%	63%	64%	65%
Fixed Income (ARMB fixed + 40% Multi-Asset)	36%	25%	24%	23%	22%	21%
Alts (Real + Private Equity)	28%	28%	28%	28%	28%	28%

Source: Callan LLC

Staff Downside Statistics:						
5% Probable Loss (cVaR)	-17%	-20%	-20%	-21%	-21%	-21%
1% Probable Loss (cVaR)	-23%	-27%	-27%	-28%	-28%	-29%

National Guard and Naval Asset Allocation Recommendation

- Staff recommends lowering the current risk of the portfolio moderately:
  - The $44 million NGNMRS system has relatively fixed benefits, the system is overfunded, contributions have temporary stopped, and benefit payments have a long time horizon.
  - Callan's return expectations have increased materially, making it easier to achieve the actuarial earnings assumption of a 5.75% nominal return.
  - Although the new capital market assumptions support a materially lower level of risk, staff recommends a moderate approach to adjusting risk which focuses on achieving the actuarial return over the longer term and allows for annual variance, especially with sharp changes in capital market assumptions.

			Recommended		Current
	Mix 0 Target 5.75% Return	Mix 1 Target 6.7% Risk	Mix 2 Target 7.7% Risk	Mix 3 Target 8.7% Risk	Mix 4 Military 2023
Broad US Equity	4	8	12	15	20
Global ex-US Equity	3	6	9	12	13
ARMB Fixed Income	70	63	56	50	44
Multi-Asset	8	8	8	8	8
Real Assets	7	7	7	7	7
Private Equity	8	8	8	8	8
Totals	100	100	100	100	100
Projected Arithmetic Return	5.57%	5.91%	6.25%	6.55%	6.83%
10-year Compound Return	5.53%	5.82%	6.10%	6.33%	6.53%
Projected Standard Deviation	5.66%	6.65%	7.74%	8.73%	9.71%
Projected Arithmetic Return	5.80%	6.15%	6.50%	6.81%	7.09%
20-year Compound Return	5.77%	6.07%	6.36%	6.59%	6.80%
Projected Standard Deviation	5.66%	6.65%	7.74%	8.73%	9.71%
Real Return (2.5% Inflation)	3.27%	3.57%	3.86%	4.09%	4.30%
Equity (Public + Private + 60% Multi-Asset)	19%	26%	33%	39%	45%
Fixed Income (ARMB fixed + 40% Multi-Asset)	73%	66%	59%	53%	47%
Alts (Real + Private Equity)	15%	15%	15%	15%	15%

Questions?

and Action Memos

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	Fiscal Year 2024 ARMB Asset Allocations Resolutions 2023-02 and 2023-03	ACTION:	X
DATE:	June 15-16, 2023	INFORMATION:	

<u>BACKGROUND</u>:

The Alaska Retirement Management Board (ARMB) sets and reviews the asset allocations on behalf of all plans over which it has fiduciary responsibility.

<u>STATUS</u>:

CIO Zachary Hanna, with ARMB staff and Callan LLC (Callan), reviewed Callan's capital market assumptions and asset allocation modeling work to identify potential asset allocation mixes for the ARMB to consider for the upcoming fiscal year.

Staff recommends the following strategic asset allocations after considering current asset allocations and a range of optimal portfolios produced by Callan:

Resolution 2023-02
- Public Employees' Retirement System Defined Benefit and Defined Contribution Plans
- Teachers' Retirement System Defined Benefit and Defined Contribution Plans
- Judicial Retirement System Defined Benefit Plans

Resolution 2023-03
- Alaska National Guard and Naval Militia Retirement Systems

<u>RECOMMENDATION</u>:

The Alaska Retirement Management Board adopt Resolutions 2023-02 and 2023-03, approving the asset allocations for fiscal year 2024.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to Asset Allocation for the Funds of the
Public Employees' Retirement System Defined Benefit and Defined Contribution Plans,
Teachers' Retirement System Defined Benefit and Defined Contribution Plans, and
Judicial Retirement System Defined Benefit Plans

Resolution 2023-02

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

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

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

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

WHEREAS, the Board has reviewed the actuarial assumptions; and

WHEREAS, the Board has reviewed the asset allocation set forth in the study prepared by the external investment consulting firm of Callan Associates, Inc.; and

WHEREAS, a prudent, diversified portfolio reduces risk and volatility and considers short term and long term earnings requirements for the Funds; and

WHEREAS, the Board shall continue to review, evaluate and make appropriate adjustments to asset allocation for the retirement plans on a periodic basis;

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD that effective July 1, 2023, the following Policy Benchmark be established for the following funds:

(1) Public Employees' Retirement System
- Defined Benefit Plans
    - Retirement Trust
    - Retirement Health Care Trust
- Defined Contribution Plans
    - Health Reimbursement Arrangement Plan Trust Fund
    - Retiree Medical Plan
    - Defined Benefit Occupational Death and Disability
        - Public Employees All Other
        - Peace Officers and Firefighters

(2) Teachers' Retirement System
- Defined Benefit Plans
    - Retirement Trust
    - Retirement Health Care Trust
- Defined Contribution Plans
    - Health Reimbursement Arrangement Plan Trust Fund
    - Retiree Medical Plan
    - Defined Benefit Occupational Death and Disability

(3) Judicial Retirement System
- Defined Benefit Plans
    - Retirement Trust
    - Retirement Health Care Trust

PERS/TRS/Judicial

FY2024 Target Asset Allocation

Asset Class	Allocation	Range
Broad Domestic Equity	26%	± 6%
Global Equity Ex-US	17%	± 4%
Fixed Income	21%	± 10%
Multi-Asset	8%	± 4%
Real Assets	14%	± 7%
Private Equity	14%	± 7%
Total	100%	
Projected 20 Year Geometric Return	7.59%	
Projected 20 Year Real Return	5.09%	
Projected Standard Deviation	13.61%	

Policy Benchmarks

Asset Class	Benchmark
Broad Domestic Equity	Russell 3000
Global Equity Ex-US	MSCI ACWI Ex-US IMI Net
Fixed Income	95% BB US Aggregate 5% 3-Month Treasury Bill
Multi-Asset	60% MSCI ACWI IMI Net 40% BB US Aggregate
Real Assets	35% NFI-ODCE 15% FTSE-NAREIT 25% NCREIF Farmland 10% NCREIF Timberland 15% CPI+4%
Private Equity	1/3 S&P 500 1/3 Russell 2000 1/3 MSCI EAFE Net

This resolution repeals and replaces Resolution 2022-02.

DATED at Anchorage, Alaska this ____ day of June, 2023.

____
Chair

ATTEST:

____
Secretary

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to Asset Allocation
For the Alaska National Guard and Naval Militia Retirement Systems

Resolution 2023-03

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

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

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

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

WHEREAS, the Board has reviewed the actuarial assumptions for the Alaska National Guard and Naval Militia Retirement Systems; and

WHEREAS, the Board has reviewed the asset allocation set forth in the study prepared by the external investment consulting firm of Callan Associates, Inc.; and

WHEREAS, a prudent, diversified portfolio reduces risk and volatility and considers short term and long term earnings requirements for the Funds; and

WHEREAS, the Board shall continue to review, evaluate and make appropriate adjustments to asset allocation for the retirement plans on a periodic basis;

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD that the following asset allocation be established for the Alaska National Guard & Naval Militia Retirement System, effective July 1, 2023:

Alaska National Guard and Naval Militia Retirement Systems

FY2024 Target Asset Allocation

Asset Class	Allocation	Range
Broad Domestic Equity	12%	± 6%
Global Equity Ex-US	9%	± 4%
Fixed Income	56%	± 10%
Multi-Asset	8%	± 4%
Real Assets	7%	± 4%
Private Equity	8%	± 4%
Total	100%	
Projected 20 Year Geometric Return	6.36%	
Projected 20 Year Real Return	3.86%	
Projected Standard Deviation	7.74%	

Policy Benchmarks

Asset Class	Benchmark
Broad Domestic Equity	Russell 3000
Global Equity Ex-US	MSCI ACWI Ex-US IMI Net
Fixed Income	95% BB US Aggregate 5% 3-Month Treasury Bill
Multi-Asset	60% MSCI ACWI IMI Net 40% BB US Aggregate
Real Assets	35% NFI-ODCE 15% FTSE-NAREIT 25% NCREIF Farmland 10% NCREIF Timberland 15% CPI+4%
Private Equity	1/3 S&P 500 1/3 Russell 2000 1/3 MSCI EAFE Net

This resolution repeals and replaces Resolution 2022-03.

DATED at Anchorage, Alaska this ____ day of June, 2023.

____
Chair

ATTEST:

____
Secretary

APPENDIX

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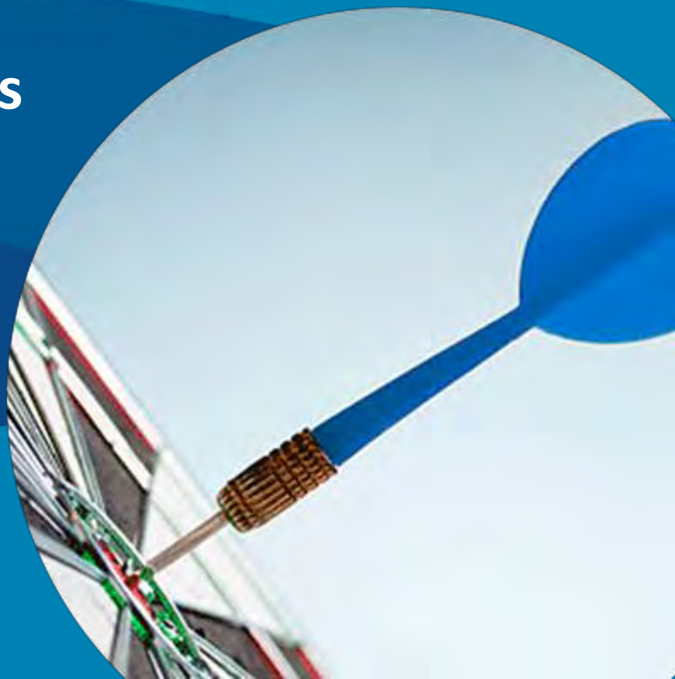
Alaska Retirement Management Board

Actuarial Review of June 30, 2022 Valuations

Paul Wood, ASA, FCA, MAAA

Bill Detweiler, ASA, EA, FCA, MAAA

June 14 & 15, 2023



Today's Agenda

- Quick review of finding and recommendations for PERS/TRS
- JRS Test Life Review

Test Life Review – PERS/TRS – Findings

- We identified one minor finding related to the new assumptions, and some minor findings related to data being used and the valuation of certain ancillary benefits, or related to unique characteristics of the test lives chosen
- We believe all of these findings are immaterial according to our standards of practice and, as long as Buck and the Board agree, recommend they be included in the next valuation

Test Life Review – PERS/TRS – Findings

- **Finding #1 - Date of Birth**
- **Finding #2 - Salary Increase Rate**
- **Finding #3 - Marriage Assumption**
- **Finding #4 - Occupational Death Lump Sum**
- **Finding #5 - Alaska COLA for Disabled Members**

Summary of Recommendations – PERS/TRS

- We recommend Buck continues to track the medical claims experience closely, particularly any impact from legislative changes
- We recommend Buck continue to disclose the nature and impact of all programming changes included in the valuation
- We recommend Buck generate a new gain/loss item that tracks the experience of the EGWP savings assumption
- We recommend that Buck implement the changes to their valuation methods as detailed in findings of the test life review
- We recommend Buck make some small modifications to their valuation reports to improve communication and disclosures

GRS

Test Life Review – Summary

JRS Pension

Actives	Test Case 1 - Pension		
Basic Data:			
Sex	Female		
Current Age	37.30		
Current Credited Service	1.22		
Present Value of Benefits (PVB)	**GRS***	**Buck**	**% Diff**
Retirement:			
Normal Retirement Benefit	385,376	385,376	0.0%
Early Retirement Benefit	120,981	120,981	0.0%
Total Retirement PVB	**506,357**	**506,356**	**0.0%**
Disability:			
Disability Benefit	6,864	6,864	0.0%
Disability Benefit < 2	6	6	-0.1%
Total Disability PVB	**6,870**	**6,870**	**0.0%**
Death:			
Married and Eligible	965	965	0.0%
Married and Not Eligible	4,039	4,038	0.0%
Single	431	427	0.9%
Death Benefit < 2	8	8	0.0%
Total Death PVB	**5,442**	**5,437**	**0.1%**
Withdrawal:			
Nonvested	4,456	4,456	0.0%
Normal DV Benefit	113,604	113,605	0.0%
Normal DV Death Benefit	448	448	0.0%
Total Withdrawal PVB	**118,508**	**118,508**	**0.0%**
GRAND TOTAL PVB	**637,176**	**637,172**	**0.0%**

Inactives - PVB	GRS*	Buck	% Diff
Retiree - Pension	844,996	844,996	0.0%
Deferred Vested	645,431	646,096	-0.1%

GRS

Test Life Review – Summary

JRS Retiree Health

	Test Case 1 - Health		
Present Value of Benefits (PVB)	**GRS**	**Buck**	**% Diff**
Retirement:			
Benefit - Member	68,320.35	68,481.97	-0.2%
Benefit - Spouse	29,870.07	29,867.98	0.0%
Post 65 Part D Contribution - Member	(10,268.20)	(10,306.52)	-0.4%
Post 65 Part D Contribution - Spouse	(5,846.17)	(5,858.54)	-0.2%
Total Retirement PVB	**82,076.06**	**82,184.89**	**-0.1%**

Inactives - PVB	**GRS**	**Buck**	**% Diff**
Retiree - Health	93,761.42	96,986.00	-3.3%
Deferred Vested - Health	317,413.68	318,651.00	-0.4%
Total Retirement PVB	**1,901,602.13**	**1,906,729.00**	**-0.3%**

JRS Wrap Up

- No findings related to the test lives
- Still waiting on NGNMRS data
- Will issues the combined JRS/NGNMRS report after test lives are available

GRS

Questions?

BUCK

State of Alaska

Summary of Changes from Draft June 30, 2022 Actuarial Valuation Reports

PERS

1. Cover Letter
   a. Updated overall funding status language, showing Pension and Healthcare separately.
   b. Modified ACFR information language.

2. Executive Summary
   a. Funded status summary – removed Total section.
   b. Funded ratio history graph
      i. Added separate Pension and Healthcare graphs for 2006 and beyond.
      ii. Changed the years in the Total graph to 1979-2005.
   c. Description of gain/loss amounts – provided Pension and Healthcare amounts separately; added EGWP amounts.
   d. Actuarial Accrued Liability gain/loss tables – removed Total column.

3. Section 1.2
   a. Removed Total column.
   b. Removed Total past service cost amortization tables.

4. Section 1.3
   a. Removed Total column.
   b. Removed Total past service cost amortization table.
   c. Updated the 2-year roll-forward to reflect minor benefit timing adjustments.

5. Section 1.4
   a. Removed Total column.

6. Section 1.5
   a. Removed Total column.

7. Section 1.6
   a. Removed Total table.

8. Section 1.7
   a. Provided Pension and Healthcare tables separately.

PERS (continued)

9. Section 2.1
   a. Removed Total column.

10. Section 2.2
    a. Removed Total column.

11. Section 2.3
    a. Removed Total column.
    b. Removed Total asset gain/loss deferral table.

12. Section 3
    a. Updated the projections to reflect minor benefit timing adjustments.

13. Section 3.1
    a. Added a description of the amortization periods for Section 3.6A and Section 3.6B projections.

14. Sections 3.3 and 3.4
    a. Changed the graphs to be based on 25-year amortization in all years (i.e., based on Section 3.6A projections).

15. Section 3.5
    a. Provided projected funded ratio graphs separately for Pension and Healthcare.
    b. Changed the graphs to be based on 25-year amortization in all years (i.e., based on Section 3.6A projections).

16. Section 3.6A (amortization period is 25 years in all years)
    a. In the 1st exhibit:
       i. Provided Actuarial Assets and Accrued Liability separately by Pension and Healthcare.
       ii. Removed Funding Ratio and Unfunded Liability/(Surplus) columns.
       iii. Provided Deferred Asset Gain/(Loss) separately by Pension and Healthcare.
       iv. Added footnote clarifying that the separately determined projections of contributions and benefit payments are aggregated solely for purposes of the exhibit.
    b. In the 2nd exhibit:
       i. Removed Total Funded Ratio and Total Unfunded Liability/(Surplus) columns.

17. Section 3.6B (amortization period is 25 years through FY39, and 15 years in FY40+)
    a. In the 1st exhibit:
       i. Provided Actuarial Assets and Accrued Liability separately by Pension and Healthcare.
       ii. Removed Funding Ratio and Unfunded Liability/(Surplus) columns.
       iii. Provided Deferred Asset Gain/(Loss) separately by Pension and Healthcare.
       iv. Added footnote clarifying that the separately determined projections of contributions and benefit payments are aggregated solely for purposes of the exhibit.

PERS (continued)

   b. In the 2nd exhibit:
      i. Removed Total Funded Ratio and Total Unfunded Liability/(Surplus) columns.

18. Section 4.1
    a. Added table with 5-year history of Retiree Medical retirees.

19. Section 4.6
    a. Expanded table of New Pension Benefit Recipients by adding final average salary.

20. Section 5.3
    a. Added description of Early Retirement Factor basis.

21. Section 6
    a. In Historical Information section, added reference to the new Section 7.
    b. In Plan Maturity Measures tables, added historical years since ASOP 51 was effective.

22. Section 7 (new)
    a. At the request of DRB staff, added historical accounting (GASB 25/43) and membership information based on GFOA observations of the ACFR.

TRS

1. Cover Letter
   a. Updated overall funding status language, showing Pension and Healthcare separately.
   b. Modified ACFR information language.
2. Executive Summary
   a. Funded status summary – removed Total section.
   b. Funded ratio history graph
      i. Added separate Pension and Healthcare graphs for 2006 and beyond.
      ii. Changed the years in the Total graph to 1979-2005.
   c. Description of gain/loss amounts – provided Pension and Healthcare amounts separately; added EGWP amounts.
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   b. Removed Total past service cost amortization table.
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6. Section 1.5
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7. Section 1.6
   a. Removed Total table.
8. Section 1.7
   a. Provided Pension and Healthcare tables separately.
9. Section 2.1
   a. Removed Total column.
10. Section 2.2
    a. Removed Total column.

TRS (continued)

11. Section 2.3
    a. Removed Total column.
    b. Removed Total asset gain/loss deferral table.
12. Section 3
    a. Updated the projections to reflect minor benefit timing adjustments.
13. Section 3.1
    a. Added a description of the amortization periods for Section 3.6A and Section 3.6B projections.
14. Sections 3.3 and 3.4
    a. Changed the graphs to be based on 25-year amortization in all years (i.e., based on Section 3.6A projections).
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    a. In the 1st exhibit:
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        iii. Provided Deferred Asset Gain/(Loss) separately by Pension and Healthcare.
        iv. Added footnote clarifying that the separately determined projections of contributions and benefit payments are aggregated solely for purposes of the exhibit.
    b. In the 2nd exhibit:
        i. Removed Total Funded Ratio and Total Unfunded Liability/(Surplus) columns.
17. Section 3.6B (amortization period is 25 years through FY39, and 15 years in FY40+)
    a. In the 1st exhibit:
        i. Provided Actuarial Assets and Accrued Liability separately by Pension and Healthcare.
        ii. Removed Funding Ratio and Unfunded Liability/(Surplus) columns.
        iii. Provided Deferred Asset Gain/(Loss) separately by Pension and Healthcare.
        iv. Added footnote clarifying that the separately determined projections of contributions and benefit payments are aggregated solely for purposes of the exhibit.
    b. In the 2nd exhibit:
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TRS (continued)

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    a. Expanded table of New Pension Benefit Recipients by adding final average salary.
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    a. Updated description of Death Benefits.
21. Section 5.3
    a. Added description of Early Retirement Factor basis.
22. Section 6
    a. In Historical Information section, added reference to the new Section 7.
    b. In Plan Maturity Measures tables, added historical years since ASOP 51 was effective.
23. Section 7 (new)
    a. At the request of DRB staff, added historical accounting (GASB 25/43) and membership information based on GFOA observations of the ACFR.

PERS DCR

1. Cover Letter
    a. Updated overall funding status language, showing OD&D and Retiree Medical separately.
    b. Modified ACFR information language.
2. Executive Summary
    a. Funded status summary – removed Total section.
    b. Description of gain/loss amounts – provided OD&D and Retiree Medical amounts separately; added EGWP amounts.
    c. Actuarial Accrued Liability gain/loss tables – removed Total column.
3. Section 1.2
    a. Removed Total column.
    b. Removed Total past service cost amortization tables.
4. Section 1.3
    a. Removed Total column.
5. Section 1.4
    a. Provided OD&D and Retiree Medical tables separately.
6. Section 2.1
    a. Removed Total column.
7. Section 2.2
    a. Removed Total column.
8. Section 2.3
    a. Removed Total column.
    b. Removed Total asset gain/loss deferral table.
9. Section 5 (new)
    a. At the request of DRB staff, added historical accounting (GASB 25/43) and membership information based on GFOA observations of the ACFR.

TRS DCR

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9. Section 5 (new)
   a. At the request of DRB staff, added historical accounting (GASB 25/43) and membership information based on GFOA observations of the ACFR.

State of Alaska

Differences in 30-Year Projections Included in June 30, 2022 Valuation Reports
($000's)

	Section 3.6A	Section 3.6B	Increase (Decrease) Due to Shorter Amortization
Amortization Period thru FY39:	25 years	25 years	
Amortization Period after FY39:	25 years	15 years	
PERS			
State-as-an-Employer Contributions thru FY52	5,368,283	5,375,816	7,533
Additional State Contributions thru FY52	1,711,266	1,711,266	0
6/30/52 Pension Funded Ratio	97.5%	97.9%	0.4%
6/30/52 Pension Unfunded Liability	158,416	135,685	(22,731)
TRS			
Additional State Contributions thru FY52	2,823,955	2,824,569	614
6/30/52 Pension Funded Ratio	99.6%	99.7%	0.1%
6/30/52 Pension Unfunded Liability	12,272	9,794	(2,478)

State of Alaska

Public Employees' Retirement System

Actuarial Valuation Report
As of June 30, 2022

June 2023

June 5, 2023

State of Alaska
The Alaska Retirement Management Board
The Department of Revenue, Treasury Division
The Department of Administration, Division of Retirement and Benefits
P.O. Box 110203
Juneau, AK 99811-0203

Certification of Actuarial Valuation

Dear Members of The Alaska Retirement Management Board, The Department of Revenue and The Department of Administration:

This report summarizes the annual actuarial valuation results of the State of Alaska Public Employees' Retirement System (PERS) as of June 30, 2022 performed by Buck Global, LLC (Buck).

The actuarial valuation is based on financial information provided in the financial statements audited by KPMG LLP, member data provided by the Division of Retirement and Benefits, and medical enrollment data provided by the healthcare claims administrator (Aetna), as summarized in this report. The benefits considered are those delineated in Alaska statutes effective June 30, 2022. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities, and other factors under PERS were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Buck is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of PERS as of June 30, 2022.

PERS is funded by Employer, State, and Member Contributions in accordance with the funding policy adopted by the Alaska Retirement Management Board (Board) and as required by Alaska state statutes. The funding objective for PERS is to pay required contributions that remain level as a percent of total PERS compensation. The Board has also established a funding policy objective that the required contributions be sufficient to pay the Normal Costs of active plan members, plan expenses, and amortize the Unfunded Actuarial Accrued Liability (UAAL) as a level percentage of total PERS compensation over a closed 25-year period as required by Alaska state statutes. The closed 25-year period was originally established effective June 30, 2014. Effective June 30, 2018, the Board adopted a 25-year layered UAAL amortization method as described in Section 5.2. The UAAL amortization continues to be on a level percent of pay basis. The compensation used to determine required contributions is the total compensation of all active members in PERS, including those hired after July 1, 2006 who are members of the Defined Contribution Retirement (DCR) Plan. This objective is currently being met and is projected to continue to be met. Absent future gains/losses, actuarially determined contributions are expected to remain level as a percent of pay and the funded status of the pension trust is expected to increase to 100% in FY63. The funded status of the healthcare trust is expected to remain at or above 100%.

The Board and staff of the State of Alaska may use this report for the review of the operations of PERS. Use of this report for any other purpose or by anyone other than the Board or staff of the State of Alaska may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, Buck recommends requesting its advanced review of any statement to be based on information contained in this report. Buck will accept no liability for any such statement made without its prior review.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the actuarial assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. In particular, retiree group benefits models necessarily rely on the use of approximations and estimates and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. An analysis of the potential range of such future differences is beyond the scope of this valuation.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the plan. The actuary performs an analysis of plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The last full experience analysis was performed for the period July 1, 2017 to June 30, 2021. Based on that experience study, the Board adopted new assumptions effective beginning with the June 30, 2022 valuation to better reflect expected future experience. Based on our annual analysis of recent claims experience, changes were made to the healthcare per capita claims cost rates effective June 30, 2022 to better reflect expected future healthcare experience. A summary of the actuarial assumptions and methods used in this actuarial valuation is shown in Sections 5.2 and 5.3. We certify that the assumptions and methods described in Sections 5.2 and 5.3 of this report meet the requirements of all applicable Actuarial Standards of Practice.

Actuarial Standards of Practice No. 27 (ASOP 27) and No. 35 (ASOP 35) require the actuary to disclose the information and analysis used to support the actuary's determination that the assumptions selected by the plan sponsor do not significantly conflict with what, in the actuary's professional judgment, are reasonable for the purpose of the measurement. Buck provides advice on reasonable assumptions when performing periodic experience studies. The Board selects the assumptions used and annually the signing actuary reviews the assumptions through discussions with the Board staff and analyzing actuarial gain/loss experience. In the case of the Board's selection of the expected return on assets (EROA), the signing actuary has used economic information and tools provided by Buck's Financial Risk Management (FRM) practice. A spreadsheet tool created by the FRM practice converts averages, standard deviations, and correlations from Buck's Capital Markets Assumptions that are used for stochastic forecasting into approximate percentile ranges for the arithmetic and geometric average returns. It is intended to suggest possible reasonable ranges for EROA without attempting to predict or select a specific best estimate rate of return. It takes into account the duration (horizon) of investment and the target allocation of assets in the portfolio to various asset classes. Based on the actuary's analysis, including consistency with other assumptions used in the valuation, the percentiles generated by the spreadsheet tool described above, and review of actuarial gain/loss analysis, the actuary believes the assumptions do not significantly conflict with what, in the actuary's professional judgment, are reasonable for the purpose of the measurement.

ACFR Information

We have prepared the following information in this report for the Actuarial Section and Statistical Section of the ACFR: (i) member data tables in Section 4; (ii) analysis of financial experience in Section 1.6; (iii) summary of actuarial assumptions in Section 5.3; and (iv) historical information in Section 7.

Governmental Accounting Standards Board (GASB) Statement No. 67 (GASB 67) was effective for PERS beginning with fiscal year ending June 30, 2014, and Statement No. 74 (GASB 74) was effective for PERS beginning with fiscal year ending June 30, 2017. Please see our separate GASB 67 and GASB 74 reports for other information needed for the ACFR.

Assessment of Risks

Actuarial Standard of Practice No. 51 (ASOP 51) applies to actuaries performing funding calculations related to a pension plan. ASOP 51 does not apply to actuaries performing services in connection with other post-employment benefits, such as medical benefits. Accordingly, ASOP 51 does not apply to the healthcare portion of PERS. See Section 6 of this report for further details regarding ASOP 51.

Use of Models

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. In addition to the EROA analysis spreadsheet model disclosed above, Buck uses third-party software in the performance of annual actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of the plan using data and assumptions as of the measurement date under the funding methods specified in this report. The output from the third-party vendor software is used as input to internally developed models that apply applicable funding methods and policies to the derived liabilities and other inputs, such as plan assets and contributions, to generate many of the exhibits found in this report. Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal models are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal models, extra checking and review are completed. Significant changes to the internal models that are applicable to multiple clients are generally developed, checked, and reviewed by multiple experts within Buck who are familiar with the details of the required changes.

Additional models used in valuing health benefits are described later in the report.

COVID-19

The potential impact of the ongoing COVID-19 pandemic on costs and liabilities was considered and an adjustment was made in setting the medical per capita claims cost assumption. FY21 medical claims were adjusted for a COVID-19 related decline in those claims during the fiscal year. FY22 medical claims were not adjusted. A more detailed explanation on these adjustments is shown in Section 5.2.

This report was prepared under the overall direction of David Kershner, who meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. He is a Fellow of the Society of Actuaries, an Enrolled Actuary, a Member of the American Academy of Actuaries, and a Fellow of the Conference of Consulting Actuaries.

We are available to discuss this report with you at your convenience. David can be reached at 602-803-6174 and Brett can be reached at 260-423-1072.

Respectfully submitted,

David J. Kershner, FSA, EA, MAAA, FCA
Principal
Buck

Brett Hunter, ASA, EA, MAAA
Senior Consultant
Buck

The undersigned actuary is responsible for all assumptions related to the average annual per capita health claims cost and the health care cost trend rates, and hereby affirms his qualification to render opinions in such matters in accordance with the Qualification Standards of the American Academy of Actuaries.

Stephen R. Oates, ASA, EA, MAAA, FCA
Principal
Buck

Contents

Executive Summary

Overview

The State of Alaska Public Employees' Retirement System (PERS) provides pension and postemployment healthcare benefits to eligible participants. The Commissioner of the Department of Administration is responsible for administering the plan. The Alaska Retirement Management Board has fiduciary responsibility over the assets of the plan. This report presents the results of the actuarial valuation of PERS as of the valuation date of June 30, 2022.

Purpose

An actuarial valuation is performed on the plan annually as of the end of the fiscal year. The main purposes of the actuarial valuation detailed in this report are:

1. To determine the Employer/State contribution necessary to meet the Board's funding policy for the plan;
2. To disclose the funding assets and liability measures as of the valuation date;
3. To review the current funded status of the plan and assess the funded status as an appropriate measure for determining future actuarially determined contributions;
4. To compare actual and expected experience under the plan during the last fiscal year; and
5. To report trends in contributions, assets, liabilities, and funded status over the last several years.

The actuarial valuation provides a "snapshot" of the funded position of PERS based on the plan provisions, membership data, assets, and actuarial methods and assumptions as of the valuation date.

Actuarial projections are also performed to provide a long-term view of the expected future funded status and contribution patterns (see Section 3). The future funded status and contribution patterns would be different than those shown in Section 3 if future experience does not match the actuarial assumptions used in the projections.

Retiree group benefits models necessarily rely on the use of approximations and estimates, and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements.

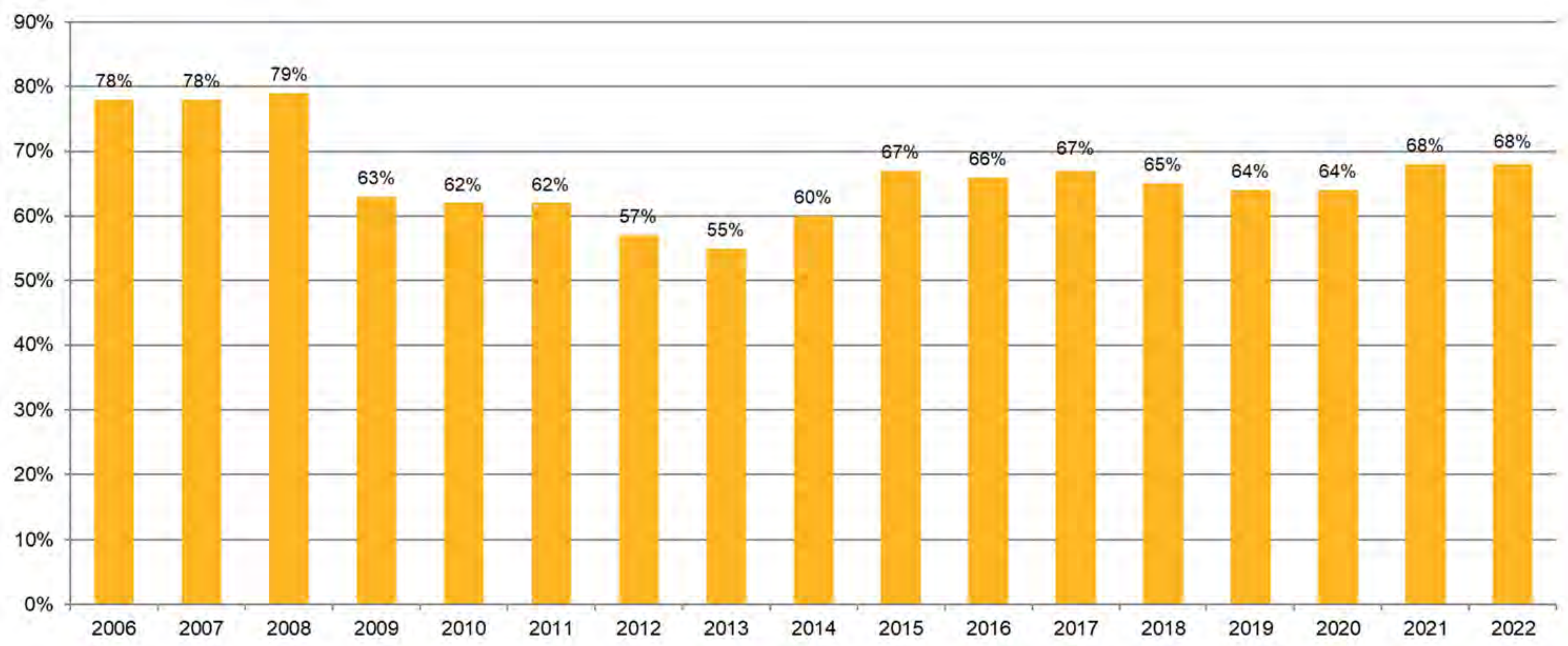
Funded Status

Where presented, references to "funded ratio" and "unfunded actuarial accrued liability" typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

Funded Status as of June 30 ($'s in 000's)	2021	2022
Pension		
a. Actuarial Accrued Liability	$ 15,419,975	$ 16,093,679
b. Valuation Assets	10,466,709	10,961,498
c. Unfunded Actuarial Accrued Liability, (a) - (b)	$ 4,953,266	$ 5,132,181
d. Funded Ratio based on Valuation Assets, (b) ÷ (a)	67.9%	68.1%
e. Fair Value of Assets	$ 11,912,309	$ 10,816,140
f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	77.3%	67.2%
Healthcare		
a. Actuarial Accrued Liability	$ 6,856,170	$ 6,657,069
b. Valuation Assets	8,581,155	8,979,943
c. Unfunded Actuarial Accrued Liability, (a) - (b)	$ (1,724,985)	$ (2,322,874)
d. Funded Ratio based on Valuation Assets, (b) ÷ (a)	125.2%	134.9%
e. Fair Value of Assets	$ 9,784,141	$ 8,869,134
f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	142.7%	133.2%

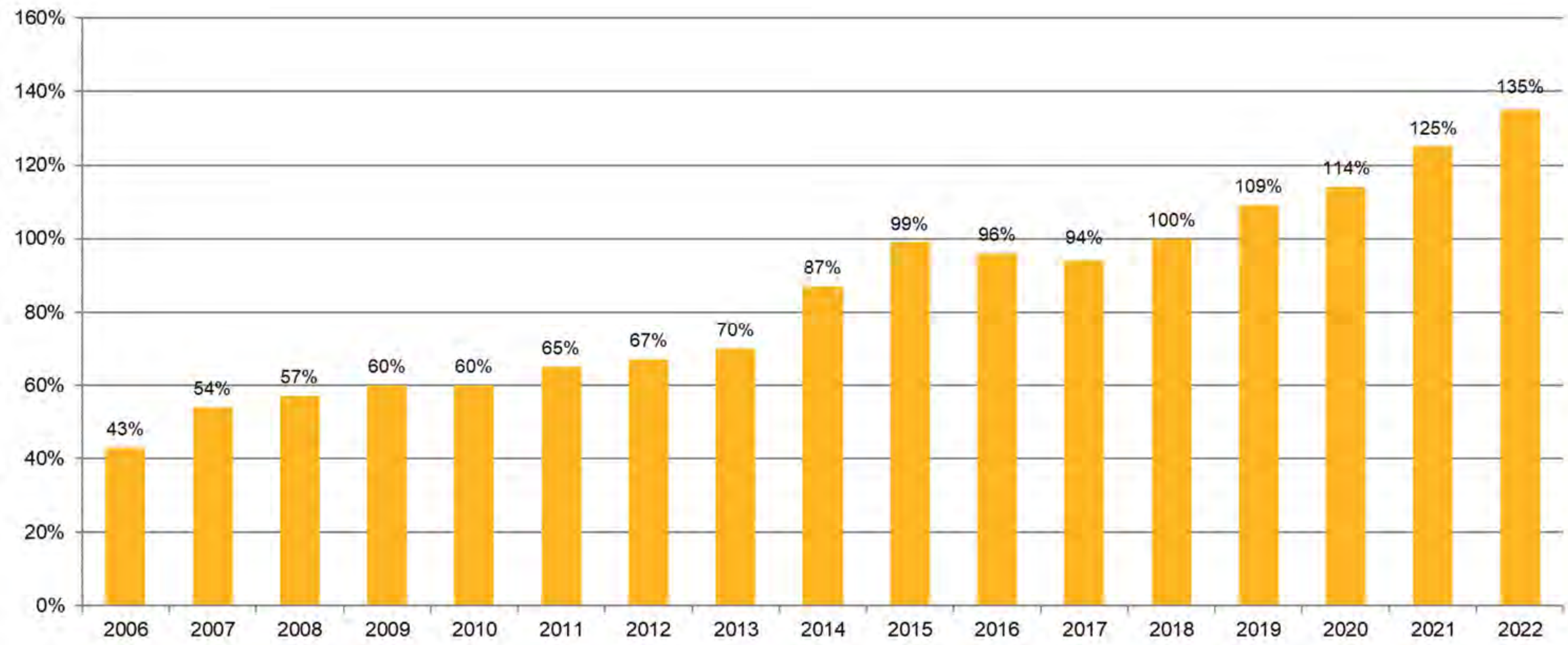
Funded Ratio History (Based on Valuation Assets)

Pension (2006 and later)



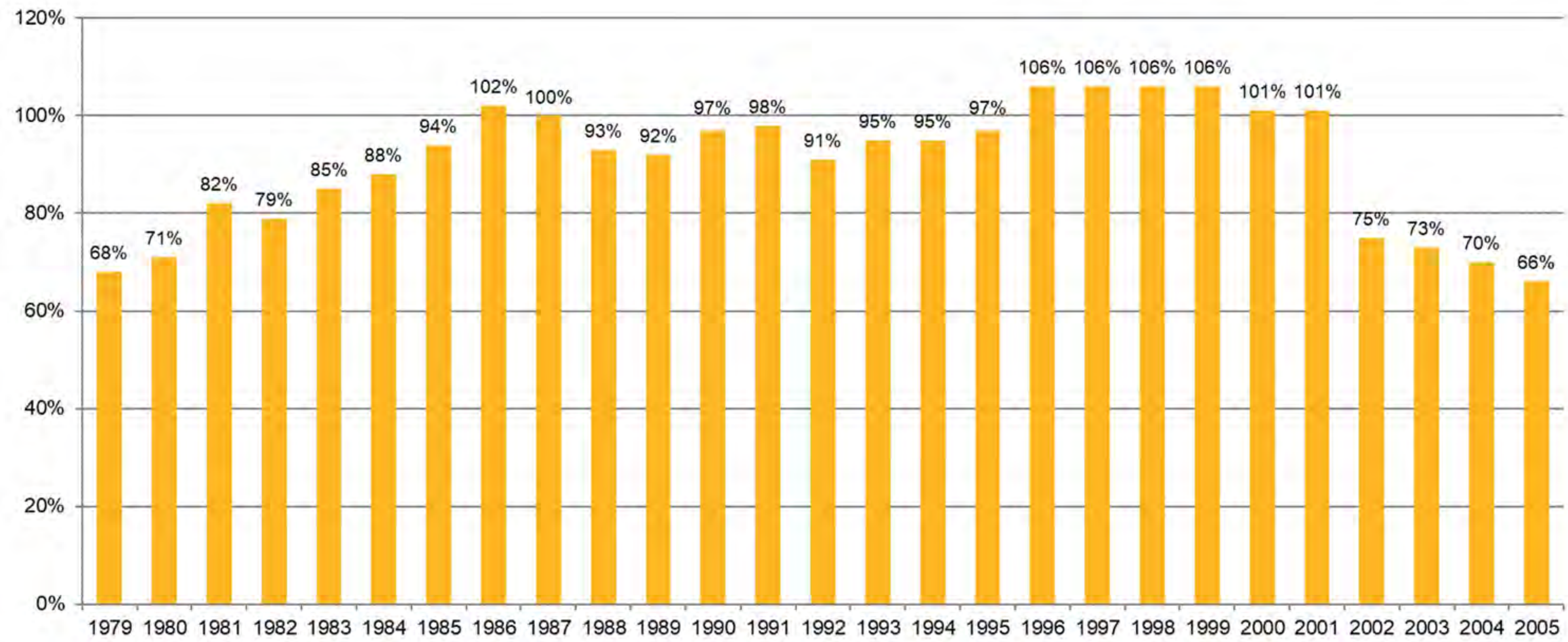
Funded Ratio History (Based on Valuation Assets)

Healthcare (2006 and later)



Funded Ratio History (Based on Valuation Assets)

Total (1979 – 2005) *



* Prior to 2006, assets and liabilities were provided in aggregate only (Pension and Healthcare combined).

The key reasons for the change in the funded status are explained below. The funded status for healthcare benefits is not necessarily an appropriate measure to confirm that assets are sufficient to settle health plan obligations as there are no available financial instruments for purchase. Future experience is likely to vary from assumptions, so there is potential for actuarial gains or losses.

1. **Investment Experience**

   The asset valuation method recognizes 20% of the investment gain or loss each year, for a period of five years. The FY22 investment return based on fair value of assets was approximately (6.0)% compared to the expected investment return of 7.38% (net of investment expenses). This resulted in a market asset loss of approximately $1,570 million (pension) and $1,288 million (healthcare). Due to the recognition of investment gains and losses over a 5-year period, the FY22 investment return based on actuarial value of assets was approximately 8.7%, which resulted in an actuarial asset gain of approximately $128 million (pension) and $114 million (healthcare).

2. **Salary Increases**

   Salary increases for continuing active members during FY22 were higher than expected based on the valuation assumptions, resulting in a liability loss of approximately $51 million.

3. **Demographic Experience**

   Section 4 provides statistics on active and inactive members. The number of active members decreased 11.1% from 9,888 at June 30, 2021 to 8,795 at June 30, 2022 due to active members exiting the plan during the year (due to retirement, termination, death, and disability) and the closure of the plan to new entrants as of July 1, 2006. The average age of active members increased from 53.51 to 53.78 and average credited service increased from 18.96 to 19.52 years.

   The number of benefit recipients increased 1.4% from 37,717 to 38,243 and their average age increased from 71.17 to 71.61. The number of vested terminated participants decreased 3.5% from 5,135 to 4,955. Their average age increased from 53.92 to 54.37.

   The overall effect of the demographic experience during FY22 was a liability loss of approximately $0.4 million (pension) and a liability gain of approximately $10.1[1] million (healthcare).

4. **COLA / PRPA Experience**

   The cost-of-living increases (COLA) for benefit recipients during FY22 were less than expected based on the valuation assumptions, resulting in a liability gain of approximately $1.1 million. However, the CPI-based postretirement pension adjustments (PRPA) were more than expected, resulting in a liability loss of approximately $162 million.

5. **Retiree Medical Claims Experience**

   As described in Section 5.2, recent medical claims experience and changes in healthcare enrollment data provided to us for the June 30, 2022 valuation generated a liability gain of approximately $252 million. Healthcare benefits paid during FY22 generated a liability gain of approximately $12 million. The EGWP subsidy received by the plan during FY22 was approximately $54 million; the expected EGWP subsidy for FY22 was approximately $46 million.

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[1] Includes the effects of changes in dependent coverage elections and Medicare Part B only experience.

6. Changes in Methods Since the Prior Valuation

There were no changes in actuarial methods since the prior valuation.

7. Changes in Assumptions Since the Prior Valuation

Effective for the June 30, 2022 valuation, the Board adopted the changes to the demographic and economic assumptions recommended by the actuary, based on the results of an experience study performed on the plan experience from July 1, 2017 to June 30, 2021. The changes in assumptions were adopted at the June 2022 Board meeting. The effect of the new assumptions was to increase the pension Actuarial Accrued Liability as of June 30, 2022 by approximately $206 million and decrease the healthcare Actuarial Accrued Liability as of June 30, 2022 by approximately $88 million.

Healthcare claim costs are updated annually as described in Section 5.2. The amounts included in the Normal Cost for administrative expenses were updated based on the last two years of actual administrative expenses paid from plan assets

8. Changes in Benefit Provisions Since the Prior Valuation

There have been no changes in benefit provisions valued since the prior valuation.

Comparative Summary of Contribution Rates

		Actual FY 2024	Estimated FY 2025
Pension			
a.	Normal Cost Rate Net of Member Contributions	2.14%	2.15%
b.	Past Service Cost Rate	16.33%	17.70%
c.	Total Employer/State Contribution Rate, (a) + (b), not less than (a)[1]	18.47%	19.85%
Healthcare			
a.	Normal Cost Rate	2.50%	1.94%
b.	Past Service Cost Rate	(5.83%)	(7.30%)
c.	Total Employer/State Contribution Rate, (a) + (b), not less than (a)[1]	2.50%	1.94%
Total			
a.	Normal Cost Rate Net of Member Contributions	4.64%	4.09%
b.	Past Service Cost Rate	16.33%	17.70%
c.	Total Employer/State Contribution Rate, (a) + (b)[1]	20.97%	21.79%
d.	Board Adopted Total Employer/State Contribution Rate	18.47%[2]	TBD
e.	Defined Contribution Retirement (DCR) Rate Paid by Employers	6.63%	6.73%
f.	Board Adopted Total Rate, Including DCR Rate Paid by Employers, (d) + (e)	25.10%	TBD

Contribution rates are based on total (DB and DCR) payroll. The contribution rates shown above for FY25 are estimated assuming no actuarial gains/losses during FY23 and FY24. Actual FY25 contribution rates will be adopted by the Board in September 2023 reflecting FY23 asset experience.

Contribution rates include Employer contribution rates as limited by Alaska state statutes and the Additional State Contribution required under SB 125.

[1] Beginning with the June 30, 2014 valuation, contribution rates for FY17 and beyond are determined using new methodology in accordance with 2014 legislation under HB 385 and SB 119, 2014 Alaska Laws, which changed the amortization methodology to a closed 25-year period as a level percentage of pay, and eliminated the time lag on the contribution rate calculation by using a 2-year "roll-forward" approach assuming 0% population growth. Investment gains and losses are recognized over a 5-year period beginning in FY15. Beginning with the June 30, 2018 valuation, the UAAL amortization was changed as described in Section 5.2.

[2] The FY24 contribution rates adopted by the Board in September 2022 were 18.47% for Pension and 0.00% for Healthcare.

Summary of Actuarial Accrued Liability Gain/(Loss) and Other Changes During the Year

The following table summarizes the sources of change in the total Employer/State contribution rate as of June 30, 2021 and June 30, 2022 based on DB and DCR payroll combined:

	Pension	Healthcare
1. Total Employer/State Contribution Rate as of June 30, 2021	18.93%	3.16%
2. Change due to:		
a. Health Claims Experience	N/A	(0.11%)
b. Salary Increases	0.13%	N/A
c. Investment Experience	(0.34%)	0.00%
d. Demographic Experience and Miscellaneous [1]	0.52%	(0.37%)
e. Actual vs Expected Contributions	(0.14%)	0.00%
f. Assumption/Method Changes	0.54%	(0.22%)
g. Plan Changes	0.00%	0.00%
h. Total Change, (a) + (b) + (c) + (d) + (e) + (f) + (g)	0.71%	(0.70%)
3. Total Employer/State Contribution Rate as of June 30, 2022, (1) + (2)(h)	19.64%	2.46%

The following table shows the FY22 gain/(loss) on actuarial accrued liability as of June 30, 2022 ($'s in 000's):

	Pension	Healthcare
Retirement Experience	$ (20,482)	$ (9,371)
Termination Experience	(6,115)	(12,796)
Disability Experience	120	282
Active Mortality Experience	8,240	3,144
Inactive Mortality Experience	17,838	6,761
Salary Increases	(50,545)	N/A
Rehires (Net of Rehire Load)	8,458	11,563
Transfers between PF and Others	(724)	631
COLA Increases	1,134	N/A
PRPA Increases	(162,028)	N/A
Benefit Payments different than Expected	17,930	11,949
Per Capita Claims Cost	N/A	251,976
Medicare Part B Only Experience	N/A	5,064
Changes in Dependent Coverage Elections	N/A	17,064
Programming Changes[2]	791	(314)
Miscellaneous[3]	(16,449)	(6,702)
Total	$ (201,832)	$ 279,251

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[1] Includes the effects of census data changes between the two valuations.

[2] Includes adjustments to the way the 10% COLA minimum of $50 applies for all active members (pension), the calculation of occupational death benefits for married Peace Officer/Firefighters to include a minimum of 50% of salary (pension), the timing of the PRPA increases for Peace Officer/Firefighters who retire from occupational disability to be at their normal retirement date (pension), the elimination of child medical premiums for retirees over age 60 (healthcare), and the extension of disability rates beyond age 54 (healthcare).

[3] Includes the effects of various data changes that are typical when new census data is received for the annual valuation, as well as other items that do not fit neatly into any of the other categories. The pension amount includes a loss of $6,746 for unexpected beneficiaries and QDRO's based on last year's data.

The rehire gain/(loss) amount shown on the previous page is the difference between (i) the increase in Actuarial Accrued Liability at June 30, 2022 due to rehires during the most recent plan year, and (ii) the load that was added to the June 30, 2021 Normal Cost based on the rehire load assumption used in the June 30, 2021 valuation. The development of the FY22 rehire gain/(loss) amount is shown in the table below ($'s in 000's):

		Pension	Healthcare
1.	Increase/(Decrease) in Actuarial Accrued Liability at June 30, 2022 due to Rehires	$ 11,800	$ (519)
2.	June 30, 2021 Normal Cost Rehire Load, with interest to June 30, 2022	$ 20,258	$ 11,044
3.	Rehire Gain/(Loss), (2) - (1)	$ 8,458	$ 11,563

Other items that increased/(decreased) the actuarial accrued liability as of June 30, 2022 are shown below ($'s in 000's):

	Pension	Healthcare
Experience Study Assumption Changes	$ 205,891	$ (88,392)

Section 1: Actuarial Funding Results

Section 1.1: Actuarial Liabilities and Normal Cost ($'s in 000's)

Peace Officer / Firefighter

As of June 30, 2022	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
Active Members		
Retirement Benefits	$ 933,907	$ 819,088
Termination Benefits	5,794	(650)
Disability Benefits	1,151	(1,627)
Death Benefits	5,205	2,791
Return of Contributions	531	(3,932)
Medical and Prescription Drug Benefits	345,828	292,498
Medicare Part D Subsidy	(32,479)	(27,510)
Indebtedness	(4,169)	(4,169)
Subtotal	$ 1,255,768	$ 1,076,489
Inactive Members		
Not Vested	$ 2,604	$ 2,604
Vested Terminations		
- Retirement Benefits	37,113	37,113
- Medical and Prescription Drug Benefits	99,317	99,317
- Medicare Part D Subsidy	(11,459)	(11,459)
- Indebtedness	(550)	(550)
Retirees & Beneficiaries		
- Retirement Benefits	1,855,975	1,855,975
- Medical and Prescription Drug Benefits	613,845	613,845
- Medicare Part D Subsidy	(93,135)	(93,135)
Subtotal	$ 2,503,710	$ 2,503,710
Total	**$ 3,759,478**	**$ 3,580,199**
Total Pension	**$ 2,837,561**	**$ 2,706,643**
Total Medical, Net of Part D Subsidy	**$ 921,917**	**$ 873,556**
Total Medical, Gross of Part D Subsidy	**$ 1,058,990**	**$ 1,005,660**

Peace Officer / Firefighter

As of June 30, 2022		Present Value of Projected Benefits		Actuarial Accrued (Past Service) Liability
By Tier				
Tier 1				
- Pension	$	980,148	$	979,552
- Medical, Net of Part D Subsidy		249,473		249,070
Tier 2				
- Pension		728,229		716,835
- Medical, Net of Part D Subsidy		262,083		257,941
Tier 3				
- Pension		1,129,184		1,010,256
- Medical, Net of Part D Subsidy		410,361		366,545
Total	**$**	**3,759,478**	**$**	**3,580,199**

As of June 30, 2022		Normal Cost
Active Members		
Retirement Benefits	$	22,133
Termination Benefits		1,306
Disability Benefits		560
Death Benefits		483
Return of Contributions		885
Medical and Prescription Drug Benefits		10,190
Medicare Part D Subsidy		(974)
Rehire Assumption (Pension)		3,881
Rehire Assumption (Medical)		221
Administrative Expenses (Pension)		2,175
Administrative Expenses (Medical)		639
Total	**$**	**41,499**
Total Pension	**$**	**31,423**
Total Medical, Net of Part D Subsidy	**$**	**10,076**
Total Medical, Gross of Part D Subsidy	**$**	**11,050**
By Tier		
Tier 1		
- Pension	$	285
- Medical, Net of Part D Subsidy		174
Tier 2		
- Pension		3,775
- Medical, Net of Part D Subsidy		1,189
Tier 3		
- Pension		27,363
- Medical, Net of Part D Subsidy		8,713
Total	**$**	**41,499**

Section 1.1: Actuarial Liabilities and Normal Cost ($'s in 000's)

Others

As of June 30, 2022	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
Active Members		
Retirement Benefits	$ 3,268,920	$ 2,996,468
Termination Benefits	199,792	113,730
Disability Benefits	16,003	5,629
Death Benefits	24,789	19,011
Return of Contributions	10,360	(27,469)
Medical and Prescription Drug Benefits	1,695,732	1,406,497
Medicare Part D Subsidy	(238,440)	(202,857)
Indebtedness	(34,830)	(34,830)
Subtotal	$ 4,942,326	$ 4,276,179
Inactive Members		
Not Vested	$ 74,813	$ 74,813
Vested Terminations		
- Retirement Benefits	683,105	683,105
- Medical and Prescription Drug Benefits	896,206	896,206
- Medicare Part D Subsidy	(111,617)	(111,617)
- Indebtedness	(14,335)	(14,335)
Retirees & Beneficiaries		
- Retirement Benefits	9,570,914	9,570,914
- Medical and Prescription Drug Benefits	4,656,111	4,656,111
- Medicare Part D Subsidy	(860,827)	(860,827)
Subtotal	$ 14,894,370	$ 14,894,370
Total	**$ 19,836,696**	**$ 19,170,549**
Total Pension	**$ 13,799,531**	**$ 13,387,036**
Total Medical, Net of Part D Subsidy	**$ 6,037,165**	**$ 5,783,513**
Total Medical, Gross of Part D Subsidy	**$ 7,248,049**	**$ 6,958,814**

Others

As of June 30, 2022		Present Value of Projected Benefits		Actuarial Accrued (Past Service) Liability
By Tier				
Tier 1				
- Pension	$	6,012,181	$	5,994,690
- Medical, Net of Part D Subsidy		2,170,866		2,155,098
Tier 2				
- Pension		3,992,776		3,916,074
- Medical, Net of Part D Subsidy		1,807,987		1,758,146
Tier 3				
- Pension		3,794,574		3,476,272
- Medical, Net of Part D Subsidy		2,058,312		1,870,269
Total	**$**	**19,836,696**	**$**	**19,170,549**

As of June 30, 2022		Normal Cost
Active Members		
Retirement Benefits	$	52,076
Termination Benefits		13,971
Disability Benefits		1,772
Death Benefits		1,075
Return of Contributions		6,465
Medical and Prescription Drug Benefits		52,391
Medicare Part D Subsidy		(6,552)
Rehire Assumption (Pension)		11,530
Rehire Assumption (Medical)		1,100
Administrative Expenses (Pension)		6,460
Administrative Expenses (Medical)		3,179
Total	**$**	**143,467**
Total Pension	**$**	**93,349**
Total Medical, Net of Part D Subsidy	**$**	**50,118**
Total Medical, Gross of Part D Subsidy	**$**	**56,670**
By Tier		
Tier 1		
- Pension	$	6,826
- Medical, Net of Part D Subsidy		5,336
Tier 2		
- Pension		21,435
- Medical, Net of Part D Subsidy		11,903
Tier 3		
- Pension		65,088
- Medical, Net of Part D Subsidy		32,879
Total	**$**	**143,467**

Section 1.1: Actuarial Liabilities and Normal Cost ($'s in 000's)

All Members

As of June 30, 2022	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
Active Members		
Retirement Benefits	$ 4,202,827	$ 3,815,556
Termination Benefits	205,586	113,080
Disability Benefits	17,154	4,002
Death Benefits	29,994	21,802
Return of Contributions	10,891	(31,401)
Medical and Prescription Drug Benefits	2,041,560	1,698,995
Medicare Part D Subsidy	(270,919)	(230,367)
Indebtedness	(38,999)	(38,999)
Subtotal	$ 6,198,094	$ 5,352,668
Inactive Members		
Not Vested	$ 77,417	$ 77,417
Vested Terminations		
- Retirement Benefits	720,218	720,218
- Medical and Prescription Drug Benefits	995,523	995,523
- Medicare Part D Subsidy	(123,076)	(123,076)
- Indebtedness	(14,885)	(14,885)
Retirees & Beneficiaries		
- Retirement Benefits	11,426,889	11,426,889
- Medical and Prescription Drug Benefits	5,269,956	5,269,956
- Medicare Part D Subsidy	(953,962)	(953,962)
Subtotal	$ 17,398,080	$ 17,398,080
Total	**$ 23,596,174**	**$ 22,750,748**
Total Pension	**$ 16,637,092**	**$ 16,093,679**
Total Medical, Net of Part D Subsidy	**$ 6,959,082**	**$ 6,657,069**
Total Medical, Gross of Part D Subsidy	**$ 8,307,039**	**$ 7,964,474**

All Members

As of June 30, 2022		Present Value of Projected Benefits		Actuarial Accrued (Past Service) Liability
By Tier				
Tier 1				
- Pension	$	6,992,329	$	6,974,242
- Medical, Net of Part D Subsidy		2,420,339		2,404,168
Tier 2				
- Pension		4,721,005		4,632,909
- Medical, Net of Part D Subsidy		2,070,070		2,016,087
Tier 3				
- Pension		4,923,758		4,486,528
- Medical, Net of Part D Subsidy		2,468,673		2,236,814
Total	**$**	**23,596,174**	**$**	**22,750,748**

As of June 30, 2022		Normal Cost
Active Members		
Retirement Benefits	$	74,209
Termination Benefits		15,277
Disability Benefits		2,332
Death Benefits		1,558
Return of Contributions		7,350
Medical and Prescription Drug Benefits		62,581
Medicare Part D Subsidy		(7,526)
Rehire Assumption (Pension)		15,411
Rehire Assumption (Medical)		1,321
Administrative Expenses (Pension)		8,635
Administrative Expenses (Medical)		3,818
Total	**$**	**184,966**
Total Pension	**$**	**124,772**
Total Medical, Net of Part D Subsidy	**$**	**60,194**
Total Medical, Gross of Part D Subsidy	**$**	**67,720**
By Tier		
Tier 1		
- Pension	$	7,111
- Medical, Net of Part D Subsidy		5,510
Tier 2		
- Pension		25,210
- Medical, Net of Part D Subsidy		13,092
Tier 3		
- Pension		92,451
- Medical, Net of Part D Subsidy		41,592
Total	**$**	**184,966**

Section 1.2: Actuarial Contributions as of June 30, 2022 ($'s in 000's)

Peace Officer / Firefighter

Normal Cost Rate	Pension	Healthcare
1. Total Normal Cost	$ 31,423	$ 10,076
2. DB Rate Payroll Projected for FY23	142,154	142,154
3. DCR Rate Payroll Projected for FY23	249,857	249,857
4. Total Rate Payroll Projected for FY23	392,011	392,011
5. Normal Cost Rate		
a. Based on DB Rate Payroll, (1) ÷ (2)	22.10%	7.09%
b. Based on Total Rate Payroll, (1) ÷ (4)	8.02%	2.57%
6. Average Member Contribution Rate	2.72%	0.00%
7. Employer Normal Cost, (5)(b) - (6)	5.30%	2.57%

Past Service Rate	Pension	Healthcare
1. Actuarial Accrued Liability	$ 2,706,643	$ 873,556
2. Valuation Assets[1]	1,843,510	1,178,369
3. Unfunded Actuarial Accrued Liability, (1) - (2)	$ 863,133	$ (304,813)
4. Funded Ratio, (2) ÷ (1)	68.1%	134.9%
5. Past Service Cost Amortization Payment	68,268	(20,436)
6. Total Rate Payroll Projected for FY23	392,011	392,011
7. Past Service Rate, (5) ÷ (6)	17.41%	(5.21%)
Total Employer / State Contribution Rate, not less than Normal Cost Rate	**22.71%**	**2.57%**

Normal Cost Rate by Tier (Total Employer and Member)[2]		
Tier 1	23.97%	14.63%
Tier 2	21.86%	6.88%
Tier 3	22.12%	7.04%

[1] Allocated between Peace Officer / Firefighter and Others in proportion to Actuarial Accrued Liability.

[2] Rates determined considering the payroll for members in each tier. DCR payroll is excluded from these calculations.

Peace Officer / Firefighter

Schedule of Past Service Cost Amortizations - Pension ($'s in 000's)

	Amortization Period		Balances		
Layer	**Date Created**	**Years Remaining**	**Initial**	**Outstanding**	**Beginning-of-Year Payment**
Initial Amount	6/30/2018	17	$ 731,232	$ 711,892	$ 57,724
Change in Assumptions	6/30/2018	21	88,162	88,842	6,281
FY19 Loss	6/30/2019	22	61,980	62,507	4,296
FY20 Loss	6/30/2020	23	31,158	31,387	2,101
FY21 Gain	6/30/2021	24	(83,489)	(83,862)	(5,476)
Change in Assumptions	6/30/2022	25	42,593	42,593	2,718
FY22 Loss	6/30/2022	25	9,774	9,774	624
Total				**$ 863,133**	**$ 68,268**

Schedule of Past Service Cost Amortizations - Healthcare ($'s in 000's)

	Amortization Period		Balances		
Layer	**Date Created**	**Years Remaining**	**Initial**	**Outstanding**	**Beginning-of-Year Payment**
Initial Amount	6/30/2018	17	(30,991)	(30,172)	(2,447)
Change in Assumptions/Methods/EGWP	6/30/2018	21	27,556	27,768	1,963
FY19 Gain	6/30/2019	22	(77,575)	(78,234)	(5,376)
FY20 Gain	6/30/2020	23	(38,036)	(38,315)	(2,564)
Medical/Prescription Drug Plan Changes	6/30/2021	24	(7,361)	(7,394)	(483)
FY21 Gain	6/30/2021	24	(94,266)	(94,687)	(6,183)
Change in Assumptions	6/30/2022	25	4,475	4,475	286
FY22 Gain	6/30/2022	25	(88,254)	(88,254)	(5,632)
Total				**$ (304,813)**	**$ (20,436)**

Section 1.2: Actuarial Contributions as of June 30, 2022 ($'s in 000's)

Others

Normal Cost Rate	Pension	Healthcare
1. Total Normal Cost	$ 93,349	$ 50,118
2. DB Rate Payroll Projected for FY23	654,512	654,512
3. DCR Rate Payroll Projected for FY23	1,395,484	1,395,484
4. Total Rate Payroll Projected for FY23	2,049,996	2,049,996
5. Normal Cost Rate		
a. Based on DB Rate Payroll, (1) ÷ (2)	14.26%	7.66%
b. Based on Total Rate Payroll, (1) ÷ (4)	4.55%	2.44%
6. Average Member Contribution Rate	2.17%	0.00%
7. Employer Normal Cost, (5)(b) - (6)	2.38%	2.44%

Past Service Rate	Pension	Healthcare
1. Actuarial Accrued Liability	$ 13,387,036	$ 5,783,513
2. Valuation Assets[1]	9,117,988	7,801,574
3. Unfunded Actuarial Accrued Liability, (1) - (2)	$ 4,269,048	$ (2,018,061)
4. Funded Ratio, (2) ÷ (1)	68.1%	134.9%
5. Past Service Cost Amortization Payment	341,778	(133,951)
6. Total Rate Payroll Projected for FY23	2,049,996	2,049,996
7. Past Service Rate, (5) ÷ (6)	16.67%	(6.53%)
Total Employer / State Contribution Rate, not less than Normal Cost Rate	**19.05%**	**2.44%**
Normal Cost Rate by Tier (Total Employer and Member)[2]		
Tier 1	18.43%	14.41%
Tier 2	13.73%	7.62%
Tier 3	14.11%	7.13%

[1] Allocated between Peace Officer / Firefighter and Others in proportion to Actuarial Accrued Liability.

[2] Rates determined considering the payroll for members in each tier. DCR payroll is excluded from these calculations.

Others

Schedule of Past Service Cost Amortizations - Pension ($'s in 000's)

Layer	Amortization Period: Date Created	Amortization Period: Years Remaining	Balances: Initial	Balances: Outstanding	Beginning-of-Year Payment
Initial Amount	6/30/2018	17	$ 3,889,167	$ 3,786,305	$ 307,013
Change in Assumptions	6/30/2018	21	467,280	470,875	33,290
FY19 Loss	6/30/2019	22	235,559	237,556	16,325
FY20 Loss	6/30/2020	23	93,343	94,030	6,293
FY21 Gain	6/30/2021	24	(495,211)	(497,420)	(32,482)
Change in Assumptions	6/30/2022	25	163,298	163,298	10,420
FY22 Loss	6/30/2022	25	14,404	14,404	919
Total				**$ 4,269,048**	**$ 341,778**

Schedule of Past Service Cost Amortizations - Healthcare ($'s in 000's)

Layer	Amortization Period: Date Created	Amortization Period: Years Remaining	Balances: Initial	Balances: Outstanding	Beginning-of-Year Payment
Initial Amount	6/30/2018	17	(47,263)	(46,013)	(3,730)
Change in Assumptions/Methods/EGWP	6/30/2018	21	22,293	22,464	1,588
FY19 Gain	6/30/2019	22	(553,265)	(557,960)	(38,345)
FY20 Gain	6/30/2020	23	(253,711)	(255,575)	(17,106)
Medical/Prescription Drug Plan Changes	6/30/2021	24	(54,446)	(54,689)	(3,571)
FY21 Gain	6/30/2021	24	(613,647)	(616,386)	(40,250)
Change in Assumptions	6/30/2022	25	(92,867)	(92,867)	(5,926)
FY22 Gain	6/30/2022	25	(417,035)	(417,035)	(26,611)
Total				**$ (2,018,061)**	**$ (133,951)**

Section 1.2: Actuarial Contributions as of June 30, 2022 ($'s in 000's)

All Members

Normal Cost Rate	Pension	Healthcare
1. Total Normal Cost	$ 124,772	$ 60,194
2. DB Rate Payroll Projected for FY23	796,666	796,666
3. DCR Rate Payroll Projected for FY23	1,645,341	1,645,341
4. Total Rate Payroll Projected for FY23	2,442,007	2,442,007
5. Normal Cost Rate		
a. Based on DB Rate Payroll, (1) ÷ (2)	15.66%	7.56%
b. Based on Total Rate Payroll, (1) ÷ (4)	5.11%	2.46%
6. Average Member Contribution Rate[1]	2.26%	0.00%
7. Employer Normal Cost, (5)(b) - (6)	2.85%	2.46%

Past Service Rate	Pension	Healthcare
1. Actuarial Accrued Liability	$ 16,093,679	$ 6,657,069
2. Valuation Assets	10,961,498	8,979,943
3. Unfunded Actuarial Accrued Liability, (1) - (2)	$ 5,132,181	$ (2,322,874)
4. Funded Ratio, (2) ÷ (1)	68.1%	134.9%
5. Past Service Cost Amortization Payment	410,046	(154,387)
6. Total Rate Payroll Projected for FY23	2,442,007	2,442,007
7. Past Service Rate, (5) ÷ (6)	16.79%	(6.32%)
Total Employer / State Contribution Rate, not less than Normal Cost Rate	**19.64%**	**2.46%**

Normal Cost Rate by Tier (Total Employer and Member)[2]

	Pension	Healthcare
Tier 1	18.60%	14.41%
Tier 2	14.54%	7.55%
Tier 3	15.80%	7.11%

[1] 7.5% for Peace Officer / Firefighter and 6.82% weighted average for Others

[2] Rates determined considering the payroll for members in each tier. DCR payroll is excluded from these calculations.

All Members

Schedule of Past Service Cost Amortizations - Pension ($'s in 000's)

Layer	Amortization Period: Date Created	Amortization Period: Years Remaining	Balances: Initial	Balances: Outstanding	Beginning-of-Year Payment
Initial Amount	6/30/2018	17	$ 4,620,399	$ 4,498,197	$ 364,737
Change in Assumptions	6/30/2018	21	555,442	559,717	39,571
FY19 Loss	6/30/2019	22	297,539	300,063	20,621
FY20 Loss	6/30/2020	23	124,501	125,417	8,394
FY21 Gain	6/30/2021	24	(578,700)	(581,282)	(37,958)
Change in Assumptions	6/30/2022	25	205,891	205,891	13,138
FY22 Loss	6/30/2022	25	24,178	24,178	1,543
Total				**$ 5,132,181**	**$ 410,046**

Schedule of Past Service Cost Amortizations - Healthcare ($'s in 000's)

Layer	Amortization Period: Date Created	Amortization Period: Years Remaining	Balances: Initial	Balances: Outstanding	Beginning-of-Year Payment
Initial Amount	6/30/2018	17	(78,254)	(76,185)	(6,177)
Change in Assumptions/Methods/EGWP	6/30/2018	21	49,849	50,232	3,551
FY19 Gain	6/30/2019	22	(630,840)	(636,194)	(43,721)
FY20 Gain	6/30/2020	23	(291,747)	(293,890)	(19,670)
Medical/Prescription Drug Plan Changes	6/30/2021	24	(61,807)	(62,083)	(4,054)
FY21 Gain	6/30/2021	24	(707,913)	(711,073)	(46,433)
Change in Assumptions	6/30/2022	25	(88,392)	(88,392)	(5,640)
FY22 Gain	6/30/2022	25	(505,289)	(505,289)	(32,243)
Total				**$ (2,322,874)**	**$ (154,387)**

Section 1.3: Roll-Forward Contribution Rate Calculation for FY25 ($'s in 000's)

	Pension	Healthcare
1. Liability Roll Forward		
a. Actuarial Accrued Liability as of June 30, 2022	**$ 16,093,679**	**$ 6,657,069**
b. Normal Cost	116,137	56,376
c. Interest on (a) and (b) at 7.25%	1,175,212	486,725
d. Estimated Benefit Payments	(1,037,270)	(410,266)
e. Interest on (d) at 7.25%, adjusted for timing	(40,081)	(14,612)
f. Expected Actuarial Accrued Liability as of June 30, 2023	**$ 16,307,677**	**$ 6,775,292**
g. Projected Normal Cost	103,083	50,293
h. Interest on (f) and (g) at 7.25%	1,189,780	494,855
i. Estimated Benefit Payments	(1,087,579)	(431,186)
j. Interest on (i) at 7.25%, adjusted for timing	(42,024)	(15,357)
k. Expected Actuarial Accrued Liability as of June 30, 2024	**$ 16,470,937**	**$ 6,873,897**
2. Asset Roll Forward		
a. Actuarial Value of Assets as of June 30, 2022	**$ 10,961,498**	**$ 8,979,943**
b. Interest on (a) at 7.25%	794,709	651,046
c. Employee Contributions	60,769	0
d. Employer Contributions	414,488	0
e. State Assistance Contributions	33,933	0
f. Interest on (c) thru (e) at 7.25%, adjusted for timing*	19,387	0
g. Estimated Benefit Payments	(1,037,270)	(410,266)
h. Administrative Expenses	(8,635)	(3,818)
i. Interest on (g) and (h) at 7.25%, adjusted for timing	(40,388)	(14,748)
j. AVA Adjustments	5,705	11,127
k. Expected Actuarial Value of Assets as of June 30, 2023	**$ 11,204,196**	**$ 9,213,284**
l. Interest on (k) at 7.25%	812,304	667,963
m. Employee Contributions	55,952	0
n. Employer Contributions	414,172	0
o. State Assistance Contributions**	37,942	0
p. Interest on (m) thru (o) at 7.25%, adjusted for timing*	19,495	0
q. Estimated Benefit Payments	(1,087,579)	(431,186)
r. Administrative Expenses	(7,716)	(3,410)
s. Interest on (q) and (r) at 7.25%, adjusted for timing	(42,299)	(15,478)
t. AVA Adjustments	34,003	29,654
u. Expected Actuarial Value of Assets as of June 30, 2024	**$ 11,440,470**	**$ 9,460,827**
3. Expected Unfunded Actuarial Accrued Liability as of June 30, 2024, 1(k) - 2(u)	**$ 5,030,467**	**$ (2,586,930)**

* Employee and Employer Contributions are paid throughout the year. State Assistance Contributions are be paid on July 1, 2022 for FY23, and July 1, 2023 for FY24.
** The FY24 State Assistance Contribution is expected to be contributed 100% to pension.

	Pension		Healthcare	
4. Expected Annual Rate Payroll for FY25				
a. Defined Benefit Members	$	649,344	$	649,344
b. Defined Contribution Retirement Members		1,815,216		1,815,216
c. Total Rate Payroll	**$**	**2,464,560**	**$**	**2,464,560**
5. Expected FY25 Contribution Rate Calculation				
a. Projected Normal Cost for FY25	$	98,092	$	47,841
b. Projected Normal Cost Rate for FY25		3.98%		1.94%
c. Expected Member Contribution Rate for FY25		(1.83%)		0.00%
d. Expected Employer Normal Cost Rate for FY25		**2.15%**		**1.94%**
e. Expected Unfunded Liability as of June 30, 2024	$	5,030,467	$	(2,586,930)
f. FY25 Layered Amortization of Expected Unfunded Liability		436,202		(179,931)
g. Expected Past Service Cost Contribution Rate for FY25		**17.70%**		**(7.30%)**
h. Expected Total Contribution Rate for FY25, not less than Normal Cost Rate		**19.85%**		**1.94%**

The components of the expected FY25 amortization amounts are shown below (totals may not add due to rounding):

Expected FY25 Schedule of Past Service Cost Amortizations - Pension ($'s in 000's)

Layer	Amortization Period: Date Created	Amortization Period: Years Remaining at 6/30/24	Balances: Initial	Balances: Outstanding at 6/30/24	Beginning-of-Year Payment for FY25
Initial Amount	6/30/2018	15	$ 4,620,399	$ 4,352,600	$ 385,074
Change in Assumptions	6/30/2018	19	555,442	554,694	41,777
FY19 Loss	6/30/2019	20	297,539	298,706	21,771
FY20 Loss	6/30/2020	21	124,501	125,356	8,862
FY21 Gain	6/30/2021	22	(578,700)	(583,132)	(40,074)
FY22 Loss	6/30/2022	23	24,970	24,335	1,629
Change in Assumptions	6/30/2022	23	205,891	207,237	13,871
Expected FY23 Loss	6/30/2023	24	38,992	39,150	2,557
Expected FY24 Loss	6/30/2024	25	11,521	11,521	735
Total				**$ 5,030,467**	**$ 436,202**

Expected FY25 Schedule of Past Service Cost Amortizations - Healthcare ($'s in 000's)

Layer	Amortization Period: Date Created	Amortization Period: Years Remaining at 6/30/24	Balances: Initial	Balances: Outstanding at 6/30/24	Beginning-of-Year Payment for FY25
Initial Amount	6/30/2018	15	$ (78,254)	$ (73,720)	$ (6,522)
Change in Assumptions/Methods/EGWP	6/30/2018	19	49,849	49,781	3,749
FY19 Gain	6/30/2019	20	(630,840)	(633,316)	(46,159)
FY20 Gain	6/30/2020	21	(291,747)	(293,747)	(20,767)
Medical/Prescription Drug Plan Changes	6/30/2021	22	(61,807)	(62,280)	(4,280)
FY21 Gain	6/30/2021	22	(707,913)	(713,337)	(49,022)
FY22 Gain	6/30/2022	23	(505,289)	(508,591)	(34,041)
Change in Assumptions/Methods/EGWP	6/30/2022	23	(88,392)	(88,969)	(5,955)
Expected FY23 Gain	6/30/2023	24	(112,291)	(112,748)	(7,362)
Expected FY24 Gain	6/30/2024	25	(150,003)	(150,003)	(9,572)
Total				**$ (2,586,930)**	**$ (179,931)**

The components of the expected FY25 amortization amounts are shown below (totals may not add due to rounding):

Section 1.4: Actuarial Gain/(Loss) for FY22 ($'s in 000's)

	Pension	Healthcare
1. Expected Actuarial Accrued Liability		
a. Actuarial Accrued Liability as of June 30, 2021	$ 15,419,975	$ 6,856,170
b. Normal Cost	119,376	70,467
c. Interest on (a) and (b) at 7.38%	1,146,804	511,186
d. Employer Group Waiver Plan	0	54,646
e. Benefit Payments	(953,055)	(453,308)
f. Refund of Contributions	(9,302)	0
g. Interest on (d) thru (f) at 7.38%, adjusted for timing	(37,842)	(14,449)
h. Assumptions/Methods Changes	205,891	(88,392)
i. Expected Actuarial Accrued Liability as of June 30, 2022 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h)	$ 15,891,847	$ 6,936,320
2. Actual Actuarial Accrued Liability as of June 30, 2022	16,093,679	6,657,069
3. Liability Gain/(Loss), (1)(i) - (2)	**$ (201,832)**	**$ 279,251**
4. Expected Actuarial Asset Value		
a. Actuarial Value of Assets as of June 30, 2021	$ 10,466,709	$ 8,581,155
b. Interest on (a) at 7.38%	772,443	633,289
c. Employee Contributions	66,412	0
d. Employer Contributions	415,538	64,990
e. State Assistance Contributions	97,700	0
f. Employer Group Waiver Plan	0	54,646
g. Interest on (c) thru (f) at 7.38%, adjusted for timing	24,678	4,336
h. Benefit Payments	(953,055)	(453,308)
i. Refund of Contributions	(9,302)	0
j. Administrative Expenses	(9,038)	(2,776)
k. Interest on (h) thru (j) at 7.38%, adjusted for timing	(38,169)	(16,530)
l. Expected Actuarial Asset Value as of June 30, 2022 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h) + (i) + (j) + (k)	$ 10,833,916	$ 8,865,802
5. Actual Actuarial Asset Value as of June 30, 2022	10,961,498	8,979,943
6. Actuarial Asset Value Gain/(Loss), (5) - (4)(l)	**$ 127,582**	**$ 114,141**
7. Total Actuarial Gain/(Loss), (3) + (6)	**$ (74,250)**	**$ 393,392**
8. Contribution Gain/(Loss)	**$ 51,250**	**$ 108,834**
9. Administrative Expense Gain/(Loss)	**$ (1,178)**	**$ 3,063**
10. FY22 Gain/(Loss), (7) + (8) + (9)	**$ (24,178)**	**$ 505,289**

Section 1.5: Development of Change in Unfunded Liability During FY22 ($'s in 0

	Pension	Healthcare
1. 2021 Unfunded Liability	$ 4,953,266	$ (1,724,985)
a. Interest on Unfunded Liability at 7.38%	$ 365,551	$ (127,304)
b. Normal Cost	119,376	70,467
c. Employee Contributions	(66,412)	0
d. Employer Contributions	(415,538)	(64,990)
e. State Assistance Contributions	(97,700)	0
f. Administrative Expenses	9,038	2,776
g. Interest on (b) thru (f) at 7.38%, adjusted for timing	(15,541)	2,946
h. Assumptions/Methods Changes	205,891	(88,392)
i. Expected Change in Unfunded Liability During FY22 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h)	$ 104,665	$ (204,497)
2. Expected 2022 Unfunded Liability, (1) + (1)(i)	$ 5,057,931	$ (1,929,482)
a. Liability (Gain)/Loss During FY22	$ 201,832	$ (279,251)
b. Actuarial Assets (Gain)/Loss During FY22	(127,582)	(114,141)
c. Total Actuarial (Gain)/Loss During FY22	$ 74,250	$ (393,392)
3. Actual 2022 Unfunded Liability, (2) + (2)(c)	$ 5,132,181	$ (2,322,874)

Section 1.6: Analysis of Financial Experience

Pension
Change in Employer / State Contribution Rate as of Valuation Date
Due to (Gains) and Losses in Actuarial Accrued Liabilities During the Last Five Fiscal Years
Resulting from Differences Between Assumed Experience and Actual Experience

	Change in Employer / State Contribution Rate During Fiscal Year				
	Pension				
Type of (Gain) or Loss	**2018**	**2019**	**2020**	**2021**	**2022**
1. Health Claims	N/A	N/A	N/A	N/A	N/A
2. Salary Experience	(0.30%)	0.16%	(0.03%)	0.05%	0.13%
3. Investment Experience	0.52%	0.50%	0.44%	(1.06%)	(0.34%)
4. Demographic Experience and Miscellaneous	0.26%	(0.45%)	(0.19%)	(0.54%)	0.52%
5. Actual vs Expected Contributions	0.14%	0.11%	0.15%	(0.06%)	(0.14%)
6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5)	0.62%	0.32%	0.37%	(1.61%)	0.17%
7. Assumptions / Method Changes	1.65%	0.00%	0.00%	0.00%	0.54%
8. Plan Changes	0.00%	0.00%	0.00%	0.00%	0.00%
9. Composite (Gain) or Loss During Year, (6) + (7) + (8)	2.27%	0.32%	0.37%	(1.61%)	0.71%
10. Beginning Total Employer / State Contribution Rate	17.58%	19.85%	20.17%	20.54%	18.93%
11. Ending Valuation Year Employer / State Contribution Rate, (9) + (10)	19.85%	20.17%	20.54%	18.93%	19.64%
12. Fiscal Year Rates Adopted by ARMB					
a. Fiscal Year Employer / State Contribution Rate	20.66%	20.89%	18.38%	18.47%	19.85% *
b. Fiscal Year for which Rate Applies	FY21	FY22	FY23	FY24	FY25

* Expected rate. Actual rate to be determined

Healthcare
Change in Employer / State Contribution Rate as of Valuation Date
Due to (Gains) and Losses in Actuarial Accrued Liabilities During the Last Five Fiscal Years
Resulting from Differences Between Assumed Experience and Actual Experience

	Change in Employer / State Contribution Rate During Fiscal Year				
	Healthcare				
Type of (Gain) or Loss	**2018**	**2019**	**2020**	**2021**	**2022**
1. Health Claims	(1.51%)	(2.39%)	(0.87%)	(0.12%)	(0.11%)
2. Salary Experience	N/A	N/A	N/A	N/A	N/A
3. Investment Experience	0.40%	0.38%	0.31%	0.00%	0.00%
4. Demographic Experience and Miscellaneous	(1.08%)	1.16%	0.38%	(0.26%)	(0.37%)
5. Actual vs Expected Contributions	0.06%	0.02%	(0.16%)	0.00%	0.00%
6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5)	(2.13%)	(0.83%)	(0.34%)	(0.38%)	(0.48%)
7. Assumptions / Method Changes	2.20%	0.00%	0.00%	0.00%	(0.22%)
8. Plan Changes	0.00%	0.00%	0.00%	(0.03%)	0.00%
9. Composite (Gain) or Loss During Year, (6) + (7) + (8)	0.07%	(0.83%)	(0.34%)	(0.41%)	(0.70%)
10. Beginning Total Employer / State Contribution Rate	4.67%	4.74%	3.91%	3.57%	3.16%
11. Ending Valuation Year Employer / State Contribution Rate, (9) + (10)	4.74%	3.91%	3.57%	3.16%	2.46%
12. Fiscal Year Rates Adopted by ARMB					
a. Fiscal Year Employer / State Contribution Rate	4.27%	3.12%	0.00%	0.00%	1.94% *
b. Fiscal Year for which Rate Applies	FY21	FY22	FY23	FY24	FY25

* Expected rate. Actual rate to be determined

Section 1.7: History of Unfunded Liability and Funded Ratio ($'s in 000's)

Pension

Valuation Date	Total Actuarial Accrued Liability	Valuation Assets	Assets as a Percent of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)
June 30, 2006	$ 8,094,043	$ 6,331,065	78.2%	$ 1,762,978
June 30, 2007	8,662,324	6,739,004	77.8%	1,923,320
June 30, 2008	9,154,282	7,210,772	78.8%	1,943,510
June 30, 2009	9,702,086	6,108,528	63.0%	3,593,558
June 30, 2010	10,371,672	6,469,832	62.4%	3,901,840
June 30, 2011	10,919,047	6,762,149	61.9%	4,156,898
June 30, 2012	11,428,944	6,530,421	57.1%	4,898,523
June 30, 2013	11,945,881	6,510,749	54.5%	5,435,132
June 30, 2014	12,947,759	7,731,438	59.7%	5,216,321
June 30, 2015	13,337,929	8,931,160	67.0%	4,406,769
June 30, 2016	13,633,033	9,056,662	66.4%	4,576,371
June 30, 2017	13,832,130	9,229,703	66.7%	4,602,427
June 30, 2018	14,606,033	9,430,192	64.6%	5,175,841
June 30, 2019	15,039,180	9,576,693	63.7%	5,462,487
June 30, 2020	15,279,525	9,713,710	63.6%	5,565,815
June 30, 2021	15,419,975	10,466,709	67.9%	4,953,266
June 30, 2022	16,093,679	10,961,498	68.1%	5,132,181

Healthcare

Valuation Date	Total Actuarial Accrued Liability	Valuation Assets	Assets as a Percent of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)
June 30, 2006	$ 6,294,370	$ 2,709,843	43.1%	$ 3,584,527
June 30, 2007	5,908,609	3,161,956	53.5%	2,746,653
June 30, 2008	6,733,859	3,829,334	56.9%	2,904,525
June 30, 2009	6,877,285	4,134,450	60.1%	2,742,835
June 30, 2010	7,760,820	4,687,632	60.4%	3,073,188
June 30, 2011	7,821,503	5,051,625	64.6%	2,769,878
June 30, 2012	7,863,417	5,301,609	67.4%	2,561,808
June 30, 2013	8,046,878	5,651,877	70.2%	2,395,001
June 30, 2014	7,949,613	6,913,160	87.0%	1,036,453
June 30, 2015	7,310,734	7,242,299	99.1%	68,435
June 30, 2016	7,736,457	7,411,330	95.8%	325,127
June 30, 2017	8,049,265	7,557,068	93.9%	492,197
June 30, 2018	7,658,104	7,686,509	100.4%	(28,405)
June 30, 2019	7,151,694	7,810,491	109.2%	(658,797)
June 30, 2020	7,036,550	7,989,358	113.5%	(952,808)
June 30, 2021	6,856,170	8,581,155	125.2%	(1,724,985)
June 30, 2022	6,657,069	8,979,943	134.9%	(2,322,874)

Section 2: Plan Assets

Section 2.1: Summary of Fair Value of Assets ($'s in 000's)

As of June 30, 2022	Pension	Healthcare	Allocation Percent
Cash and Short-Term Investments			
- Cash and Cash Equivalents	$ 155,842	$ 112,908	1.5%
- Subtotal	$ 155,842	$ 112,908	1.5%
Fixed Income Investments			
- Domestic Fixed Income Pool	$ 2,300,390	$ 1,899,694	21.3%
- International Fixed Income Pool	0	0	0.0%
- Tactical Fixed Income Pool	0	0	0.0%
- High Yield Pool	0	0	0.0%
- Treasury Inflation Protection Pool	0	0	0.0%
- Emerging Debt Pool	0	0	0.0%
- Subtotal	$ 2,300,390	$ 1,899,694	21.3%
Equity Investments			
- Domestic Equity Pool	$ 2,618,110	$ 2,162,072	24.2%
- International Equity Pool	1,421,227	1,173,607	13.1%
- Private Equity Pool	1,779,516	1,469,549	16.5%
- Emerging Markets Equity Pool	318,049	262,649	2.9%
- Alternative Equity Strategies	629,789	520,088	5.8%
- Subtotal	$ 6,766,691	$ 5,587,965	62.5%
Other Investments			
- Real Estate Pool	$ 813,282	$ 672,726	7.5%
- Other Investments Pool	778,899	643,225	7.2%
- Absolute Return Pool	0	0	0.0%
- Other Assets	15	967	0.0%
- Subtotal	$ 1,592,196	$ 1,316,918	14.7%
Total Cash and Investments	$ 10,815,119	$ 8,917,485	100.0%
Net Accrued Receivables	1,021	(48,351)	
Net Assets	$ 10,816,140	$ 8,869,134	

Section 2.2: Changes in Fair Value of Assets During FY22 ($'s in 000's)

Fiscal Year 2022	Pension	Healthcare
1. Fair Value of Assets as of June 30, 2021	$ 11,912,309	$ 9,784,141
2. Additions:		
a. Employee Contributions	$ 66,412	$ 0
b. Employer Contributions	415,538	64,990
c. State Assistance Contributions	97,700	0
d. Interest and Dividend Income	153,569	127,317
e. Net Appreciation / Depreciation in Fair Value of Investments	(829,657)	(682,785)
f. Employer Group Waiver Plan	0	54,646
g. Other	187	125
h. Total Additions	$ (96,251)	$ (435,707)
3. Deductions:		
a. Medical Benefits	$ 0	$ 453,308
b. Retirement Benefits	953,055	0
c. Refund of Contributions	9,302	0
d. Investment Expenses	28,523	23,216
e. Administrative Expenses	9,038	2,776
f. Total Deductions	$ 999,918	$ 479,300
4. Fair Value of Assets as of June 30, 2022	$ 10,816,140	$ 8,869,134
5. Approximate Fair Value Investment Return Rate during FY22 Net of Investment Expenses	-6.0%	-6.0%

Section 2.3: Development of Actuarial Value of Assets ($'s in 000's)

The actuarial value of asset was set equal to the fair value as of June 30, 2014 and the 20% corridor w
Investment gains and losses after June 30, 2014 are recognized 20% per year over 5 years.

	Pension	Healthcare
1. Deferral of Investment Gain / (Loss) for FY22		
a. Fair Value of Assets as of June 30, 2021	$ 11,912,309	$ 9,784,141
b. Contributions	579,650	64,990
c. Employer Group Waiver Plan	0	54,646
d. Benefit Payments	962,357	453,308
e. Administrative Expenses	9,038	2,776
f. Actual Investment Return (net of investment expenses)	(704,424)	(578,559)
g. Expected Return Rate (net of investment expenses)	7.38%	7.38%
h. Expected Return, Weighted for Timing	865,637	709,876
i. Investment Gain / (Loss) for the Year, (f) - (h)	(1,570,061)	(1,288,435)
2. Actuarial Value as of June 30, 2022		
a. Fair Value as of June 30, 2022	$ 10,816,140	$ 8,869,134
b. Deferred Investment Gain / (Loss)	(145,358)	(110,809)
c. Actuarial Value as of June 30, 2022, (a) - (b)	10,961,498	8,979,943
3. Ratio of Actuarial Value of Assets to Fair Value of Assets	101.3%	101.2%
4. Approximate Actuarial Value Investment Return Rate during FY22 Net of Investment Expenses	8.6%	8.7%

The tables below show the development of the gains/(losses) to be recognized in the current year ($'s in 000's):

Pension				
Fiscal Year Ending	Asset Gain / (Loss)	Gain / (Loss) Recognized in Prior Years	Gain / (Loss) Recognized This Year	Gain / (Loss) Deferred to Future Years
June 30, 2018	$ 17,834	$ 14,268	$ 3,566	$ 0
June 30, 2019	(136,242)	(81,744)	(27,248)	(27,250)
June 30, 2020	(310,824)	(124,330)	(62,165)	(124,329)
June 30, 2021	2,103,782	420,756	420,756	1,262,270
June 30, 2022	(1,570,061)	0	(314,012)	(1,256,049)
Total	**$ 104,489**	**$ 228,950**	**$ 20,897**	**$ (145,358)**

Healthcare				
Fiscal Year Ending	Asset Gain / (Loss)	Gain / (Loss) Recognized in Prior Years	Gain / (Loss) Recognized This Year	Gain / (Loss) Deferred to Future Years
June 30, 2018	$ 30,997	$ 24,796	$ 6,201	$ 0
June 30, 2019	(101,128)	(60,678)	(20,225)	(20,225)
June 30, 2020	(244,753)	(97,903)	(48,950)	(97,900)
June 30, 2021	1,730,106	346,021	346,021	1,038,064
June 30, 2022	(1,288,435)	0	(257,687)	(1,030,748)
Total	**$ 126,787**	**$ 212,236**	**$ 25,360**	**$ (110,809)**

Section 2.4: Historical Asset Rates of Return

Year Ending	Actuarial Value		Fair Value	
	Annual	Cumulative	Annual	Cumulative
June 30, 2005	8.7%	8.7%	8.5%	8.5%
June 30, 2006	9.3%	9.0%	11.4%	9.9%
June 30, 2007	11.6%	9.9%	18.5%	12.7%
June 30, 2008	10.0%	9.9%	(3.1%)	8.5%
June 30, 2009	(7.3%)	6.2%	(20.5%)	2.0%
June 30, 2010	7.2%	6.4%	10.2%	3.3%
June 30, 2011	7.2%	6.5%	20.4%	5.6%
June 30, 2012	1.2%	5.8%	0.2%	4.9%
June 30, 2013	4.0%	5.6%	12.1%	5.7%
June 30, 2014	21.9%	7.1%	18.1%	6.9%
June 30, 2015	7.0%	7.1%	2.9%	6.5%
June 30, 2016	5.0%	6.9%	(0.7%)	5.9%
June 30, 2017	5.4%	6.8%	12.8%	6.4%
June 30, 2018	6.1%	6.8%	8.2%	6.5%
June 30, 2019	5.5%	6.7%	6.0%	6.5%
June 30, 2020	5.8%	6.6%	4.1%	6.3%
June 30, 2021	11.6%	6.9%	30.0%	7.6%
June 30, 2022	8.7%	7.0%	(6.0%)	6.8%

Rates of return are shown based on combined assets for Pension and Healthcare.

Cumulative since fiscal year ending June 30, 2005.

Section 3: Projections

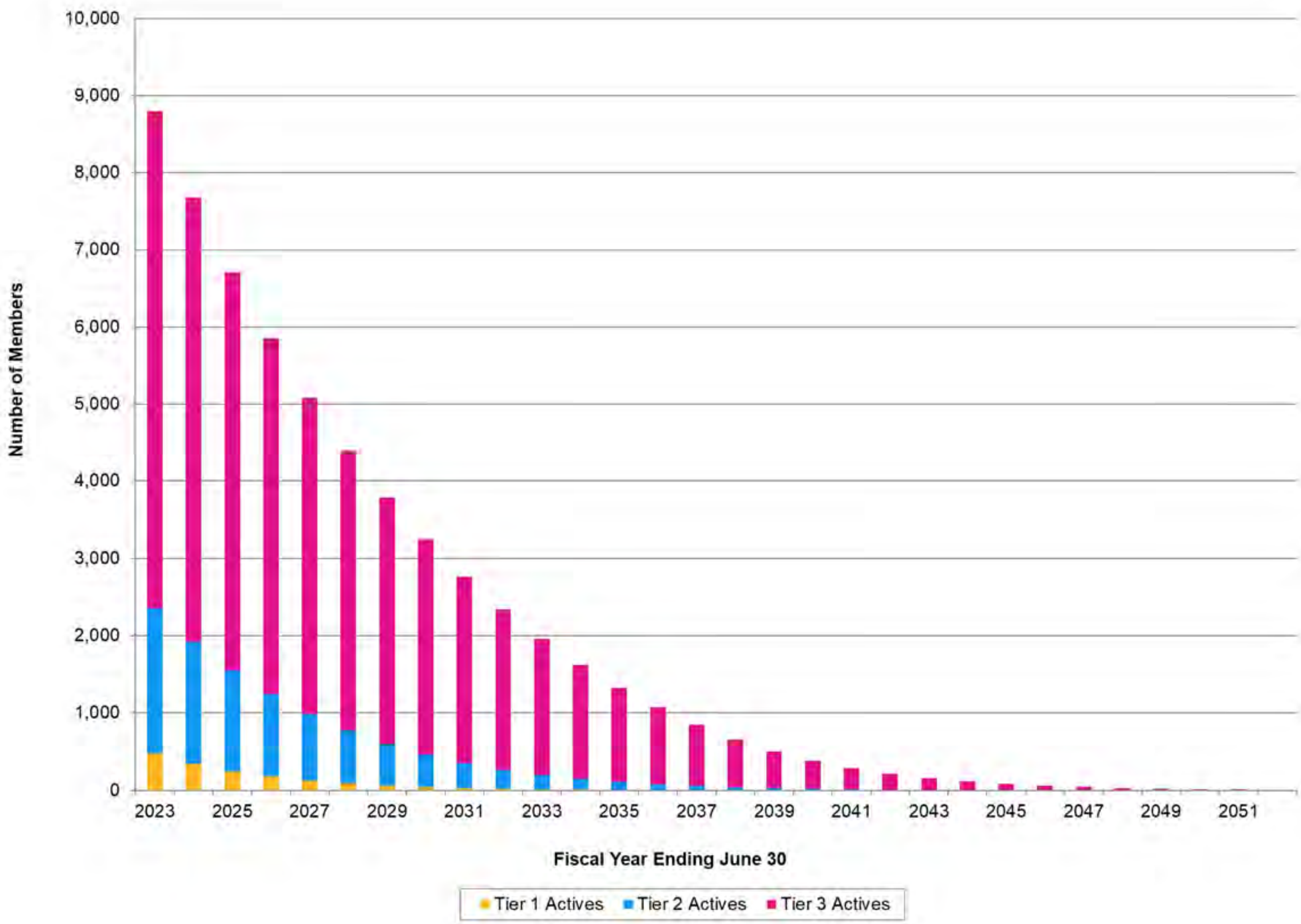
Section 3.1: Projection Assumptions and Methods

Key Assumptions

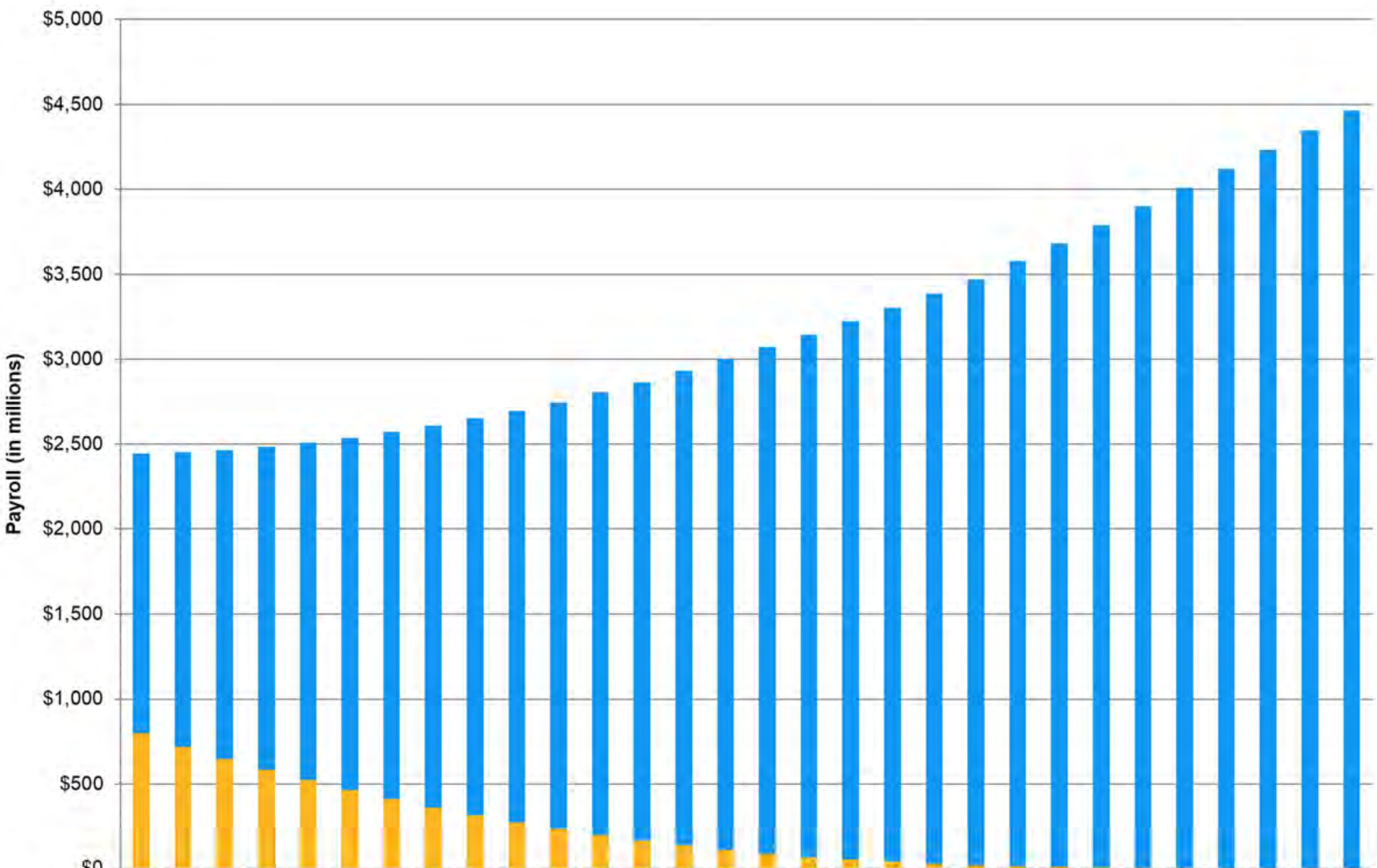
- 7.25% investment return (net of investment expenses) on the Fair Value of Assets in all future years.
- The Actuarial Value of Assets was re-initialized to Fair Value as of June 30, 2014. The Actuarial Value of Assets after June 30, 2014 reflects the deferred gains and losses generated by the smoothing method. The current deferred amount is recognized in the first four years of the projections.
- Actuarial assumptions and methods as described in Section 5. Experience after June 30, 2022 is assumed to match the assumptions.
- The projections in Section 3.6A reflect 25-year amortization in all years.
- The projections in Section 3.6B reflect 25-year amortization through FY39, and 15-year amortization in FY40 and beyond.
- The actuarially calculated contribution rate using a two-year roll-forward approach is adopted each year.
- Projections assume a 0% increase in the total active member population. All new members are expected to enter the DCR plan.
- Contribution rates are determined as a percent of total DB and DCR payroll.
- The DCR contribution rate determined as of June 30, 2022 is assumed to remain constant in all future years.
- The active rehire assumption shown in Section 5 is assumed to grade to zero on a uniform basis over 20 years.
- The Normal Cost is increased by the administrative expenses shown in Section 5. For future years, the percent increase is assumed to remain constant.
- The % of total DB/DCR payroll represented by the State’s employees based on the June 30, 2022 data was assumed to remain constant in all future years.
- Board-adopted contribution rates for FY23 and FY24 are reflected.
- The healthcare Normal Cost is assumed to be deposited to the healthcare trust in FY25 and beyond.

Section 3.2: Membership Projection

Projected Active Member Count



Projected DB and DCR Payroll



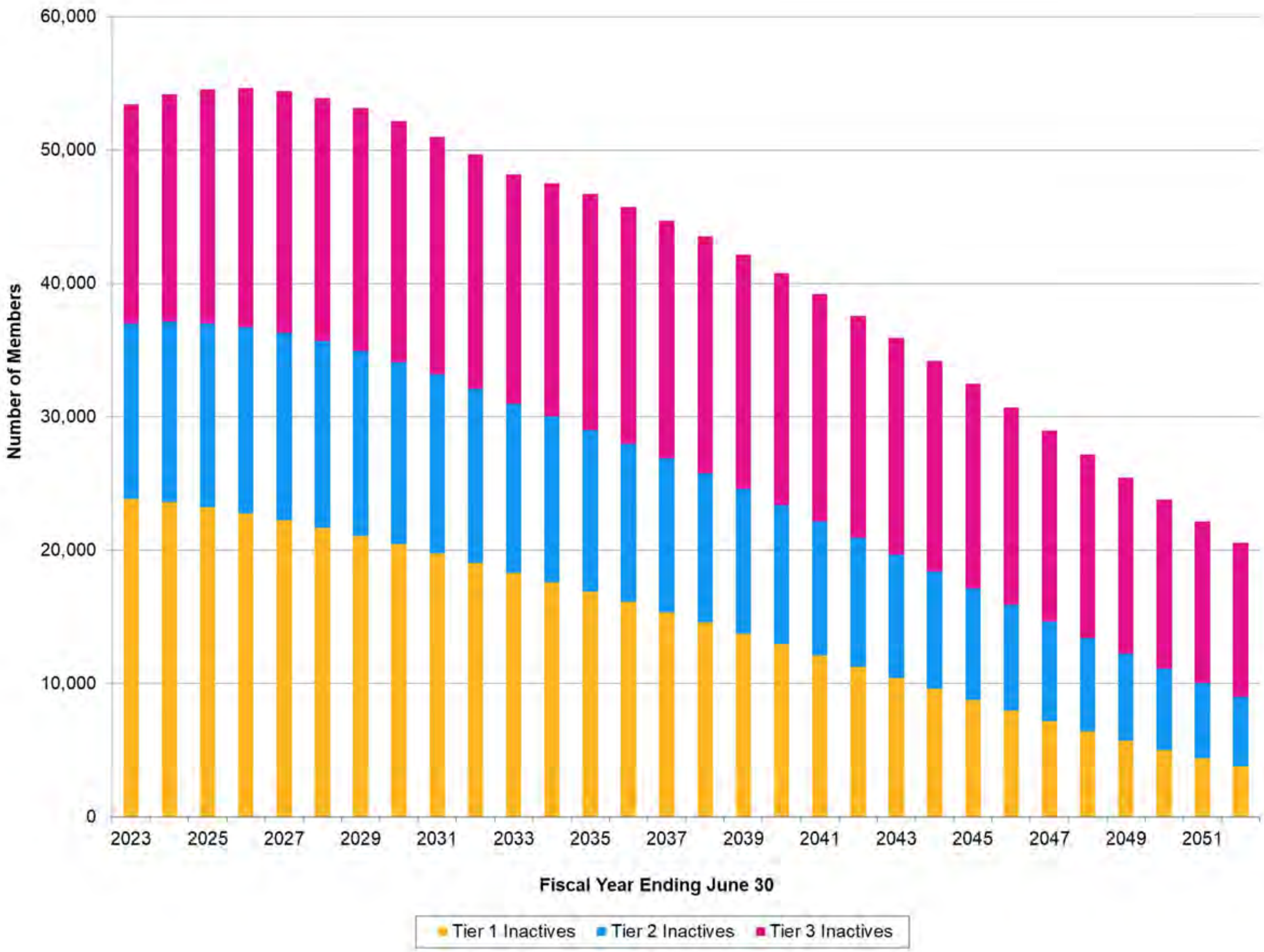
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
DCR Payroll	1,645	1,730	1,815	1,900	1,986	2,071	2,159	2,247	2,335	2,423	2,511	2,606	2,701	2,796	2,890
DB Payroll	797	720	649	584	523	465	411	362	316	273	234	199	166	137	110

	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
DCR Payroll	2,985	3,079	3,171	3,263	3,356	3,449	3,560	3,670	3,781	3,893	4,005	4,118	4,231	4,345	4,461
DB Payroll	87	68	53	41	31	24	18	13	10	7	5	4	3	2	1

Fiscal Year Ending June 30

DB Payroll   DCR Payroll

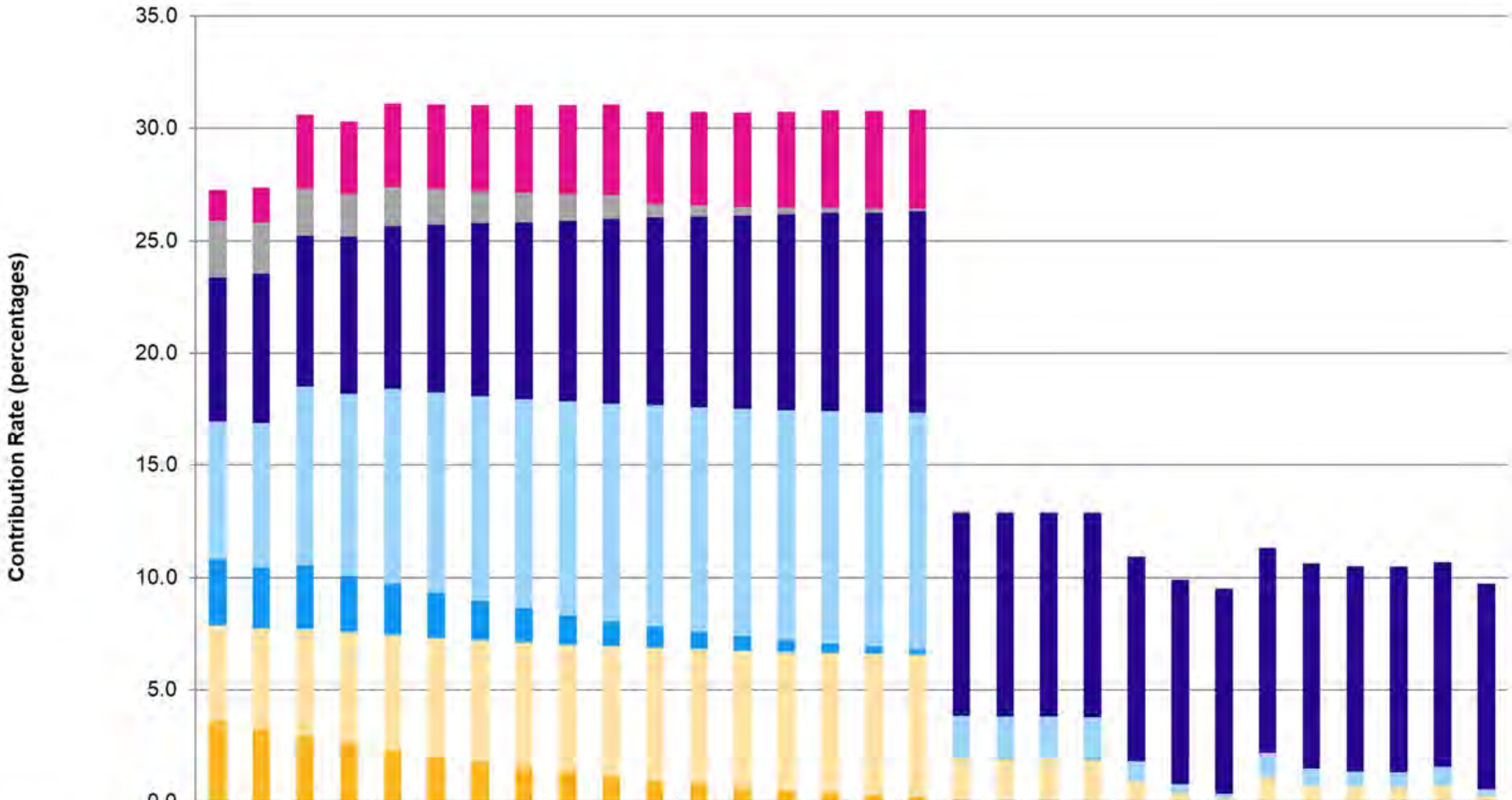
Projected Inactive Member Count



Section 3.3A: Projected Employer/State Contribution Rates

These projections reflect 25-year amortization in all years, as summarized in Section 3.6A.

Based on Total DB and DCR Payroll

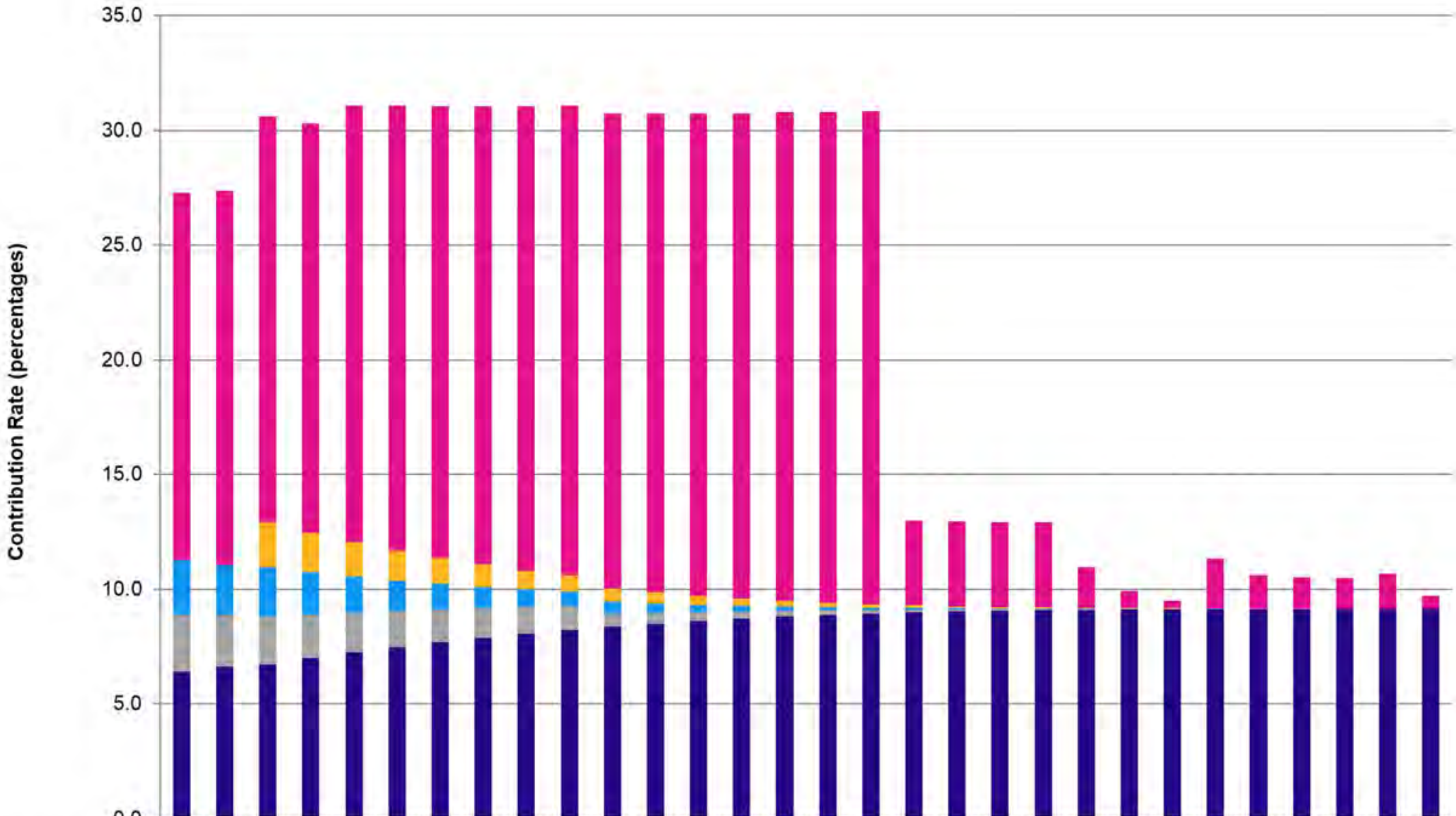


	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
State Assistance	1.41	1.56	3.29	3.23	3.72	3.78	3.84	3.90	3.96	4.04	4.11	4.16	4.20	4.25	4.31
DB EE Contributions	2.49	2.28	2.09	1.91	1.73	1.58	1.44	1.31	1.19	1.08	0.59	0.49	0.40	0.32	0.25
DCR ER Contributions	6.41	6.63	6.73	6.99	7.24	7.47	7.68	7.87	8.05	8.21	8.36	8.49	8.61	8.71	8.81
State as ER on DCR Pay	6.14	6.47	7.96	8.12	8.69	8.92	9.13	9.33	9.52	9.71	9.89	10.02	10.14	10.26	10.38
State as ER on DB Pay	2.97	2.69	2.85	2.50	2.29	2.00	1.74	1.50	1.29	1.10	0.92	0.76	0.62	0.50	0.40
DB ER Contributions on DCR Pay	4.24	4.49	4.78	4.96	5.13	5.29	5.44	5.59	5.71	5.83	5.93	6.03	6.11	6.18	6.24
DB ER Contributions on DB Pay	3.62	3.26	2.92	2.61	2.31	2.03	1.78	1.54	1.32	1.12	0.95	0.79	0.64	0.52	0.41

	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
State Assistance	4.34	4.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DB EE Contributions	0.20	0.15	0.11	0.09	0.06	0.05	0.03	0.03	0.02	0.01	0.01	0.01	0.00	0.00	0.00
DCR ER Contributions	8.88	8.94	8.99	9.03	9.06	9.08	9.10	9.11	9.12	9.12	9.13	9.13	9.14	9.14	9.14
State as ER on DCR Pay	10.46	10.55	1.88	1.87	1.87	1.87	0.90	0.39	0.18	1.09	0.74	0.68	0.67	0.77	0.28
State as ER on DB Pay	0.30	0.23	0.03	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DB ER Contributions on DCR Pay	6.30	6.35	1.84	1.85	1.86	1.87	0.90	0.38	0.17	1.10	0.74	0.69	0.67	0.78	0.29
DB ER Contributions on DB Pay	0.31	0.24	0.11	0.08	0.06	0.04	0.03	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00

Section 3.3B: Components of Projected Total Contribution Rates

Based on Total DB and DCR Payroll



	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
DB Amortization	16.01	16.33	17.69	17.84	19.04	19.40	19.68	19.98	20.24	20.48	20.70	20.88	21.01	21.15	21.29
DB Healthcare Normal Cost	0.00	0.00	1.94	1.71	1.50	1.30	1.13	0.97	0.83	0.70	0.59	0.49	0.40	0.32	0.26
DB ER Pension Normal Cost	2.37	2.14	2.15	1.85	1.58	1.33	1.11	0.92	0.75	0.62	0.50	0.40	0.31	0.24	0.19
DB EE Pension Normal Cost	2.49	2.28	2.09	1.91	1.73	1.58	1.44	1.31	1.19	1.08	0.59	0.49	0.40	0.32	0.25
DCR ER Contribution	6.41	6.63	6.73	6.99	7.24	7.47	7.68	7.87	8.05	8.21	8.36	8.49	8.61	8.71	8.81

	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
DB Amortization	21.39	21.49	3.67	3.69	3.70	3.71	1.76	0.75	0.33	2.19	1.48	1.36	1.33	1.55	0.56
DB Healthcare Normal Cost	0.20	0.15	0.12	0.09	0.07	0.05	0.04	0.03	0.02	0.01	0.01	0.01	0.00	0.00	0.00
DB ER Pension Normal Cost	0.13	0.10	0.08	0.05	0.04	0.03	0.03	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.00
DB EE Pension Normal Cost	0.20	0.15	0.11	0.09	0.06	0.05	0.03	0.03	0.02	0.01	0.01	0.01	0.00	0.00	0.00
DCR ER Contribution	8.88	8.94	8.99	9.03	9.06	9.08	9.10	9.11	9.12	9.12	9.13	9.13	9.14	9.14	9.14

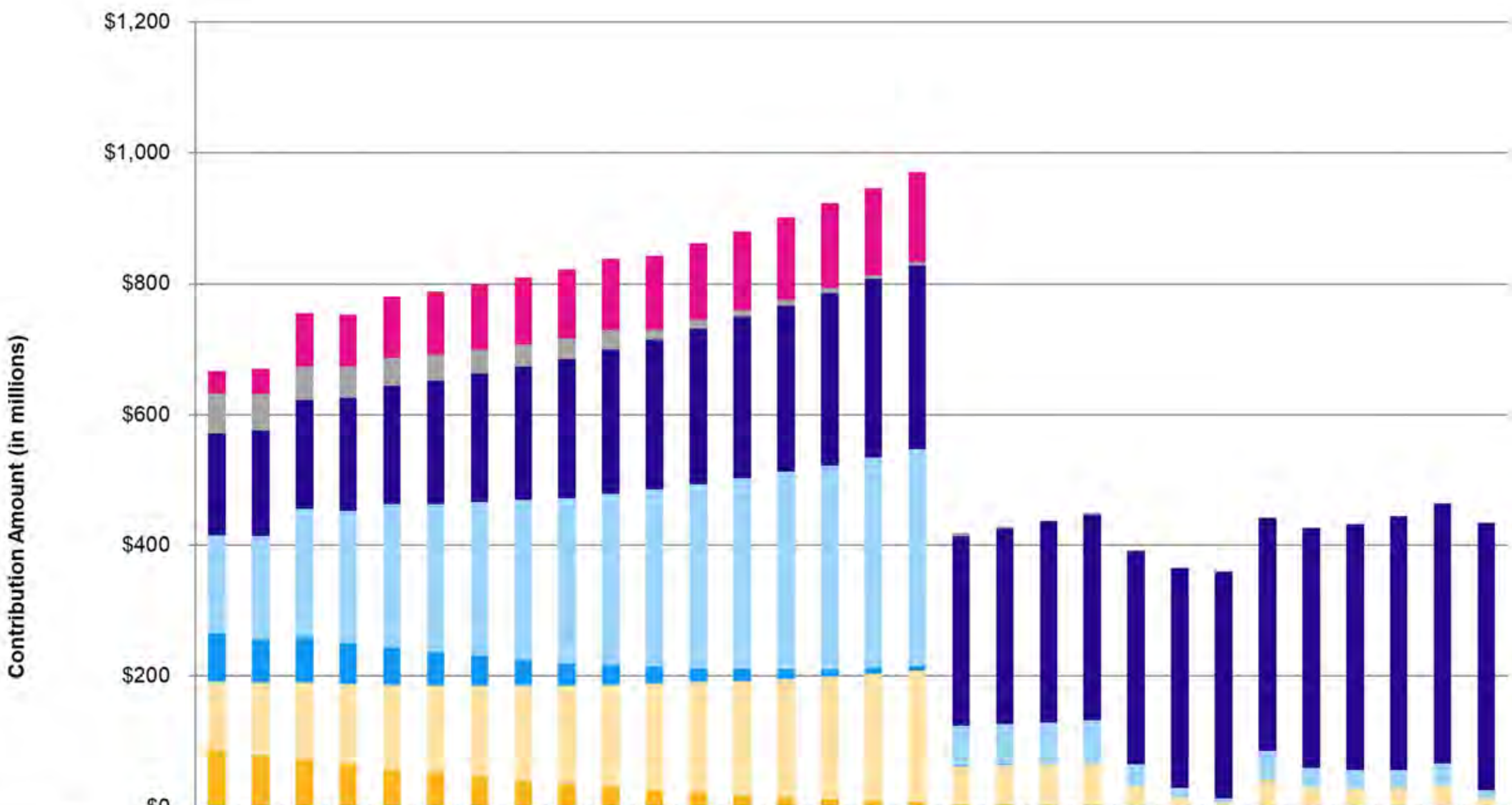
Fiscal Year Ending June 30

■ DCR ER Contribution ■ DB EE Pension Normal Cost ■ DB ER Pension Normal Cost ■ DB Healthcare Normal Cost ■ DB Amortization

These projections reflect 25-year amortization in all years, as summarized in Section 3.6A.

Section 3.4A: Projected Employer/State Contribution Amounts

These projections reflect 25-year amortization in all years, as summarized in Section 3.6A.



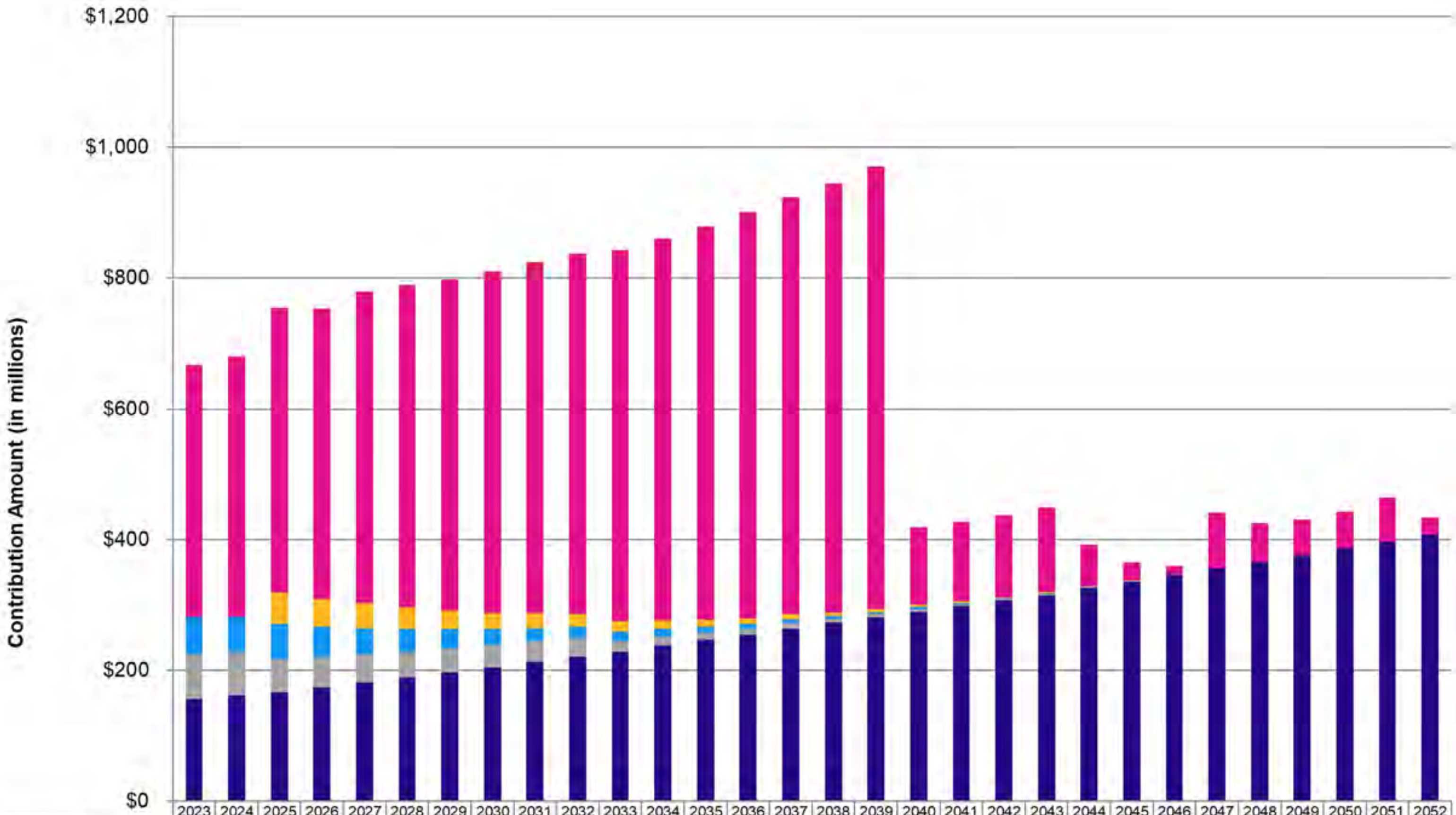
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
State Assistance	34	38	81	80	93	96	99	102	105	109	113	117	120	125	129
DB EE Contributions	61	56	52	47	43	40	37	34	32	29	16	14	11	9	8
DCR ER Contributions	157	162	166	174	182	189	197	205	213	221	229	238	247	255	264
State as ER on DCR Pay	150	158	196	202	218	226	235	244	252	262	271	281	291	301	311
State as ER on DB Pay	73	66	70	62	57	51	45	39	34	30	25	21	18	15	12
DB ER Contributions on DCR Pay	104	110	118	123	129	134	140	146	151	157	163	169	175	181	187
DB ER Contributions on DB Pay	88	80	72	65	58	52	46	40	35	30	26	22	18	15	12

	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
State Assistance	133	138	0	0	0	0	0	0	0	0	0	0	0	0	0
DB EE Contributions	6	5	4	3	2	2	1	1	1	0	0	0	0	0	0
DCR ER Contributions	273	281	290	298	307	315	326	336	346	356	366	376	387	397	408
State as ER on DCR Pay	321	332	61	62	63	65	32	14	7	43	30	28	28	33	13
State as ER on DB Pay	9	7	1	1	1	0	0	0	0	0	0	0	0	0	0
DB ER Contributions on DCR Pay	194	200	59	61	63	65	32	14	6	43	30	28	29	34	13
DB ER Contributions on DB Pay	10	8	3	3	2	2	1	1	0	0	0	0	0	0	0

Fiscal Year Ending June 30

DB ER Contributions on DB Pay · DB ER Contributions on DCR Pay · State as ER on DB Pay · State as ER on DCR Pay · DCR ER Contributions · DB EE Contributions · State Assistance

Section 3.4B: Components of Projected Total Contribution Amounts



	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
DB Amortization	385	398	436	444	477	493	506	522	537	552	568	584	601	621	638
DB Healthcare Normal Cost	0	0	48	42	38	33	29	25	22	19	16	14	11	9	8
DB ER Pension Normal Cost	57	53	53	46	40	34	29	24	20	17	14	11	9	7	6
DB EE Pension Normal Cost	68	67	52	47	43	40	37	34	32	29	16	14	11	9	8
DCR ER Contributions	157	162	166	174	182	189	197	205	213	221	229	238	247	255	264

	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
DB Amortization	656	677	118	121	125	129	63	27	12	85	59	55	56	67	26
DB Healthcare Normal Cost	6	5	4	3	2	2	1	1	1	0	0	0	0	0	0
DB ER Pension Normal Cost	4	3	3	2	1	1	1	0	0	0	0	0	0	0	0
DB EE Pension Normal Cost	6	5	4	3	2	2	1	1	1	0	0	0	0	0	0
DCR ER Contributions	273	281	290	298	307	315	326	336	346	356	366	376	387	397	408

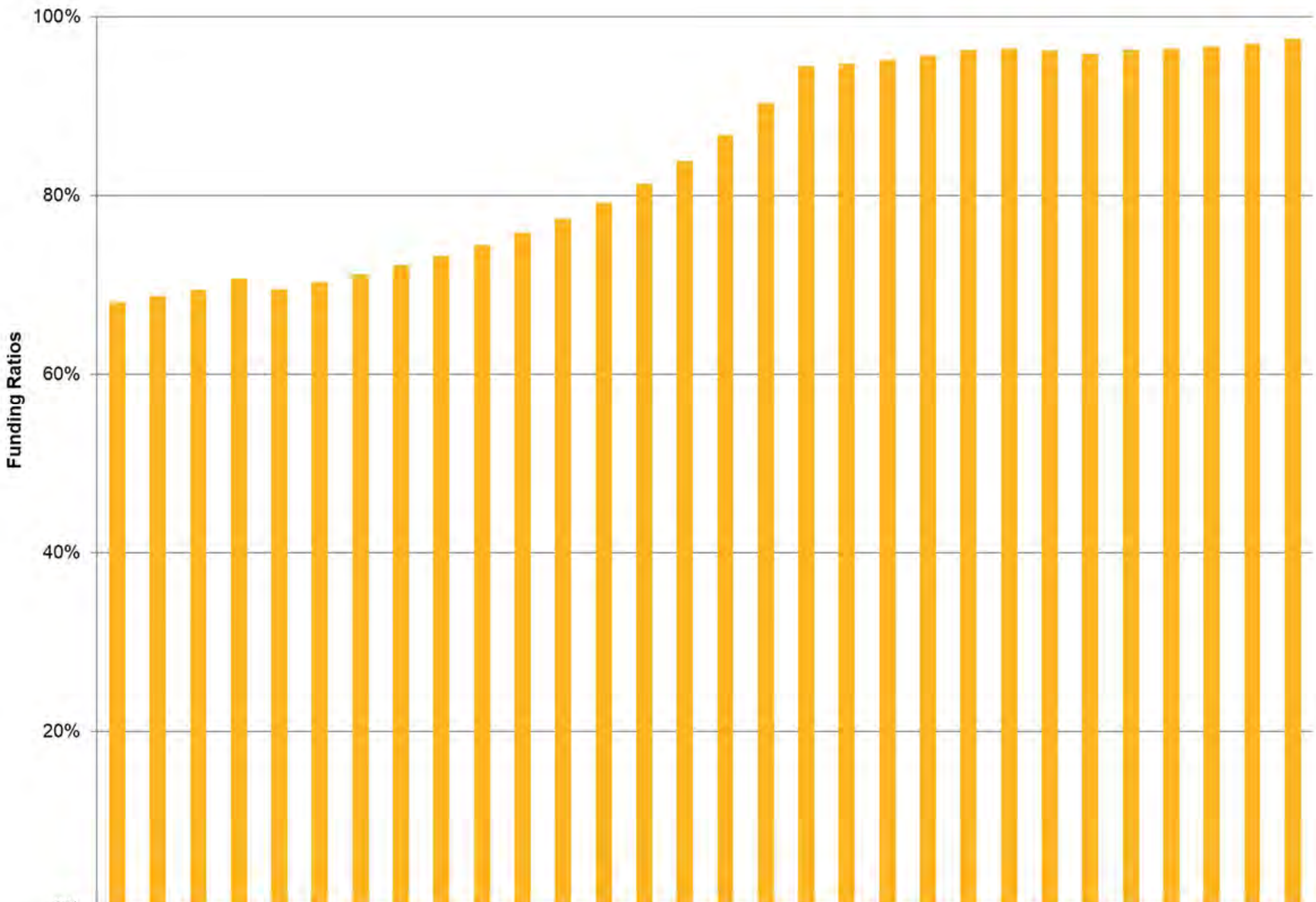
Fiscal Year Ending June 30

■ DCR ER Contributions ■ DB EE Pension Normal Cost ■ DB ER Pension Normal Cost ■ DB Healthcare Normal Cost ■ DB Amortization

These projections reflect 25-year amortization in all years, as summarized in Section 3.6A.

Section 3.5A: Projection of Funded Ratios

Pension



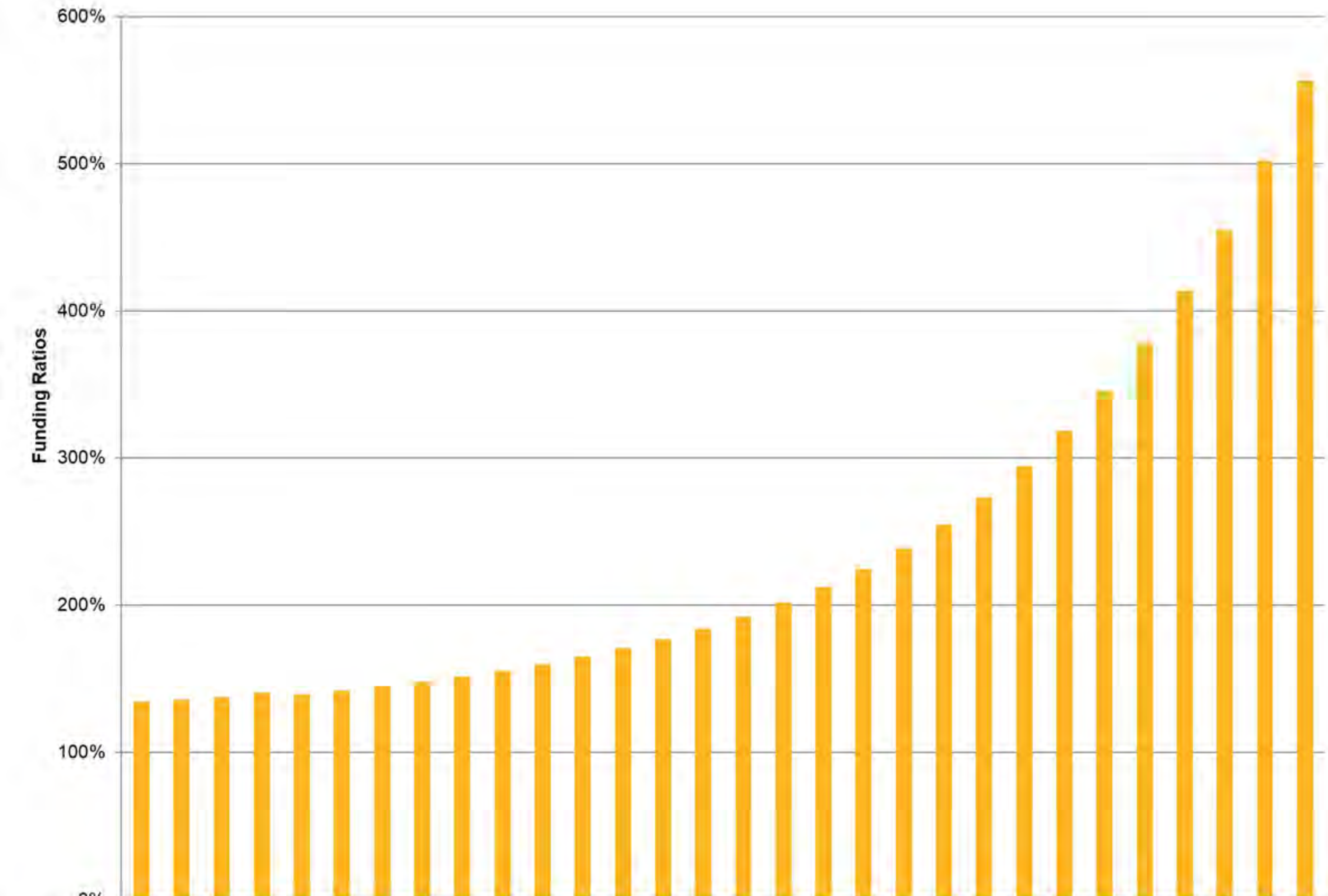
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
Funding Ratios	68%	69%	69%	71%	70%	70%	71%	72%	73%	74%	76%	77%	79%	81%	84%	87%	90%	94%	95%	95%	96%	96%	96%	96%	96%	96%	96%	97%	97%	98%

Fiscal Year Ending June 30

These projections reflect 25-year amortization in all years, as summarized in Section 3.6A.

Section 3.5B: Projection of Funded Ratios

Healthcare



	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
Funding Ratios	135%	136%	138%	141%	140%	142%	145%	148%	152%	156%	160%	165%	171%	177%	184%	192%	202%	212%	225%	239%	255%	273%	294%	319%	346%	378%	414%	455%	502%	557%

Fiscal Year Ending June 30

These projections reflect 25-year amortization in all years, as summarized in Section 3.6A.

Section 3.6A: Table of Projected Actuarial Results ($'s in 000's)

Fiscal Year End	Valuation Amounts on July 1 (Beginning of FY)				Cash Flow Amounts during Following 12 Months										Deferred Assed Gain / (Loss)	
	Pension		Healthcare			Actuarial Contrib. Rates			DB Contributions							
	Actuarial Assets	Accrued Liability	Actuarial Assets	Accrued Liability	Total Salaries	DB	DCR	Total	Non-State Employers	State as an Employer	State Assistance	Employee	Total	Benefit Payments	Pension	Healthcare
2023	$10,961,498	$ 16,093,679	$ 8,979,943	$ 6,657,069	$ 2,442,007	18.38%	6.41%	24.79%	$ 191,953	$ 222,535	$ 33,933	$ 60,769	$ 509,190	$ 1,447,536	$ (162,689)	$ (129,969)
2024	11,204,196	16,307,677	9,213,284	6,775,292	2,449,710	18.47%	6.63%	25.10%	189,842	224,330	37,942	55,952	508,066	1,518,765	(207,268)	(169,353)
2025	11,440,470	16,470,937	9,460,827	6,873,897	2,464,560	21.79%	6.73%	28.52%	189,750	266,258	81,020	51,505	588,533	1,585,941	(314,012)	(257,687)
2026	11,739,769	16,591,903	9,801,448	6,952,261	2,484,549	21.41%	6.99%	28.40%	188,031	263,737	80,173	47,358	579,299	1,647,739	0	0
2027	11,583,862	16,661,148	9,789,796	7,011,917	2,508,463	22.13%	7.24%	29.37%	186,680	275,229	93,213	43,470	598,592	1,703,581	0	0
2028	11,736,344	16,682,326	10,033,904	7,055,888	2,535,575	22.03%	7.47%	29.50%	185,757	276,947	95,883	40,074	598,661	1,756,237	0	0
2029	11,865,340	16,656,016	10,276,437	7,083,767	2,570,663	21.93%	7.68%	29.61%	185,605	279,505	98,635	36,966	600,711	1,805,207	0	0
2030	11,973,611	16,583,144	10,518,572	7,095,369	2,608,993	21.86%	7.87%	29.73%	185,874	282,768	101,685	34,079	604,406	1,853,251	0	0
2031	12,063,250	16,463,462	10,759,308	7,088,776	2,650,982	21.81%	8.05%	29.86%	186,459	286,661	105,059	31,679	609,858	1,898,933	0	0
2032	12,137,127	16,297,405	10,998,512	7,062,562	2,696,089	21.80%	8.21%	30.01%	187,457	291,405	108,885	29,238	616,985	1,940,533	0	0
2033	12,198,922	16,085,754	11,237,113	7,016,482	2,745,032	21.80%	8.36%	30.16%	188,784	296,696	112,938	16,196	614,614	1,966,249	0	0
2034	12,254,340	15,831,019	11,475,288	6,949,171	2,804,506	21.76%	8.49%	30.25%	191,036	302,567	116,658	13,742	624,003	1,996,724	0	0
2035	12,307,459	15,533,701	11,715,671	6,861,801	2,867,406	21.72%	8.61%	30.33%	193,585	308,785	120,431	11,470	634,271	2,022,132	0	0
2036	12,363,080	15,195,633	11,959,591	6,754,179	2,932,888	21.71%	8.71%	30.42%	196,527	315,690	124,512	9,385	646,114	2,042,489	0	0
2037	12,426,499	14,818,132	12,209,027	6,626,624	3,000,710	21.73%	8.81%	30.54%	199,559	323,288	129,207	7,502	659,556	2,057,842	0	0
2038	12,504,198	14,403,584	12,465,222	6,478,204	3,072,106	21.72%	8.88%	30.60%	203,223	330,828	133,210	6,144	673,405	2,063,937	0	0
2039	12,603,499	13,955,651	12,732,458	6,311,525	3,146,912	21.75%	8.94%	30.69%	207,219	339,352	137,882	4,720	689,173	2,064,049	0	0
2040	12,733,315	13,478,096	13,012,532	6,126,320	3,223,871	3.86%	8.99%	12.85%	62,744	61,698	0	3,546	127,988	2,053,597	0	0
2041	12,299,161	12,975,948	13,311,254	5,925,801	3,304,029	3.82%	9.03%	12.85%	63,637	62,577	0	2,974	129,188	2,034,475	0	0
2042	11,852,528	12,452,669	13,634,087	5,713,230	3,386,930	3.81%	9.06%	12.87%	65,063	63,979	0	2,032	131,074	2,007,017	0	0
2043	11,398,473	11,912,616	13,986,143	5,490,969	3,472,665	3.79%	9.08%	12.87%	66,359	65,254	0	1,736	133,349	1,972,329	0	0
2044	10,942,280	11,360,231	14,371,622	5,260,580	3,577,503	1.83%	9.10%	10.93%	33,010	32,459	0	1,073	66,542	1,926,661	0	0
2045	10,416,384	10,799,325	14,800,105	5,028,412	3,683,645	0.78%	9.11%	9.89%	14,487	14,246	0	1,105	29,838	1,875,282	0	0
2046	9,851,934	10,234,452	15,275,540	4,795,288	3,791,021	0.36%	9.12%	9.48%	6,881	6,767	0	758	14,406	1,817,201	0	0
2047	9,271,832	9,669,103	15,804,566	4,564,473	3,900,021	2.21%	9.12%	11.33%	43,458	42,733	0	390	86,581	1,752,797	0	0
2048	8,769,181	9,106,834	16,394,063	4,339,220	4,010,390	1.49%	9.13%	10.62%	30,128	29,627	0	401	60,156	1,686,487	0	0
2049	8,249,864	8,550,721	17,047,986	4,119,161	4,121,778	1.37%	9.13%	10.50%	28,472	27,997	0	412	56,881	1,617,028	0	0
2050	7,739,052	8,003,675	17,771,859	3,905,562	4,233,861	1.34%	9.14%	10.48%	28,704	28,227	0	0	56,931	1,547,964	0	0
2051	7,243,004	7,468,364	18,568,157	3,696,559	4,347,409	1.55%	9.14%	10.69%	34,045	33,478	0	0	67,523	1,477,089	0	0
2052	6,774,875	6,947,005	19,442,852	3,493,068	4,462,598	0.57%	9.14%	9.71%	12,874	12,660	0	0	25,534	1,406,744	0	0
								Total	$3,747,203	$5,368,283	$1,711,266	$ 514,676	$11,341,428			

The contribution rates, contribution amounts, and benefit payments are determined separately for Pension and Healthcare. They are aggregated solely for purposes of display in this exhibit.

These projections reflect 25-year amortization in all years.

Section 3.6A: Table of Projected Actuarial Results ($'s in 000's) (continued)

Fiscal Year End	Valuation Amounts on July 1 (Beginning of FY)			
	Funding Ratio		Unfunded Liability / (Surplus)	
	Pension	Healthcare	Pension	Healthcare
2023	68%	135%	$ 5,132,181	$ (2,322,874)
2024	69%	136%	5,103,481	(2,437,992)
2025	70%	138%	5,030,467	(2,586,930)
2026	71%	141%	4,852,134	(2,849,187)
2027	70%	140%	5,077,286	(2,777,879)
2028	70%	142%	4,945,982	(2,978,016)
2029	71%	145%	4,790,676	(3,192,670)
2030	72%	148%	4,609,533	(3,423,203)
2031	73%	152%	4,400,212	(3,670,532)
2032	75%	156%	4,160,278	(3,935,950)
2033	76%	160%	3,886,832	(4,220,631)
2034	77%	165%	3,576,679	(4,526,117)
2035	79%	171%	3,226,242	(4,853,870)
2036	81%	177%	2,832,553	(5,205,412)
2037	84%	184%	2,391,633	(5,582,403)
2038	87%	192%	1,899,386	(5,987,018)
2039	90%	202%	1,352,152	(6,420,933)
2040	95%	212%	744,781	(6,886,212)
2041	95%	225%	676,787	(7,385,453)
2042	95%	239%	600,141	(7,920,857)
2043	96%	255%	514,143	(8,495,174)
2044	96%	273%	417,951	(9,111,042)
2045	97%	294%	382,941	(9,771,693)
2046	96%	319%	382,518	(10,480,252)
2047	96%	346%	397,271	(11,240,093)
2048	96%	378%	337,653	(12,054,843)
2049	97%	414%	300,857	(12,928,825)
2050	97%	455%	264,623	(13,866,297)
2051	97%	502%	225,360	(14,871,598)
2052	98%	557%	172,130	(15,949,784)

These projections reflect 25-year amortization in all years.

Section 3.6B: Table of Projected Actuarial Results ($'s in 000's)

Fiscal Year End	Valuation Amounts on July 1 (Beginning of FY)				Cash Flow Amounts during Following 12 Months										Deferred Assed Gain / (Loss)	
	Pension		Healthcare			Actuarial Contrib. Rates			DB Contributions							
	Actuarial Assets	Accrued Liability	Actuarial Assets	Accrued Liability	Total Salaries	DB	DCR	Total	Non-State Employers	State as an Employer	State Assistance	Employee	Total	Benefit Payments	Pension	Healthcare
2023	$10,961,498	$ 16,093,679	$ 8,979,943	$ 6,657,069	$2,442,007	18.38%	6.41%	24.79%	$ 191,953	$ 222,535	$ 33,933	$ 60,769	$ 509,190	$1,447,536	$ (162,689)	$ (129,969)
2024	11,204,196	16,307,677	9,213,284	6,775,292	2,449,710	18.47%	6.63%	25.10%	189,842	224,330	37,942	55,952	508,066	1,518,765	(207,268)	(169,353)
2025	11,440,470	16,470,937	9,460,827	6,873,897	2,464,560	21.79%	6.73%	28.52%	189,750	266,258	81,020	51,505	588,533	1,585,941	(314,012)	(257,687)
2026	11,739,769	16,591,903	9,801,448	6,952,261	2,484,549	21.41%	6.99%	28.40%	188,031	263,737	80,173	47,358	579,299	1,647,739	0	0
2027	11,583,862	16,661,148	9,789,796	7,011,917	2,508,463	22.13%	7.24%	29.37%	186,680	275,229	93,213	43,470	598,592	1,703,581	0	0
2028	11,736,344	16,682,326	10,033,904	7,055,888	2,535,575	22.03%	7.47%	29.50%	185,757	276,947	95,883	40,074	598,661	1,756,237	0	0
2029	11,865,340	16,656,016	10,276,437	7,083,767	2,570,663	21.93%	7.68%	29.61%	185,605	279,505	98,635	36,966	600,711	1,805,207	0	0
2030	11,973,611	16,583,144	10,518,572	7,095,369	2,608,993	21.86%	7.87%	29.73%	185,874	282,768	101,685	34,079	604,406	1,853,251	0	0
2031	12,063,250	16,463,462	10,759,308	7,088,776	2,650,982	21.81%	8.05%	29.86%	186,459	286,661	105,059	31,679	609,858	1,898,933	0	0
2032	12,137,127	16,297,405	10,998,512	7,062,562	2,696,089	21.80%	8.21%	30.01%	187,457	291,405	108,885	29,238	616,985	1,940,533	0	0
2033	12,198,922	16,085,754	11,237,113	7,016,482	2,745,032	21.80%	8.36%	30.16%	188,784	296,696	112,938	16,196	614,614	1,966,249	0	0
2034	12,254,340	15,831,019	11,475,288	6,949,171	2,804,506	21.76%	8.49%	30.25%	191,036	302,567	116,658	13,742	624,003	1,996,724	0	0
2035	12,307,459	15,533,701	11,715,671	6,861,801	2,867,406	21.72%	8.61%	30.33%	193,585	308,785	120,431	11,470	634,271	2,022,132	0	0
2036	12,363,080	15,195,633	11,959,591	6,754,179	2,932,888	21.71%	8.71%	30.42%	196,527	315,690	124,512	9,385	646,114	2,042,489	0	0
2037	12,426,499	14,818,132	12,209,027	6,626,624	3,000,710	21.73%	8.81%	30.54%	199,559	323,288	129,207	7,502	659,556	2,057,842	0	0
2038	12,504,198	14,403,584	12,465,222	6,478,204	3,072,106	21.72%	8.88%	30.60%	203,223	330,828	133,210	6,144	673,405	2,063,937	0	0
2039	12,603,499	13,955,651	12,732,458	6,311,525	3,146,912	21.75%	8.94%	30.69%	207,219	339,352	137,882	4,720	689,173	2,064,049	0	0
2040	12,733,315	13,478,096	13,012,532	6,126,320	3,223,871	3.88%	8.99%	12.87%	63,069	62,018	0	3,546	128,633	2,053,597	0	0
2041	12,299,829	12,975,948	13,311,254	5,925,801	3,304,029	3.84%	9.03%	12.87%	63,970	62,904	0	2,974	129,848	2,034,475	0	0
2042	11,853,928	12,452,669	13,634,087	5,713,230	3,386,930	3.83%	9.06%	12.89%	65,404	64,314	0	2,032	131,750	2,007,017	0	0
2043	11,400,675	11,912,616	13,986,143	5,490,969	3,472,665	3.82%	9.08%	12.90%	66,885	65,771	0	1,736	134,392	1,972,329	0	0
2044	10,945,722	11,360,231	14,371,622	5,260,580	3,577,503	1.85%	9.10%	10.95%	33,370	32,813	0	1,073	67,256	1,926,661	0	0
2045	10,420,815	10,799,325	14,800,105	5,028,412	3,683,645	0.81%	9.11%	9.92%	15,044	14,794	0	1,105	30,943	1,875,282	0	0
2046	9,857,830	10,234,452	15,275,540	4,795,288	3,791,021	0.39%	9.12%	9.51%	7,454	7,330	0	758	15,542	1,817,201	0	0
2047	9,279,332	9,669,103	15,804,566	4,564,473	3,900,021	2.25%	9.12%	11.37%	44,244	43,506	0	390	88,140	1,752,797	0	0
2048	8,778,839	9,106,834	16,394,063	4,339,220	4,010,390	1.52%	9.13%	10.65%	30,735	30,223	0	401	61,359	1,686,487	0	0
2049	8,261,468	8,550,721	17,047,986	4,119,161	4,121,778	1.40%	9.13%	10.53%	29,095	28,610	0	412	58,117	1,617,028	0	0
2050	7,752,778	8,003,675	17,771,859	3,905,562	4,233,861	1.38%	9.14%	10.52%	29,558	29,066	0	0	58,624	1,547,964	0	0
2051	7,259,478	7,468,364	18,568,157	3,696,559	4,347,409	1.59%	9.14%	10.73%	34,922	34,341	0	0	69,263	1,477,089	0	0
2052	6,794,345	6,947,005	19,442,852	3,493,068	4,462,598	0.61%	9.14%	9.75%	13,774	13,545	0	0	27,319	1,406,744	0	0
								Total	$3,754,865	$5,375,816	$1,711,266	$ 514,676	$11,356,623			

The contribution rates, contribution amounts, and benefit payments are determined separately for Pension and Healthcare. They are aggregated solely for purposes of display in this exhibit.

These projections reflect 25-year amortization through FY39, and 15-year amortization in FY40 and beyond.

Section 3.6B: Table of Projected Actuarial Results ($'s in 000's) (continued)

Fiscal Year End	Valuation Amounts on July 1 (Beginning of FY)			
	Funding Ratio		Unfunded Liability / (Surplus)	
	Pension	Healthcare	Pension	Healthcare
2023	68%	135%	$ 5,132,181	$ (2,322,874)
2024	69%	136%	5,103,481	(2,437,992)
2025	70%	138%	5,030,467	(2,586,930)
2026	71%	141%	4,852,134	(2,849,187)
2027	70%	140%	5,077,286	(2,777,879)
2028	70%	142%	4,945,982	(2,978,016)
2029	71%	145%	4,790,676	(3,192,670)
2030	72%	148%	4,609,533	(3,423,203)
2031	73%	152%	4,400,212	(3,670,532)
2032	75%	156%	4,160,278	(3,935,950)
2033	76%	160%	3,886,832	(4,220,631)
2034	77%	165%	3,576,679	(4,526,117)
2035	79%	171%	3,226,242	(4,853,870)
2036	81%	177%	2,832,553	(5,205,412)
2037	84%	184%	2,391,633	(5,582,403)
2038	87%	192%	1,899,386	(5,987,018)
2039	90%	202%	1,352,152	(6,420,933)
2040	95%	212%	744,781	(6,886,212)
2041	95%	225%	676,119	(7,385,453)
2042	95%	239%	598,741	(7,920,857)
2043	96%	255%	511,941	(8,495,174)
2044	96%	273%	414,509	(9,111,042)
2045	97%	294%	378,510	(9,771,693)
2046	96%	319%	376,622	(10,480,252)
2047	96%	346%	389,771	(11,240,093)
2048	96%	378%	327,995	(12,054,843)
2049	97%	414%	289,253	(12,928,825)
2050	97%	455%	250,897	(13,866,297)
2051	97%	502%	208,886	(14,871,598)
2052	98%	557%	152,660	(15,949,784)

These projections reflect 25-year amortization through FY39, and 15-year amortization in FY40 and beyond.

Section 3.7: Projected Pension Benefit Recipients and Amounts ($’s in 000’s)

Fiscal Year End	Pension		Fiscal Year End	Pension	
	Recipient Counts	Benefit Amounts		Recipient Counts	Benefit Amounts
2023	38,243	$ 1,037,270	2065	3,783	$ 364,079
2024	39,646	1,087,579	2066	3,310	328,379
2025	40,749	1,134,873	2067	2,883	294,582
2026	41,554	1,178,211	2068	2,500	262,715
2027	42,129	1,219,750	2069	2,157	232,806
2028	42,464	1,258,422	2070	1,850	204,880
2029	42,564	1,293,897	2071	1,578	178,961
2030	42,495	1,327,351	2072	1,336	155,063
2031	42,278	1,358,009	2073	1,124	133,194
2032	41,893	1,385,456	2074	937	113,347
2033	41,363	1,396,648	2075	775	95,501
2034	40,701	1,414,917	2076	635	79,617
2035	39,914	1,429,026	2077	516	65,632
2036	38,996	1,439,583	2078	415	53,463
2037	37,995	1,445,486	2079	329	43,007
2038	36,878	1,445,727	2080	259	34,143
2039	35,636	1,440,578	2081	201	26,732
2040	34,286	1,429,011	2082	154	20,629
2041	32,850	1,412,789	2083	118	15,680
2042	31,347	1,391,205	2084	88	11,733
2043	29,803	1,364,438	2085	64	8,641
2044	28,200	1,333,359	2086	48	6,262
2045	26,596	1,297,461	2087	34	4,468
2046	24,972	1,258,064	2088	25	3,140
2047	23,362	1,215,316	2089	18	2,176
2048	21,759	1,169,908	2090	13	1,492
2049	20,193	1,122,196	2091	9	1,014
2050	18,674	1,072,604	2092	7	687
2051	17,206	1,021,741	2093	5	467
2052	15,793	970,083	2094	4	321
2053	14,442	918,022	2095	2	225
2054	13,157	865,935	2096	2	160
2055	11,944	814,178	2097	2	117
2056	10,805	763,073	2098	1	88
2057	9,740	712,885	2099	1	67
2058	8,752	663,839	2100	1	52
2059	7,838	616,122	2101	1	41
2060	6,998	569,883	2102	0	0
2061	6,228	525,239	2103	0	0
2062	5,526	482,277	2104	0	0
2063	4,887	441,064	2105	0	0
2064	4,308	401,652	2106	0	0

Section 4: Member Data

Section 4.1: Summary of Members Included

As of June 30	2018	2019	2020	2021	2022
Active Members					
1. Number	13,434	12,152	11,033	9,888	8,795 [1]
2. Average Age	52.52	52.84	53.21	53.51	53.78
3. Average Credited Service	17.21	17.80	18.38	18.96	19.52
4. Average Entry Age	35.30	35.04	34.83	34.55	34.26
5. Average Annual Earnings	$ 77,813	$ 82,192	$ 83,757	$ 86,316	$ 89,603
6. Number Vested	13,103	11,868	10,791	9,675	8,604
7. Percent Who Are Vested	97.5%	97.7%	97.8%	97.8%	97.8%
Retirees, Disabilitants, and Beneficiaries					
1. Number	35,454	36,310	37,106	37,717	38,243
2. Average Age	69.85	70.29	70.77	71.17	71.61
3. Average Years Since Retirement	11.87	12.14	12.45	12.66	12.94
4. Average Monthly Pension Benefit					
a. Base	$ 1,616	$ 1,660	$ 1,704	$ 1,752	$ 1,802
b. COLA[2]	94	92	93	94	95
c. PRPA[2]	222	241	244	230	282
d. Adjustment	1	1	0	0	1
e. Total	$ 1,933	$ 1,994	$ 2,041	$ 2,076	$ 2,180
Vested Terminations (vested at termination, not refunded contributions, or commenced benefit)					
1. Number	5,660	5,499	5,327	5,135	4,955
2. Average Age	52.56	53.06	53.52	53.92	54.37
3. Average Monthly Pension Benefit	$ 1,087	$ 1,123	$ 1,158	$ 1,205	$ 1,258
Non-Vested Terminations (not vested at termination, not refunded contributions)					
1. Number	11,192	10,921	10,642	10,432	10,223
2. Average Account Balance	$ 6,558	$ 6,923	$ 7,060	$ 7,325	$ 7,573
Total Number of Members	**65,740**	**64,882**	**64,108**	**63,172**	**62,216**

[1] Includes 4,130 male active members and 4,665 female active members.

[2] Calculated by taking the average of the data field, as provided by the State of Alaska, for all participants in the group.

Summary of Members Included

As of June 30, 2022	DB Tier 1	DB Tier 2	DB Tier 3	DB Total	DCR Tier 4	Grand Total
Active Members						
1. Number	483	1,875	6,437	8,795	24,702	33,497
2. Average Age	63.99	57.27	52.00	53.78	41.35	44.61
3. Average Credited Service	24.28	23.67	17.96	19.52	5.11	8.89
4. Average Entry Age	39.71	33.60	34.04	34.26	36.24	35.72
5. Annual Earnings						
a. Total (000's)	$ 38,284	$ 171,786	$ 577,988	$ 788,058	$ 1,622,742	$ 2,410,800
b. Average	$ 79,263	$ 91,619	$ 89,792	$ 89,603	$ 65,693	$ 71,971

Total and average annual earnings (“valuation pay”) are the annualized earnings for the fiscal year ending on the valuation date.

As of June 30, 2022	Tier 1	Tier 2	Tier 3	Total
Retirees, Disabilitants, and Beneficiaries				
1. Number	22,664	9,710	5,869	38,243
2. Average Age	73.52	69.54	67.68	71.61
3. Average Years Since Retirement	16.45	9.01	5.88	12.94
4. Average Monthly Pension Benefit				
a. Base	$ 1,790	$ 2,001	$ 1,521	$ 1,802
b. COLA	121	64	48	95
c. PRPA	391	152	78	282
d. Adjustment	1	1	1	1
e. Total	$ 2,303	$ 2,218	$ 1,648	$ 2,180

Summary of Members Included

As of June 30, 2022	Active Members	Inactive Members				
		Retirees	Covered Spouses	Covered Children / Dependents	Deferred	Total Inactive Members
Retiree Medical Participants						
1. Retiree Coverage Only	8,730	19,879	0	0	2,413	22,292
2. Retiree + Spouse	0	12,795	12,795	0	2,785	28,375
3. Retiree + Children / Dependents	0	393	0	296	0	689
4. Family	0	691	691	1,112	0	2,494
5. Total	8,730	33,758	13,486	1,408	5,198	53,850

As of June 30, 2022	Retirees	Covered Spouses	Covered Children / Dependents	Deferred	Total Inactive Members
Retiree Medical Participants					
1. Pre-Medicare	6,647	4,390	1,408	4,999	17,444
2. Medicare Part A & B	26,858	9,044	0	199	36,101
3. Medicare Part B Only	253	52	0	0	305
4. Total	33,758	13,486	1,408	5,198	53,850

As of June 30, 2022	Retirees
Summary of Retiree Medical Data Received	
1. Retiree records on pension data	38,243
2. Remove duplicates on pension data	(1,193)
3. Valued in a different retiree healthcare plan[1]	(1,173)
4. Records without medical coverage	(2,255)
5. Medical only retirees	136
6. Total	33,758

As of June 30	2018	2019	2020	2021	2022
Retiree Medical Retirees					
1. Number	31,396	32,290	32,857	33,254	33,758
2. Average Age	70.06	70.41	70.87	71.31	71.72

[1] Each member's retiree medical benefits are valued in the plan indicated in the data from Aetna

Summary of Members Included

Active Members – DB Only

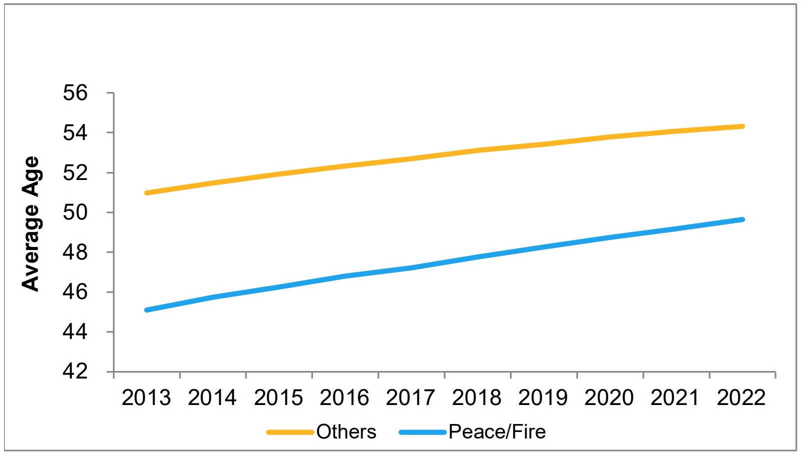
As of June 30	2018	2019	2020	2021	2022
Peace Officer / Firefighter					
1. Number	1,507	1,382	1,266	1,137	1,014 [1]
2. Average Age	47.75	48.25	48.74	49.18	49.64
3. Average Credited Service	18.15	18.90	19.45	20.15	20.82
4. Average Entry Age	29.60	29.35	29.29	29.03	28.82
5. Average Annual Earnings	$ 108,580	$ 120,089	$ 123,436	$ 127,327	$ 135,357
6. Number Vested	1,500	1,374	1,260	1,134	1,011
7. Percent Who Are Vested	99.5%	99.4%	99.5%	99.7%	99.7%
Others					
1. Number	11,927	10,770	9,767	8,751	7,781 [2]
2. Average Age	53.12	53.43	53.79	54.07	54.32
3. Average Credited Service	17.09	17.66	18.24	18.80	19.35
4. Average Entry Age	36.03	35.77	35.55	35.27	34.97
5. Average Annual Earnings	$ 73,926	$ 77,329	$ 78,613	$ 80,987	$ 83,641
6. Number Vested	11,603	10,494	9,531	8,541	7,593
7. Percent Who Are Vested	97.3%	97.4%	97.6%	97.6%	97.6%
Total					
1. Number	13,434	12,152	11,033	9,888	8,795
2. Average Age	52.52	52.84	53.21	53.51	53.78
3. Average Credited Service	17.21	17.80	18.38	18.96	19.52
4. Average Entry Age	35.30	35.04	34.83	34.55	34.26
5. Average Annual Earnings	$ 77,813	$ 82,192	$ 83,757	$ 86,316	$ 89,603
6. Number Vested	13,103	11,868	10,791	9,675	8,604
7. Percent Who Are Vested	97.5%	97.7%	97.8%	97.8%	97.8%

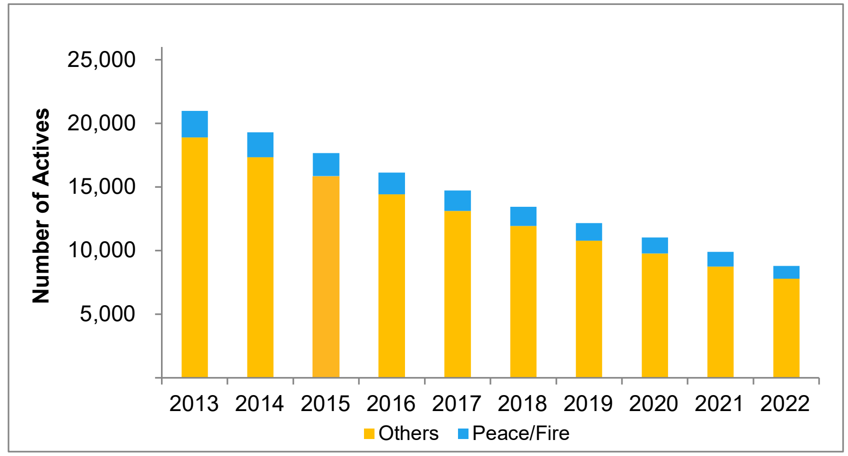
Average annual earnings ("valuation pay") are the annualized earnings for the fiscal year ending on the valuation date.

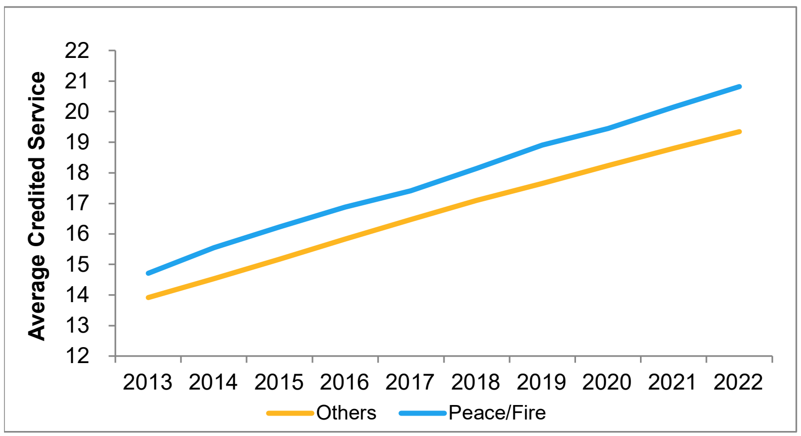
[1] Includes 880 male active members and 134 female active members.

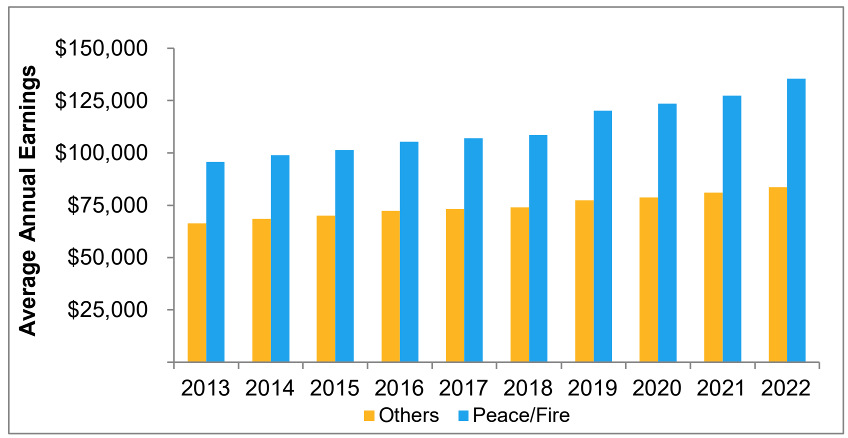
[2] Includes 3,250 male active members and 4,531 female active members.

Summary of Members Included - Active Members at June 30









Average annual earnings (“valuation pay”) are the annualized earnings for the fiscal year ending on the valuation date.

Section 4.2: Age and Service Distribution of Active Members

Peace Officer / Firefighter

Annual Earnings by Age

Age	Number	Total Annual Earnings	Average Annual Earnings
0 - 19	0	$ 0	$ 0
20 - 24	0	0	0
25 - 29	0	0	0
30 - 34	0	0	0
35 - 39	59	7,570,890	128,320
40 - 44	177	24,348,602	137,563
45 - 49	308	42,867,708	139,181
50 - 54	276	38,211,684	138,448
55 - 59	149	18,847,477	126,493
60 - 64	33	4,092,911	124,028
65 - 69	10	1,072,476	107,248
70 - 74	2	239,762	119,881
75+	0	0	0
Total	**1,014**	**$ 137,251,510**	**$ 135,357**

Annual Earnings by Credited Service

Years of Service	Number	Total Annual Earnings	Average Annual Earnings
0	0	$ 0	$ 0
1	1	100,959	100,959
2	0	0	0
3	2	154,382	77,191
4	0	0	0
0 - 4	**3**	**$ 255,341**	**$ 85,114**
5 - 9	7	666,577	95,225
10 - 14	51	5,107,462	100,146
15 - 19	392	51,435,257	131,212
20 - 24	405	56,507,206	139,524
25 - 29	132	19,788,474	149,913
30 - 34	22	3,139,103	142,687
35 - 39	1	222,150	222,150
40+	1	129,940	129,940
Total	**1,014**	**$ 137,251,510**	**$ 135,357**

Years of Credited Service by Age

	Years of Service									
Age	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	Total
0 - 19	0	0	0	0	0	0	0	0	0	0
20 - 24	0	0	0	0	0	0	0	0	0	0
25 - 29	0	0	0	0	0	0	0	0	0	0
30 - 34	0	0	0	0	0	0	0	0	0	0
35 - 39	0	3	8	47	1	0	0	0	0	59
40 - 44	1	2	10	115	48	1	0	0	0	177
45 - 49	1	0	9	104	163	31	0	0	0	308
50 - 54	0	2	8	72	120	69	5	0	0	276
55 - 59	1	0	11	42	62	25	8	0	0	149
60 - 64	0	0	3	12	7	5	5	0	1	33
65 - 69	0	0	2	0	3	1	3	1	0	10
70 - 74	0	0	0	0	1	0	1	0	0	2
75+	0	0	0	0	0	0	0	0	0	0
Total	**3**	**7**	**51**	**392**	**405**	**132**	**22**	**1**	**1**	**1,014**

Total and average annual earnings (“valuation pay”) are the annualized earnings for the fiscal year ending on the valuation date.

Age and Service Distribution of Active Members

Others

Annual Earnings by Age

Age	Number	Total Annual Earnings	Average Annual Earnings
0 - 19	0	$ 0	$ 0
20 - 24	0	0	0
25 - 29	0	0	0
30 - 34	6	582,629	97,105
35 - 39	258	20,520,116	79,535
40 - 44	833	71,590,584	85,943
45 - 49	1,259	110,184,532	87,517
50 - 54	1,654	145,167,129	87,767
55 - 59	1,953	161,507,573	82,697
60 - 64	1,169	91,568,637	78,331
65 - 69	488	37,063,462	75,950
70 - 74	118	9,289,294	78,723
75+	43	3,332,777	77,506
Total	**7,781**	**$ 650,806,733**	**$ 83,641**

Annual Earnings by Credited Service

Years of Service	Number	Total Annual Earnings	Average Annual Earnings
0	19	$ 737,323	$ 38,806
1	22	1,047,416	47,610
2	33	1,756,606	53,230
3	49	2,724,274	55,597
4	54	2,762,993	51,167
0 - 4	**177**	**$ 9,028,612**	**$ 51,009**
5 - 9	420	26,220,561	62,430
10 - 14	926	62,577,595	67,578
15 - 19	2,821	232,377,282	82,374
20 - 24	2,104	191,524,272	91,029
25 - 29	948	92,019,222	97,067
30 - 34	305	29,130,100	95,509
35 - 39	59	5,816,222	98,580
40+	21	2,112,867	100,613
Total	**7,781**	**$ 650,806,733**	**$ 83,641**

Years of Credited Service by Age

	Years of Service									
Age	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	Total
0 - 19	0	0	0	0	0	0	0	0	0	0
20 - 24	0	0	0	0	0	0	0	0	0	0
25 - 29	0	0	0	0	0	0	0	0	0	0
30 - 34	1	0	2	3	0	0	0	0	0	6
35 - 39	17	33	76	129	3	0	0	0	0	258
40 - 44	30	68	125	484	126	0	0	0	0	833
45 - 49	28	77	148	511	410	84	1	0	0	1,259
50 - 54	36	82	158	569	538	229	41	1	0	1,654
55 - 59	26	79	215	592	555	365	113	8	0	1,953
60 - 64	24	50	145	367	306	177	78	19	3	1,169
65 - 69	10	20	43	135	131	73	57	13	6	488
70 - 74	5	8	13	22	23	17	11	11	8	118
75+	0	3	1	9	12	3	4	7	4	43
Total	**177**	**420**	**926**	**2,821**	**2,104**	**948**	**305**	**59**	**21**	**7,781**

Total and average annual earnings (“valuation pay”) are the annualized earnings for the fiscal year ending on the valuation date.

Section 4.3: Member Data Reconciliation

Pension

	Active Members	Inactive Members: Due a Refund	Deferred Benefits	Retired Members	Disabled Members	Bene-ficiaries	Total
As of June 30, 2021	**9,888**	**10,432**	**5,135**	**33,015 ***	**139**	**4,578**	**63,187**
Vested Terminations	(386)	(2)	388	0	0	0	0
Non-Vested Terminations	(44)	44	0	0	0	0	0
Refund of Contributions	(10)	(151)	(30)	0	0	0	(191)
Disability Retirements	(6)	0	(1)	0	7	0	0
Age Retirements	(838)	0	(399)	1,260	(23)	0	0
Deaths With Beneficiary	(16)	(5)	(2)	(289)	(3)	315	0
Deaths Without Beneficiary	(11)	(26)	(20)	(556)	(2)	(210)	(825)
Expired Benefits	0	0	0	0	0	0	0
Data Corrections	0	1	(2)	0	0	(8)	(9)
Converted To DCR Plan	11	0	0	0	0	0	11
Transfers In/Out	1	(2)	(4)	0	0	0	(5)
Rehires	203	(76)	(111)	(13)	0	0	3
Pick Ups***	3	8	1	0	0	47	59
Net Change	**(1,093)**	**(209)**	**(180)**	**402**	**(21)**	**144**	**(957)**
As of June 30, 2022	**8,795**	**10,223**	**4,955**	**33,417 ****	**118**	**4,722**	**62,230**

* Includes 15 medical only retirees
** Includes 14 medical only retirees
*** Pickup beneficiaries are primarily new DROs.

Member Data Reconciliation

Healthcare

		Inactive Members				
	Active Members	**Retirees**	**Covered Spouses**	**Covered Children / Dependents**	**Deferred**	**Total Inactive Members**
As of June 30, 2021	**9,817**	**33,254**	**13,420**	**1,524**	**5,434**	**53,632**
Vested Terminations	(362)	0	0	0	362	362
Non-Vested Terminations	(41)	0	0	0	0	0
Refund of Contributions	(9)	0	0	0	(30)	(30)
Disability Retirements	(7)	7	3	5	0	15
Age Retirements	(790)	790	430	135	0	1,355
Deferred Retirements	0	298	169	39	(298)	208
Retired without Medical Coverage	(60)	0	0	0	60	60
Deceased	(27)	(930)	(104)	(11)	(25)	(1,070)
New Beneficiaries	0	167	(167)	0	0	0
Added Retiree Medical Coverage	0	209	65	19	(184)	109
Added Dependent Coverage	0	0	104	72	0	176
Dropped Retiree Medical Coverage	0	(11)	(5)	(1)	1	(16)
Dropped Dependent Coverage	0	0	(419)	(375)	0	(794)
Rehires	202	(16)	(9)	0	(111)	(136)
Transfers In/Out	7	(10)	(1)	1	(11)	(21)
Net Change	**(1,087)**	**504**	**66**	**(116)**	**(236)**	**218**
As of June 30, 2022	**8,730**	**33,758**	**13,486**	**1,408**	**5,198**	**53,850**

Section 4.4: Schedule of Active Member Data

Peace Officer / Firefighter

Valuation Date	Number	Annual Earnings (000's)	Annual Average Earnings	Percent Increase in Average Earnings	Number of Participating Employers
June 30, 2022	1,014	$ 137,252	$ 135,357	6.3%	150
June 30, 2021	1,137	144,771	127,327	3.2%	151
June 30, 2020	1,266	156,271	123,436	2.8%	153
June 30, 2019	1,382	165,963	120,089	10.6%	155
June 30, 2018	1,507	163,630	108,580	1.5%	155
June 30, 2017	1,606	171,821	106,987	1.6%	155
June 30, 2016	1,704	179,461	105,317	3.8%	155
June 30, 2015	1,827	185,350	101,450	2.5%	159
June 30, 2014	1,958	193,737	98,946	3.4%	159
June 30, 2013	2,065	197,534	95,658	4.8%	159

Others

Valuation Date	Number	Annual Earnings (000's)	Annual Average Earnings	Percent Increase in Average Earnings	Number of Participating Employers
June 30, 2022	7,781	$ 650,807	$ 83,641	3.3%	150
June 30, 2021	8,751	708,718	80,987	3.0%	151
June 30, 2020	9,767	767,817	78,613	1.7%	153
June 30, 2019	10,770	832,832	77,329	4.6%	155
June 30, 2018	11,927	881,716	73,926	1.0%	155
June 30, 2017	13,113	960,106	73,218	1.4%	155
June 30, 2016	14,401	1,039,960	72,214	3.2%	155
June 30, 2015	15,833	1,108,218	69,994	2.1%	159
June 30, 2014	17,339	1,188,918	68,569	3.4%	159
June 30, 2013	18,890	1,252,786	66,320	4.5%	159

Total and average annual earnings ("valuation pay") are the annualized earnings for the fiscal year ending on the valuation date.

Section 4.5: Active Member Payroll Reconciliation

Payroll Field	Payroll Data (000's)
a) DRB actual reported salaries FY22 in employer list	$ 2,271,607
b) DRB actual reported salaries FY22 in valuation data	2,210,209
c) Annualized valuation data	2,410,800
d) Valuation payroll as of June 30, 2022	2,517,996
e) Rate payroll for FY23	2,442,007
f) Rate payroll for FY25	2,464,560

a) Actual reported salaries from DRB employer listing showing all payroll paid during FY22, including those who were not active as of June 30, 2022
b) Payroll from valuation data for people who are in active status as of June 30, 2022
c) Payroll from (b) annualized for both new entrants and part-timers
d) Payroll from (c) with one year of salary scale applied to estimate salaries payable for the upcoming year
e) Payroll from (d) with the part-timer annualization removed
f) Payroll from (e) with two years of assumed decrements and salary scale, and 0% population growth

Section 4.6: Summary of New Pension Benefit Recipients

Peace Officer / Firefighter

During the Year Ending June 30	2018	2019	2020	2021	2022
Service					
1. Number	105	109	118	129	117
2. Average Age at Commencement	55.70	55.61	55.52	55.30	55.39
3. Average Monthly Pension Benefit	$ 4,519	$ 4,412	$ 5,199	$ 5,248	$ 5,647
Survivor (including surviving spouse and DROs)					
1. Number	44	36	43	58	39
2. Average Age at Commencement	63.76	68.19	67.92	64.58	70.91
3. Average Monthly Pension Benefit	$ 2,187	$ 1,842	$ 1,785	$ 1,971	$ 1,996
Disability					
1. Number	4	4	3	4	1
2. Average Age at Commencement	46.56	50.44	51.72	52.10	54.74
3. Average Monthly Pension Benefit	$ 3,230	$ 3,071	$ 5,276	$ 2,890	$ 5,427
Total					
1. Number	153	149	164	191	157
2. Average Age at Commencement	57.78	58.51	58.70	58.05	59.24
3. Average Monthly Pension Benefit	$ 3,814	$ 3,755	$ 4,305	$ 4,204	$ 4,739

Summary of New Pension Benefit Recipients

Peace Officer / Firefighter

	Years of Credited Service						
	0 - 4	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25 - 29**	**30+**
Period 7/1/2021 – 6/30/2022:							
Average Monthly Pension	$ 0	$ 860	$ 2,227	$ 4,341	$ 5,743	$ 7,831	$ 7,566
Average Final Avg Salary	$ 0	$ 60,646	$ 97,870	$ 122,607	$ 137,018	$ 144,961	$ 119,732
Number of Recipients	0	2	7	33	42	27	7
Period 7/1/2020 – 6/30/2021:							
Average Monthly Pension	$ 2,612	$ 767	$ 1,619	$ 3,711	$ 5,196	$ 6,960	$ 7,970
Average Final Avg Salary	$ 68,013	$ 63,962	$ 79,481	$ 116,789	$ 129,218	$ 141,383	$ 135,765
Number of Recipients	2	5	9	26	42	40	9
Period 7/1/2019 – 6/30/2020:							
Average Monthly Pension	$ 0	$ 694	$ 2,212	$ 3,626	$ 5,531	$ 6,829	$ 8,636
Average Final Avg Salary	$ 0	$ 60,557	$ 107,689	$ 111,341	$ 131,016	$ 140,297	$ 127,620
Number of Recipients	0	6	11	23	40	32	9
Period 7/1/2018 – 6/30/2019:							
Average Monthly Pension	$ 3,792	$ 651	$ 1,933	$ 3,362	$ 4,786	$ 6,196	$ 5,688
Average Final Avg Salary	$ 94,797	$ 56,617	$ 89,247	$ 99,086	$ 114,079	$ 125,509	$ 110,542
Number of Recipients	2	5	11	25	38	26	6
Period 7/1/2017 – 6/30/2018:							
Average Monthly Pension	$ 0	$ 1,063	$ 2,133	$ 3,747	$ 4,847	$ 6,024	$ 7,717
Average Final Avg Salary	$ 0	$ 86,908	$ 91,941	$ 107,039	$ 115,635	$ 121,972	$ 132,459
Number of Recipients	0	4	18	19	35	30	3
Period 7/1/2016 – 6/30/2017:							
Average Monthly Pension	$ 0	$ 686	$ 2,075	$ 3,234	$ 4,462	$ 5,151	$ 6,376
Average Final Avg Salary	$ 0	$ 74,166	$ 83,315	$ 99,520	$ 109,258	$ 104,716	$ 108,035
Number of Recipients	0	8	9	28	41	23	14
Period 7/1/2015 – 6/30/2016:							
Average Monthly Pension	$ 0	$ 958	$ 1,742	$ 3,347	$ 4,622	$ 5,778	$ 7,221
Average Final Avg Salary	$ 0	$ 76,190	$ 87,241	$ 97,297	$ 109,236	$ 118,513	$ 115,323
Number of Recipients	0	6	11	19	30	28	16
Period 7/1/2014 – 6/30/2015:							
Average Monthly Pension	$ 0	$ 1,173	$ 1,621	$ 3,632	$ 4,436	$ 5,457	$ 6,863
Average Final Avg Salary	$ 0	$ 85,992	$ 76,254	$ 104,320	$ 105,430	$ 108,874	$ 102,705
Number of Recipients	0	8	9	26	24	25	7
Period 7/1/2013 – 6/30/2014:							
Average Monthly Pension	$ 290	$ 1,423	$ 2,002	$ 2,902	$ 4,014	$ 5,464	$ 6,299
Average Final Avg Salary	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable
Number of Recipients	1	9	10	14	22	16	7
Period 7/1/2012 – 6/30/2013:							
Average Monthly Pension	$ 0	$ 865	$ 1,779	$ 2,762	$ 3,793	$ 4,983	$ 4,911
Average Final Avg Salary	$ 0	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable
Number of Recipients	0	9	8	19	31	18	4

"Average Monthly Pension" includes postretirement pension adjustments and cost-of-living increases.

Beneficiaries are not included in the table above.

Summary of New Pension Benefit Recipients

Others

During the Year Ending June 30	2018	2019	2020	2021	2022
Service					
1. Number	1,419	1,288	1,166	1,171	1,121
2. Average Age at Commencement	62.19	61.38	61.70	62.03	62.03
3. Average Monthly Pension Benefit	$ 2,477	$ 2,540	$ 2,701	$ 2,693	$ 2,915
Survivor (including surviving spouse and DROs)					
1. Number	261	238	297	391	326
2. Average Age at Commencement	70.38	69.25	72.09	72.34	70.13
3. Average Monthly Pension Benefit	$ 1,120	$ 1,249	$ 1,204	$ 1,265	$ 1,380
Disability					
1. Number	28	17	9	14	6
2. Average Age at Commencement	53.80	52.95	54.21	53.39	47.91
3. Average Monthly Pension Benefit	$ 1,896	$ 2,313	$ 2,422	$ 2,587	$ 2,533
Total					
1. Number	1,708	1,543	1,472	1,576	1,453
2. Average Age at Commencement	63.31	62.50	63.75	64.51	63.79
3. Average Monthly Pension Benefit	$ 2,260	$ 2,339	$ 2,397	$ 2,338	$ 2,569

Summary of New Pension Benefit Recipients

Others

	Years of Credited Service						
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+
Period 7/1/2021 – 6/30/2022:							
Average Monthly Pension	$ 1,453	$ 623	$ 1,340	$ 2,181	$ 3,373	$ 4,644	$ 6,822
Average Final Avg Salary	$ 61,752	$ 48,643	$ 63,167	$ 73,283	$ 84,361	$ 91,984	$ 105,569
Number of Recipients	6	147	181	286	227	165	115
Period 7/1/2020 – 6/30/2021:							
Average Monthly Pension	$ 553	$ 628	$ 1,317	$ 2,213	$ 3,091	$ 4,607	$ 6,054
Average Final Avg Salary	$ 37,456	$ 50,287	$ 62,986	$ 73,819	$ 78,565	$ 91,034	$ 98,834
Number of Recipients	17	163	228	281	194	188	114
Period 7/1/2019 – 6/30/2020:							
Average Monthly Pension	$ 492	$ 601	$ 1,311	$ 2,065	$ 3,040	$ 4,686	$ 6,213
Average Final Avg Salary	$ 42,520	$ 47,573	$ 61,357	$ 69,829	$ 78,632	$ 93,182	$ 100,366
Number of Recipients	32	165	218	258	183	197	122
Period 7/1/2018 – 6/30/2019:							
Average Monthly Pension	$ 652	$ 646	$ 1,301	$ 2,071	$ 3,058	$ 4,596	$ 5,685
Average Final Avg Salary	$ 49,840	$ 52,459	$ 60,651	$ 69,110	$ 76,946	$ 92,620	$ 94,857
Number of Recipients	21	190	266	289	222	205	105
Period 7/1/2017 – 6/30/2018:							
Average Monthly Pension	$ 414	$ 607	$ 1,299	$ 1,982	$ 3,034	$ 4,475	$ 6,085
Average Final Avg Salary	$ 34,603	$ 48,524	$ 61,668	$ 67,811	$ 78,675	$ 88,707	$ 97,703
Number of Recipients	26	221	351	280	223	214	127
Period 7/1/2016 – 6/30/2017:							
Average Monthly Pension	$ 381	$ 640	$ 1,271	$ 2,067	$ 3,119	$ 4,579	$ 6,224
Average Final Avg Salary	$ 39,320	$ 50,209	$ 61,150	$ 70,810	$ 79,613	$ 91,169	$ 98,661
Number of Recipients	27	254	375	233	212	191	115
Period 7/1/2015 – 6/30/2016:							
Average Monthly Pension	$ 434	$ 660	$ 1,240	$ 2,017	$ 3,059	$ 4,158	$ 6,583
Average Final Avg Salary	$ 44,649	$ 48,729	$ 60,599	$ 66,996	$ 78,592	$ 83,505	$ 103,143
Number of Recipients	30	323	387	266	192	161	135
Period 7/1/2014 – 6/30/2015:							
Average Monthly Pension	$ 430	$ 685	$ 1,260	$ 2,008	$ 3,086	$ 4,544	$ 6,195
Average Final Avg Salary	$ 41,184	$ 52,565	$ 61,224	$ 67,225	$ 77,440	$ 86,942	$ 96,468
Number of Recipients	42	284	304	213	198	169	98
Period 7/1/2013 – 6/30/2014:							
Average Monthly Pension	$ 503	$ 700	$ 1,189	$ 2,065	$ 3,021	$ 4,439	$ 5,490
Average Final Avg Salary	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable
Number of Recipients	48	347	319	241	214	224	121
Period 7/1/2012 – 6/30/2013:							
Average Monthly Pension	$ 414	$ 650	$ 1,179	$ 1,925	$ 2,879	$ 4,356	$ 5,208
Average Final Avg Salary	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable
Number of Recipients	59	349	365	257	206	209	132

“Average Monthly Pension” includes postretirement pension adjustments and cost-of-living increases.

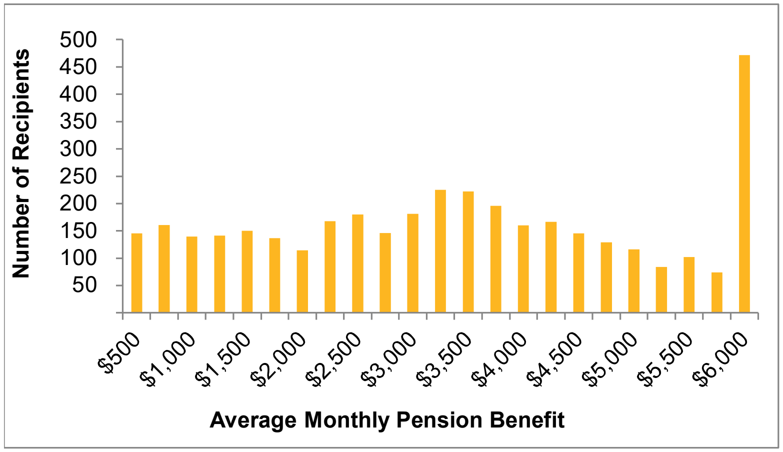
Beneficiaries are not included in the table above.

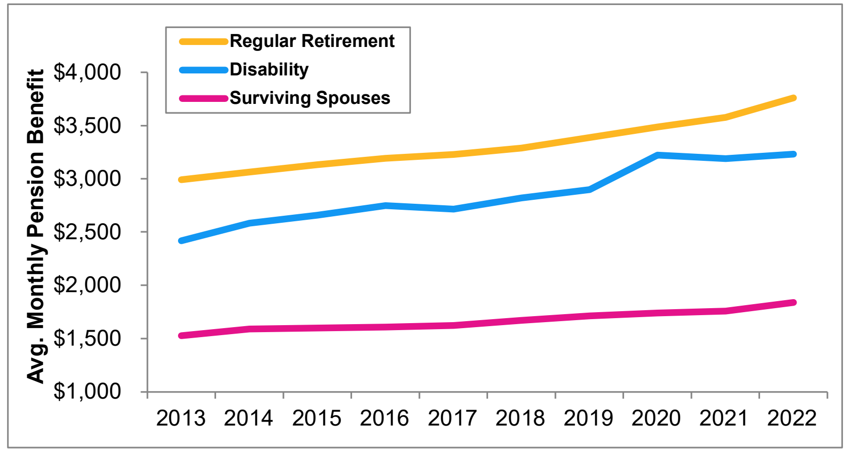
Section 4.7: Summary of All Pension Benefit Recipients

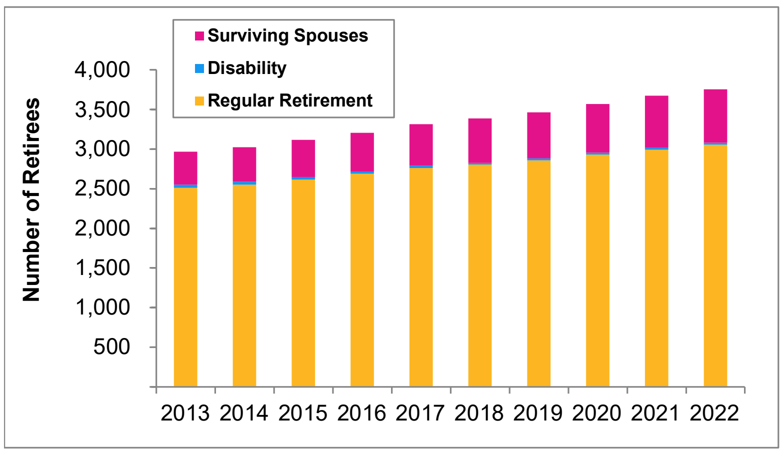
	Peace Officer / Firefighter	Others
Service		
1. Number as of June 30, 2021	2,991	30,009
2. Net Change During FY22	65	338
3. Number as of June 30, 2022	3,056	30,347
4. Average Age at Commencement	53.31	58.58
5. Average Current Age	68.76	71.69
6. Average Monthly Pension Benefit	$ 3,760	$ 2,161
Survivors (including surviving spouses and DROs)		
1. Number as of June 30, 2021	656	3,922
2. Net Change During FY22	19	125
3. Number as of June 30, 2022	675	4,047
4. Average Age at Commencement	58.87	63.78
5. Average Current Age	70.26	73.93
6. Average Monthly Pension Benefit	$ 1,840	$ 1,185
Disability		
1. Number as of June 30, 2021	26	113
2. Net Change During FY22	(2)	(19)
3. Number as of June 30, 2022	24	94
4. Average Age at Commencement	45.65	45.67
5. Average Current Age	51.45	54.80
6. Average Monthly Pension Benefit	$ 3,232	$ 2,055
Total		
1. Number as of June 30, 2021	3,673	34,044
2. Net Change During FY22	82	444
3. Number as of June 30, 2022	3,755	34,488
4. Average Age at Commencement	54.26	59.16
5. Average Current Age	68.92	71.91
6. Average Monthly Pension Benefit	$ 3,411	$ 2,046

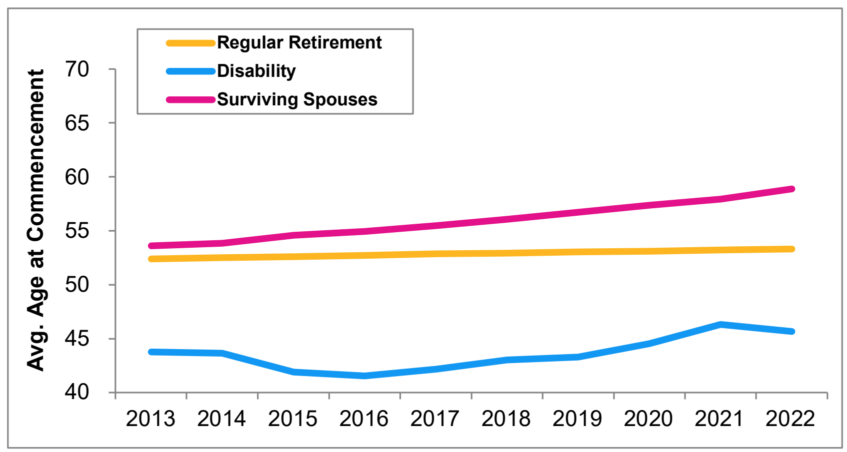
Summary of All Pension Benefit Recipients

Peace Officer / Firefighter



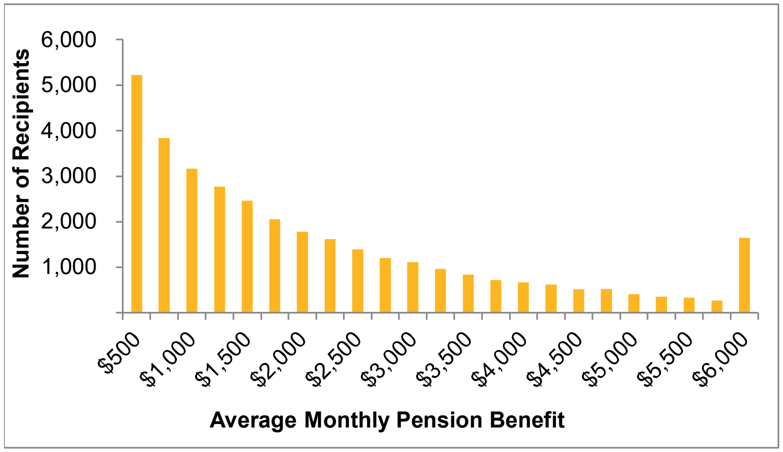


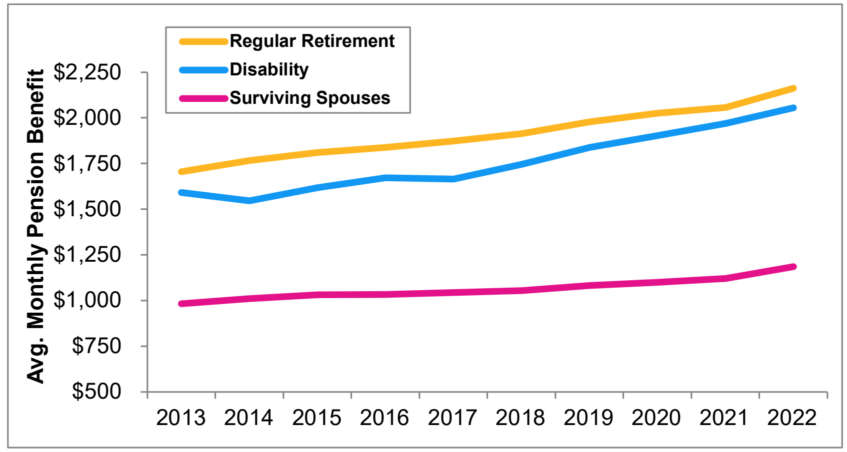


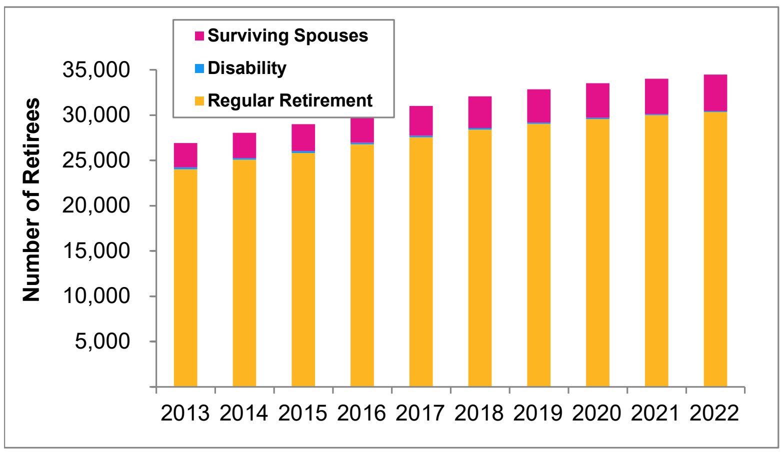


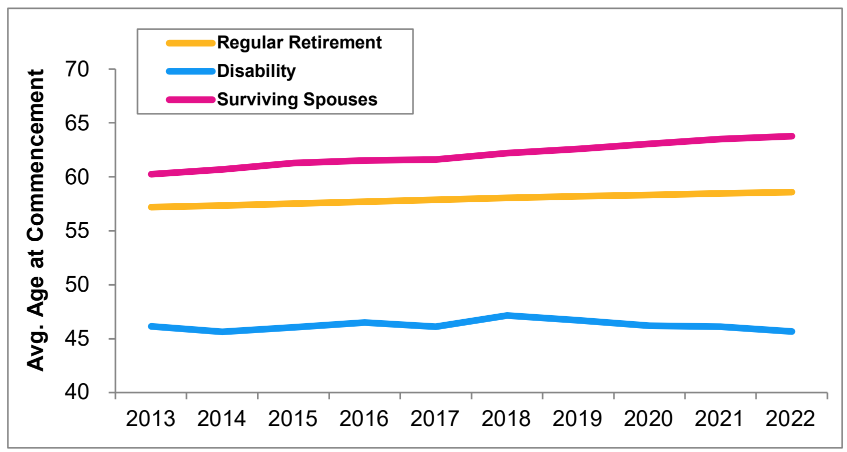
Summary of All Pension Benefit Recipients

Others









Summary of All Pension Benefit Recipients

Peace Officer / Firefighter

Annual Pension Benefit by Age

Age	Number	Total Annual Pension Benefit	Average Annual Pension Benefit
0 - 19	0	$ 0	$ 0
20 - 24	0	0	0
25 - 29	0	0	0
30 - 34	0	0	0
35 - 39	1	58,921	58,921
40 - 44	15	707,476	47,165
45 - 49	78	4,763,503	61,071
50 - 54	229	13,826,806	60,379
55 - 59	312	17,320,370	55,514
60 - 64	557	23,367,302	41,952
65 - 69	784	29,395,298	37,494
70 - 74	784	28,356,090	36,168
75+	995	35,942,501	36,123
Total	**3,755**	**$ 153,738,267**	**$ 40,942**

Annual Pension Benefit by Years Since Commenced

Years Since Comm.	Number	Total Annual Pension Benefit	Average Annual Pension Benefit
0	179	$ 10,055,170	$ 56,174
1	189	9,674,708	51,189
2	153	8,018,026	52,405
3	152	6,890,326	45,331
4	133	6,194,174	46,573
0 - 4	**806**	**$ 40,832,404**	**$ 50,661**
5 - 9	635	28,145,526	44,324
10 - 14	527	17,241,596	32,717
15 - 19	592	20,091,585	33,938
20 - 24	630	22,935,992	36,406
25 - 29	288	11,736,592	40,752
30 - 34	156	6,755,468	43,304
35 - 39	94	5,033,308	53,546
40+	27	965,796	35,770
Total	**3,755**	**$ 153,738,267**	**$ 40,942**

Years Since Commencement by Age

	Years Since Commencement									
Age	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	Total
0 - 19	0	0	0	0	0	0	0	0	0	0
20 - 24	0	0	0	0	0	0	0	0	0	0
25 - 29	0	0	0	0	0	0	0	0	0	0
30 - 34	0	0	0	0	0	0	0	0	0	0
35 - 39	0	1	0	0	0	0	0	0	0	1
40 - 44	11	2	1	1	0	0	0	0	0	15
45 - 49	69	8	1	0	0	0	0	0	0	78
50 - 54	158	58	10	1	2	0	0	0	0	229
55 - 59	162	105	31	11	0	1	2	0	0	312
60 - 64	191	149	93	89	34	1	0	0	0	557
65 - 69	88	188	155	180	146	21	3	1	2	784
70 - 74	50	72	158	195	212	69	23	3	2	784
75+	77	52	78	115	236	196	128	90	23	995
Total	**806**	**635**	**527**	**592**	**630**	**288**	**156**	**94**	**27**	**3,755**

Summary of All Pension Benefit Recipients

Others

Annual Pension Benefit by Age

Age	Number	Total Annual Pension Benefit	Average Annual Pension Benefit
0 - 19	0	$ 0	$ 0
20 - 24	0	0	0
25 - 29	0	0	0
30 - 34	1	65,490	65,490
35 - 39	5	79,474	15,895
40 - 44	9	162,022	18,002
45 - 49	27	403,958	14,961
50 - 54	138	4,800,323	34,785
55 - 59	968	34,073,365	35,200
60 - 64	5,440	160,722,800	29,545
65 - 69	8,566	225,814,957	26,362
70 - 74	8,432	198,058,173	23,489
75+	10,902	222,282,181	20,389
Total	**34,488**	**$846,462,743**	**$ 24,544**

Annual Pension Benefit by Years Since Commenced

Years Since Comm.	Number	Total Annual Pension Benefit	Average Annual Pension Benefit
0	1,614	$ 48,933,655	$ 30,318
1	1,441	42,135,803	29,241
2	1,393	42,014,809	30,161
3	1,495	43,079,473	28,816
4	1,452	41,662,487	28,693
0 - 4	**7,395**	**$217,826,227**	**$ 29,456**
5 - 9	7,882	212,283,875	26,933
10 - 14	6,593	155,510,227	23,587
15 - 19	5,549	121,408,562	21,879
20 - 24	3,894	80,784,151	20,746
25 - 29	1,702	32,424,911	19,051
30 - 34	1,044	18,241,176	17,472
35 - 39	360	6,919,696	19,221
40+	69	1,063,918	15,419
Total	**34,488**	**$846,462,743**	**$ 24,544**

Years Since Commencement by Age

	Years Since Commencement									
Age	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	Total
0 - 19	0	0	0	0	0	0	0	0	0	0
20 - 24	0	0	0	0	0	0	0	0	0	0
25 - 29	0	0	0	0	0	0	0	0	0	0
30 - 34	1	0	0	0	0	0	0	0	0	1
35 - 39	1	4	0	0	0	0	0	0	0	5
40 - 44	5	2	2	0	0	0	0	0	0	9
45 - 49	10	10	5	3	0	0	0	0	0	28
50 - 54	89	25	16	5	1	0	1	0	0	137
55 - 59	702	204	34	18	9	3	0	0	0	970
60 - 64	3,335	1,529	499	45	12	12	6	0	0	5,438
65 - 69	1,784	3,460	2,456	803	40	13	8	1	1	8,566
70 - 74	749	1,780	2,310	2,583	949	41	12	5	3	8,432
75+	719	868	1,271	2,092	2,883	1,633	1,017	354	65	10,902
Total	**7,395**	**7,882**	**6,593**	**5,549**	**3,894**	**1,702**	**1,044**	**360**	**69**	**34,488**

Section 4.8: Pension Benefit Recipients by Type of Benefit and Option Elected

Peace Officer / Firefighter

Amount of Monthly Pension Benefit	Number of Recipients	Type of Pension Benefit			Option Selected				
		1	2	3	1	2	3	4	5
$ 1 – 300	47	13	34	0	37	2	0	1	7
301 – 600	168	102	66	0	96	35	18	8	11
601 – 900	186	103	82	1	110	42	14	11	9
901 – 1,200	160	84	76	0	106	30	12	7	5
1,201 – 1,500	176	106	69	1	107	36	21	5	7
1,501 – 1,800	164	109	55	0	95	34	24	6	5
1,801 – 2,100	147	99	47	1	69	40	27	5	6
2,101 – 2,400	218	168	49	1	98	69	34	9	8
2,401 – 2,700	190	146	41	3	85	54	35	8	8
2,701 – 3,000	209	180	26	3	79	81	30	12	7
3,001 – 3,300	268	231	33	4	98	102	51	11	6
3,301 – 3,600	257	227	28	2	89	96	44	17	11
3,601 – 3,900	208	180	26	2	83	84	28	8	5
3,901 – 4,200	208	197	10	1	58	98	36	13	3
4,200+	1,149	1,113	31	5	322	524	222	70	11
Total	3,755	3,058	673	24	1,532	1,327	596	191	109

Type of Pension Benefit
1. Regular Retirement
2. Survivor Payment
3. Disability

Option Selected
1. Whole Life Annuity
2. 75% Joint and Contingent Annuity
3. 50% Joint and Contingent Annuity
4. 66 2/3% Joint and Survivor Annuity
5. Level Income Option

Pension Benefit Recipients by Type of Benefit and Option Elected

Others

Amount of Monthly Pension Benefit	Number of Recipients	Type of Pension Benefit			Option Selected				
		1	2	3	1	2	3	4	5
$ 1 – 300	1,924	1,400	524	0	939	350	251	58	326
301 – 600	4,908	4,087	817	4	2,632	1,100	804	236	136
601 – 900	4,198	3,481	707	10	2,253	1,015	655	174	101
901 – 1,200	3,394	2,889	500	5	1,716	794	637	166	81
1,201 – 1,500	3,042	2,646	383	13	1,538	741	590	105	68
1,501 – 1,800	2,411	2,127	272	12	1,129	655	493	83	51
1,801 – 2,100	2,075	1,843	221	11	994	550	384	89	58
2,101 – 2,400	1,834	1,660	165	9	818	530	370	70	46
2,401 – 2,700	1,482	1,363	108	11	662	395	314	66	45
2,701 – 3,000	1,352	1,235	114	3	607	405	265	43	32
3,001 – 3,300	1,166	1,104	59	3	479	359	256	48	24
3,301 – 3,600	931	879	47	5	363	307	204	30	27
3,601 – 3,900	857	827	29	1	353	275	168	47	14
3,901 – 4,200	759	732	27	0	305	254	157	31	12
4,200+	4,155	4,089	60	6	1,467	1,417	990	228	53
Total	34,488	30,362	4,033	93	16,255	9,147	6,538	1,474	1,074

Type of Pension Benefit
1. Regular Retirement
2. Survivor Payment
3. Disability

Option Selected
1. Whole Life Annuity
2. 75% Joint and Contingent Annuity
3. 50% Joint and Contingent Annuity
4. 66 2/3% Joint and Survivor Annuity
5. Level Income Option

Section 4.9: Pension Benefit Recipients Added to and Removed from Rolls

Peace Officer / Firefighter

Year Ended	Added to Rolls No.[1]	Added to Rolls Annual Pension Benefits[1]	Removed from Rolls No.[1]	Removed from Rolls Annual Pension Benefits[1]	Rolls at End of Year No.	Rolls at End of Year Annual Pension Benefits	Percent Increase in Annual Pension Benefits	Average Annual Pension Benefit
June 30, 2022	157	$ 8,928,276	75	$ (1,692,346)	3,755	$ 153,738,267	7.4%	$ 40,942
June 30, 2021	191	9,635,568	86	2,931,719	3,673	143,117,645	4.9%	38,965
June 30, 2020	164	8,472,240	61	1,078,932	3,568	136,413,796	5.7%	38,233
June 30, 2019	149	6,713,940	71	233,335	3,465	129,020,488	5.3%	37,235
June 30, 2018	153	7,002,504	81	2,573,694	3,387	122,539,883	3.7%	36,179
June 30, 2017	165	6,971,580	54	2,132,027	3,315	118,111,073	4.3%	35,629
June 30, 2016	137	6,618,744	49	1,594,394	3,204	113,271,520	4.6%	35,353
June 30, 2015	136	5,617,344	46	633,046	3,116	108,247,168	4.8%	34,739
June 30, 2014	109	4,270,620	50	(145,771)	3,026	103,262,870	4.5%	34,125
June 30, 2013	113	4,162,920	42	240,775	2,967	98,846,479	4.1%	33,315

[1] Numbers are estimated, and include other internal transfers.

Pension Benefit Recipients Added to and Removed from Rolls

Others

Year Ended	Added to Rolls		Removed from Rolls		Rolls at End of Year		Percent Increase in Annual Pension Benefits	Average Annual Pension Benefit
	No.[1]	Annual Pension Benefits[1]	No.[1]	Annual Pension Benefits[1]	No.	Annual Pension Benefits		
June 30, 2022	1,453	$ 44,793,084	1,009	$ (5,580,072)	34,488	$ 846,462,743	6.3%	$ 24,544
June 30, 2021	1,576	44,216,256	1,070	20,522,550	34,044	796,089,587	3.1%	23,384
June 30, 2020	1,472	42,340,608	779	9,911,423	33,538	772,395,881	4.4%	23,030
June 30, 2019	1,543	43,301,707	765	3,096,594	32,845	739,966,696	5.7%	22,529
June 30, 2018	1,708	46,316,673	673	10,533,376	32,067	699,761,583	5.4%	21,823
June 30, 2017	1,699	44,619,382	816	14,610,212	31,032	663,978,286	4.7%	21,397
June 30, 2016	1,780	44,409,702	660	12,099,362	30,149	633,969,116	5.4%	21,028
June 30, 2015	1,583	39,939,292	627	7,232,812	29,029	601,658,776	5.7%	20,726
June 30, 2014	1,778	44,823,611	603	3,011,383	28,073	568,952,296	7.9%	20,267
June 30, 2013	1,808	43,247,667	554	4,861,626	26,898	527,140,068	7.9%	19,598

[1] Numbers are estimated, and include other internal transfers.

Section 5: Basis of the Actuarial Valuation

Section 5.1: Summary of Plan Provisions

Effective Date

January 1, 1961, with amendments through June 30, 2022. Chapter 82, 1986 Session Laws of Alaska, created a two-tier retirement system. Members who were first hired under PERS before July 1, 1986 (Tier 1) are eligible for different benefits than members hired after June 30, 1986 (Tier 2). Chapter 4, 1996 Session Laws of Alaska created a third tier for members who were first hired after June 30, 1996 (Tier 3). Chapter 9, 2005 Session Laws of Alaska, closed the plan to new members hired after June 30, 2006.

Administration of Plan

The Commissioner of Administration or the Commissioner’s designee is the administrator of the system. The Attorney General of the state is the legal counsel for the system and shall advise the administrator and represent the system in legal proceedings.

Prior to June 30, 2005, the Public Employees’ Retirement Board prescribed policies and adopted regulations and performed other activities necessary to carry out the provisions of the system. The Alaska State Pension Investment Board, Department of Revenue, Treasury Division was responsible for investing PERS funds.

On July 27, 2005, Senate Bill 141, enacted as Chapter 9, 2005 Session laws of Alaska, replaced the Public Employees’ Retirement Board and the Alaska State Pension Investment Board with the Alaska Retirement Management Board.

Employers Included

Currently there are 150 employers participating in PERS, including the State of Alaska and 149 political subdivisions and public organizations. Two additional political subdivisions participate in PERS for healthcare benefits only.

Membership

PERS membership is mandatory for all permanent full-time and part-time employees of the State of Alaska and participating political subdivisions and public organizations, unless they are specifically excluded by Alaska Statute or employer participation agreements. Employees participating in the University of Alaska’s Optional Retirement Plan or other retirement plans funded by the State are not covered by PERS. Elected officials may waive PERS membership.

Certain members of the Alaska Teachers' Retirement System (TRS) are eligible for PERS retirement benefits for their concurrent elected public official service with municipalities. In addition, employees who work half-time in PERS and TRS simultaneously are eligible for half-time PERS and TRS credit.

Senate Bill 141, signed into law on July 27, 2005, closes the plan effective July 1, 2006, to new members first hired on or after July 1, 2006.

Credited Service

Permanent employees who work at least 30 hours a week earn full-time credit; part-time employees working between 15 and 30 hours a week earn partial credit based on the number of hours worked. Members receiving PERS occupational disability benefits continue to earn PERS credit while disabled. Survivors who are receiving occupational death benefits continue to earn PERS service credit while occupational survivor benefits are being paid.

Members may claim other types of service, including:

- part-time State of Alaska service rendered after December 31, 1960, and before January 1, 1976;
- service with the State, former Territory of Alaska, or U.S. Government in Alaska before January 1, 1961;
- past Peace Officer, correctional officer, fire fighter, and special officer service after January 1, 1961;
- military service (not more than five years may be claimed);
- temporary service after December 31, 1960;
- elected official service before January 1, 1981;
- Alaska Bureau of Indian Affairs service;
- past service rendered by employees who worked half-time in PERS and TRS simultaneously;
- leave without pay service after June 13, 1987, while receiving Workers' Compensation;
- Village Public Safety Officer service; and
- service as a temporary employee of the legislature before July 1, 1979, but this service must have been claimed no later than July 1, 2003, or by the date of retirement, if sooner (not more than ten years may be claimed).

Except for service before January 1, 1961, with the State, former Territory of Alaska, or U.S. Government in Alaska, contributions are required for all past service.

Past employment with participating political subdivisions that occurred before the employers joined PERS is creditable if the employers agree to pay the required contributions.

At the election of certain PERS members, certain service may be credited in the same fashion as members in TRS.

Members employed as dispatchers or within a state correctional facility may, at retirement, elect to convert their dispatcher or correctional facility service from “all other” service to Peace Officer/Firefighter service and retire under the 20-year retirement option. Members pay the full actuarial cost of conversion.

Employer Contributions

PERS employers contribute the amounts required, in addition to employees’ contributions, to fund the benefits of the system.

The normal cost rate is a uniform rate for all participating employers (less the value of members’ contributions).

The past service rate is a uniform rate for all participating employers to amortize the unfunded past service liability with payments that are a level percentage of payroll amount over a closed 25-year period starting June 30, 2014. Effective June 30, 2018, each future year’s unfunded service liability is separately amortized on a level percent of pay basis over 25 years.

Employer rates cannot be less than the normal cost rate.

Pursuant to AS 39.35.255 effective July 1, 2008 and subsequently amended on July 1, 2021, each non-state PERS employer will pay a simple uniform contribution rate of 22% of non-state member payroll and the State as an employer will pay the total contribution rate, adopted by the Board, of State member payroll.

Additional State Contributions

Pursuant to AS 39.35.280 effective July 1, 2008, the State shall contribute an amount (in addition to the State contribution as an employer) that, when combined with the total employer contributions, will be sufficient to pay the total contribution rate adopted by the Board.

Member Contributions

Mandatory Contributions: Peace Officer/Firefighter members are required to contribute 7.5% of their compensation; all Others contribute 6.75%. Those all Others who have elected to have their service calculated under TRS rules contribute 9.76% of their compensation. Members' contributions are deducted from gross wages before federal income taxes are withheld.

Contributions for Claimed Service: Member contributions are also required for most of the claimed service described above.

Voluntary Contributions: Members may voluntarily contribute up to 5% of their salary on an after-tax basis. Voluntary contributions are recorded in a separate account and are payable to the:

a. member in lump sum payment upon termination of employment;
b. member's beneficiary if the member dies; or
c. member in a lump sum, life annuity, or payments over a designated period of time when the member retires.

Interest: Members' contributions earn 4.5% interest, compounded semiannually on June 30 and December 31.

Refund of Contributions: Terminated members may receive refunds of their member contribution accounts which includes their mandatory and voluntary contributions, indebtedness payments, and interest earned. Terminated members' accounts may be attached to satisfy claims under Alaska Statute 09.38.065, federal income tax levies, and valid Qualified Domestic Relations Orders.

Reinstatement of Contributions: Refunded accounts and the corresponding PERS service may be reinstated upon reemployment in PERS prior to July 1, 2010. Interest accrues on refunds until paid in full or members retire.

Retirement Benefits

Eligibility

a. Members, including deferred vested members, are eligible for normal retirement at age 55 or early retirement at age 50 if they were hired before July 1, 1986 (Tier 1), and age 60 or early retirement at age 55 if they were hired on or after July 1, 1986 (Tiers 2 & 3). Additionally, they must have at least:
   (i) five years of paid-up PERS service;
   (ii) 60 days of paid-up PERS service as employees of the legislature during each of five legislative sessions and they were first hired by the legislature before May 30, 1987;
   (iii) 80 days of paid-up PERS service as employees of the legislature during each of five legislative sessions and they were first hired by the legislature after May 29, 1987;
   (iv) two years of paid-up PERS service and they are vested in TRS; or
   (v) two years of paid-up PERS service and a minimum three years of TRS service to qualify for a public service benefit.

b. Members may retire at any age when they have:
   (i) 20 paid-up years of PERS Peace Officer/Firefighter service; or
   (ii) 30 paid-up years of PERS "all other" or "elected official" service.

Benefit Type

Lifetime benefits are paid to members. Eligible members may receive normal, unreduced benefits when they (1) reach normal retirement age and complete the service required; or (2) satisfy the minimum service requirements under the "20 and out" or "30 and out" provisions. Members may receive early, reduced benefits when they reach early retirement age and complete the service required. Benefits are reduced by 6% per year prior to a member's normal retirement date.

Members may select a joint and survivor option. Members who entered PERS prior to July 1, 1996 may also select a 66-2/3 last survivor option or a level income option. Under these options and early retirement, benefits are actuarially adjusted so that members receive the actuarial equivalents of their normal benefit amounts.

Benefit Calculations

Retirement benefits are calculated by multiplying the average monthly compensation (AMC) times credited PERS service times the percentage multiplier. The AMC is determined by averaging the salaries earned during the five highest (three highest for Peace Officer/Firefighter members or members hired prior to July 1, 1996) consecutive payroll years. Members must earn at least 115 days of credit in the last year worked to include it in the AMC calculation. PERS pays a minimum benefit of $25.00 per month for each year of service when the calculated benefit is less.

The percentage multipliers for Peace Officer/Firefighter members are 2% for the first ten years of service and 2.5% for all service over ten years.

The percentage multipliers for all Others are 2% for the first ten years, 2.25% for the next ten years, and 2.5% for all remaining service earned on or after July 1, 1986. All service before that date is calculated at 2%.

Salaries are subject to compensation limits under IRC 401(a)(17) for members first hired on or after July 1, 1996. Retirement benefit amounts are subject to IRC 415(b) limits regardless of hire date.

Indebtedness

Members who terminate and refund their PERS contributions are not eligible to retire unless they return to PERS employment and pay back their refunds plus interest or accrue additional service which qualifies them for retirement. PERS refunds must be paid in full if the corresponding service is to count toward the minimum service requirements for retirement. Refunded PERS service is included in total service for the purpose of calculating retirement benefits. However, when refunds are not completely paid before retirement, benefits are actuarially reduced for life. Indebtedness balances may also be created when a member purchases qualified claimed service.

Reemployment of Retired Members

Retirement and retiree healthcare benefits are suspended while retired members are reemployed under PERS. During reemployment, members earn additional PERS service and contributions are withheld from their wages. A member who retired with a normal retirement benefit can elect to waive payment of PERS contributions. The waiver allows the member to continue receiving the retirement benefit during the period of reemployment. Members who elect the waiver option do not earn additional PERS service. The Waiver Option first became effective July 1, 2005 and applies to reemployment periods after that date. The Waiver Option is not available to members who retired early or under the Retirement Incentive Programs (RIPs). The Waiver Option is no longer available after June 30, 2009.

Members retired under the Retirement Incentive Programs (RIPs) who return to employment will:

a. forfeit the three years of incentive credits that they received;

b. owe PERS 150% of the benefits that they received for state and political subdivision members, and 110% for school district employees, under the 1996-2000 RIP, which may include costs for health insurance, excluding amounts that they paid to participate for the 1986 and 1989 RIPs. Under prior RIPs, the penalty is 110% of the benefits received; and

c. be charged 7% interest from the date that they are reemployed until their indebtedness is paid in full or they retire again. If the indebtedness is not completely paid, future benefits will be actuarially reduced for life.

Employers make contributions to the unfunded liability of the plan on behalf of rehired retired members at the rate the employer is making contributions to the unfunded liability of the plan for other members.

Postemployment Healthcare Benefits

Major medical benefits are provided to retirees and their surviving spouses by PERS for all employees hired before July 1, 1986 (Tier 1) and disabled retirees. Employees hired after June 30, 1986 (Tier 2) and their surviving spouses with five years of credited service (or ten years of credited service for those first hired after June 30, 1996 (Tier 3)) must pay the full monthly premium if they are under age sixty and will receive benefits paid by PERS if they are over age sixty. Tier 3 Members with between five and ten years of credited service must pay the full monthly premium regardless of their age. Tier 2 and Tier 3 Members with less than five years of credited service are not eligible for postemployment healthcare benefits. Tier 2 Members who are receiving a conditional benefit and are age eligible are eligible for postemployment healthcare benefits. In addition, Peace Officers and their surviving spouses with twenty-five years of Peace Officer membership service, Other employees and their surviving spouses with thirty years of membership service, and any disabled member receive benefits paid by PERS, regardless of their age or date of hire.

Medical, prescription drug, dental, vision, and audio coverage is provided through the AlaskaCare Retiree Health Plan. Health plan provisions do not vary by retirement tier or age, except for Medicare coordination. Participants in dental, vision, and audio coverage pay a full self-supporting rate and those benefits are not included in this valuation.

Starting in 2022, prior authorization is required for certain specialty medications for all participants. There is no change to the medications that are covered by the plan.

Starting in 2022, certain preventive benefits for pre-Medicare participants are covered by the plan.

Surviving spouses continue coverage only if a pension payment form that provided survivor benefits was elected. Alternate payees (i.e. individuals who are the subject of a domestic relations order or DRO) are allowed to participate in the plan, but must pay the full cost.

Where premiums are required prior to age 60, the valuation bases this payment upon the age of the retiree.

Participants in the defined benefit plan are covered under the following benefit design:

Plan Feature	Amounts
Deductible (single/family)	$150 / $450
Coinsurance (most services)	20%
Outpatient surgery/testing	0%
Maximum Out-of-Pocket (single/family, excluding deductible)	$800 / $2,400
Rx Copays (generic/brand/mail-order), does not apply to OOP max	$4 / $8 / $0
Lifetime Maximum	$2,000,000

The plan coordinates with Medicare on a traditional Coordination of Benefits Method. Starting in 2019, the prescription drug coverage is through a Medicare Part D EGWP arrangement.

Disability Benefits

Monthly disability benefits are paid to permanently disabled members until they die, recover, or become eligible for normal retirement. Members are appointed to normal retirement on the first of the month after they become eligible.

Occupational Disability

Members are not required to satisfy age or service requirements to be eligible for occupational disability. Monthly benefits are equal to 40% of their gross monthly compensation on the date of their disability. Members on occupational disability continue to earn PERS service until they become eligible for normal retirement. Peace Officer/Firefighter members may elect to retain the disability benefit formula for the calculation of their normal retirement benefits.

At the time a disabled Peace Officer/Firefighter member retires, the retirement benefit will be increased by a percentage equal to the total cumulative percentage that has been applied to the disability benefit.

Non-occupational Disability

Members must be vested (five paid up years of PERS service) to be eligible for non-occupational disability benefits. Monthly benefits are calculated based on the member's average monthly compensation and PERS service on the date of termination from employment because of disability. Members do not earn PERS service while on non-occupational disability.

Death Benefits

Monthly death benefits may be paid to a spouse or dependent children upon the death of a member. If monthly benefits are not payable under the occupational and non-occupational death provisions, the designated beneficiary receives the lump sum benefit described below.

Occupational Death

When an active member (vested or non-vested) dies from occupational causes, a monthly survivor's pension may be paid to the spouse. The pension equals 40% of the member's gross monthly compensation on the date of death or disability, if earlier. If there is no spouse, the pension may be paid to the member's dependent children. On the member's normal retirement date, the benefit converts to a normal retirement benefit. The normal benefit is based on the member's salary on the date of death and service, including service accumulated from the date of the member's death to the normal retirement date. Survivors of Peace Officer/Firefighter members receive the greater of 50% of the member's gross monthly compensation on the date of death or disability, or 75% of the member's monthly normal retirement benefit (including service projected to Normal Retirement). If the member is unmarried with no children, a refund of contributions is payable to the estate.

Death after Occupational Disability

When a member dies while occupationally disabled, benefits are paid as described above in Occupational Death.

Non-Occupational Death

When a vested member dies from non-occupational causes, the surviving spouse may elect to receive a monthly 50% joint and survivor benefit or a lump sum benefit. The monthly benefit is calculated on the member's average monthly compensation and PERS service at the time of termination or death.

Lump Sum Non-Occupational Death Benefit

Upon the death of a member who has less than one year of service, the designated beneficiary receives the member's contribution account, which includes mandatory and voluntary contributions, indebtedness payments, and interest earned. If the member has more than one year of PERS service or is vested, the beneficiary also receives $1,000 and $100 for each year of PERS service.

Death After Retirement

When a retired member dies, the designated beneficiary receives the member's contribution account, less any benefits already paid and the member's last benefit check. If the member selected a survivor option at retirement, the eligible spouse receives continuing, lifetime monthly benefits.

Postretirement Pension Adjustments

Postretirement pension adjustments (PRPAs) are granted annually to eligible benefit recipients when the consumer price index (CPI) for urban wage earners and clerical workers for Anchorage increases during the preceding calendar year. PRPAs are calculated by multiplying the recipient's base benefit including past PRPAs, but excluding the Alaska COLA, times:

a. The lesser of 75% of the CPI increase in the preceding calendar year or 9%, if the recipient is at least age 65 or on PERS disability; or
b. The lesser of 50% of the CPI increase in the preceding calendar year or 6%, if the recipient is at least age 60, or under age 60 if the recipient has been receiving benefits for at least five years.

Ad hoc PRPAs, up to a maximum of 4%, may be granted to eligible recipients who were first hired before July 1, 1986 (Tier 1) if the CPI increases and the funded ratio is at least 105%.

In a year where an ad hoc PRPA is granted, eligible recipients will receive the higher of the two calculations.

Alaska Cost-of-Living Allowance (COLA)

Eligible benefit recipients who reside in Alaska receive an Alaska COLA equal to 10% of their base benefits or $50, whichever is more. The following benefit recipients are eligible:

a. members who first entered PERS before July 1, 1986 (Tier 1) and their survivors;
b. members who first entered PERS after June 30, 1986 (Tiers 2 & 3) and their survivors if they are at least age 65; and
c. all disabled members.

Changes in Benefit Provisions Valued Since the Prior Valuation

There were no changes in benefit provisions since the prior valuation.

Section 5.2: Description of Actuarial Methods and Valuation Procedures

The funding method used in this valuation was adopted by the Board in October 2006. Changes in methods were adopted by the Board in January 2019 based on the experience study for the period July 1, 2013 to June 30, 2017. The asset smoothing method used to determine valuation assets was changed effective June 30, 2014.

Benefits valued are those delineated in Alaska State statutes as of the valuation date. Changes in State statutes effective after the valuation date are not taken into consideration in setting the assumptions and methods.

Actuarial Cost Method

Liabilities and contributions shown in the report are computed using the Entry Age Normal Actuarial Cost Method, level percent of pay.

Effective June 30, 2018, the Board adopted a layered UAAL amortization method: Layer #1 equals the sum of (i) the UAAL at June 30, 2018 based on the 2017 valuation, plus (ii) the FY18 experience gain/loss. Layer #1 is amortized over the remainder of the 25-year closed period that was originally established in 2014[1]. Layer #2 equals the change in UAAL at June 30, 2018 due to the experience study and EGWP implementation. Layer #2 is amortized over a separate closed 25-year period starting in 2018. Future layers will be created each year based on the difference between actual and expected UAAL occurring that year, and will be amortized over separate closed 25-year periods. The UAAL amortization continues to be on a level percent of pay basis. State statutes allow the contribution rate to be determined on payroll for all members, defined benefit and defined contribution member payroll combined.

Projected pension and postemployment healthcare benefits were determined for all active members. Cost factors designed to produce annual costs as a constant percentage of each member's expected compensation in each year from the assumed entry age to the assumed retirement age were applied to the projected benefits to determine the normal cost (the portion of the total cost of the plan allocated to the current year under the method). The normal cost is determined by summing intermediate results for active members and determining an average normal cost rate which is then related to the total payroll of active members. The actuarial accrued liability for active members (the portion of the total cost of the plan allocated to prior years under the method) was determined as the excess of the actuarial present value of projected benefits over the actuarial present value of future normal costs.

The actuarial accrued liability for retired members and their beneficiaries currently receiving benefits, terminated vested members and disabled members not yet receiving benefits was determined as the actuarial present value of the benefits expected to be paid. No future normal costs are payable for these members.

The actuarial accrued liability under this method at any point in time is the theoretical amount of the fund that would have been accumulated had annual contributions equal to the normal cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date). The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of plan assets measured on the valuation date.

Under this method, experience gains or losses, i.e., decreases or increases in accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the unfunded actuarial accrued liability.

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[1] Layer #1 is referred to as "initial amount" in Sections 1.2 and 1.3.

Valuation of Assets

The actuarial asset value was reinitialized to equal Fair Value of Assets as of June 30, 2014. Beginning in FY15, the asset valuation method recognizes 20% of the gain or loss each year, for a period of five years. All assets are valued at fair value. Assets are accounted for on an accrued basis and are taken directly from financial statements audited by KPMG LLP.

Changes in Methods Since the Prior Valuation

There were no changes in the asset or valuation methods since the prior valuation.

Valuation of Retiree Medical and Prescription Drug Benefits

This section outlines the detailed methodology used in the internal model developed by Buck to calculate the initial per capita claims cost rates for the PERS postemployment healthcare plan. Note that the methodology reflects the results of our annual experience rate update for the period from July 1, 2021 to June 30, 2022.

Base claims cost rates are incurred healthcare costs expressed as a rate per member per year. Ideally, claims cost rates should be derived for each significant component of cost that can be expected to require differing projection assumptions or methods (i.e., medical claims, prescription drug claims, administrative costs, etc.). Separate analysis is limited by the availability and historical credibility of cost and enrollment data for each component of cost. This valuation reflects non-prescription claims separated by Medicare status, including eligibility for free Part A coverage. Prescription costs are analyzed separately as in prior valuations. Administrative costs are assumed in the final per capita claims cost rates used for valuation purposes, as described below. Analysis to date on Medicare Part A coverage is limited since Part A claim data is not available by individual, nor is this status incorporated into historical claim data.

Benefits

Medical, prescription drug, dental, vision and audio coverage is provided through the AlaskaCare Retiree Health Plan and is available to employees of the State and subdivisions who meet retirement criteria based on the retirement plan tier in effect at their date of hire. Health plan provisions do not vary by retirement tier or age, except for Medicare coordination for those Medicare-eligible. Dental, vision and audio claims (DVA) are excluded from data analyzed for this valuation because those are retiree-pay all benefits where rates are assumed to be self-supporting. Buck relies upon rates set by a third-party for the DVA benefits. Buck reviewed historical rate-setting information and views contribution rate adjustments made are not unreasonable.

Administration and Data Sources

The plan was administered by Wells Fargo Insurance Services (acquired by HealthSmart, in January 2012) from July 1, 2009 through December 31, 2013 and by Aetna effective January 1, 2014.

Claims incurred for the period from July 2020 through June 2022 (FY21 through FY22) were provided by the State of Alaska from reports extracted from their data warehouse, which separated claims by Medicare status. Monthly enrollment data for the same period was provided by Aetna.

Aetna also provided census information identifying Medicare Part B only participants. These participants are identified when hospital claims are denied by Medicare; Aetna then flags that participant as a Part B only participant. Buck added newly identified participants to our list of Medicare Part B only participants. Buck assumes that once identified as Part B only, that participant remains in that status until we are notified otherwise.

Aetna provided a snapshot file as of July 1, 2022 of retirees and dependents that included a coverage level indicator. The monthly enrollment data includes double coverage participants. These are participants whereby both the retiree and spouse are retirees from the State and both are reflected with Couple coverage in the enrollment. In this case, such a couple would show up as four members in the monthly enrollment (each would be both a retiree and a spouse). As a result, the snapshot census file was used to adjust the total member counts in the monthly enrollment reports to estimate the number of unique participants enrolled in coverage. Based on the snapshot files from the last two valuations, the total member count in the monthly enrollment reports needs to be reduced by approximately 13% to account for the number of participants with double coverage.

Aetna does not provide separate experience by Medicare status in standard reporting so the special reports mentioned above from the data warehouse were used this year to obtain that information and incorporate it into the per capita rate development for each year of experience (with corresponding weights applied in the final per capita cost).

Methodology

Buck projected historical claim data to FY23 for retirees using the following summarized steps:

1. Develop historical annual incurred claim cost rates – an analysis of medical costs was completed based on claims information and enrollment data provided by the State of Alaska and Aetna for each year in the experience period of FY21 through FY22.
   - Costs for medical services and prescriptions were analyzed separately, and separate trend rates were developed to project expected future medical and prescription costs for the valuation year (e.g. from the experience period up through FY23).
   - Because the reports provided reflected incurred claims, no additional adjustment was needed to determine incurred claims to be used in the valuation.
   - An offset for costs expected to be reimbursed by Medicare was incorporated beginning at age 65. Alaska retirees who do not have 40 quarters of Medicare-covered compensation do not qualify for Medicare Part A coverage free of charge. This is a relatively small and closed group. Medicare was applied to State employment for all employees hired after March 31, 1986. For the "no-Part A" individuals who are required to enroll in Medicare Part B, the State is the primary payer for hospital bills and other Part A services. Claim experience is not available separately for participants with both Medicare Parts A and B and those with Part B only. For Medicare Part B only participants, a lower average claims cost was applied to retirees covered by both Medicare Part A and B vs. retirees covered only by Medicare Part B based upon manual rate models that estimate the Medicare covered proportion of medical costs. To the extent that no-Part A claims can be isolated and applied strictly to the appropriate closed group, actuarial accrued liability will be more accurate.
   - Based on census data received from Aetna, less than 1% of the current retiree population was identified as having coverage only under Medicare Part B. We assume that 2% of actives hired before April 1, 1986 and current retirees who are not yet Medicare eligible will not be eligible for Medicare Part A.
   - Based upon a reconciliation of valuation census data to the snapshot eligibility files provided by Aetna as of July 1, 2021, and July 1, 2022, Buck adjusted member counts used for duplicate records where participants have double coverage; i.e. primary coverage as a retiree and secondary coverage as the covered spouse of another retiree. This is to reflect the total cost per distinct individual/member which is then applied to distinct members in the valuation census.
   - Buck understands that pharmacy claims reported do not reflect rebates. Based on actual pharmacy rebate information provided by Optum, rebates were assumed to be 16.2% of pre-Medicare, and 14.3% of Medicare prescription drug claims for FY21; and 20.1% of pre-Medicare, and 13.5% of Medicare prescription drug claims for FY22.
2. Develop estimated EGWP reimbursements – Segal provided estimated 2023 EGWP subsidies, developed with the assistance of OptumRx. These amounts are applicable only to Medicare-eligible participants.

3. Adjust for claim fluctuation, anomalous experience, etc. – explicit adjustments are often made for anticipated large claims or other anomalous experience. FY21 and FY22 experience was thoroughly reviewed to assess the impact of COVID-19 and whether an adjustment to FY21 and FY22 claims was appropriate for use in the June 30, 2022 valuation. FY21 medical per capita claims were noticeably lower than expected, so a 4% load was added to the FY21 medical claims used in the per capita claims cost development to better reflect future expected long-term costs of the plan. FY22 medical per capita claims were reasonable when compared to pre-COVID levels, so no adjustments were made to the FY22 medical claims used in the per capita claims cost development. Total prescription drug claims experience for FY21 and FY22 was reasonable and consistent with FY19 and FY20 experience. Therefore, no adjustment was made to FY21 and FY22 prescription drug claims. Due to group size and demographics, we did not make any additional large claim adjustments. We do blend both Alaska plan-specific and national trend factors as described below. Buck compared data utilized to lag reports and quarterly plan experience presentations provided by the State and Aetna to assess accuracy and reasonableness of data.
4. Trend all data points to the projection period – project prior years' experience forward to FY23 for retiree benefits on an incurred claim basis. Trend factors derived from historical Alaska-specific experience and national trend factors are shown in the table in item 5 below.
5. Apply credibility to prior experience – adjust prior year's data by assigning weight to recent periods, as shown at the right of the table below. The Board approved a change in the weighting of experience periods beginning with the June 30, 2017 valuation as outlined below. Note also that for both years of prescription drugs we averaged projected plan costs using Alaska-specific trend factors and national trend factors, assigning 75% weight to Alaska-specific trends and 25% to national trends. For both years of medical we applied 100% weight to national trends because the Alaska-specific trends were impacted by COVID-19:

Alaska-Specific and National Average Weighted Trend from Experience Period to Valuation Year			
Experience Period	**Medical**	**Prescription**	**Weighting Factors**
FY21 to FY22	8.1% Pre-Medicare / 4.8% Medicare	8.0%	50%
FY22 to FY23	7.4% Pre-Medicare / 5.6% Medicare	9.5%	50%

   Trend assumptions used for rate development are assessed annually and as additional/improved reporting becomes available, we will incorporate into rate development as appropriate.
6. Starting in 2022, prior authorization is required for certain specialty medications. There is no change to the medications that are covered by the plan. Segal provided an estimate of the impact of this change to the DB retiree health plan cost for calendar year 2022. The resulting adjustment factors for pre-Medicare prescription drug, Medicare prescription drug, and EGWP costs were applied to claims experience incurred before January 1, 2022. Additionally, starting in 2022, certain preventive benefits for pre-Medicare participants are covered by the plan. Segal provided an estimate of the impact of this change to the DB retiree health plan cost for calendar year 2022. The resulting adjustment factor for pre-Medicare medical costs was applied to claims experience incurred before January 1, 2022.
7. Develop separate administration costs – no adjustments were made for internal administrative costs. Third party retiree plan administration fees for FY23 are based upon total fees projected to 2023 by Segal based on actual FY22 fees. The annual per participant per year administrative cost rate for medical and prescription benefits is $449.

Healthcare Reform

Healthcare Reform legislation passed on March 23, 2010 included several provisions with potential implications for the State of Alaska Retiree Health Plan liability. Buck evaluated the impact due to these provisions.

Because the State plan is retiree-only, and was in effect at the time the legislation was enacted, not all provisions of the health reform legislation apply to the State plan. Unlimited lifetime benefits and dependent coverage to age 26 are two of these provisions. We reviewed the impact of including these provisions, but there was no decision made to adopt them, and no requirement to do so.

Because Transitional Reinsurance fees are only in effect until 2016, we excluded these for valuation purposes.

The Further Consolidated Appropriations Act, 2020 passed in December 2019 repealed several healthcare-related taxes, including the Cadillac Tax.

The Tax Cuts and Jobs Act passed in December 2017 included the elimination of the individual mandate penalty and changed the inflation measure for purposes of determining the limits for the High Cost Excise Tax to use chained CPI. It is our understanding the law does not directly impact other provisions of the ACA. While the nullification of the ACA's individual mandate penalty does not directly impact employer group health plans, it could contribute to the destabilization of the individual market and increase the number of uninsured. Such destabilization could translate to increased costs for employers. We have considered this when setting our healthcare cost trend assumptions and will continue to monitor this issue.

The Inflation Reduction Act was signed into law on August 16, 2022. The law contains several provisions that are expected to impact Alaska's Medicare prescription drug plan (EGWP), which will be considered at the next measurement date.

We have not identified any other specific provisions of healthcare reform or its potential repeal that would be expected to have a significant impact on the measured obligation. We will continue to monitor legislative activity.

Data

In accordance with actuarial standards, we note the following specific data sources and steps taken to value retiree medical benefits:

The Division of Retirement and Benefits provided pension valuation census data, which for people currently in receipt of healthcare benefits was supplemented by coverage data from the healthcare claims administrator (Aetna).

Certain adjustments and assumptions were made to prepare the data for valuation:

- All records provided with retiree medical coverage on the Aetna data were included in this valuation and we relied on the Aetna data as the source of medical coverage for current retirees and their dependents.
- Some records in the Aetna data were duplicates due to the double coverage (i.e. coverage as a retiree and as a spouse of another retiree) allowed under the plan. Records were adjusted for these members so that each member was only valued once. Any additional value of the double coverage (due to coordination of benefits) is small and reflected in the per capita costs.
- Covered children included in the Aetna data were valued until age 23, unless disabled. We assumed that those dependents over 23 were only eligible and valued due to being disabled.
- For individuals included in the pension data expecting a future pension, we valued health benefits starting at the same point that the pension benefit is assumed to start.

We are not aware of any other data issues that would be expected to have a material impact on the results and there are no unresolved matters related to the data.

The chart below shows the basis of setting the per capita claims cost assumption, which includes both PERS and TRS.

	Medical		Prescription Drugs (Rx)	
	Pre-Medicare	Medicare	Pre-Medicare	Medicare
A. Fiscal 2021				
1. Incurred Claims	$ 196,566,470	$ 86,512,435	$ 60,691,609	$ 207,822,858
2. Adjustments for Rx Rebates and COVID (Medical only)	7,862,659	3,460,497	(9,832,041)	(29,718,669)
3. Net incurred claims	$ 204,429,129	$ 89,972,933	$ 50,859,568	$ 178,104,189
4. Average Enrollment	18,106	47,025	18,106	47,025
5. Claim Cost Rate (3) / (4)	11,291	1,913	2,809	3,787
6. Trend to Fiscal 2023	1.161	1.107	1.183	1.183
7. Fiscal 2023 Incurred Cost Rate (5) x (6)	$ 13,108	$ 2,117	$ 3,322	$ 4,479
8. Adjustment Factor for 2022 Plan Changes	1.014	1.000	0.913	0.976
9. Adjusted Fiscal 2023 Incurred Cost Rate (7) x (8)	$ 13,290	$ 2,117	$ 3,034	$ 4,371
B. Fiscal 2022				
1. Incurred Claims	$ 197,733,173	$ 98,249,082	$ 64,076,270	$ 230,832,315
2. Adjustments for Rx Rebates	0	0	(12,879,330)	(31,162,363)
3. Net incurred claims	$ 197,733,173	$ 98,249,082	$ 51,196,940	$ 199,669,953
4. Average Enrollment	17,072	48,698	17,072	48,698
5. Claim Cost Rate (3) / (4)	11,582	2,018	2,999	4,100
6. Trend to Fiscal 2023	1.074	1.056	1.095	1.095
7. Fiscal 2023 Incurred Cost Rate (5) x (6)	$ 12,439	$ 2,131	$ 3,284	$ 4,490
8. Adjustment Factor for 2022 Plan Changes	1.007	1.000	0.957	0.988
9. Adjusted Fiscal 2023 Incurred Cost Rate (7) x (8)	$ 12,526	$ 2,131	$ 3,141	$ 4,436

	Medical		Prescription Drugs (Rx)	
	Pre-Medicare	Medicare	Pre-Medicare	Medicare
C. Adjusted Incurred Cost Rate by Fiscal Year				
1. Fiscal 2021 A.(9)	13,290	2,117	3,034	4,371
2. Fiscal 2022 B.(9)	12,526	2,131	3,141	4,436
D. Weighting by Fiscal Year				
1. Fiscal 2021	50%	50%	50%	50%
2. Fiscal 2022	50%	50%	50%	50%
E. Fiscal 2023 Incurred Cost Rate				
1. Rate at Average Age C x D	$ 12,908	$ 2,124	$ 3,088	$ 4,403
2. Average Aging Factor	0.822	1.279	0.832	1.127
3. Rate at Age 65 (1) / (2)	$ 15,706	$ 1,661	$ 3,712	$ 3,907
F. Development of Part A&B and Part B Only Cost from Pooled Rate Above				
1. Part A&B Average Enrollment		48,233		
2. Part B Only Average Enrollment		465		
3. Total Medicare Average Enrollment B(4)		48,698		
4. Cost ratio for those with Part B only to those with Parts A&B		3.300		
5. Factor to determine cost for those with Parts A&B (2) / (3) x (4) + (1) / (3) x 1.00		1.022		
6. Medicare per capita cost for all participants: E(3)		$ 1,661		
7. Cost for those eligible for Parts A&B: (6) / (5)		$ 1,625		
8. Cost for those eligible for Part B only: (7) x (4)		$ 5,363		

Following the development of total projected costs, a distribution of per capita claims cost was developed. This was accomplished by allocating total projected costs to the population census used in the valuation. The allocation was done separately for each of prescription drugs and medical costs for the Medicare eligible and pre-Medicare populations. The allocation weights were developed using participant counts by age and assumed morbidity and aging factors. Results were tested for reasonableness based on historical trend and external benchmarks for costs paid by Medicare.

Below are the results of this analysis:

Distribution of Per Capita Claims Cost by Age
for the Period July 1, 2022 through June 30, 2023

Age	Medical and Medicare Parts A & B	Medical and Medicare Part B Only	Prescription Drug	Medicare EGWP Subsidy
45	$ 9,585	$ 9,585	$ 2,382	$ 0
50	10,844	10,844	2,829	0
55	12,270	12,270	3,369	0
60	13,882	13,882	3,532	0
65	1,625	5,363	3,907	1,309
70	1,794	5,921	4,335	1,452
75	1,981	6,537	4,810	1,611
80	2,209	7,289	4,738	1,587

Section 5.3: Summary of Actuarial Assumptions

The demographic and economic assumptions used in the June 30, 2022 valuation are described below. Unless noted otherwise, these assumptions were adopted by the Board at the June 2022 meeting based on the experience study for the period July 1, 2017 to June 30, 2021.

Investment Return

7.25% per year, net of investment expenses.

Salary Scale

Salary scale rates based on the 2017-2021 actual experience (see Table 1).

Inflation – 2.50% per year.

Productivity – 0.25% per year.

Payroll Growth

2.75% per year (inflation + productivity).

Total Inflation

Total inflation as measured by the Consumer Price Index for urban and clerical workers for Anchorage is assumed to increase 2.50% annually.

Mortality (Pre-Commencement)

Mortality rates based on the 2017-2021 actual experience, to the extent the experience was statistically credible.

Employee mortality for Peace Officer/Firefighters in accordance with the following tables:

- Pension: Pub-2010 Safety Employee table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 Safety Employee table, headcount-weighted, and projected with MP-2021 generational improvement.

Employee mortality for Others in accordance with the following tables:

- Pension: Pub-2010 General Employee table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 General Employee table, headcount-weighted, and projected with MP-2021 generational improvement.

Deaths are assumed to result from occupational causes 70% of the time for Peace Officer/Firefighters, and 35% of the time for Others.

Mortality (Post-Commencement)

Mortality rates based on the 2017-2021 actual experience, to the extent the experience was statistically credible.

Retiree mortality for Peace Officer/Firefighters in accordance with the following tables:

- Pension: Pub-2010 Safety Retiree table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 Safety Retiree table, headcount-weighted, and projected with MP-2021 generational improvement.

Retiree mortality for Others in accordance with the following tables:

- Pension: 98% of male and 106% of female rates of the Pub-2010 General Retiree table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: 101% of male and 110% of female rates of the Pub-2010 General Retiree table, headcount-weighted, and projected with MP-2021 generational improvement.

Beneficiary mortality for Peace Officer/Firefighters in accordance with the following tables. These tables are applied only after the death of the original member.

- Pension: Pub-2010 Contingent Survivor table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 Contingent Survivor table, headcount-weighted, and projected with MP-2021 generational improvement.

Beneficiary mortality for Others in accordance with the following tables. These tables are applied only after the death of the original member.

- Pension: 102% of male and 108% of female rates of the Pub-2010 Contingent Survivor table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: 101% of male and 108% of female rates of the Pub-2010 Contingent Survivor table, headcount-weighted, and projected with MP-2021 generational improvement.

Turnover

Select and ultimate rates based on the 2017-2021 actual experience (see Tables 2a and 2b).

Disability

No changes to the incidence rates from the prior valuation due to insufficient 2017-2021 actual experience (see Tables 3a and 3b). Disability rates cease once a member is eligible for retirement.

Disabilities are assumed to be occupational 70% of the time for Peace Officer/Firefighters, and 35% of the time for Others.

Post-disability mortality for Peace Officer/Firefighters in accordance with the following tables:

- Pension: Pub-2010 Safety Disabled Retiree table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 Safety Disabled Retiree table, headcount-weighted, and projected with MP-2021 generational improvement.

Post-disability mortality for Others in accordance with the following tables:

- Pension: Pub-2010 Non-Safety Disabled Retiree table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 Non-Safety Disabled Retiree table, headcount-weighted, and projected with MP-2021 generational improvement.

Retirement

Retirement rates based on the 2017-2021 actual experience (see Tables 4a and 4b).

Deferred vested members are assumed to retire at their earliest unreduced retirement date.

The modified cash refund annuity is valued as a three-year certain and life annuity.

Spouse Age Difference

Males are assumed to be three years older than their wives. Females are assumed to be two years younger than their husbands.

Percent Married for Pension

For Peace Officer/Firefighters, 85% of male members and 60% of female members are assumed to be married at termination from active service. For Others, 75% of male members and 70% of female members are assumed to be married at termination from active service.

Dependent Spouse Medical Coverage Election

Applies to members who do not have double medical coverage. For Peace Officer/Firefighters, 75% of male members and 50% of female members are assumed to be married and cover a dependent spouse. For Others, 60% of male members and 50% of female members are assumed to be married and cover a dependent spouse.

Dependent Children

- Pension: None
- Healthcare: Benefits for dependent children have been valued only for members currently covering their dependent children. These benefits are only valued through the dependent children's age 23 (unless the child is disabled).

Imputed Data

Data changes from the prior year which are deemed to have an immaterial impact on liabilities and contribution rates are assumed to be correct in the current year's client data. Non-vested terminations with appropriate refund dates are assumed to have received a full refund of contributions. Active members with missing salary and service are assumed to be terminated with status based on their vesting percentage.

Active Data Adjustment

No adjustment was made to reflect participants who terminate employment before the valuation date and are subsequently rehired after the valuation date.

Administrative Expenses

The Normal Cost as of June 30, 2022 was increased by the following amounts. These amounts are based on the average of actual administrative expenses during the last two fiscal years. For projections, the percent increase was assumed to remain constant in future years.

- Pension: $8,635,000
- Healthcare: $3,818,000

Rehire Assumption

The Normal Cost used for determining contribution rates and in the projections includes a rehire assumption to account for anticipated rehires. The Normal Cost shown in the report includes the following assumptions based on the four years of rehire loss experience through June 30, 2021. For projections, these assumptions were assumed to grade to zero uniformly over a 20-year period.

- Pension: 15.30%
- Healthcare: 2.40%

Re-Employment Option

All re-employed retirees are assumed to return to work under the Standard Option.

Service

Total credited service is provided by the State. This service is assumed to be the only service that should be used to calculate benefits. Additionally, the State provides claimed service (including Bureau of Indian Affairs Service). Claimed service is used for vesting and eligibility purposes as described in Section 5.1.

Part-Time Service

Peace Officer/Firefighter members are assumed to be full-time employees. For Other members, part-time employees are assumed to earn 0.75 years of service per year.

Final Average Earnings

Final Average Earnings is provided on the data for active members. This amount is used as a minimum in the calculation of the average earnings in the future.

Contribution Refunds

5% of terminating members with vested benefits are assumed to have their contributions refunded. 100% of those with non-vested benefits are assumed to have their contributions refunded.

Early Retirement Factors

State of Alaska staff provided the early retirement factors, which reflect grandfathered factors.

Alaska Cost-of-Living Adjustments (COLA)

Of those benefit recipients who are eligible for the Alaska COLA, 60% of Peace Officers/Firefighters and 65% of Others are assumed to remain in Alaska and receive the COLA.

Postretirement Pension Adjustment (PRPA)

50% and 75% of assumed inflation, or 1.25% and 1.875% respectively, is valued for the annual automatic PRPA as specified in the statute.

Healthcare Participation

100% of system paid members and their spouses are assumed to elect healthcare benefits as soon as they are eligible. For Peace Officer/Firefighters, 20% of non-system paid members and their spouses are assumed to elect healthcare benefits as soon as they are eligible. For Others, 25% of non-system paid members and their spouses are assumed to elect healthcare benefits as soon as they are eligible.

Medicare Part B Only

We assume that 2% of actives hired before April 1, 1986 and current retirees who are not yet Medicare eligible will not be eligible for Medicare Part A.

Healthcare Per Capita Claims Cost

Sample claims cost rates adjusted to age 65 for FY23 medical and prescription drugs are shown below. The prescription drug costs reflect the plan change to require prior authorization for certain specialty medications. The pre-Medicare medical cost reflects the coverage of additional preventive benefits.

	Medical	Prescription Drugs
Pre-Medicare	$ 15,706	$ 3,712
Medicare Parts A & B	$ 1,625	$ 3,907
Medicare Part B Only	$ 5,363	$ 3,907
Medicare Part D – EGWP	N/A	$ 1,309

Members are assumed to attain Medicare eligibility at age 65. All costs are for the 2023 fiscal year (July 1, 2022 – June 30, 2023).

The EGWP subsidy is assumed to increase in future years by the trend rates shown on the following pages. No future legislative changes or other events are anticipated to impact the EGWP subsidy. If any legislative or other changes occur in the future that impact the EGWP subsidy (which could either increase or decrease the plan's Actuarial Accrued Liability), those changes will be evaluated and quantified when they occur.

Healthcare Morbidity

Morbidity rates (also called aging factors) are used to estimate utilization of healthcare benefits at each age to reflect the fact that healthcare utilization typically increases with age. Separate morbidity rates are used for medical and prescription drug benefits. These rates are based on the 2017-2021 actual experience.

Age	Medical	Prescription Drugs
0 - 44	2.0%	4.5%
45 - 54	2.5%	3.5%
55 - 64	2.5%	1.0%
65 - 74	2.0%	2.1%
75 - 84	2.2%	(0.3%)
85 - 94	0.5%	(2.5%)
95+	0.0%	0.0%

Healthcare Third Party Administrator Fees

$449 per person per year; assumed to increase at 4.50% per year.

Healthcare Cost Trend

The table below shows the rate used to project the cost from the shown fiscal year to the next fiscal year. For example, 7.00% is applied to the FY23 pre-Medicare medical claims costs to get the FY24 medical claims costs.

	Medical Pre-65	Medical Post-65	Prescription Drugs / EGWP
FY23	7.00%	5.50%	7.50%
FY24	6.70%	5.50%	7.20%
FY25	6.40%	5.40%	6.90%
FY26	6.20%	5.40%	6.65%
FY27	6.05%	5.35%	6.35%
FY28	5.85%	5.35%	6.10%
FY29	5.65%	5.30%	5.80%
FY30	5.45%	5.30%	5.55%
FY31-FY38	5.30%	5.30%	5.30%
FY39	5.25%	5.25%	5.25%
FY40	5.20%	5.20%	5.20%
FY41	5.10%	5.10%	5.10%
FY42	5.05%	5.05%	5.05%
FY43	4.95%	4.95%	4.95%
FY44	4.90%	4.90%	4.90%
FY45	4.80%	4.80%	4.80%
FY46	4.75%	4.75%	4.75%
FY47	4.70%	4.70%	4.70%
FY48	4.60%	4.60%	4.60%
FY49	4.55%	4.55%	4.55%
FY50+	4.50%	4.50%	4.50%

For the June 30, 2014 valuation and later, the updated Society of Actuaries' Healthcare Cost Trend Model is used to project medical and prescription drug costs. This model estimates trend amounts that are projected out for 80 years. The model has been populated with assumptions that are specific to the State of Alaska.

Retired Member Contributions for Medical Benefits

Currently contributions are required for PERS members who are under age 60 and have less than 30 years of service (25 for Peace Officer/Firefighter). Eligible Tier 1 members are exempt from contribution requirements. Annual FY23 contributions based on monthly rates shown below for calendar 2023 are assumed based on the coverage category for current retirees. The retiree only rate shown is used for current active and inactive members and spouses in Tier 2 or 3 who are assumed to retire prior to age 60 with less than 30 years of service and who are not disabled. For dependent children, we value 1/3 of the annual retiree contribution to estimate the per child rate based on the assumed number of children in rates where children are covered.

Coverage Category	Calendar 2023 Annual Contribution	Calendar 2023 Monthly Contribution	Calendar 2022 Monthly Contribution
Retiree Only	$ 8,448	$ 704	$ 704
Retiree and Spouse	$ 16,896	$ 1,408	$ 1,408
Retiree and Child(ren)	$ 11,940	$ 995	$ 995
Retiree and Family	$ 20,388	$ 1,699	$ 1,699
Composite	$ 12,552	$ 1,046	$ 1,046

Trend Rate for Retired Member Medical Contributions

The table below shows the rate used to project the retired member medical contributions from the shown fiscal year to the next fiscal year. For example, 4.0% is applied to the FY23 retired member medical contributions to get the FY24 retired member medical contributions.

Trend Assumptions	
FY23+	4.0%

Graded trend rates for retired member medical contributions are consistent with the rates used for the June 30, 2021 valuation. Actual FY23 retired member medical contributions are reflected in the valuation.

Changes in Assumptions Since the Prior Valuation

Effective for the June 30, 2022 valuation, the Board adopted the changes to the demographic and economic assumptions recommended by the actuary, based on the results of an experience study performed on the plan experience from July 1, 2017 to June 30, 2021. The changes in assumptions were adopted at the June 2022 Board meeting.

The healthcare per capita claims cost assumption is updated annually as described in Section 5.2. The amounts included in the Normal Cost for administrative expenses were changed from $7,625,000 to $8,635,000 for pension, and from $5,531,000 to $3,818,000 for healthcare (based on the most recent two years of actual administrative expenses paid from plan assets).

Table 1: Salary Scales

Peace Officer / Firefighter			Others	
Years of Service	Percent Increase		Years of Service	Percent Increase
< 1	8.50%		< 1	6.75%
1	7.75%		1	6.00%
2	7.25%		2	5.50%
3	7.00%		3	5.00%
4	6.75%		4	4.75%
5	6.25%		5	4.25%
6	5.75%		6	4.05%
7	5.50%		7	3.95%
8	5.25%		8	3.75%
9	5.05%		9	3.55%
10	4.95%		10	3.45%
11	4.85%		11	3.25%
12	4.75%		12	3.10%
13	4.65%		13	3.05%
14	4.55%		14	3.00%
15	4.45%		15	2.95%
16	4.35%		16	2.90%
17	4.25%		17+	2.85%
18	4.05%			
19	4.05%			
20+	3.85%			

Table 2a: Turnover Rates for Peace Officer / Firefighter

Select Rates during the First 5 Years of Employment

Years of Service	Male	Female
< 1	15.00%	15.00%
1	12.00%	8.00%
2	7.20%	6.40%
3	5.67%	5.60%
4	6.48%	7.20%

Ultimate Rates after the First 5 Years of Employment

Age	Male	Female
< 30	2.40%	5.80%
30 - 34	2.00%	5.10%
35 - 39	1.60%	3.00%
40 - 44	1.30%	3.00%
45 - 49	1.50%	2.90%
50 - 54	3.00%	5.00%
55+	2.25%	1.80%

Table 2b: Turnover Rates for Others

Select Rates during the First 5 Years of Employment

Hire Age Under 35			Hire Age Over 35		
Years of Service	Male	Female	Years of Service	Male	Female
< 1	29.00%	29.00%	< 1	20.00%	20.00%
1	16.25%	20.00%	1	12.00%	15.00%
2	13.00%	16.00%	2	10.00%	12.50%
3	10.40%	12.80%	3	8.50%	10.00%
4	8.45%	10.40%	4	8.50%	9.00%

Ultimate Rates after the First 5 Years of Employment

Age	Male	Female
< 30	7.80%	8.20%
30 - 34	7.00%	7.10%
35 - 39	5.70%	5.50%
40 - 44	4.50%	5.20%
45 - 49	4.20%	4.40%
50 - 54	3.60%	4.70%
55+	2.90%	4.90%

Table 3a: Disability Rates for Peace Officer / Firefighter

Age	Male	Female	Age	Male	Female
< 23	0.0179%	0.0112%	46	0.1247%	0.0780%
23	0.0244%	0.0153%	47	0.1337%	0.0836%
24	0.0310%	0.0194%	48	0.1462%	0.0914%
25	0.0374%	0.0234%	49	0.1588%	0.0993%
26	0.0440%	0.0275%	50	0.1714%	0.1071%
27	0.0505%	0.0316%	51	0.1839%	0.1150%
28	0.0526%	0.0329%	52	0.1965%	0.1228%
29	0.0548%	0.0343%	53	0.2294%	0.1434%
30	0.0570%	0.0356%	54	0.2624%	0.1640%
31	0.0591%	0.0370%	55	0.2954%	0.1846%
32	0.0612%	0.0383%	56	0.3283%	0.2052%
33	0.0634%	0.0397%	57	0.3613%	0.2258%
34	0.0657%	0.0411%	58	0.4112%	0.2570%
35	0.0679%	0.0425%	59	0.4611%	0.2882%
36	0.0702%	0.0439%	60	0.5110%	0.3194%
37	0.0724%	0.0453%	61	0.5610%	0.3506%
38	0.0757%	0.0473%	62	0.6109%	0.3818%
39	0.0789%	0.0493%	63	0.6109%	0.3818%
40	0.0822%	0.0514%	64	0.6109%	0.3818%
41	0.0854%	0.0534%	65	0.6109%	0.3818%
42	0.0886%	0.0554%	66	0.6109%	0.3818%
43	0.0977%	0.0611%	67	0.6109%	0.3818%
44	0.1066%	0.0667%	68	0.4073%	0.2546%
45	0.1157%	0.0723%	69	0.2036%	0.1273%
			70+	0.2036%	0.1273%

Table 3b: Disability Rates for Others

Age	Male	Female	Age	Male	Female
< 23	0.0327%	0.0376%	46	0.1125%	0.1154%
23	0.0360%	0.0400%	47	0.1208%	0.1236%
24	0.0392%	0.0424%	48	0.1329%	0.1360%
25	0.0425%	0.0448%	49	0.1451%	0.1484%
26	0.0456%	0.0472%	50	0.1572%	0.1608%
27	0.0489%	0.0496%	51	0.1694%	0.1734%
28	0.0501%	0.0510%	52	0.1815%	0.1858%
29	0.0513%	0.0524%	53	0.2132%	0.2168%
30	0.0524%	0.0538%	54	0.2450%	0.2478%
31	0.0536%	0.0554%	55	0.2766%	0.2788%
32	0.0548%	0.0568%	56	0.3084%	0.3098%
33	0.0566%	0.0586%	57	0.3401%	0.3408%
34	0.0584%	0.0606%	58	0.4068%	0.4096%
35	0.0602%	0.0624%	59	0.4736%	0.4784%
36	0.0620%	0.0644%	60	0.5405%	0.5470%
37	0.0638%	0.0662%	61	0.6072%	0.6158%
38	0.0669%	0.0696%	62	0.6740%	0.6844%
39	0.0701%	0.0728%	63	0.8526%	0.8450%
40	0.0734%	0.0762%	64	1.0314%	1.0054%
41	0.0765%	0.0794%	65	1.2101%	1.1660%
42	0.0797%	0.0826%	66	1.3889%	1.3264%
43	0.0879%	0.0908%	67	1.5675%	1.4870%
44	0.0962%	0.0990%	68	1.0451%	0.9914%
45	0.1043%	0.1072%	69	0.5225%	0.4956%
			70+	0.5225%	0.4956%

Table 4a: Retirement Rates for Peace Officer / Firefighter

	Reduced		Unreduced	
Age	Male	Female	Male	Female
< 47	N/A	N/A	9.00%	7.50%
47	N/A	N/A	13.00%	18.50%
48	N/A	N/A	13.00%	18.50%
49	N/A	N/A	13.00%	18.50%
50	5.00%	5.00%	20.00%	21.00%
51	5.00%	5.00%	20.00%	21.00%
52	7.00%	7.00%	20.00%	21.00%
53	7.00%	7.00%	20.00%	21.00%
54	7.00%	7.00%	20.00%	21.00%
55	7.50%	7.50%	29.00%	20.00%
56	7.50%	7.50%	29.00%	20.00%
57	7.50%	7.50%	29.00%	20.00%
58	7.50%	7.50%	29.00%	20.00%
59	20.00%	20.00%	29.00%	20.00%
60 - 64	N/A	N/A	29.00%	31.50%
65 - 69	N/A	N/A	45.00%	45.00%
70+	N/A	N/A	100.00%	100.00%

Table 4b: Retirement Rates for Others

	Reduced		Unreduced	
Age	Male	Female	Male	Female
< 50	N/A	N/A	11.50%	11.50%
50	7.00%	8.50%	37.50%	40.50%
51	7.00%	8.50%	37.50%	40.50%
52	11.00%	8.50%	37.50%	40.50%
53	11.00%	8.50%	37.50%	40.50%
54	24.00%	16.50%	37.50%	40.50%
55	7.00%	6.50%	25.50%	24.00%
56	7.00%	6.50%	25.50%	24.00%
57	7.00%	6.50%	25.50%	24.00%
58	7.00%	6.50%	25.50%	24.00%
59	18.00%	22.00%	25.50%	24.00%
60 - 64	N/A	N/A	26.50%	24.50%
65 - 69	N/A	N/A	30.50%	28.50%
70 - 74	N/A	N/A	27.50%	27.50%
75 - 79	N/A	N/A	50.00%	50.00%
80+	N/A	N/A	100.00%	100.00%

Section 6: Assessment of Risks (ASOP 51 Disclosures)

Funding future retirement benefits prior to when those benefits become due involves assumptions regarding future economic and demographic experience. These assumptions are applied to calculate actuarial liabilities, current contribution requirements, and the funded status of the plan. However, to the extent future experience deviates from the assumptions used, variations will occur in these calculated values. These variations create risk to the plan. Understanding the risks to the funding of the plan is important.

Actuarial Standard of Practice No. 51 (ASOP 51)[1] requires certain disclosures of potential risks to the plan and provides useful information for intended users of actuarial reports that determine plan contributions or evaluate the adequacy of specified contribution levels to support benefit provisions.

Under ASOP 51, risk is defined as the potential of actual future measurements deviating from expected future measurements resulting from actual future experience deviating from actuarially assumed experience.

It is important to note that not all risk is negative, but all risk should be understood and accepted based on knowledge, judgement, and educated decisions. Future measurements may deviate in ways that produce positive or negative financial impacts to the plan.

In the actuary's professional judgment, the following risks may reasonably be anticipated to significantly affect the pension plan's future financial condition and contribution requirements.

- Investment Risk – potential that the investment return will be different than the 7.25% expected in the actuarial valuation
- Contribution Risk – potential that the contribution actually made will be different than the actuarially determined contribution
- Long-Term Return on Investment Risk – potential that changes in long-term capital market assumptions or the plan's asset allocation will create the need to update the long-term return on investment assumption
- Longevity Risk – potential that participants live longer than expected compared to the valuation mortality assumptions
- Salary Increase Risk – potential that future salaries will be different than expected in the actuarial valuation
- Inflation Risk – potential that the consumer price index (CPI) for urban wage earners and clerical workers for Anchorage is different than the 2.5% assumed in the valuation
- Other Demographic Risk – potential that other demographic experience will be different than expected

The following information is provided to comply with ASOP 51 and furnish beneficial information on potential risks to the plan. **This list is not all-inclusive**; it is an attempt to identify the more significant risks and how those risks might affect the results shown in this report.

Note that ASOP 51 does not require the actuary to evaluate the ability or willingness of the plan sponsor to make contributions to the plan when due, or to assess the likelihood or consequences of potential future changes in law. In addition, this valuation report is not intended to provide investment advice or to provide guidance on the management or reduction of risk.

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[1] ASOP 51 does not apply to the healthcare portion of the plan. Accordingly, all figures in this section relate to the pension portion.

Assessment of Risks

Investment Risk

Plan costs are very sensitive to the market return.

- Any return on assets lower than assumed will increase costs.
- The plan uses an actuarial value of assets that smooths gains and losses on market returns over a five-year period to help control some of the volatility in costs due to investment risk.
- Historical experience of actual returns is shown in Section 2.4 of this report. This historical experience illustrates how returns can vary over time.

Contribution Risk

There is a risk to the plan when the employer's and/or State's actual contribution amount and the actuarially determined contribution differ.

- If the actual contribution is lower than the actuarially determined contribution, the plan may not be sustainable in the long term.
- Any underpayment of the contribution will increase future contribution amounts to help pay off the additional Unfunded Actuarial Accrued Liability associated with the underpayment(s).
- As long as the Board consistently adopts the actuarially determined contributions, this risk is mitigated due to Alaska statutes requiring the State to contribute additional funds necessary to pay the total contributions adopted by the Board.

Long-Term Return on Investment Risk

Inherent in the long-term return on investment assumption is the expectation that the current rate will be used until the last benefit payment of the plan is made. There is a risk that sustained changes in economic conditions, changes in long-term future capital market assumptions, or changes to the plan's asset allocation will necessitate an update to the long-term return on investment assumption used.

- Under a lower long-term return on investment assumption, less investment return is available to pay plan benefits. This may lead to a need for increased employer contributions.
- The liabilities will be higher at a lower assumed rate of return because future benefits will have a lower discount rate applied when calculating the present value.
- A 1% decrease in the long-term return on investment assumption will increase actuarial accrued liability by approximately 11%.
- This risk may be increased due to the plan being closed to new entrants. As the plan continues to mature, the magnitude of negative cash flow discussed in the Plan Maturity Measures later in this section will grow, thereby creating a need for more liquid assets that may not garner the same long-term return as currently assumed.

Longevity Risk

Plan costs will be increased as participants are expected to live longer.

- Benefits are paid over a longer lifetime when life expectancy is expected to increase. The longer duration of payments leads to higher liabilities.
- Health care has been improving, which affects the life expectancy of participants. As health care improves, leading to longer life expectancies, costs to the plan could increase.

- The mortality assumption for the plan mitigates this risk by assuming future improvement in mortality. However, any improvement in future mortality greater than that expected by the current mortality assumption would lead to increased costs for the plan.
- The Postretirement Pension Adjustments and Alaska Cost-of-Living Allowance increase longevity risk because members who live longer than expected will incur more benefit payment increases than expected and therefore increase costs.

Salary Increase Risk

Plan costs will be increased if actual salary increases are larger than expected.

- Higher-than-expected salary increases will produce higher benefits.
- The higher benefits may be partially offset by increased employee contributions due to higher salaries.
- If future payroll grows at a rate different than assumed, contributions as a percentage of payroll will be affected.

Inflation Risk

Plan costs will be increased if the actual CPI for Anchorage is greater than the 2.5% assumed in the valuation.

- Retirement benefits will be greater than expected if the CPI is greater than the assumed rate, which will increase costs.
- This risk is mitigated by the 75% and 50% of CPI provisions and the 9% and 6% maximums.
- This risk is also mitigated by the age and time in payment requirements to receive an increase.
- Inflation risk may be associated with the interaction of inflation with other assumptions, but this is not significant as a standalone assumption, and therefore is considered as part of the associated assumption risk instead of being discussed here.

Other Demographic Risk

The plan is subject to risks associated with other demographic assumptions (e.g., retirement, termination, and retired members remaining in Alaska assumptions). Differences between actual and expected experience for these assumptions tend to have less impact on the overall costs of the plan. The demographic assumptions used in the valuation are re-evaluated regularly as part of the four-year experience studies to ensure the assumptions are consistent with long-term expectations.

Historical Information

Monitoring certain information over time may help understand risks faced by the plan. Historical information is included throughout this report. Some examples are:

- Funded Ratio History shown in the Executive Summary illustrates how the plan's funded status (comparison of actuarial accrued liabilities to actuarial value of assets) has changed over time.
- Section 1.6 shows historical analysis of financial experience including how contribution rates have changed over time.
- Section 2.4 shows the volatility of asset returns over time.
- Section 4 includes various historical information showing how member census data has changed over time.
- Section 7 includes historical information for the plan's funding progress, solvency test results, and changes in member demographics.

Plan Maturity Measures

There are certain measures that may aid in understanding the significant risks to the plan.

Ratio of Retired Liability to Total Liability ($'s in $000's)

As of June 30	2018	2019	2020	2021	2022
1. Retiree and Beneficiary Accrued Liability	$ 9,591,758	$ 10,076,528	$ 10,472,466	$ 10,774,140	$ 11,426,889
2. Total Accrued Liability	$ 14,606,033	$ 15,039,180	$ 15,279,525	$ 15,419,975	$ 16,093,679
3. Ratio, (1) ÷ (2)	65.7%	67.0%	68.5%	69.9%	71.0%

A high percentage of liability concentrated on participants in pay status indicates a mature plan (often a ratio above 60% - 65%). Because the plan was closed to new entrants in 2006, we expect the percentage in item #3 to continue to increase over time. An increasing percentage may indicate a need for a less risky asset allocation, which may lead to a lower long-term return on asset assumption and increased costs. Higher percentages may also indicate greater investment risk as benefit payments may be greater than contributions creating an increased reliance on investment returns. This ratio should be monitored each year in the future.

Ratio of Cash Flow to Assets ($'s in $000's)

During FYE June 30	2018	2019	2020	2021	2022
1. Contributions	$ 457,339	$ 498,067	$ 504,029	$ 586,737	$ 579,650
2. Benefit Payments	812,877	848,019	895,523	930,006	962,357
3. Cash Flow, (1) - (2)	$ (355,538)	$ (349,952)	$ (391,494)	$ (343,269)	$ (382,707)
4. Fair Value of Assets	$ 9,306,675	$ 9,489,405	$ 9,469,161	$ 11,912,309	$ 10,816,140
5. Ratio, (3) ÷ (4)	(3.8%)	(3.7%)	(4.1%)	(2.9%)	(3.5%)

When this cash flow ratio is negative, more cash is being paid out than deposited in the trust. Negative cash flow indicates the trust needs to rely on investment returns to cover benefit payments and / or may need to invest in more liquid assets to cover the benefit payments. More liquid assets may not generate the same returns as less liquid assets, which can increase the investment risk. Currently, the low magnitude of the ratio implies there may already be enough liquid assets to cover the benefit payments, less investment return is needed to cover the shortfall, or only a small portion of assets will need to be converted to cash. Therefore, the investment risk is likely not amplified at this time. However, due to the plan being closed, we expect this measure to become increasingly negative over time. This maturity measure should be monitored in the future.

Contribution Volatility ($'s in $000's)

As of June 30	2018	2019	2020	2021	2022
1. Fair Value of Assets	$ 9,306,675	$ 9,489,405	$ 9,469,161	$ 11,912,309	$ 10,816,140
2. DB/DCR Payroll	$ 2,267,338	$ 2,347,306	$ 2,373,078	$ 2,406,757	$ 2,442,007
3. Asset to Payroll Ratio, (1) ÷ (2)	410.5%	404.3%	399.0%	495.0%	442.9%
4. Accrued Liability	$ 14,606,033	$ 15,039,180	$ 15,279,525	$ 15,419,975	$ 16,093,679
5. Liability to Payroll Ratio, (4) ÷ (2)	644.2%	640.7%	643.9%	640.7%	659.0%

Plans that have higher asset-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, a plan with an asset-to-payroll ratio of 10% may experience twice the contribution volatility due to investment return volatility than a plan with an asset-to-payroll ratio of 5%. Plans that have higher liability-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to changes in liability. For example, if an assumption change increases the liability of two plans by the same percent, the plan with a liability-to-payroll ratio of 10% may experience twice the contribution volatility than a plan with a liability-to-payroll ratio of 5%.

Section 7: Historical Information[1]

Section 7.1: Funding Progress

Funding Progress - Pension ($'s in 000's)

Valuation Date	Actuarial Accrued Liability	Valuation Assets	Assets as Pct. of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)	Active Member Payroll	UAAL as Pct. of Active Member Payroll
June 30, 2022	$ 16,093,679	$ 10,961,498	68.1%	$ 5,132,181	$ 796,666	644.2%
June 30, 2021	15,419,975	10,466,709	67.9%	4,953,266	858,641	576.9%
June 30, 2020	15,279,525	9,713,710	63.6%	5,565,815	930,061	598.4%
June 30, 2019	15,039,180	9,576,693	63.7%	5,462,487	1,004,467	543.8%
June 30, 2018	14,606,033	9,430,192	64.6%	5,175,841	1,049,152	493.3%
June 30, 2017	13,832,130	9,229,703	66.7%	4,602,427	1,159,599	396.9%
June 30, 2016	13,633,033	9,056,662	66.4%	4,576,371	1,247,884	366.7%
June 30, 2015	13,337,929	8,931,160	67.0%	4,406,769	1,322,925	333.1%
June 30, 2014	12,947,759	7,731,438	59.7%	5,216,321	1,412,237	369.4%
June 30, 2013	11,945,881	6,510,749	54.5%	5,435,132	1,514,034	359.0%
June 30, 2012	11,428,944	6,530,421	57.1%	4,898,523	1,569,710	312.1%
June 30, 2011	10,919,047	6,762,149	61.9%	4,156,898	1,611,744	257.9%
June 30, 2010	10,371,672	6,469,832	62.4%	3,901,840	1,661,170	234.9%
June 30, 2009	9,702,086	6,108,528	63.0%	3,593,558	1,662,781	216.1%
June 30, 2008	9,154,282	7,210,772	78.8%	1,943,510	1,657,186	117.3%
June 30, 2007	8,662,324	6,739,004	77.8%	1,923,320	1,689,969	113.8%
June 30, 2006	8,094,043	6,331,065	78.2%	1,762,978	1,676,318	105.2%

Change in assumptions reflected in 2022, 2018, 2014, 2010, and 2006 valuations.

Change in methods reflected in 2014 and 2006 valuations.

[1] GASB 67 replaced GASB 25 effective for the fiscal year ending June 30, 2014, and GASB 74 replaced GASB 43 effective for the fiscal year ending June 30, 2017. At the request of the State, historical accounting information has been included in this section as if GASB 25 and GASB 43 were still effective.

Funding Progress - Healthcare ($'s in 000's)

Valuation Date	Actuarial Accrued Liability	Valuation Assets	Assets as Pct. of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)	Active Member Payroll	UAAL as Pct. of Active Member Payroll
June 30, 2022	$ 6,657,069	$ 8,979,943	134.9%	$ (2,322,874)	$ 796,666	(291.6%)
June 30, 2021	6,856,170	8,581,155	125.2%	(1,724,985)	858,641	(200.9%)
June 30, 2020	7,036,550	7,989,358	113.5%	(952,808)	930,061	(102.4%)
June 30, 2019	7,151,694	7,810,491	109.2%	(658,797)	1,004,467	(65.6%)
June 30, 2018	7,658,104	7,686,509	100.4%	(28,405)	1,049,152	(2.7%)
June 30, 2017	8,049,265	7,557,068	93.9%	492,197	1,159,599	42.4%
June 30, 2016	7,736,457	7,411,330	95.8%	325,127	1,247,884	26.1%
June 30, 2015	7,310,734	7,242,299	99.1%	68,435	1,322,925	5.2%
June 30, 2014	7,949,613	6,913,160	87.0%	1,036,453	1,412,237	73.4%
June 30, 2013	8,046,878	5,651,877	70.2%	2,395,001	1,514,034	158.2%
June 30, 2012	7,863,417	5,301,609	67.4%	2,561,808	1,569,710	163.2%
June 30, 2011	7,821,503	5,051,625	64.6%	2,769,878	1,611,744	171.9%
June 30, 2010	7,760,820	4,687,632	60.4%	3,073,188	1,661,170	185.0%
June 30, 2009	6,877,285	4,134,450	60.1%	2,742,835	1,662,781	165.0%
June 30, 2008	6,733,859	3,829,334	56.9%	2,904,525	1,657,186	175.3%
June 30, 2007	5,908,609	3,161,956	53.5%	2,746,653	1,689,969	162.5%
June 30, 2006	6,294,370	2,709,843	43.1%	3,584,527	1,676,318	213.8%

Change in assumptions reflected in 2022, 2018, 2016, 2014, 2012, 2010, 2008, and 2006 valuations.

Change in methods reflected in 2018, 2014, 2006 valuations.

Section 7.2: Solvency Test

Solvency Test - Pension ($'s in 000's)

Valuation Date	Actuarial Accrued Liability (AAL) (1) Active Member Contributions	(2) Inactive Members	(3) Active Members Employer Financed	Valuation Assets	Portion of AAL Covered by Valuation Assets (1)	(2)	(3)
June 30, 2022	$ 1,220,552	$ 12,209,639	$ 2,663,488	$ 10,961,498	100.0%	79.8%	0.0%
June 30, 2021	1,291,313	11,524,330	2,604,332	10,466,709	100.0%	79.6%	0.0%
June 30, 2020	1,336,269	11,210,836	2,732,420	9,713,710	100.0%	74.7%	0.0%
June 30, 2019	1,375,913	10,801,729	2,861,538	9,576,693	100.0%	75.9%	0.0%
June 30, 2018	1,411,881	10,300,818	2,893,334	9,430,192	100.0%	77.8%	0.0%
June 30, 2017	1,435,091	9,505,267	2,891,772	9,229,703	100.0%	82.0%	0.0%
June 30, 2016	1,458,830	9,147,818	3,026,385	9,056,662	100.0%	83.1%	0.0%
June 30, 2015	1,475,852	8,762,863	3,099,214	8,931,160	100.0%	85.1%	0.0%
June 30, 2014	1,486,335	8,264,683	3,196,741	7,731,438	100.0%	75.6%	0.0%
June 30, 2013	1,479,538	7,514,255	2,952,088	6,510,749	100.0%	67.0%	0.0%
June 30, 2012	1,459,943	7,057,967	2,911,034	6,530,421	100.0%	71.8%	0.0%
June 30, 2011	1,421,967	6,657,517	2,839,563	6,762,149	100.0%	80.2%	0.0%
June 30, 2010	1,388,029	6,268,461	2,715,182	6,469,832	100.0%	81.1%	0.0%
June 30, 2009	1,315,924	5,914,959	2,471,203	6,108,528	100.0%	81.0%	0.0%
June 30, 2008	1,242,288	5,606,402	2,305,592	7,210,772	100.0%	100.0%	15.7%
June 30, 2007	1,203,007	5,282,132	2,177,185	6,739,004	100.0%	100.0%	11.7%
June 30, 2006	1,157,755	4,933,609	2,002,679	6,331,065	100.0%	100.0%	12.0%

Change in assumptions reflected in 2022, 2018, 2014, 2010, and 2006 valuations.

Change in methods reflected in 2014 and 2006 valuations.

Solvency Test - Healthcare ($'s in 000's)

	Actuarial Accrued Liability (AAL)				Portion of AAL Covered by Valuation Assets		
Valuation Date	(1) Active Member Contributions	(2) Inactive Members	(3) Active Members Employer Financed	Valuation Assets	(1)	(2)	(3)
June 30, 2022	$ 0	$ 5,188,441	$ 1,468,628	$ 8,979,943	100.0%	100.0%	100.0%
June 30, 2021	0	5,260,804	1,595,366	8,581,155	100.0%	100.0%	100.0%
June 30, 2020	0	5,306,689	1,729,861	7,989,358	100.0%	100.0%	100.0%
June 30, 2019	0	5,304,790	1,846,904	7,810,491	100.0%	100.0%	100.0%
June 30, 2018	0	5,546,497	2,111,607	7,686,509	100.0%	100.0%	100.0%
June 30, 2017	0	5,671,509	2,377,756	7,557,068	100.0%	100.0%	79.3%
June 30, 2016	0	5,393,537	2,342,920	7,411,330	100.0%	100.0%	86.1%
June 30, 2015	0	5,159,283	2,151,451	7,242,299	100.0%	100.0%	96.8%
June 30, 2014	0	5,455,114	2,494,499	6,913,160	100.0%	100.0%	58.5%
June 30, 2013	0	5,298,380	2,748,498	5,651,877	100.0%	100.0%	12.9%
June 30, 2012	0	5,026,080	2,837,337	5,301,609	100.0%	100.0%	9.7%
June 30, 2011	0	4,812,845	3,008,658	5,051,625	100.0%	100.0%	7.9%
June 30, 2010	0	4,581,806	3,179,014	4,687,632	100.0%	100.0%	3.3%
June 30, 2009	0	4,232,394	2,644,891	4,134,450	100.0%	97.7%	0.0%
June 30, 2008	0	4,166,270	2,567,589	3,829,334	100.0%	91.9%	0.0%
June 30, 2007	0	3,684,906	2,223,703	3,161,956	100.0%	85.8%	0.0%
June 30, 2006	0	3,990,202	2,304,168	2,709,843	100.0%	67.9%	0.0%

Change in assumptions reflected in 2022, 2018, 2016, 2014, 2012, 2010, 2008, and 2006 valuations.

Change in methods reflected in 2018, 2014, 2006 valuations.

Section 7.3: Member Data

As of June 30	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Active Members										
1. Number	20,955	19,297	17,660	16,105	14,719	13,434	12,152	11,033	9,888	8,795
2. Average Age	50.39	50.90	51.34	51.74	52.10	52.52	52.84	53.21	53.51	53.78
3. Average Credited Service	14.00	14.64	15.29	15.95	16.57	17.21	17.80	18.38	18.96	19.52
4. Average Entry Age	36.39	36.26	36.05	35.79	35.53	35.30	35.04	34.83	34.55	34.26
5. Average Annual Earnings	$ 69,211	$ 71,651	$ 73,248	$ 75,717	$ 76,902	$ 77,813	$ 82,192	$ 83,757	$ 86,316	$ 89,603
6. Number Vested	19,670	18,381	16,996	15,607	14,314	13,103	11,868	10,791	9,675	8,604
7. Percent Who Are Vested	93.9%	95.3%	96.2%	96.9%	97.2%	97.5%	97.7%	97.8%	97.8%	97.8%
Retirees, Disabilitants, and Beneficiaries										
1. Number	29,865	31,099	32,145	33,353	34,347	35,454	36,310	37,106	37,717	38,243
2. Average Age	67.76	68.15	68.60	69.02	69.42	69.85	70.29	70.77	71.17	71.61
3. Average Years Since Retirement	N/A	N/A	11.27	11.48	11.71	11.87	12.14	12.45	12.66	12.94
4. Average Monthly Pension Benefit	$ 1,747	$ 1,800	$ 1,841	$ 1,868	$ 1,898	$ 1,933	$ 1,994	$ 2,041	$ 2,076	$ 2,180
Vested Terminations (vested at termination, not refunded contributions, and not commenced benefit)										
1. Number	6,230	6,167	6,304	6,160	5,962	5,660	5,499	5,327	5,135	4,955
2. Average Age	50.84	51.15	51.80	52.08	52.45	52.56	53.06	53.52	53.92	54.37
3. Average Monthly Pension Benefit	$ 863	$ 897	$ 991	$ 1,042	$ 1,080	$ 1,087	$ 1,123	$ 1,158	$ 1,205	$ 1,258
Non-Vested Terminations (not vested at termination and not refunded contributions)										
1. Number	13,162	12,713	12,339	11,880	11,506	11,192	10,921	10,642	10,432	10,223
2. Average Account Balance	$ 5,578	$ 5,765	$ 5,981	$ 6,212	$ 6,462	$ 6,558	$ 6,923	$ 7,060	$ 7,325	$ 7,573
Total Number of Members	**70,212**	**69,276**	**68,448**	**67,498**	**66,534**	**65,740**	**64,882**	**64,108**	**63,172**	**62,216**

Average annual earnings (“valuation pay”) are the annualized earnings for the fiscal year ending on the valuation date.

Glossary of Terms

Actuarial Accrued Liability

Total accumulated cost to fund pension or postemployment benefits arising from service in all prior years.

Actuarial Cost Method

Technique used to assign or allocate, in a systematic and consistent manner, the expected cost of a pension or postemployment plan for a group of plan members to the years of service that give rise to that cost.

Actuarial Present Value of Projected Benefits

Amount which, together with future interest, is expected to be sufficient to pay all future benefits.

Actuarial Valuation

Study of probable amounts of future pension or postemployment benefits and the necessary amount of contributions to fund those benefits.

Actuary

Person who performs mathematical calculations pertaining to pension and insurance benefits based on specific procedures and assumptions.

GASB 67 and 68

Governmental Accounting Standards Board Statement Number 67 amends Number 25 effective for the fiscal year beginning after June 15, 2013 and defines new financial reporting requirements for public pension plans.

Governmental Accounting Standards Board Statement Number 68 amends Number 27 effective for fiscal years beginning after June 15, 2014 and defines new accounting and financial reporting requirements for employers sponsoring public pension plans.

GASB 74 and 75

Governmental Accounting Standards Board Statement Number 74 amends Number 43 effective for the fiscal year beginning after June 15, 2016 and defines new financial reporting requirements for public postemployment benefit plans.

Governmental Accounting Standards Board Statement Number 75 amends Number 45 effective for fiscal years beginning after June 15, 2017 and defines new accounting and financial reporting requirements for employers sponsoring public postemployment benefit plans.

Normal Cost

That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual participant or the plan as a whole.

Rate Payroll

Members' earnings used to determine contribution rates.

Unfunded Actuarial Accrued Liability (UAAL)

The portion of the actuarial accrued liability not offset by plan assets.

Valuation Payroll

Members' earnings used to determine Normal Cost and Actuarial Accrued Liability.

Vested Benefits

Benefits which are unconditionally guaranteed regardless of employment.

State of Alaska

Teachers' Retirement System

Actuarial Valuation Report
As of June 30, 2022

April 2023

April 24, 2023

State of Alaska
The Alaska Retirement Management Board
The Department of Revenue, Treasury Division
The Department of Administration, Division of Retirement and Benefits
P.O. Box 110203
Juneau, AK 99811-0203

Certification of Actuarial Valuation

Dear Members of The Alaska Retirement Management Board, The Department of Revenue and The Department of Administration:

This report summarizes the annual actuarial valuation results of the State of Alaska Teachers' Retirement System (TRS) as of June 30, 2022 performed by Buck Global, LLC (Buck).

The actuarial valuation is based on financial information provided in the financial statements audited by KPMG LLP, member data provided by the Division of Retirement and Benefits, and medical enrollment data provided by the healthcare claims administrator (Aetna), as summarized in this report. The benefits considered are those delineated in Alaska statutes effective June 30, 2022. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities, and other factors under TRS were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Buck is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of TRS as of June 30, 2022.

TRS is funded by Employer, State, and Member Contributions in accordance with the funding policy adopted by the Alaska Retirement Management Board (Board) and as required by Alaska state statutes. The funding objective for TRS is to pay required contributions that remain level as a percent of total TRS compensation. The Board has also established a funding policy objective that the required contributions be sufficient to pay the Normal Costs of active plan members, plan expenses, and amortize the Unfunded Actuarial Accrued Liability (UAAL) as a level percentage of total TRS compensation over a closed 25-year period as required by Alaska state statutes. The closed 25-year period was originally established effective June 30, 2014. Effective June 30, 2018, the Board adopted a 25-year layered UAAL amortization method as described in Section 5.2. The UAAL amortization continues to be on a level percent of pay basis. The compensation used to determine required contributions is the total compensation of all active members in TRS, including those hired after July 1, 2006 who are members of the Defined Contribution Retirement (DCR) Plan. This objective is currently being met and is projected to continue to be met. Absent future gains/losses, actuarially determined contributions are expected to remain level as a percent of pay and the funded status of the pension trust is expected to increase to 100% in FY52. The funded status of the healthcare trust is expected to remain at or above 100%.

The Board and staff of the State of Alaska may use this report for the review of the operations of TRS. Use of this report for any other purpose or by anyone other than the Board or staff of the State of Alaska may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, Buck recommends requesting its advanced review of any statement to be based on information contained in this report. Buck will accept no liability for any such statement made without its prior review.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the actuarial assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. In particular, retiree group benefits models necessarily rely on the use of approximations and estimates and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. An analysis of the potential range of such future differences is beyond the scope of this valuation.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the plan. The actuary performs an analysis of plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The last full experience analysis was performed for the period July 1, 2017 to June 30, 2021. Based on that experience study, the Board adopted new assumptions effective beginning with the June 30, 2022 valuation to better reflect expected future experience. Based on our annual analysis of recent claims experience, changes were made to the healthcare per capita claims cost rates effective June 30, 2022 to better reflect expected future healthcare experience. A summary of the actuarial assumptions and methods used in this actuarial valuation is shown in Sections 5.2 and 5.3. We certify that the assumptions and methods described in Sections 5.2 and 5.3 of this report meet the requirements of all applicable Actuarial Standards of Practice.

Actuarial Standards of Practice No. 27 (ASOP 27) and No. 35 (ASOP 35) require the actuary to disclose the information and analysis used to support the actuary's determination that the assumptions selected by the plan sponsor do not significantly conflict with what, in the actuary's professional judgment, are reasonable for the purpose of the measurement. Buck provides advice on reasonable assumptions when performing periodic experience studies. The Board selects the assumptions used and annually the signing actuary reviews the assumptions through discussions with the Board staff and analyzing actuarial gain/loss experience. In the case of the Board's selection of the expected return on assets (EROA), the signing actuary has used economic information and tools provided by Buck's Financial Risk Management (FRM) practice. A spreadsheet tool created by the FRM practice converts averages, standard deviations, and correlations from Buck's Capital Markets Assumptions that are used for stochastic forecasting into approximate percentile ranges for the arithmetic and geometric average returns. It is intended to suggest possible reasonable ranges for EROA without attempting to predict or select a specific best estimate rate of return. It takes into account the duration (horizon) of investment and the target allocation of assets in the portfolio to various asset classes. Based on the actuary's analysis, including consistency with other assumptions used in the valuation, the percentiles generated by the spreadsheet tool described above, and review of actuarial gain/loss analysis, the actuary believes the assumptions do not significantly conflict with what, in the actuary's professional judgment, are reasonable for the purpose of the measurement.

ACFR Information

We have prepared the following information in this report for the Actuarial Section and Statistical Section of the ACFR: (i) member data tables in Section 4; (ii) analysis of financial experience in Section 1.6; (iii) summary of actuarial assumptions in Section 5.3; and (iv) historical information in Section 7.

Governmental Accounting Standards Board (GASB) Statement No. 67 (GASB 67) was effective for TRS beginning with fiscal year ending June 30, 2014, and Statement No. 74 (GASB 74) was effective for TRS beginning with fiscal year ending June 30, 2017. Please see our separate GASB 67 and GASB 74 reports for other information needed for the ACFR.

Assessment of Risks

Actuarial Standard of Practice No. 51 (ASOP 51) applies to actuaries performing funding calculations related to a pension plan. ASOP 51 does not apply to actuaries performing services in connection with other post-employment benefits, such as medical benefits. Accordingly, ASOP 51 does not apply to the healthcare portion of TRS. See Section 6 of this report for further details regarding ASOP 51.

Use of Models

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. In addition to the EROA analysis spreadsheet model disclosed above, Buck uses third-party software in the performance of annual actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of the plan using data and assumptions as of the measurement date under the funding methods specified in this report. The output from the third-party vendor software is used as input to internally developed models that apply applicable funding methods and policies to the derived liabilities and other inputs, such as plan assets and contributions, to generate many of the exhibits found in this report. Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal models are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal models, extra checking and review are completed. Significant changes to the internal models that are applicable to multiple clients are generally developed, checked, and reviewed by multiple experts within Buck who are familiar with the details of the required changes.

Additional models used in valuing health benefits are described later in the report.

COVID-19

The potential impact of the ongoing COVID-19 pandemic on costs and liabilities was considered and an adjustment was made in setting the medical per capita claims cost assumption. FY21 medical claims were adjusted for a COVID-19 related decline in those claims during the fiscal year. FY22 medical claims were not adjusted. A more detailed explanation on these adjustments is shown in Section 5.2.

This report was prepared under the overall direction of David Kershner, who meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. He is a Fellow of the Society of Actuaries, an Enrolled Actuary, a Member of the American Academy of Actuaries, and a Fellow of the Conference of Consulting Actuaries.

We are available to discuss this report with you at your convenience. David can be reached at 602-803-6174 and Brett can be reached at 260-423-1072.

Respectfully submitted,

David J. Kershner, FSA, EA, MAAA, FCA
Principal
Buck

Brett Hunter, ASA, EA, MAAA
Senior Consultant
Buck

The undersigned actuary is responsible for all assumptions related to the average annual per capita health claims cost and the health care cost trend rates, and hereby affirms his qualification to render opinions in such matters in accordance with the Qualification Standards of the American Academy of Actuaries.

Stephen R. Oates, ASA, EA, MAAA, FCA
Principal
Buck

Contents

Executive Summary

Overview

The State of Alaska Teachers' Retirement System (TRS) provides pension and postemployment healthcare benefits to teachers and other eligible participants. The Commissioner of the Department of Administration is responsible for administering the plan. The Alaska Retirement Management Board has fiduciary responsibility over the assets of the plan. This report presents the results of the actuarial valuation of TRS as of the valuation date of June 30, 2022.

Purpose

An actuarial valuation is performed on the plan annually as of the end of the fiscal year. The main purposes of the actuarial valuation detailed in this report are:

1. To determine the Employer/State contribution necessary to meet the Board's funding policy for the plan;
2. To disclose the funding assets and liability measures as of the valuation date;
3. To review the current funded status of the plan and assess the funded status as an appropriate measure for determining future actuarially determined contributions;
4. To compare actual and expected experience under the plan during the last fiscal year; and
5. To report trends in contributions, assets, liabilities, and funded status over the last several years.

The actuarial valuation provides a "snapshot" of the funded position of TRS based on the plan provisions, membership data, assets, and actuarial methods and assumptions as of the valuation date.

Actuarial projections are also performed to provide a long-term view of the expected future funded status and contribution patterns (see Section 3). The future funded status and contribution patterns would be different than those shown in Section 3 if future experience does not match the actuarial assumptions used in the projections.

Retiree group benefits models necessarily rely on the use of approximations and estimates, and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements.

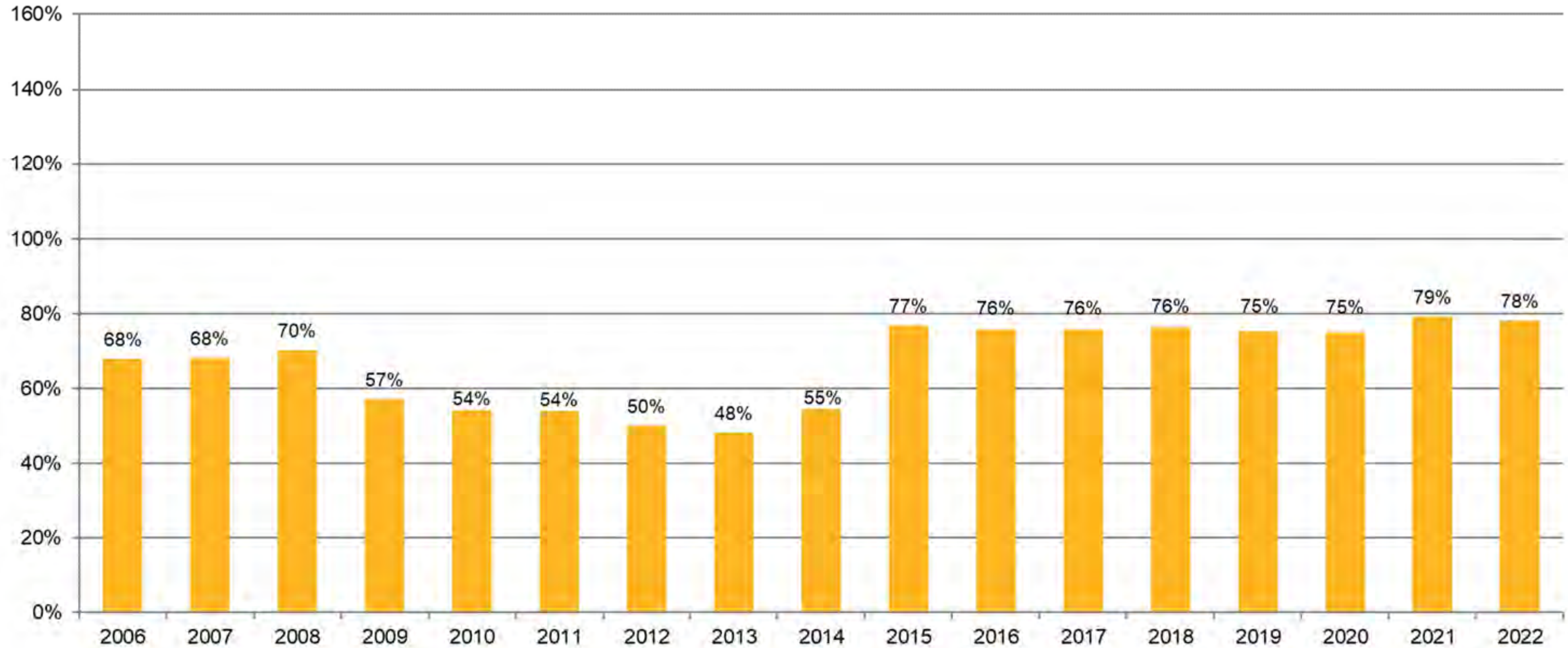
Funded Status

Where presented, references to "funded ratio" and "unfunded actuarial accrued liability" typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

Funded Status as of June 30 ($'s in 000's)	2021	2022
Pension		
a. Actuarial Accrued Liability	$ 7,471,887	$ 7,804,046
b. Valuation Assets	5,910,369	6,100,204
c. Unfunded Actuarial Accrued Liability, (a) - (b)	$ 1,561,518	$ 1,703,842
d. Funded Ratio based on Valuation Assets, (b) ÷ (a)	79.1%	78.2%
e. Fair Value of Assets	$ 6,731,481	$ 6,026,651
f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	90.1%	77.2%
Healthcare		
a. Actuarial Accrued Liability	$ 2,439,603	$ 2,442,577
b. Valuation Assets	3,267,737	3,437,216
c. Unfunded Actuarial Accrued Liability, (a) - (b)	$ (828,134)	$ (994,639)
d. Funded Ratio based on Valuation Assets, (b) ÷ (a)	133.9%	140.7%
e. Fair Value of Assets	$ 3,723,031	$ 3,392,211
f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	152.6%	138.9%

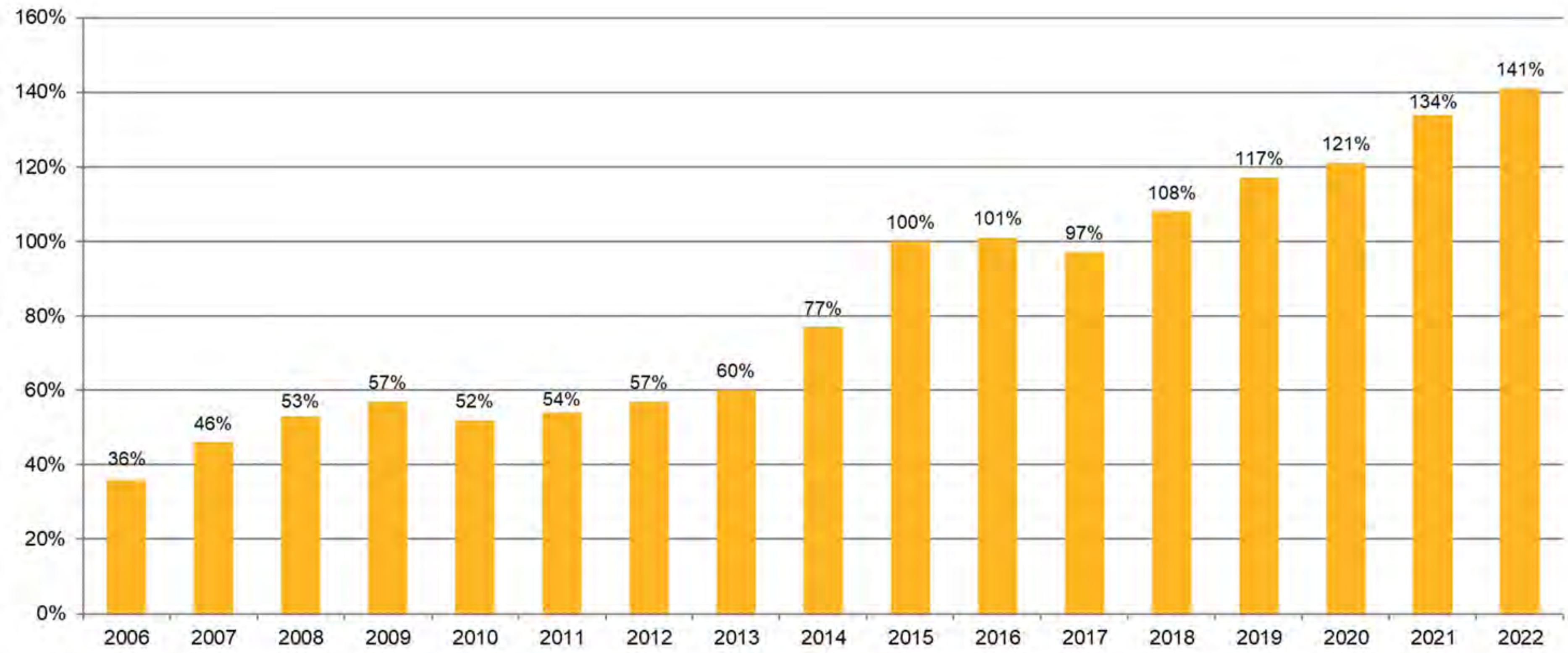
Funded Ratio History (Based on Valuation Assets)

Pension (2006 and later)



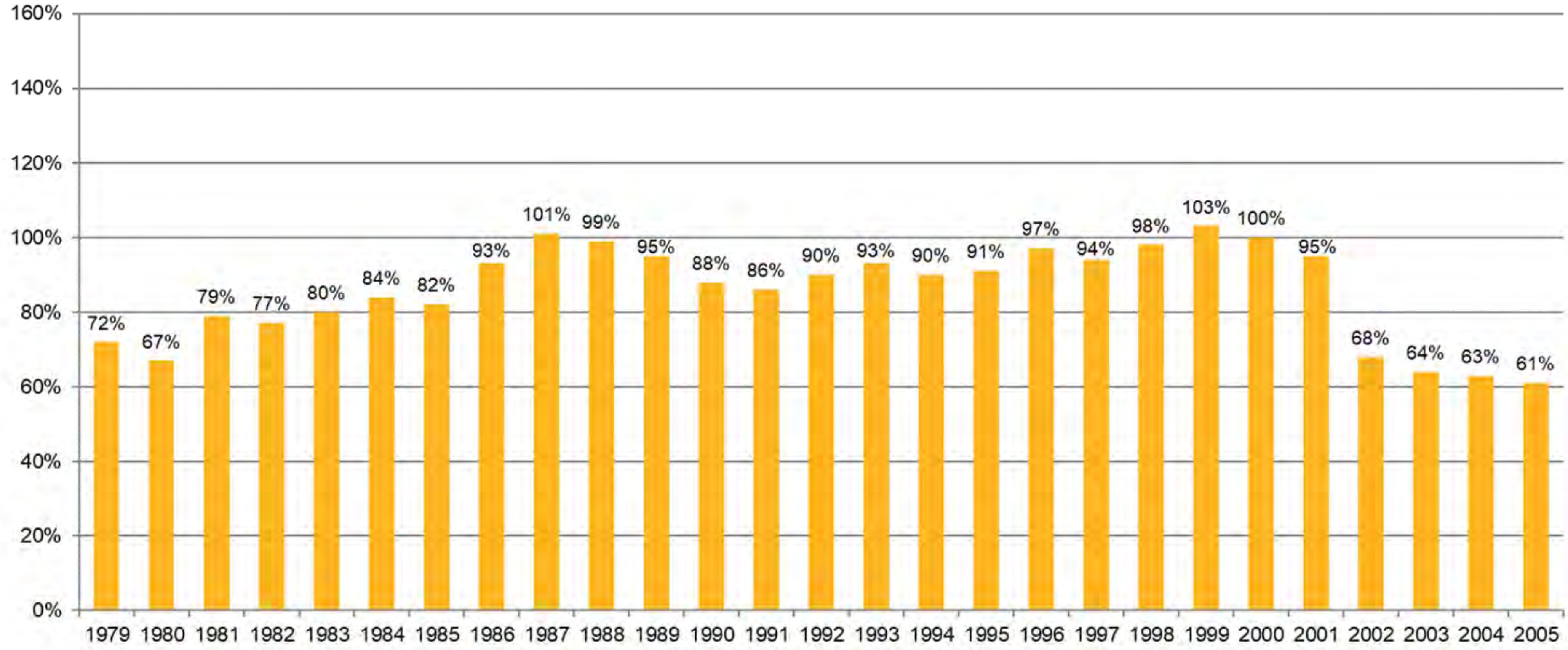
Funded Ratio History (Based on Valuation Assets)

Healthcare (2006 and later)



Funded Ratio History (Based on Valuation Assets)

Total (1979 – 2005) *



* Prior to 2006, assets and liabilities were provided in aggregate only (Pension and Healthcare combined).

The key reasons for the change in the funded status are explained below. The funded status for healthcare benefits is not necessarily an appropriate measure to confirm that assets are sufficient to settle health plan obligations as there are no available financial instruments for purchase. Future experience is likely to vary from assumptions so there is potential for actuarial gains or losses.

1. Investment Experience

The asset valuation method recognizes 20% of the investment gain or loss each year, for a period of five years. The FY22 investment return based on fair value of assets was approximately (6.0%) compared to the expected investment return of 7.38% (net of investment expenses). This resulted in a market asset loss of approximately $881 million (pension) and $492 million (healthcare). Due to the recognition of investment gains and losses over a 5-year period, the FY22 investment return based on actuarial value of assets was approximately 8.7%, which resulted in an actuarial asset gain of approximately $74 million (pension) and $42 million (healthcare).

2. Salary Increases

Salary increases for continuing active members during FY22 were higher than expected based on the valuation assumptions, resulting in a liability loss of approximately $31 million.

3. Demographic Experience

Section 4 provides statistics on active and inactive members. The number of active members decreased 11.0% from 3,396 at June 30, 2021 to 3,023 at June 30, 2022 due to active members exiting the plan during the year (due to retirement, termination, death, and disability) and the closure of the plan to new entrants as of July 1, 2006. The average age of active members increased from 52.14 to 52.57 and average credited service increased from 20.31 to 20.85 years.

The number of benefit recipients increased 1.1% from 13,972 to 14,126, and their average age increased from 72.26 to 72.60. The number of vested terminated participants increased 0.3% from 727 to 729. Their average age increased from 52.68 to 53.22.

The overall effect of the demographic experience during FY22 was a liability loss of approximately $7 million (pension) and $13[1] million (healthcare).

4. COLA / PRPA Experience

The cost-of-living increases (COLA) for benefit recipients during FY22 were less than expected based on the valuation assumptions, resulting in a liability gain of approximately $0.6 million. However, the CPI-based postretirement pension adjustments (PRPA) were more than expected, resulting in a liability loss of approximately $85 million.

5. Retiree Medical Claims Experience

As described in Section 5.2, recent medical claims experience and changes in healthcare enrollment data provided to us for the June 30, 2022 valuation generated a liability gain of approximately $94 million. Healthcare benefits paid during FY22 were less than expected, which generated a liability gain of approximately $5 million. The EGWP subsidy received by the plan during FY22 was approximately $19 million; the expected EGWP subsidy for FY22 was approximately $17 million.

[1] Includes the effects of changes in dependent coverage elections and Medicare Part B only experience.

6. Changes in Methods Since the Prior Valuation

There were no changes in actuarial methods since the prior valuation.

7. Changes in Assumptions Since the Prior Valuation

Effective for the June 30, 2022 valuation, the Board adopted the changes to the demographic and economic assumptions recommended by the actuary, based on the results of an experience study performed on the plan experience from July 1, 2017 to June 30, 2021. The changes in assumptions were adopted at the June 2022 Board meeting. The effect of the new assumptions was to increase the Actuarial Accrued Liability as of June 30, 2022 by approximately $144 million (pension) and $21 million (healthcare).

Healthcare claim costs are updated annually as described in Section 5.2. The amounts included in the Normal Cost for administrative expenses were updated based on the last two years of actual administrative expenses paid from plan assets.

8. Changes in Benefit Provisions Since the Prior Valuation

There have been no changes in benefit provisions valued since the prior valuation.

Comparative Summary of Contribution Rates

		Actual FY 2024	Estimated FY 2025
Pension			
a.	Normal Cost Rate Net of Member Contributions	2.05%	2.21%
b.	Past Service Cost Rate	16.44%	19.10%
c.	Total Employer/State Contribution Rate, (a) + (b), not less than (a)[1]	18.49%	21.31%
Healthcare			
a.	Normal Cost Rate	2.41%	2.10%
b.	Past Service Cost Rate	(9.08%)	(10.26%)
c.	Total Employer/State Contribution Rate, (a) + (b), not less than (a)[1]	2.41%	2.10%
Total			
a.	Normal Cost Rate Net of Member Contributions	4.46%	4.31%
b.	Past Service Cost Rate	16.44%	19.10%
c.	Total Employer/State Contribution Rate, (a) + (b)[1]	20.90%	23.41%
d.	Board Adopted Total Employer/State Contribution Rate	18.49%[2]	TBD
e.	Defined Contribution Retirement (DCR) Rate Paid by Employers	7.03%	7.29%
f.	Board Adopted Total Rate, Including DCR Rate Paid by Employers, (d) + (e)	25.52%	TBD

Contribution rates are based on total (DB and DCR) payroll. The contribution rates shown above for FY25 are estimated assuming no actuarial gains/losses during FY23 and FY24. Actual FY25 contribution rates will be adopted by the Board in September 2023 reflecting FY23 asset experience.

Contribution rates include Employer contribution rates as limited by Alaska state statutes and the Additional State Contribution required under SB 125.

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[1] Beginning with the June 30, 2014 valuation, contribution rates for FY17 and beyond are determined using new methodology in accordance with 2014 legislation under HB 385 and SB 119, 2014 Alaska Laws, which changed the amortization methodology to a closed 25-year period as a level percentage of pay, and eliminated the time lag on the contribution rate calculation by using a 2-year "roll-forward" approach assuming 0% population growth. Investment gains and losses are recognized over a 5-year period beginning in FY15. Beginning with the June 30, 2018 valuation, the UAAL amortization was changed as described in Section 5.2.

[2] The FY24 contribution rates adopted by the Board in September 2022 were 18.49% for Pension and 0.00% for Healthcare.

Summary of Actuarial Accrued Liability Gain/(Loss) and Other Changes During the Year

The following table summarizes the sources of change in the total Employer/State contribution rate as of June 30, 2021 and June 30, 2022 based on DB and DCR payroll combined:

	Pension	Healthcare
1. Total Employer/State Contribution Rate as of June 30, 2021	19.32%	2.94%
2. Change due to:		
a. Health Claims Experience	N/A	(0.11%)
b. Salary Increases	0.26%	N/A
c. Investment Experience	(0.63%)	0.00%
d. Demographic Experience and Miscellaneous[1]	0.91%	(0.21%)
e. Actual vs Expected Contributions	(0.25%)	0.00%
f. Assumption/Method Changes	1.39%	(0.06%)
g. Plan Changes	0.00%	0.00%
h. Total Change, (a) + (b) + (c) + (d) + (e) + (f) + (g)	1.68%	(0.38%)
3. Total Employer/State Contribution Rate as of June 30, 2022, (1) + (2)(h)	21.00%	2.56%

The following table shows the FY22 gain/(loss) on actuarial accrued liability as of June 30, 2022 ($'s in 000's):

	Pension	Healthcare
Retirement Experience	$ (3,443)	$ (13,048)
Termination Experience	(6,589)	(3,293)
Disability Experience	265	209
Active Mortality Experience	2,166	1,228
Inactive Mortality Experience	304	(291)
Salary Increases	(30,870)	N/A
Rehires (Net of Rehire Load)	131	1,927
COLA Increases	575	N/A
PRPA Increases	(85,465)	N/A
Benefit Payments Different than Expected	13,078	5,319
Per Capita Claims Cost	N/A	94,487
Medicare Part B Only Experience	N/A	1,235
Changes in Dependent Coverage Elections	N/A	1,071
Programming Changes[2]	(33)	(53)
Miscellaneous[3]	(10,678)	(3,453)
Total	$ (120,559)	$ 85,338

[1] Includes the effects of census data changes between the two valuations.

[2] Includes the adjustment to the post-decrement probability for the lump sum death benefit for married members (pension) and the elimination of child medical premiums for retirees over age 60 (healthcare).

[3] Includes the effects of various data changes that are typical when new census data is received for the annual valuation, as well as other items that do not fit neatly into any of the other categories.

The rehire gain/(loss) amount shown on the previous page is the difference between (i) the increase in Actuarial Accrued Liability at June 30, 2022 due to rehires during the most recent plan year, and (ii) the load that was added to the June 30, 2021 Normal Cost based on the rehire load assumption used in the June 30, 2021 valuation. The development of the FY22 rehire gain/(loss) amount is shown in the table below ($'s in 000's):

		Pension	Healthcare
1.	Increase/(Decrease) in Actuarial Accrued Liability at June 30, 2022 due to Rehires	$ 6,340	$ 428
2.	June 30, 2021 Normal Cost Rehire Load, with interest to June 30, 2022	$ 6,471	$ 2,355
3.	Rehire Gain/(Loss), (2) - (1)	$ 131	$ 1,927

Other items that increased/(decreased) the actuarial accrued liability as of June 30, 2022 are shown below ($'s in 000's):

	Pension	Healthcare
Experience Study Assumption Changes	$ 144,033	$ 20,542

Section 1: Actuarial Funding Results

Section 1.1: Actuarial Liabilities and Normal Cost ($'s in 000's)

As of June 30, 2022	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
Active Members		
Retirement Benefits	$ 1,844,618	$ 1,682,909
Termination Benefits	21,080	362
Disability Benefits	1,257	(2,073)
Death Benefits	8,307	6,989
Return of Contributions	1,549	(29,226)
Medical and Prescription Drug Benefits	801,479	687,118
Medicare Part D Subsidy	(99,888)	(86,129)
Indebtedness	(24,627)	(24,627)
Subtotal	$ 2,553,775	$ 2,235,323
Inactive Members		
Not Vested	$ 38,632	$ 38,632
Vested Terminations		
- Retirement Benefits	159,390	159,390
- Medical and Prescription Drug Benefits	271,946	271,946
- Medicare Part D Subsidy	(35,448)	(35,448)
- Indebtedness	(5,567)	(5,567)
Retirees & Beneficiaries		
- Retirement Benefits	5,977,257	5,977,257
- Medical and Prescription Drug Benefits	1,955,212	1,955,212
- Medicare Part D Subsidy	(350,122)	(350,122)
Subtotal	$ 8,011,300	$ 8,011,300
Total	**$ 10,565,075**	**$ 10,246,623**
Total Pension	**$ 8,021,896**	**$ 7,804,046**
Total Medical, Net of Part D Subsidy	**$ 2,543,179**	**$ 2,442,577**
Total Medical, Gross of Part D Subsidy	**$ 3,028,637**	**$ 2,914,276**

As of June 30, 2022	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
By Tier		
Tier 1		
- Pension	$ 4,382,835	$ 4,377,420
- Medical, Net of Part D Subsidy	1,030,113	1,027,939
Tier 2		
- Pension	3,639,061	3,426,626
- Medical, Net of Part D Subsidy	1,513,066	1,414,638
Total	**$ 10,565,075**	**$ 10,246,623**

As of June 30, 2022	Normal Cost
Active Members	
Retirement Benefits	$ 29,111
Termination Benefits	3,730
Disability Benefits	595
Death Benefits	250
Return of Contributions	5,603
Medical and Prescription Drug Benefits	19,926
Medicare Part D Subsidy	(2,447)
Rehire Assumption (Pension)	4,714
Rehire Assumption (Medical)	35
Administrative Expenses (Pension)	3,626
Administrative Expenses (Medical)	1,940
Total	**$ 67,083**
Total Pension	**$ 47,629**
Total Medical, Net of Part D Subsidy	**$ 19,454**
Total Medical, Gross of Part D Subsidy	**$ 21,901**
By Tier	
Tier 1	
- Pension	$ 1,964
- Medical, Net of Part D Subsidy	681
Tier 2	
- Pension	45,665
- Medical, Net of Part D Subsidy	18,773
Total	**$ 67,083**

Section 1.2: Actuarial Contributions as of June 30, 2022 ($'s in 000's)

Normal Cost Rate	Pension	Healthcare
1. Total Normal Cost	$ 47,629	$ 19,454
2. DB Rate Payroll Projected for FY23	303,011	303,011
3. DCR Rate Payroll Projected for FY23	455,927	455,927
4. Total Rate Payroll Projected for FY23	758,938	758,938
5. Normal Cost Rate		
a. Based on DB Rate Payroll, (1) ÷ (2)	15.72%	6.42%
b. Based on Total Rate Payroll, (1) ÷ (4)	6.28%	2.56%
6. Average Member Contribution Rate[1]	3.45%	0.00%
7. Employer Normal Cost, (5)(b) - (6)	2.83%	2.56%

Past Service Rate	Pension	Healthcare
1. Actuarial Accrued Liability	$ 7,804,046	$ 2,442,577
2. Valuation Assets	6,100,204	3,437,216
3. Unfunded Actuarial Accrued Liability, (1) - (2)	$ 1,703,842	$ (994,639)
4. Funded Ratio, (2) ÷ (1)	78.2%	140.7%
5. Past Service Cost Amortization Payment	137,935	(67,255)
6. Total Rate Payroll Projected for FY23	758,938	758,938
7. Past Service Rate, (5) ÷ (6)	18.17%	(8.86%)
Total Employer / State Contribution Rate, not less than Normal Cost Rate	**21.00%**	**2.56%**
Normal Cost Rate by Tier (Total Employer and Member)[2]		
Tier 1	16.48%	5.71%
Tier 2	15.69%	6.45%

[1] Assumes no member contributions from members in the DCR plan, 9.65% contributions for Tier 1 members who elected supplemental coverage, and 8.65% for the remaining members.

[2] Rates determined considering the payroll for members in each tier. DCR payroll is excluded from these calculations.

Schedule of Past Service Cost Amortizations - Pension ($'s in 000's)

Layer	Amortization Period: Date Created	Amortization Period: Years Remaining	Balances: Initial	Balances: Outstanding	Beginning-of-Year Payment
Initial Amount	6/30/2018	17	$ 1,720,344	$ 1,674,843	$ 135,805
Change in Assumptions	6/30/2018	21	14,346	14,455	1,022
FY19 Loss	6/30/2019	22	94,314	95,115	6,537
FY20 Loss	6/30/2020	23	44,395	44,722	2,993
FY21 Gain	6/30/2021	24	(285,576)	(286,851)	(18,731)
Change in Assumptions	6/30/2022	25	144,033	144,033	9,191
FY22 Loss	6/30/2022	25	17,525	17,525	1,118
Total				**$ 1,703,842**	**$ 137,935**

Schedule of Past Service Cost Amortizations - Healthcare ($'s in 000's)

Layer	Amortization Period: Date Created	Amortization Period: Years Remaining	Balances: Initial	Balances: Outstanding	Beginning-of-Year Payment
Initial Amount	6/30/2018	17	$ (48,285)	$ (47,009)	$ (3,812)
Change in Assumptions/Methods/EGWP	6/30/2018	21	(166,274)	(167,555)	(11,846)
FY19 Gain	6/30/2019	22	(213,757)	(215,572)	(14,815)
FY20 Gain	6/30/2020	23	(101,507)	(102,254)	(6,844)
Medical/Prescription Drug Plan Changes	6/30/2021	24	(21,763)	(21,860)	(1,427)
FY21 Gain	6/30/2021	24	(273,877)	(275,099)	(17,964)
Change in Assumptions	6/30/2022	25	20,542	20,542	1,311
FY22 Gain	6/30/2022	25	(185,832)	(185,832)	(11,858)
Total				**$ (994,639)**	**$ (67,255)**

Section 1.3: Roll-Forward Contribution Rate Calculation for FY25 ($'s in 000's)

	Pension	Healthcare
1. Liability Roll Forward		
a. Actuarial Accrued Liability as of June 30, 2022	**$ 7,804,046**	**$ 2,442,577**
b. Normal Cost	44,003	17,514
c. Interest on (a) and (b) at 7.25%	568,984	178,357
d. Estimated Benefit Payments	(550,245)	(137,591)
e. Interest on (d) at 7.25%, adjusted for timing	(21,262)	(4,900)
f. Expected Actuarial Accrued Liability as of June 30, 2023	**$ 7,845,526**	**$ 2,495,957**
g. Projected Normal Cost	39,619	16,023
h. Interest on (f) and (g) at 7.25%	571,673	182,119
i. Estimated Benefit Payments	(568,379)	(144,855)
j. Interest on (i) at 7.25%, adjusted for timing	(21,962)	(5,159)
k. Expected Actuarial Accrued Liability as of June 30, 2024	**$ 7,866,477**	**$ 2,544,085**
2. Asset Roll Forward		
a. Actuarial Value of Assets as of June 30, 2022	**$ 6,100,204**	**$ 3,437,216**
b. Interest on (a) at 7.25%	442,265	249,198
c. Employee Contributions	29,310	0
d. Employer Contributions	44,322	0
e. State Assistance Contributions	91,029	0
f. Interest on (c) thru (e) at 7.25%, adjusted for timing*	9,222	0
g. Estimated Benefit Payments	(550,245)	(137,591)
h. Administrative Expenses	(3,626)	(1,940)
i. Interest on (g) and (h) at 7.25%, adjusted for timing	(21,391)	(4,970)
j. AVA Adjustments	4,653	3,207
k. Expected Actuarial Value of Assets as of June 30, 2023	**$ 6,145,743**	**$ 3,545,120**
l. Interest on (k) at 7.25%	445,566	257,021
m. Employee Contributions	27,141	0
n. Employer Contributions	42,176	0
o. State Assistance Contributions**	98,766	0
p. Interest on (m) thru (o) at 7.25%, adjusted for timing*	9,629	0
q. Estimated Benefit Payments	(568,379)	(144,855)
r. Administrative Expenses	(3,282)	(1,775)
s. Interest on (q) and (r) at 7.25%, adjusted for timing	(22,079)	(5,222)
t. AVA Adjustments	21,469	10,123
u. Expected Actuarial Value of Assets as of June 30, 2024	**$ 6,196,750**	**$ 3,660,412**
3. Expected Unfunded Actuarial Accrued Liability as of June 30, 2024, 1(k) - 2(u)	**$ 1,669,727**	**$ (1,116,327)**

* Employee and Employer Contributions are paid throughout the year. State Assistance Contributions are assumed to be paid on July 1, 2022 for FY23, and July 1, 2023 for FY24.

** The FY24 State Assistance Contribution is expected to be contributed 100% to pension.

	Pension	Healthcare
4. Expected Annual Rate Payroll for FY25		
a. Defined Benefit Members	$ 248,321	$ 248,321
b. Defined Contribution Retirement Members	521,222	521,222
c. Total Rate Payroll	**$ 769,543**	**$ 769,543**
5. Expected FY25 Contribution Rate Calculation		
a. Projected Normal Cost for FY25	$ 38,452	$ 16,196
b. Projected Normal Cost Rate for FY25	5.00%	2.10%
c. Expected Member Contribution Rate for FY25	(2.79%)	0.00%
d. Expected Employer Normal Cost Rate for FY25	**2.21%**	**2.10%**
e. Expected Unfunded Liability as of June 30, 2024	$ 1,669,727	$ (1,116,327)
f. FY25 Layered Amortization of Expected Unfunded Liability	146,966	(78,981)
g. Expected Past Service Cost Contribution Rate for FY25	**19.10%**	**(10.26%)**
h. Expected Total Contribution Rate for FY25, not less than Normal Cost Rate	**21.31%**	**2.10%**

The components of the expected FY25 amortization amounts are shown below (totals may not add due to rounding):

Expected FY25 Schedule of Past Service Cost Amortizations - Pension ($'s in 000's)

	Amortization Period		Balances		
Layer	Date Created	Years Remaining at 6/30/24	Initial	Outstanding at 6/30/24	Beginning-of-Year Payment for FY25
Initial Amount	6/30/2018	15	$ 1,720,344	$ 1,620,631	$ 143,377
Change in Assumptions	6/30/2018	19	14,346	14,325	1,079
FY19 Loss	6/30/2019	20	94,314	94,685	6,901
FY20 Loss	6/30/2020	21	44,395	44,700	3,160
FY21 Gain	6/30/2021	22	(285,576)	(287,765)	(19,776)
Change in Assumptions	6/30/2022	23	144,033	144,974	9,703
FY22 Loss	6/30/2022	23	17,525	17,640	1,181
Expected FY23 Loss	6/30/2023	24	20,347	20,432	1,334
Expected FY24 Loss	6/30/2024	25	105	105	7
Total				**$ 1,669,727**	**$ 146,966**

Expected FY25 Schedule of Past Service Cost Amortizations - Healthcare ($'s in 000's)

	Amortization Period		Balances		
Layer	Date Created	Years Remaining at 6/30/24	Initial	Outstanding at 6/30/24	Beginning-of-Year Payment for FY25
Initial Amount	6/30/2018	15	$ (48,285)	$ (45,487)	$ (4,024)
Change in Assumptions/Methods/EGWP	6/30/2018	19	(166,274)	(166,052)	(12,506)
FY19 Gain	6/30/2019	20	(213,757)	(214,597)	(15,641)
FY20 Gain	6/30/2020	21	(101,507)	(102,204)	(7,226)
Medical/Prescription Drug Plan Changes	6/30/2021	22	(21,763)	(21,929)	(1,507)
FY21 Gain	6/30/2021	22	(273,877)	(275,975)	(18,966)
Change in Assumptions	6/30/2022	23	20,542	20,676	1,384
FY22 Gain	6/30/2022	23	(185,832)	(187,047)	(12,519)
Expected FY23 Gain	6/30/2023	24	(54,544)	(54,766)	(3,576)
Expected FY24 Gain	6/30/2024	25	(68,946)	(68,946)	(4,400)
Total				**$ (1,116,327)**	**$ (78,981)**

Section 1.4: Actuarial Gain/(Loss) for FY22 ($'s in 000's)

	Pension	Healthcare
1. Expected Actuarial Accrued Liability		
a. Actuarial Accrued Liability as of June 30, 2021	$ 7,471,887	$ 2,439,603
b. Normal Cost	44,727	20,425
c. Interest on (a) and (b) at 7.38%	554,726	181,550
d. Employer Group Waiver Plan	0	18,819
e. Benefit Payments	(510,457)	(148,330)
f. Refund of Contributions	(1,305)	0
g. Interest on (d) thru (f) at 7.38%, adjusted for timing	(20,124)	(4,694)
h. Assumptions/Methods Changes	144,033	20,542
i. Expected Actuarial Accrued Liability as of June 30, 2022 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h)	$ 7,683,487	$ 2,527,915
2. Actual Actuarial Accrued Liability as of June 30, 2022	7,804,046	2,442,577
3. Liability Gain/(Loss), (1)(i) - (2)	**$ (120,559)**	**$ 85,338**
4. Expected Actuarial Asset Value		
a. Actuarial Value of Assets as of June 30, 2021	$ 5,910,369	$ 3,267,737
b. Interest on (a) at 7.38%	436,185	241,159
c. Employee Contributions	30,013	0
d. Employer Contributions	29,781	21,806
e. State Assistance Contributions	142,665	0
f. Employer Group Waiver Plan	0	18,819
g. Interest on (c) thru (f) at 7.38%, adjusted for timing	12,696	1,472
h. Benefit Payments	(510,457)	(148,330)
i. Refund of Contributions	(1,305)	0
j. Administrative Expenses	(3,805)	(2,044)
k. Interest on (h) thru (j) at 7.38%, adjusted for timing	(20,261)	(5,450)
l. Expected Actuarial Asset Value as of June 30, 2022 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h) + (i) + (j) + (k)	$ 6,025,881	$ 3,395,169
5. Actual Actuarial Asset Value as of June 30, 2022	6,100,204	3,437,216
6. Actuarial Asset Value Gain/(Loss), (5) - (4)(l)	**$ 74,323**	**$ 42,047**
7. Total Actuarial Gain/(Loss), (3) + (6)	**$ (46,236)**	**$ 127,385**
8. Contribution Gain/(Loss)	**$ 29,199**	**$ 58,843**
9. Administrative Expense Gain/(Loss)	**$ (488)**	**$ (396)**
10. FY22 Gain/(Loss), (7) + (8) + (9)	**$ (17,525)**	**$ 185,832**

Section 1.5: Development of Change in Unfunded Liability During FY22 ($'s in 000's)

	Pension	Healthcare
1. 2021 Unfunded Liability	$ 1,561,518	$ (828,134)
a. Interest on Unfunded Liability at 7.38%	$ 115,240	$ (61,116)
b. Normal Cost	44,727	20,425
c. Employee Contributions	(30,013)	0
d. Employer Contributions	(29,781)	(21,806)
e. State Assistance Contributions	(142,665)	0
f. Administrative Expenses	3,805	2,044
g. Interest on (b) thru (f) at 7.38%, adjusted for timing	(9,258)	791
h. Assumptions/Methods Changes	144,033	20,542
i. Expected Change in Unfunded Liability During FY22 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h)	$ 96,088	$ (39,120)
2. Expected 2022 Unfunded Liability, (1) + (1)(i)	$ 1,657,606	$ (867,254)
a. Liability (Gain)/Loss During FY22	$ 120,559	$ (85,338)
b. Actuarial Assets (Gain)/Loss During FY22	(74,323)	(42,047)
c. Total Actuarial (Gain)/Loss During FY22	$ 46,236	$ (127,385)
3. Actual 2022 Unfunded Liability, (2) + (2)(c)	$ 1,703,842	$ (994,639)

Section 1.6: Analysis of Financial Experience

Pension
Change in Employer / State Contribution Rate as of Valuation Date
Due to (Gains) and Losses in Actuarial Accrued Liabilities During the Last Five Fiscal Years
Resulting from Differences Between Assumed Experience and Actual Experience

	Change in Employer / State Contribution Rate During Fiscal Year				
	Pension				
Type of (Gain) or Loss	2018	2019	2020	2021	2022
1. Health Claims	N/A	N/A	N/A	N/A	N/A
2. Salary Experience	(0.39%)	(0.06%)	(0.06%)	0.25%	0.26%
3. Investment Experience	0.91%	0.93%	0.83%	(1.95%)	(0.63%)
4. Demographic Experience and Miscellaneous	0.37%	0.75%	(0.28%)	(0.68%)	0.91%
5. Actual vs Expected Contributions	(0.03%)	(0.15%)	(0.17%)	(0.03%)	(0.25%)
6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5)	0.86%	1.47%	0.32%	(2.41%)	0.29%
7. Assumptions / Method Changes	(0.32%)	0.00%	0.00%	0.00%	1.39%
8. Plan Changes	0.00%	0.00%	0.00%	0.00%	0.00%
9. Composite (Gain) or Loss During Year, (6) + (7) + (8)	0.54%	1.47%	0.32%	(2.41%)	1.68%
10. Beginning Total Employer / State Contribution Rate	19.40%	19.94%	21.41%	21.73%	19.32%
11. Ending Valuation Year Employer / State Contribution Rate, (9) + (10)	19.94%	21.41%	21.73%	19.32%	21.00%
12. Fiscal Year Rates Adopted by ARMB					
a. Fiscal Year Employer / State Contribution Rate	20.94%	22.51%	17.90%	18.49%	21.31% *
b. Fiscal Year for which Rate Applies	FY21	FY22	FY23	FY24	FY25

* Expected rate. Actual rate to be determined

Healthcare
Change in Employer / State Contribution Rate as of Valuation Date
Due to (Gains) and Losses in Actuarial Accrued Liabilities During the Last Five Fiscal Years
Resulting from Differences Between Assumed Experience and Actual Experience

	Change in Employer / State Contribution Rate During Fiscal Year				
	Healthcare				
Type of (Gain) or Loss	**2018**	**2019**	**2020**	**2021**	**2022**
1. Health Claims	(1.58%)	(2.51%)	(0.95%)	(0.11%)	(0.11%)
2. Salary Experience	N/A	N/A	N/A	N/A	N/A
3. Investment Experience	0.45%	0.45%	0.38%	0.00%	0.00%
4. Demographic Experience and Miscellaneous	1.49%	1.60%	0.49%	(0.23%)	(0.21%)
5. Actual vs Expected Contributions	0.05%	(0.02%)	(0.19%)	0.00%	0.00%
6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5)	0.41%	(0.48%)	(0.27%)	(0.34%)	(0.32%)
7. Assumptions / Method Changes	0.24%	0.00%	0.00%	0.00%	(0.06%)
8. Plan Changes	0.00%	0.00%	0.00%	(0.02%)	0.00%
9. Composite (Gain) or Loss During Year, (6) + (7) + (8)	0.65%	(0.48%)	(0.27%)	(0.36%)	(0.38%)
10. Beginning Total Employer / State Contribution Rate	3.40%	4.05%	3.57%	3.30%	2.94%
11. Ending Valuation Year Employer / State Contribution Rate, (9) + (10)	4.05%	3.57%	3.30%	2.94%	2.56%
12. Fiscal Year Rates Adopted by ARMB					
a. Fiscal Year Employer / State Contribution Rate	3.40%	2.98%	0.00%	0.00%	2.10% *
b. Fiscal Year for which Rate Applies	FY21	FY22	FY23	FY24	FY25

* Expected rate. Actual rate to be determined

Section 1.7: History of Unfunded Liability and Funded Ratio ($'s in 000's)

Pension

Valuation Date	Total Actuarial Accrued Liability	Valuation Assets	Assets as a Percent of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)
June 30, 2006	$ 4,859,336	$ 3,296,934	67.8%	$ 1,562,402
June 30, 2007	5,043,448	3,441,867	68.2%	1,601,581
June 30, 2008	5,231,654	3,670,086	70.2%	1,561,568
June 30, 2009	5,463,987	3,115,719	57.0%	2,348,268
June 30, 2010	6,006,981	3,259,868	54.3%	2,747,113
June 30, 2011	6,196,104	3,345,949	54.0%	2,850,155
June 30, 2012	6,399,777	3,194,994	49.9%	3,204,783
June 30, 2013	6,589,553	3,170,313	48.1%	3,419,240
June 30, 2014	6,921,362	3,771,139	54.5%	3,150,223
June 30, 2015	7,051,724	5,422,651	76.9%	1,629,073
June 30, 2016	7,159,788	5,428,687	75.8%	1,731,101
June 30, 2017	7,217,525	5,476,835	75.9%	1,740,690
June 30, 2018	7,276,290	5,541,600	76.2%	1,734,690
June 30, 2019	7,388,020	5,563,931	75.3%	1,824,089
June 30, 2020	7,447,036	5,587,064	75.0%	1,859,972
June 30, 2021	7,471,887	5,910,369	79.1%	1,561,518
June 30, 2022	7,804,046	6,100,204	78.2%	1,703,842

Healthcare

Valuation Date	Total Actuarial Accrued Liability	Valuation Assets	Assets as a Percent of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)
June 30, 2006	$ 2,370,515	$ 844,766	35.6%	$ 1,525,749
June 30, 2007	2,145,955	982,532	45.8%	1,163,423
June 30, 2008	2,387,524	1,266,890	53.1%	1,120,634
June 30, 2009	2,383,527	1,357,239	56.9%	1,026,288
June 30, 2010	2,840,807	1,479,260	52.1%	1,361,547
June 30, 2011	2,932,691	1,591,988	54.3%	1,340,703
June 30, 2012	2,946,667	1,674,160	56.8%	1,272,507
June 30, 2013	3,002,554	1,803,763	60.1%	1,198,791
June 30, 2014	2,919,670	2,248,135	77.0%	671,535
June 30, 2015	2,677,393	2,686,272	100.3%	(8,879)
June 30, 2016	2,747,836	2,771,704	100.9%	(23,868)
June 30, 2017	2,927,093	2,836,802	96.9%	90,291
June 30, 2018	2,684,150	2,898,709	108.0%	(214,559)
June 30, 2019	2,518,644	2,947,562	117.0%	(428,918)
June 30, 2020	2,489,675	3,021,283	121.4%	(531,608)
June 30, 2021	2,439,603	3,267,737	133.9%	(828,134)
June 30, 2022	2,442,577	3,437,216	140.7%	(994,639)

Section 2: Plan Assets

Section 2.1: Summary of Fair Value of Assets ($'s in 000's)

As of June 30, 2022	Pension	Healthcare	Allocation Percent
Cash and Short-Term Investments			
- Cash and Cash Equivalents	$ 80,385	$ 42,932	1.3%
- Subtotal	$ 80,385	$ 42,932	1.3%
Fixed Income Investments			
- Domestic Fixed Income Pool	$ 1,284,523	$ 726,044	21.3%
- International Fixed Income Pool	0	0	0.0%
- Tactical Fixed Income Pool	0	0	0.0%
- High Yield Pool	0	0	0.0%
- Treasury Inflation Protection Pool	0	0	0.0%
- Emerging Debt Pool	0	0	0.0%
- Subtotal	$ 1,284,523	$ 726,044	21.3%
Equity Investments			
- Domestic Equity Pool	$ 1,461,935	$ 826,322	24.2%
- International Equity Pool	793,625	448,533	13.2%
- Private Equity Pool	993,669	561,647	16.5%
- Emerging Markets Equity Pool	177,596	100,382	3.0%
- Alternative Equity Strategies	351,670	198,773	5.8%
- Subtotal	$ 3,778,495	$ 2,135,657	62.7%
Other Investments			
- Real Estate Pool	$ 454,131	$ 257,109	7.5%
- Other Investments Pool	434,931	245,834	7.2%
- Absolute Return Pool	0	0	0.0%
- Other Assets	0	318	0.0%
- Subtotal	$ 889,062	$ 503,261	14.7%
Total Cash and Investments	$ 6,032,465	$ 3,407,894	100.0%
Net Accrued Receivables	(5,814)	(15,683)	
Net Assets	$ 6,026,651	$ 3,392,211	

Section 2.2: Changes in Fair Value of Assets During FY22 ($'s in 000's)

Fiscal Year 2022	Pension	Healthcare
1. Fair Value of Assets as of June 30, 2021	$ 6,731,481	$ 3,723,031
2. Additions:		
a. Employee Contributions	$ 30,013	$ 0
b. Employer Contributions	29,781	21,806
c. State Assistance Contributions	142,665	0
d. Interest and Dividend Income	86,780	48,505
e. Net Appreciation / Depreciation in Fair Value of Investments	(462,389)	(260,772)
f. Employer Group Waiver Plan	0	18,819
g. Other	36	47
h. Total Additions	$ (173,114)	$ (171,595)
3. Deductions:		
a. Medical Benefits	$ 0	$ 148,330
b. Retirement Benefits	510,457	0
c. Refund of Contributions	1,305	0
d. Investment Expenses	16,149	8,851
e. Administrative Expenses	3,805	2,044
f. Total Deductions	$ 531,716	$ 159,225
4. Fair Value of Assets as of June 30, 2022	$ 6,026,651	$ 3,392,211
5. Approximate Fair Value Investment Return Rate during FY22 Net of Investment Expenses	(6.0%)	(6.0%)

Section 2.3: Development of Actuarial Value of Assets ($'s in 000's)

The actuarial value of asset was set equal to the fair value as of June 30, 2014 and the 20% corridor was eliminated. Investment gains and losses after June 30, 2014 are recognized 20% per year over 5 years.

	Pension	Healthcare
1. Deferral of Investment Gain / (Loss) for FY22		
a. Fair Value of Assets as of June 30, 2021	$ 6,731,481	$ 3,723,031
b. Contributions	202,459	21,806
c. Employer Group Waiver Plan	0	18,819
d. Benefit Payments	511,762	148,330
e. Administrative Expenses	3,805	2,044
f. Actual Investment Return (net of investment expenses)	(391,722)	(221,071)
g. Expected Return Rate (net of investment expenses)	7.38%	7.38%
h. Expected Return, Weighted for Timing	489,218	270,782
i. Investment Gain / (Loss) for the Year, (f) - (h)	(880,940)	(491,853)
2. Actuarial Value as of June 30, 2022		
a. Fair Value as of June 30, 2022	$ 6,026,651	$ 3,392,211
b. Deferred Investment Gain / (Loss)	(73,553)	(45,005)
c. Actuarial Value as of June 30, 2022, (a) - (b)	6,100,204	3,437,216
3. Ratio of Actuarial Value of Assets to Fair Value of Assets	101.2%	101.3%
4. Approximate Actuarial Value Investment Return Rate during FY22 Net of Investment Expenses	8.7%	8.7%

The tables below show the development of the gains/(losses) to be recognized in the current year ($'s in 000's):

Pension				
Fiscal Year Ending	**Asset Gain / (Loss)**	**Gain / (Loss) Recognized in Prior Years**	**Gain / (Loss) Recognized This Year**	**Gain / (Loss) Deferred to Future Years**
June 30, 2018	$ 13,001	$ 10,400	$ 2,601	$ 0
June 30, 2019	(82,246)	(49,347)	(16,450)	(16,449)
June 30, 2020	(181,816)	(72,726)	(36,363)	(72,727)
June 30, 2021	1,200,625	240,125	240,125	720,375
June 30, 2022	(880,940)	0	(176,188)	(704,752)
Total	**$ 68,624**	**$ 128,452**	**$ 13,725**	**$ (73,553)**

Healthcare				
Fiscal Year Ending	**Asset Gain / (Loss)**	**Gain / (Loss) Recognized in Prior Years**	**Gain / (Loss) Recognized This Year**	**Gain / (Loss) Deferred to Future Years**
June 30, 2018	$ 9,619	$ 7,696	$ 1,923	$ 0
June 30, 2019	(38,309)	(22,986)	(7,661)	(7,662)
June 30, 2020	(92,367)	(36,946)	(18,474)	(36,947)
June 30, 2021	655,144	131,029	131,029	393,086
June 30, 2022	(491,853)	0	(98,371)	(393,482)
Total	**$ 42,234**	**$ 78,793**	**$ 8,446**	**$ (45,005)**

Section 2.4: Historical Asset Rates of Return

Year Ending	Actuarial Value Annual	Actuarial Value Cumulative	Fair Value Annual	Fair Value Cumulative
June 30, 2005	9.1%	9.1%	8.5%	8.5%
June 30, 2006	9.6%	9.3%	11.4%	9.9%
June 30, 2007	11.9%	10.2%	18.5%	12.7%
June 30, 2008	10.2%	10.2%	(3.0%)	8.6%
June 30, 2009	(7.9%)	6.3%	(21.0%)	1.9%
June 30, 2010	8.1%	6.6%	10.6%	3.3%
June 30, 2011	6.9%	6.6%	20.5%	5.6%
June 30, 2012	0.7%	5.9%	0.2%	4.9%
June 30, 2013	3.7%	5.6%	12.2%	5.7%
June 30, 2014	22.7%	7.2%	18.2%	6.9%
June 30, 2015	7.2%	7.2%	3.2%	6.5%
June 30, 2016	5.1%	7.1%	(0.7%)	5.9%
June 30, 2017	5.6%	6.9%	12.9%	6.4%
June 30, 2018	6.2%	6.9%	8.2%	6.6%
June 30, 2019	5.5%	6.8%	5.9%	6.5%
June 30, 2020	5.8%	6.7%	4.1%	6.4%
June 30, 2021	11.6%	7.0%	30.1%	7.6%
June 30, 2022	8.7%	7.1%	(6.0%)	6.8%

Rates of return are shown based on combined assets for Pension and Healthcare.

Cumulative returns are since fiscal year ending June 30, 2005.

Section 3: Projections

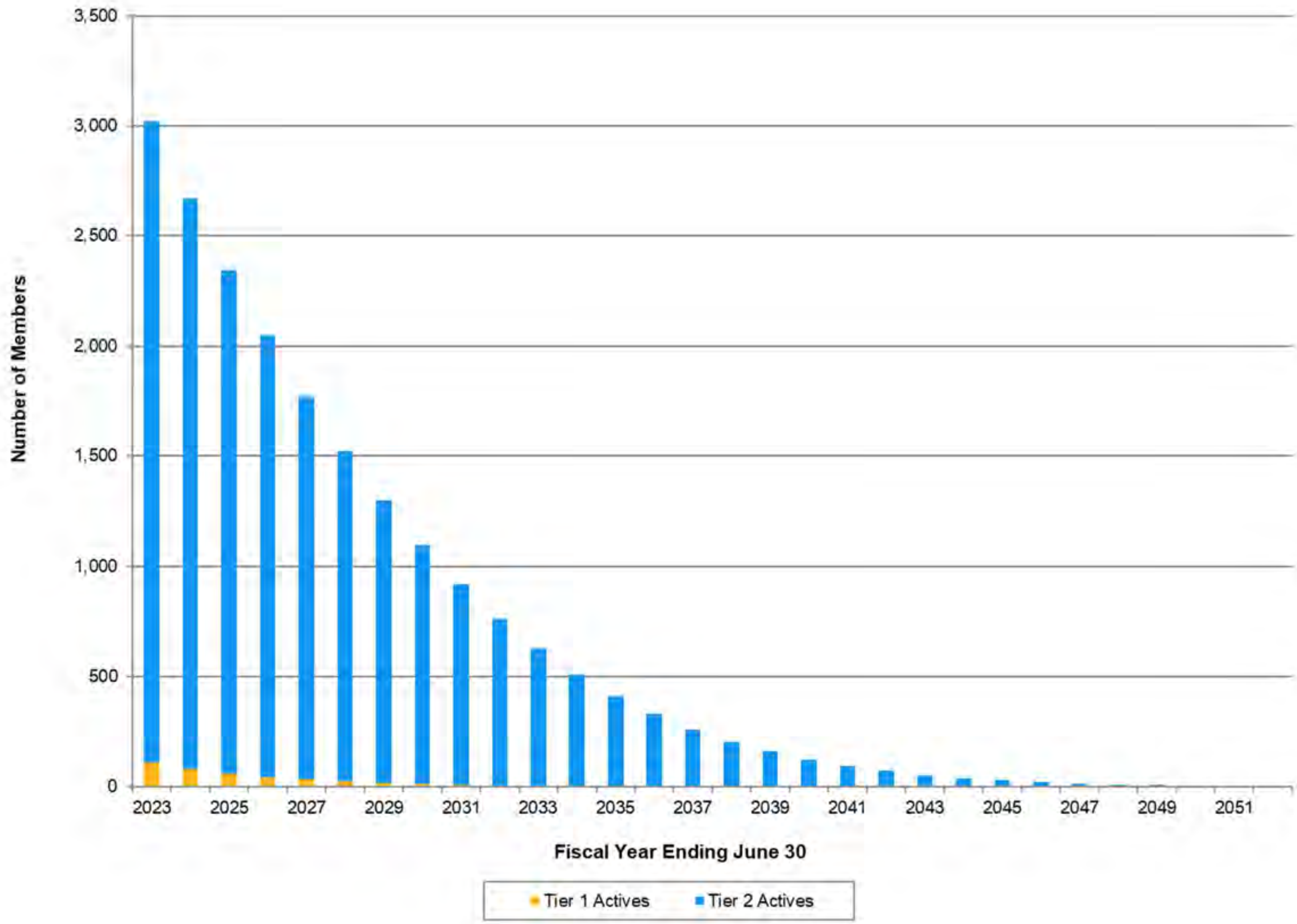
Section 3.1: Projection Assumptions and Methods

Key Assumptions

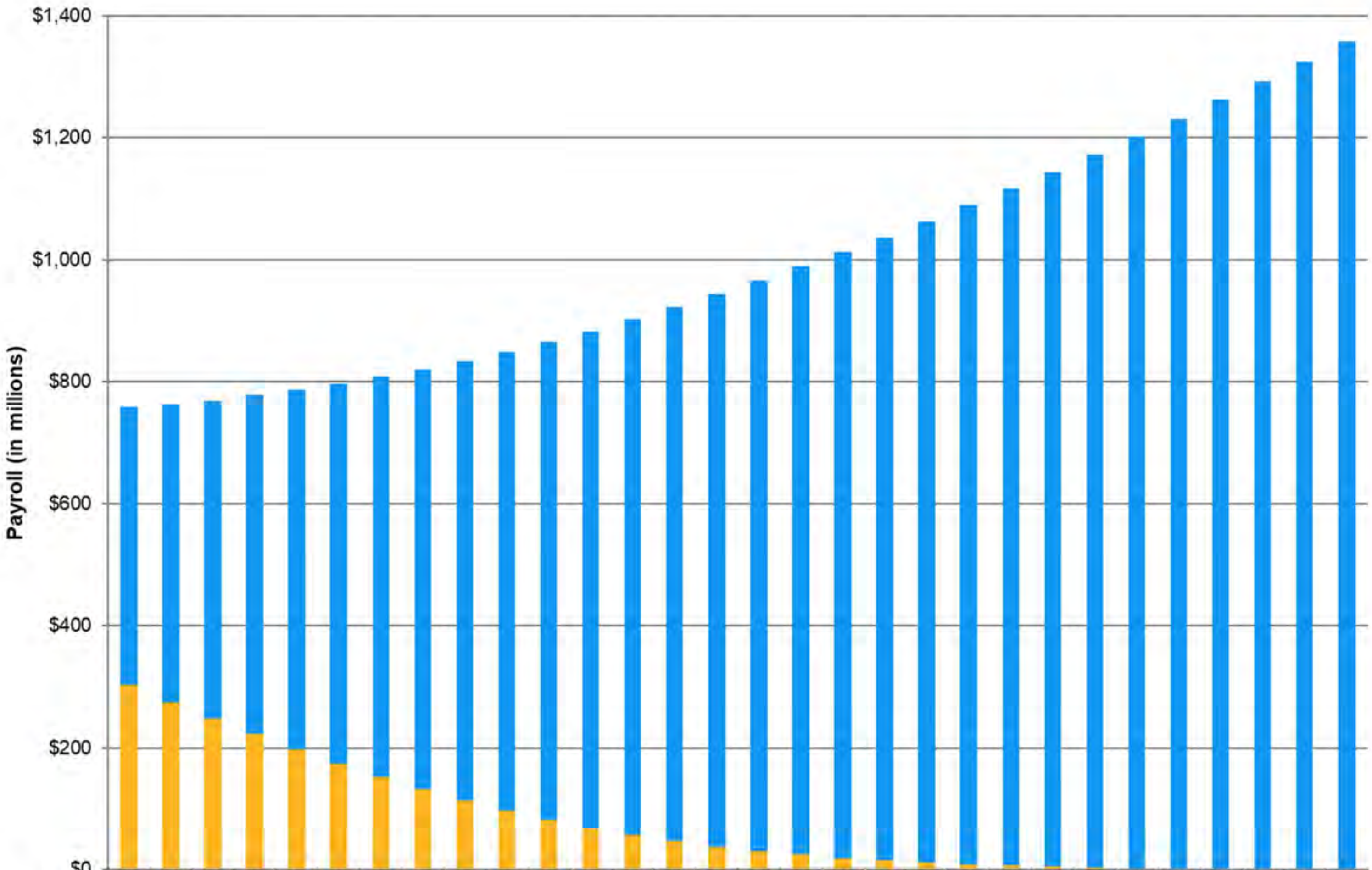
- 7.25% investment return (net of investment expenses) on the Fair Value of Assets in all future years.
- The Actuarial Value of Assets was re-initialized to Fair Value as of June 30, 2014. The Actuarial Value of Assets after June 30, 2014 reflects the deferred gains and losses generated by the smoothing method. The current deferred amount is recognized in the first four years of the projections.
- Actuarial assumptions and methods as described in Section 5. Experience after June 30, 2022 is assumed to match the assumptions.
- The projections in Section 3.6A reflect 25-year amortization in all years.
- The projections in Section 3.6B reflect 25-year amortization through FY39, and 15-year amortization in FY40 and beyond.
- The actuarially calculated contribution rate using a two-year roll-forward approach is adopted each year.
- Projections assume a 0% increase in the total active member population. All new members are expected to enter the DCR plan.
- Contribution rates are determined as a percent of total DB and DCR payroll.
- The DCR contribution rate determined as of June 30, 2022 is assumed to remain constant in all future years.
- The active rehire assumption shown in Section 5 is assumed to grade to zero on a uniform basis over 20 years.
- The Normal Cost is increased by the administrative expenses shown in Section 5. For future years, the percent increase is assumed to remain constant.
- Board-adopted contribution rates for FY23 and FY24 are reflected.
- The healthcare Normal Cost is assumed to be deposited to the healthcare trust in FY25 and beyond.

Section 3.2: Membership Projection

Projected Active Member Count



Projected DB and DCR Payroll



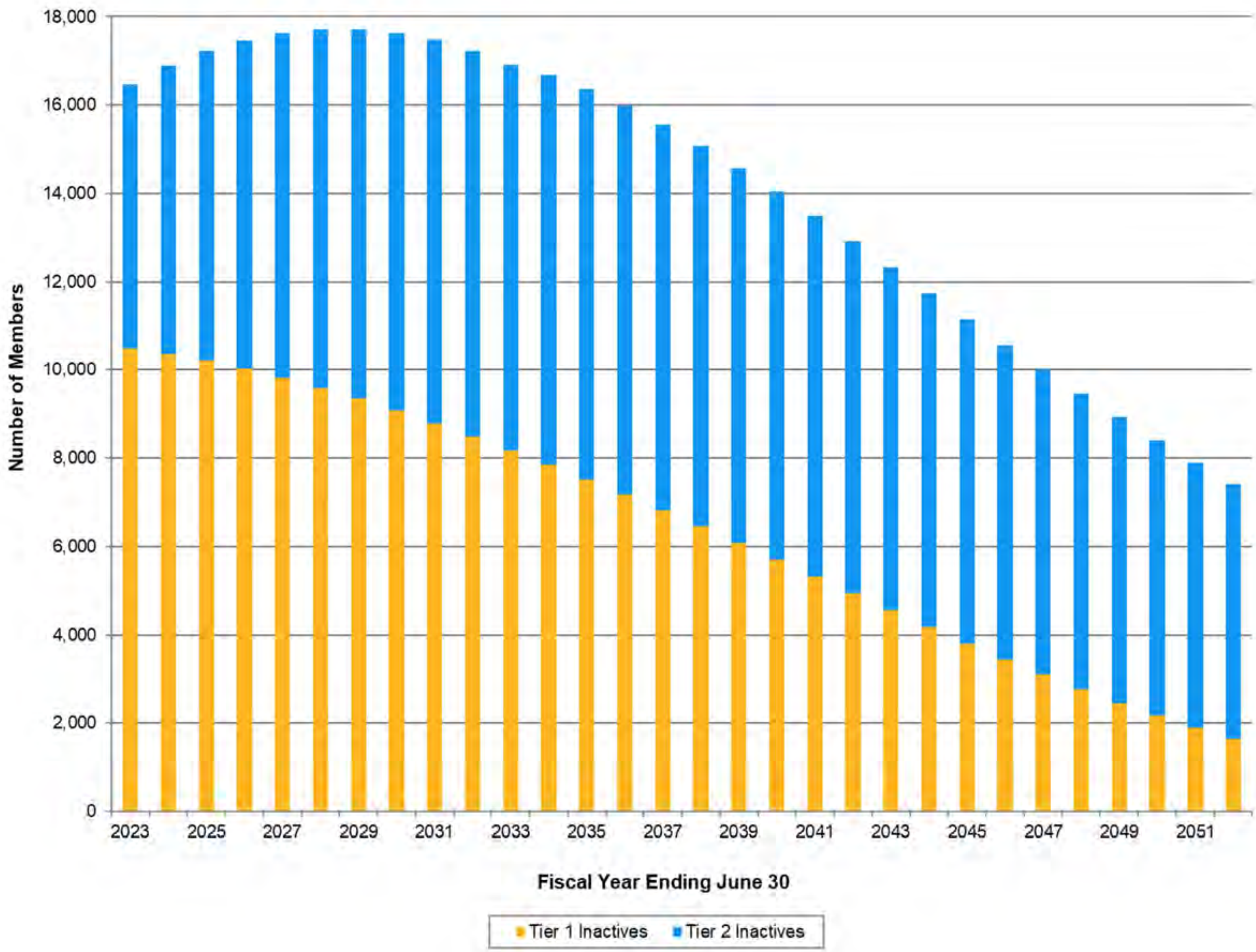
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
DCR Payroll	456	488	521	555	589	622	655	688	720	752	783	815	846	876	906
DB Payroll	303	275	248	223	198	175	153	132	114	97	82	68	57	47	38

	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
DCR Payroll	935	965	993	1,022	1,051	1,080	1,109	1,139	1,168	1,198	1,229	1,260	1,291	1,323	1,356
DB Payroll	31	25	19	15	12	9	7	5	4	3	2	2	1	1	1

Fiscal Year Ending June 30

DB Payroll ■ DCR Payroll

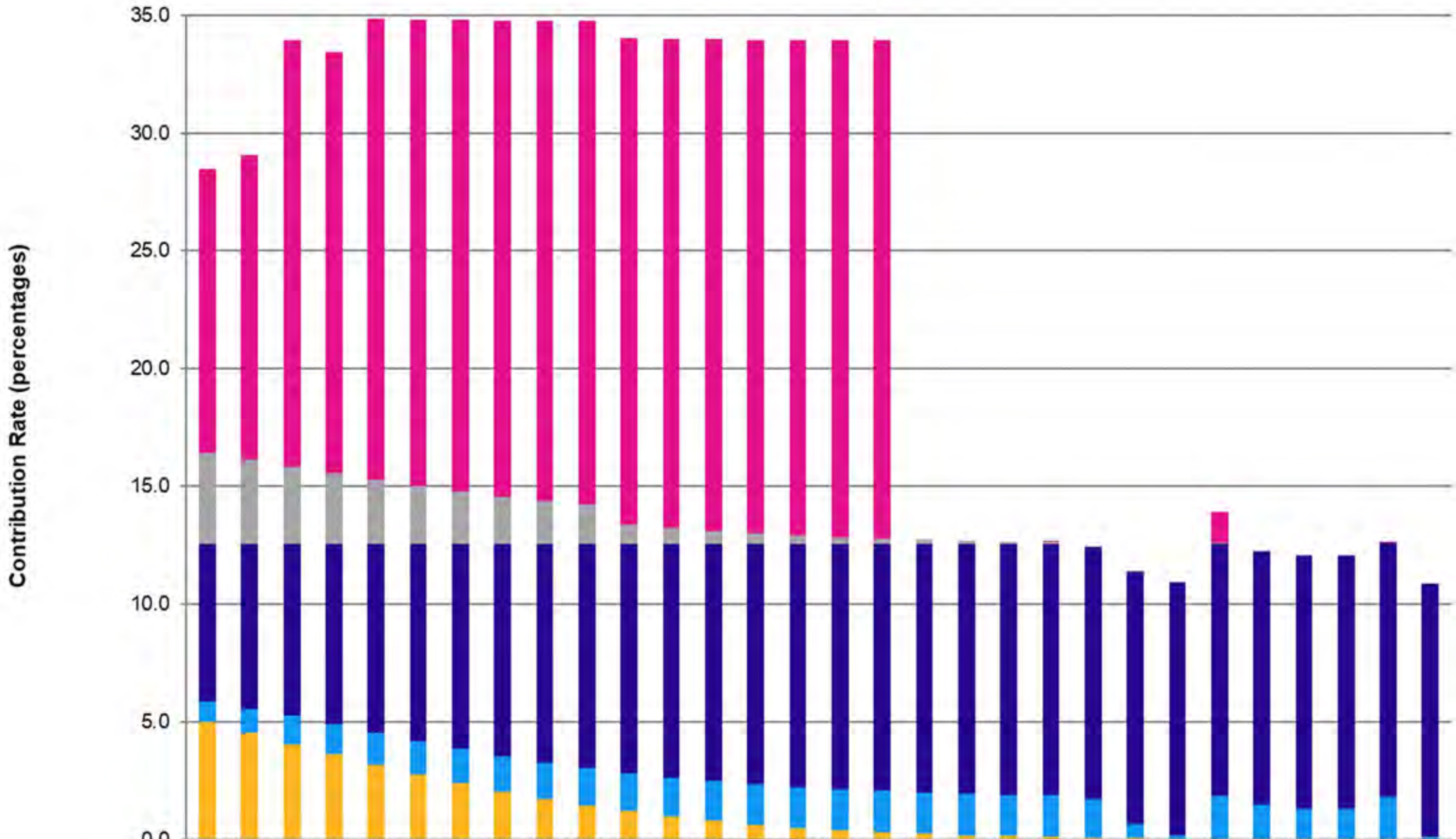
Projected Inactive Member Count



Section 3.3A: Projected Employer/State Contribution Rates

Based on Total DB and DCR Payroll

These projections reflect 25-year amortization in all years, as summarized in Section 3.6A.



	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
State Assistance	12.06	12.96	18.14	17.89	19.61	19.82	20.02	20.21	20.37	20.51	20.65	20.76	20.87	20.96	21.04
DB EE Contributions	3.86	3.56	3.26	2.97	2.70	2.44	2.21	2.00	1.82	1.67	0.82	0.67	0.54	0.44	0.35
DCR ER Contributions	6.72	7.03	7.29	7.68	8.05	8.40	8.73	9.03	9.29	9.53	9.74	9.93	10.08	10.22	10.33
DB ER Contributions on DCR Pay	0.83	1.00	1.22	1.28	1.35	1.41	1.46	1.50	1.56	1.60	1.63	1.66	1.69	1.71	1.73
DB ER Contributions on DB Pay	5.01	4.53	4.05	3.60	3.16	2.75	2.37	2.03	1.71	1.43	1.19	0.97	0.79	0.63	0.50

	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
State Assistance	21.12	21.19	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.32	0.00	0.00	0.00	0.02	0.00
DB EE Contributions	0.27	0.21	0.17	0.13	0.10	0.07	0.05	0.04	0.03	0.02	0.02	0.01	0.01	0.00	0.00
DCR ER Contributions	10.42	10.49	10.55	10.60	10.64	10.67	10.69	10.71	10.72	10.73	10.74	10.75	10.75	10.75	10.76
DB ER Contributions on DCR Pay	1.74	1.76	1.76	1.76	1.77	1.78	1.64	0.61	0.13	1.80	1.48	1.30	1.30	1.81	0.10
DB ER Contributions on DB Pay	0.40	0.31	0.24	0.18	0.14	0.11	0.08	0.05	0.04	0.03	0.02	0.01	0.01	0.01	0.00

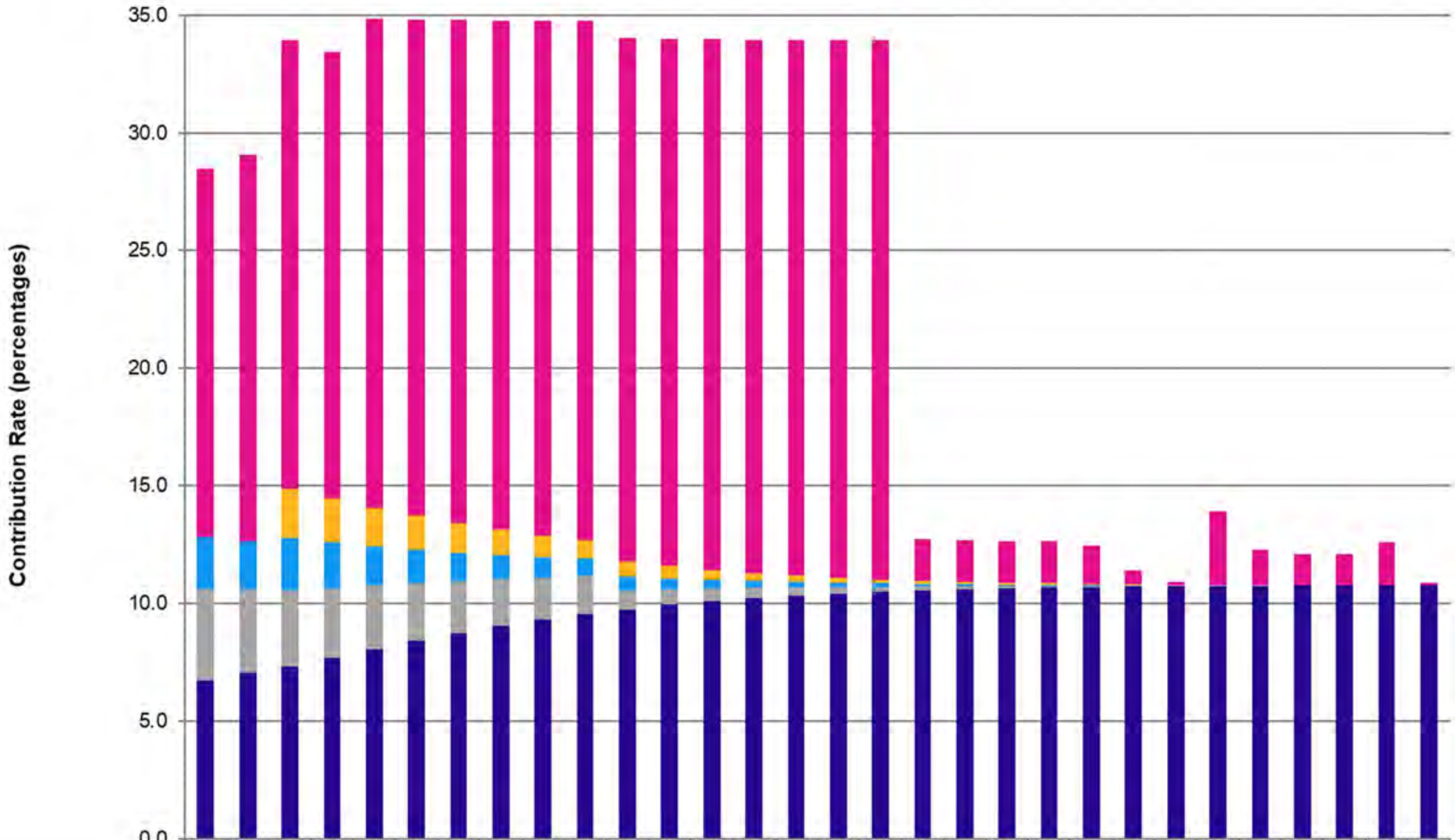
Fiscal Year Ending June 30

DB ER Contributions on DB Pay · DB ER Contributions on DCR Pay · DCR ER Contributions · DB EE Contributions · State Assistance

Section 3.3B: Components of Projected Total Contribution Rates

Based on Total DB and DCR Payroll

These projections reflect 25-year amortization in all years, as summarized in Section 3.6A.



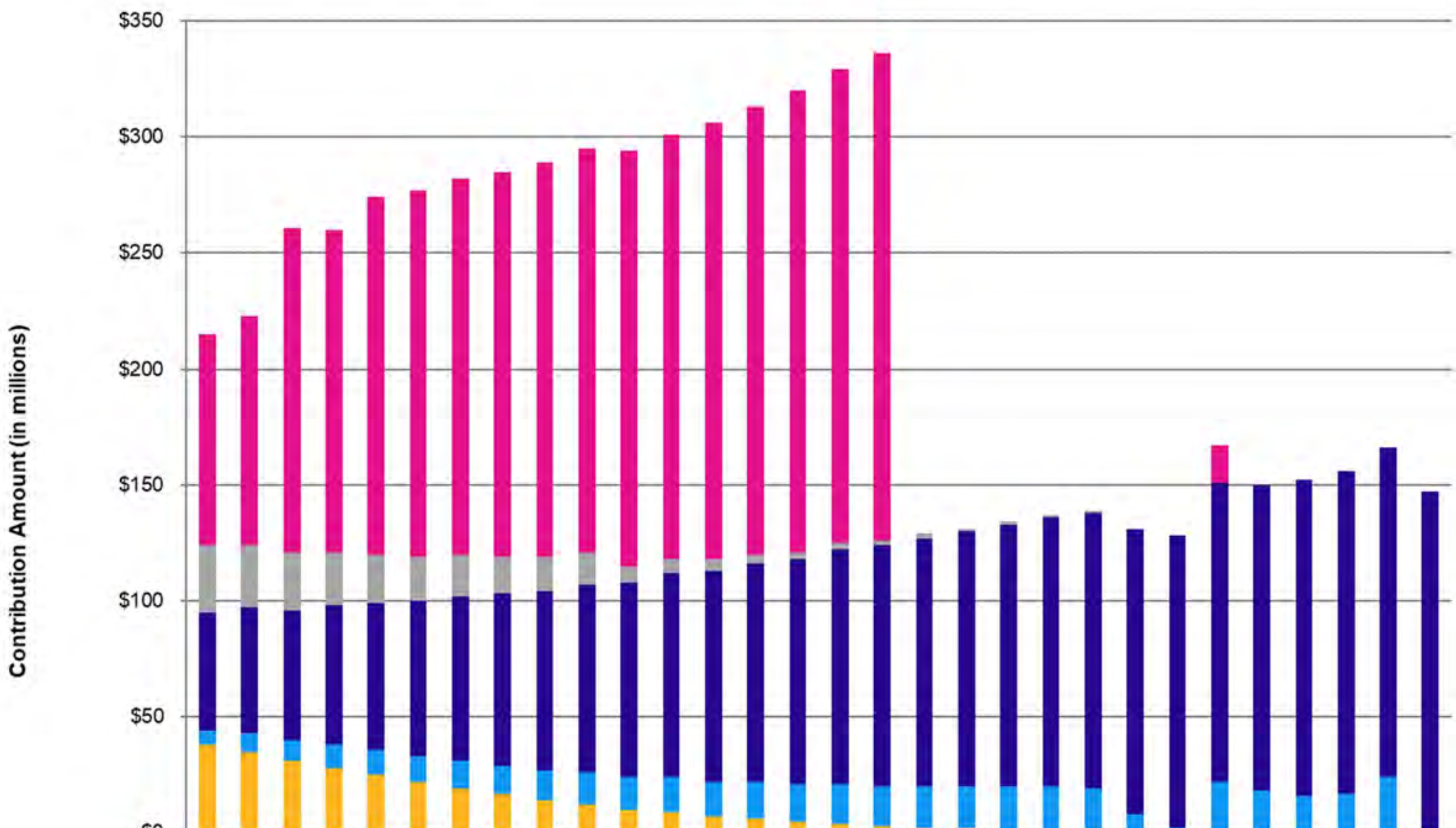
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
DB Amortization	15.66	16.44	19.10	18.97	20.80	21.09	21.37	21.63	21.87	22.07	22.26	22.41	22.55	22.67	22.77
DB Healthcare Normal Cost	0.00	0.00	2.10	1.88	1.66	1.46	1.27	1.09	0.93	0.78	0.65	0.53	0.43	0.35	0.28
DB ER Pension Normal Cost	2.24	2.05	2.21	1.92	1.66	1.43	1.21	1.02	0.84	0.69	0.56	0.45	0.37	0.28	0.22
DB EE Pension Normal Cost	3.86	3.56	3.26	2.97	2.70	2.44	2.21	2.00	1.82	1.67	0.82	0.67	0.54	0.44	0.35
DCR ER Contribution	6.72	7.03	7.29	7.68	8.05	8.40	8.73	9.03	9.29	9.53	9.74	9.93	10.08	10.22	10.33

	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
DB Amortization	22.86	22.95	1.76	1.77	1.78	1.79	1.64	0.61	0.13	3.12	1.49	1.29	1.30	1.83	0.09
DB Healthcare Normal Cost	0.22	0.17	0.14	0.10	0.08	0.06	0.04	0.03	0.02	0.02	0.01	0.01	0.01	0.00	0.00
DB ER Pension Normal Cost	0.18	0.14	0.10	0.07	0.05	0.05	0.04	0.02	0.02	0.01	0.00	0.01	0.00	0.01	0.01
DB EE Pension Normal Cost	0.27	0.21	0.17	0.13	0.10	0.07	0.05	0.04	0.03	0.02	0.02	0.01	0.01	0.00	0.00
DCR ER Contribution	10.42	10.49	10.55	10.60	10.64	10.67	10.69	10.71	10.72	10.73	10.74	10.75	10.75	10.75	10.76

Fiscal Year Ending June 30

DCR ER Contribution | DB EE Pension Normal Cost | DB ER Pension Normal Cost | DB Healthcare Normal Cost | DB Amortization

Section 3.4A: Projected Employer/State Contribution Amounts



	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
State Assistance	91	99	140	139	154	158	162	166	170	174	179	183	188	193	199
DB EE Contributions	29	27	25	23	21	19	18	16	15	14	7	6	5	4	3
DCR ER Contributions	51	54	56	60	63	67	71	74	77	81	84	88	91	94	97
DB ER Contributions on DCR Pay	6	8	9	10	11	11	12	12	13	14	14	15	15	16	16
DB ER Contributions on DB Pay	38	35	31	28	25	22	19	17	14	12	10	9	7	6	5

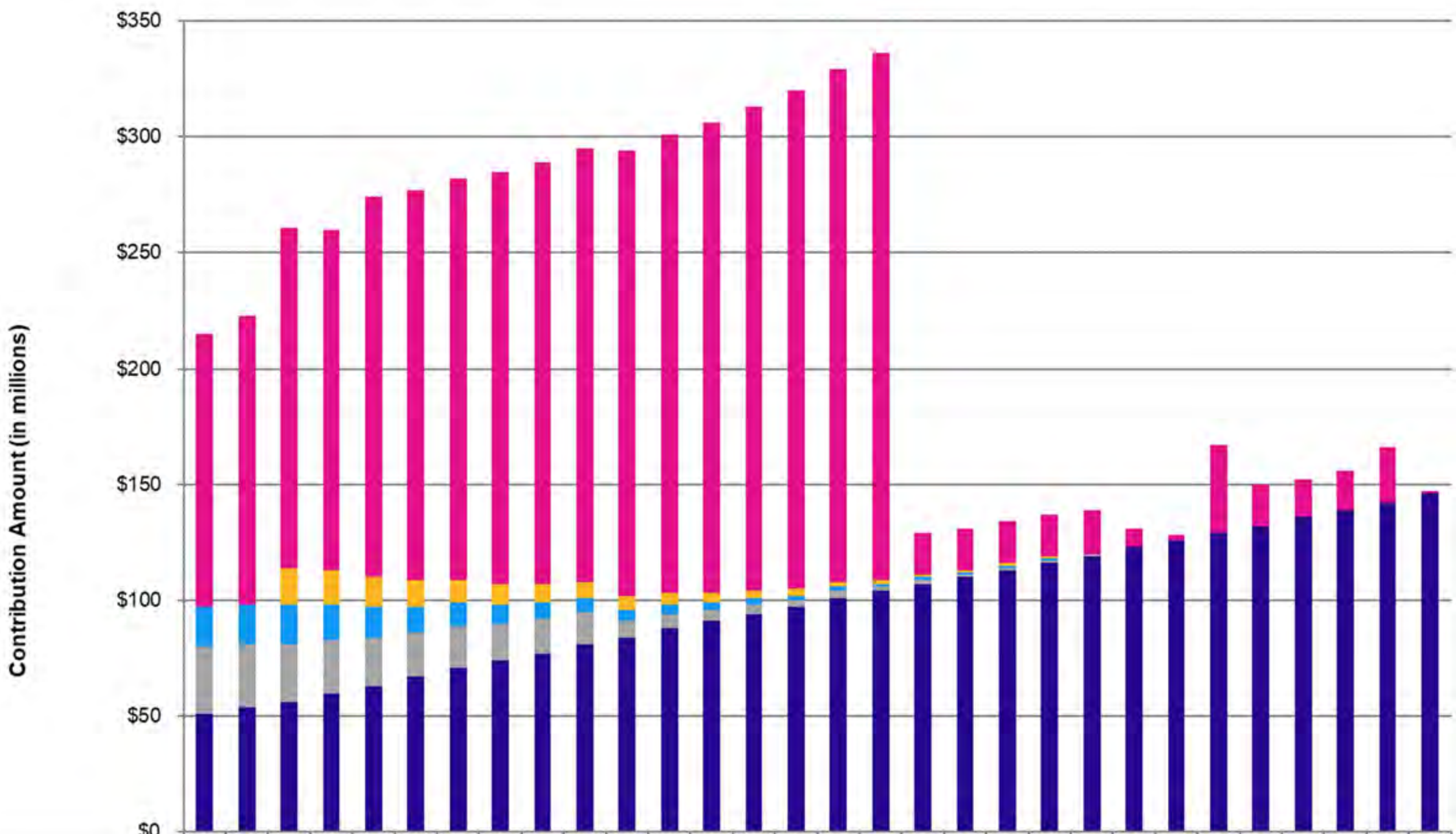
	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
State Assistance	204	210	0	0	0	0	0	0	0	16	0	0	0	0	0
DB EE Contributions	3	2	2	1	1	1	1	0	0	0	0	0	0	0	0
DCR ER Contributions	101	104	107	110	113	116	119	123	126	129	132	136	139	142	146
DB ER Contributions on DCR Pay	17	17	18	18	19	19	18	7	2	22	18	16	17	24	1
DB ER Contributions on DB Pay	4	3	2	2	1	1	1	1	0	0	0	0	0	0	0

Fiscal Year Ending June 30

DB ER Contributions on DB Pay | DB ER Contributions on DCR Pay | DCR ER Contributions | DB EE Contributions | State Assistance

These projections reflect 25-year amortization in all years, as summarized in Section 3.6A.

Section 3.4B: Components of Projected Total Contribution Amounts



	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
DB Amortization	118	125	147	147	164	168	173	178	182	187	192	198	203	209	215
DB Healthcare Normal Cost	0	0	16	15	13	12	10	9	8	7	6	5	4	3	3
DB ER Pension Normal Cost	17	17	17	15	13	11	10	8	7	6	5	4	3	3	2
DB EE Pension Normal Cost	29	27	25	23	21	19	18	16	15	14	7	6	5	4	3
DCR ER Contribution	51	54	56	60	63	67	71	74	77	81	84	88	91	94	97

	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
DB Amortization	221	227	18	18	18	18	19	8	2	38	18	16	17	24	1
DB Healthcare Normal Cost	2	2	1	1	1	1	0	0	0	0	0	0	0	0	0
DB ER Pension Normal Cost	2	1	1	1	1	1	0	0	0	0	0	0	0	0	0
DB EE Pension Normal Cost	3	2	2	1	1	1	1	0	0	0	0	0	0	0	0
DCR ER Contribution	101	104	107	110	113	116	119	123	126	129	132	136	139	142	146

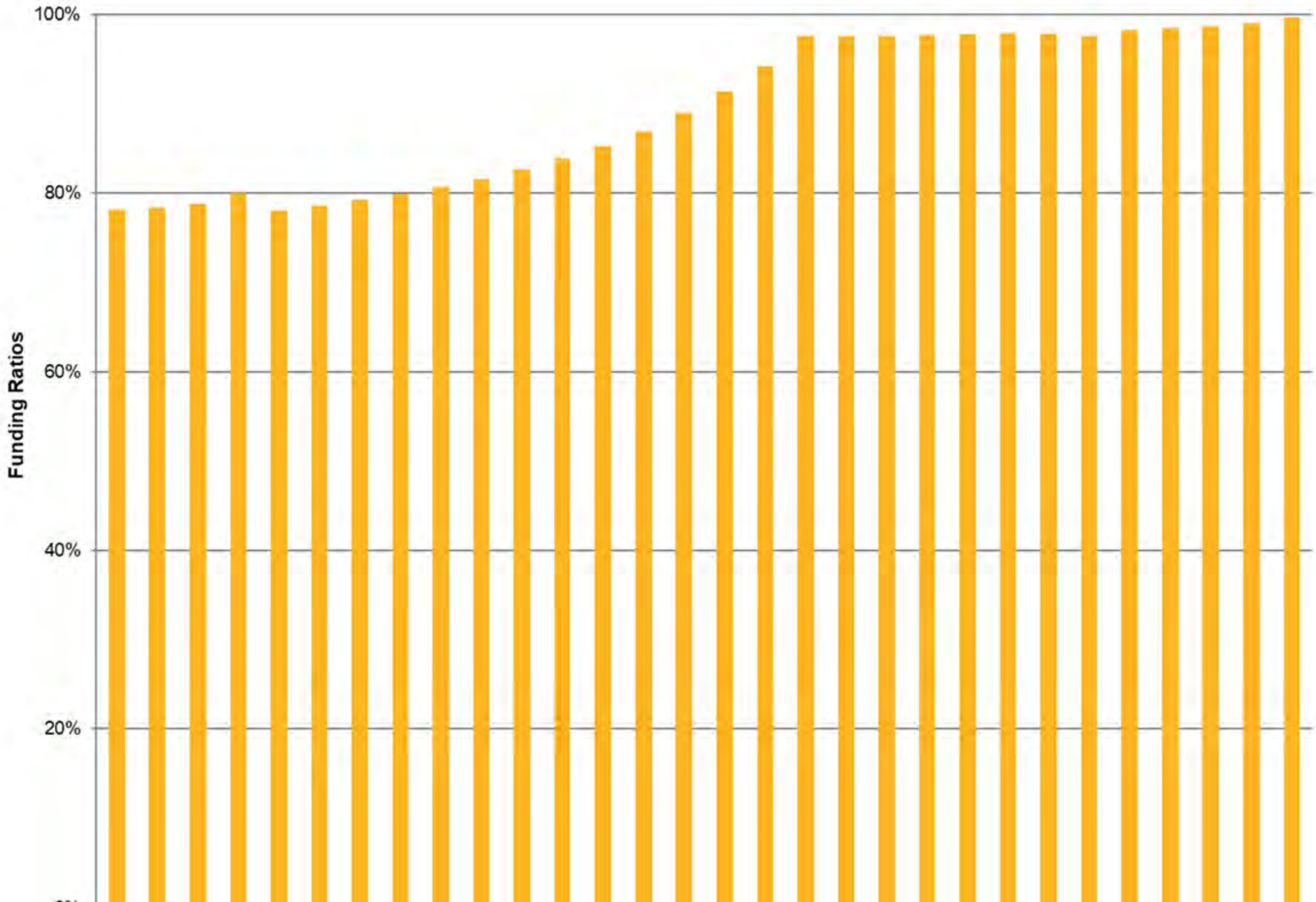
Fiscal Year Ending June 30

DCR ER Contribution   DB EE Pension Normal Cost   DB ER Pension Normal Cost   DB Healthcare Normal Cost   DB Amortization

These projections reflect 25-year amortization in all years, as summarized in Section 3.6A.

Section 3.5A: Projection of Funded Ratios

Pension



	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Funding Ratios	78%	78%	79%	80%	78%	79%	79%	80%	81%	82%	83%	84%	85%	87%	89%

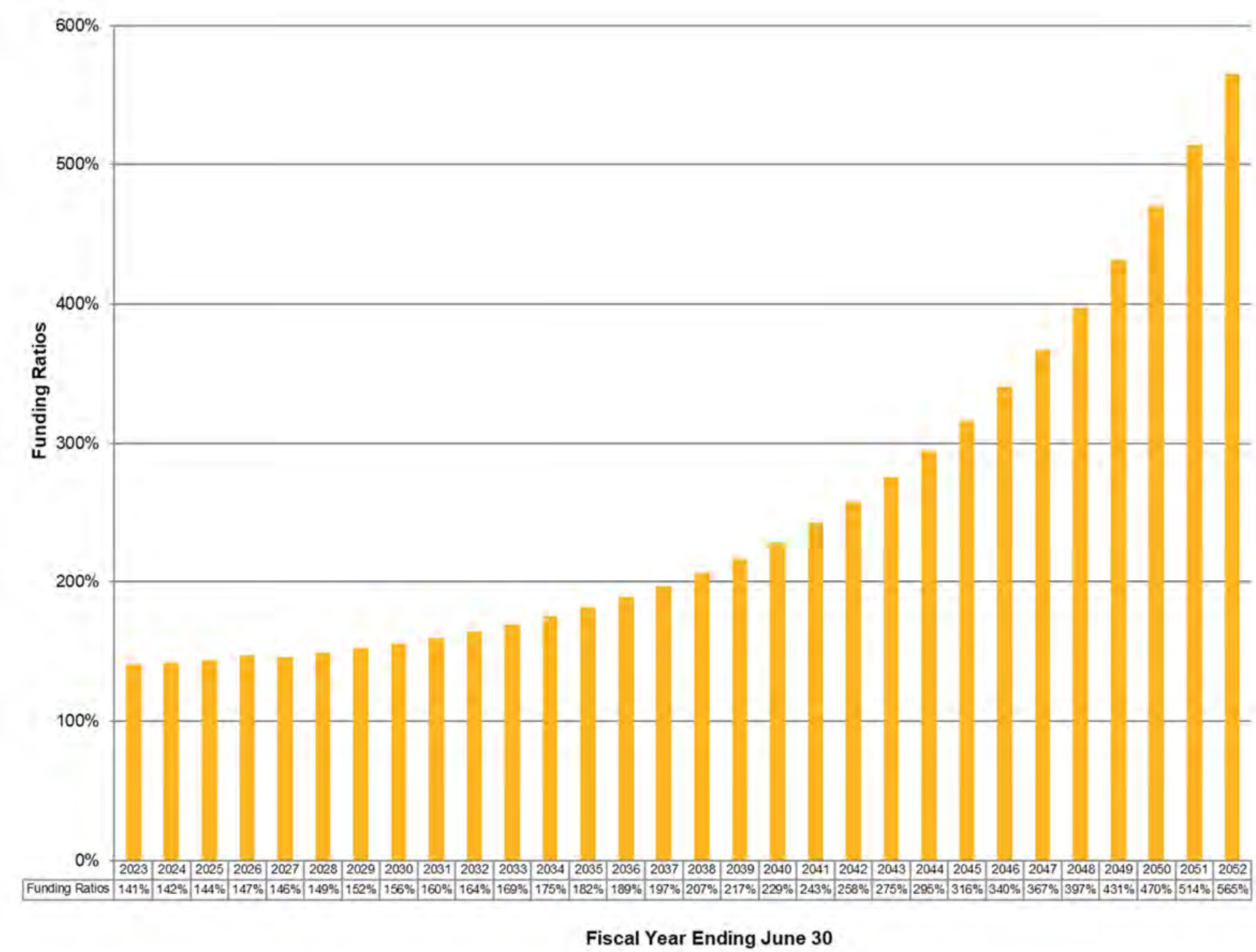
	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
Funding Ratios	91%	94%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	99%	99%	100%

Fiscal Year Ending June 30

These projections reflect 25-year amortization in all years, as summarized in Section 3.6A.

Section 3.5B: Projection of Funded Ratios

Healthcare



These projections reflect 25-year amortization in all years, as summarized in Section 3.6A.

Section 3.6A: Table of Projected Actuarial Results ($’s in 000’s)

Fiscal Year End	Valuation Amounts on July 1 (Beginning of FY)				Cash Flow Amounts during Following 12 Months									Deferred Asset Gain / (Loss)	
	Pension		Healthcare			Actuarial Contrib. Rates			DB Contributions						
	Actuarial Assets	Accrued Liability	Actuarial Assets	Accrued Liability	Total Salaries	DB	DCR	Total	Employer	State Assistance	Employee	Total	Benefit Payments	Pension	Healthcare
2023	$ 6,100,204	$ 7,804,046	$ 3,437,216	$ 2,442,577	$ 758,938	17.90%	6.72%	24.62%	$ 44,322	$ 91,029	$ 29,310	$ 164,661	$ 687,836	$ (84,677)	$ (51,528)
2024	6,145,743	7,845,526	3,545,120	2,495,957	762,674	18.49%	7.03%	25.52%	42,176	98,766	27,141	168,083	713,234	(112,251)	(65,712)
2025	6,196,750	7,866,477	3,660,412	2,544,085	769,543	23.41%	7.29%	30.70%	40,555	139,595	25,050	205,200	738,588	(176,188)	(98,371)
2026	6,291,293	7,869,818	3,809,864	2,584,873	777,644	22.77%	7.68%	30.45%	37,949	139,121	23,117	200,187	762,473	0	0
2027	6,127,916	7,851,065	3,826,993	2,619,194	786,668	24.12%	8.05%	32.17%	35,479	154,266	21,248	210,993	784,730	0	0
2028	6,139,912	7,812,051	3,941,509	2,646,615	796,835	23.98%	8.40%	32.38%	33,149	157,933	19,446	210,528	806,853	0	0
2029	6,140,008	7,752,837	4,053,972	2,665,570	807,915	23.85%	8.73%	32.58%	30,944	161,745	17,862	210,551	828,160	0	0
2030	6,129,251	7,673,759	4,163,740	2,674,980	820,089	23.74%	9.03%	32.77%	28,949	165,740	16,420	211,109	846,576	0	0
2031	6,109,225	7,575,609	4,271,816	2,675,393	833,636	23.64%	9.29%	32.93%	27,260	169,812	15,210	212,282	862,630	0	0
2032	6,081,677	7,459,306	4,378,760	2,666,810	848,709	23.54%	9.53%	33.07%	25,716	174,070	14,151	213,937	876,590	0	0
2033	6,048,186	7,325,582	4,485,103	2,649,245	865,045	23.47%	9.74%	33.21%	24,394	178,632	7,093	210,119	882,275	0	0
2034	6,010,953	7,175,373	4,591,150	2,622,361	883,121	23.39%	9.93%	33.32%	23,227	183,336	5,917	212,480	889,549	0	0
2035	5,972,403	7,009,896	4,698,937	2,587,598	902,185	23.35%	10.08%	33.43%	22,374	188,286	4,872	215,532	893,381	0	0
2036	5,935,235	6,830,546	4,810,050	2,545,810	922,342	23.30%	10.22%	33.52%	21,583	193,323	4,058	218,964	893,878	0	0
2037	5,902,008	6,638,810	4,926,117	2,497,836	943,547	23.27%	10.33%	33.60%	21,041	198,522	3,302	222,865	891,655	0	0
2038	5,875,564	6,436,165	5,048,241	2,444,000	965,801	23.26%	10.42%	33.68%	20,668	203,977	2,608	227,253	886,101	0	0
2039	5,858,660	6,223,864	5,178,550	2,385,592	989,011	23.26%	10.49%	33.75%	20,472	209,571	2,077	232,120	878,715	0	0
2040	5,854,667	6,003,651	5,317,352	2,322,004	1,012,805	2.00%	10.55%	12.55%	20,256	0	1,722	21,978	869,176	0	0
2041	5,635,536	5,776,928	5,465,838	2,253,322	1,037,390	1.94%	10.60%	12.54%	20,125	0	1,349	21,474	855,473	0	0
2042	5,412,329	5,545,070	5,627,142	2,181,800	1,062,873	1.91%	10.64%	12.55%	20,301	0	1,063	21,364	838,894	0	0
2043	5,186,770	5,309,643	5,803,534	2,108,427	1,089,093	1.90%	10.67%	12.57%	20,583	109	762	21,454	818,070	0	0
2044	4,960,470	5,072,046	5,998,882	2,035,901	1,116,241	1.72%	10.69%	12.41%	19,199	0	558	19,757	795,631	0	0
2045	4,732,771	4,833,462	6,214,942	1,964,718	1,143,969	0.66%	10.71%	11.37%	7,550	0	458	8,008	770,874	0	0
2046	4,494,250	4,595,074	6,454,516	1,896,202	1,172,308	0.17%	10.72%	10.89%	1,992	0	352	2,344	746,287	0	0
2047	4,251,390	4,357,917	6,718,167	1,829,438	1,201,260	3.15%	10.73%	13.88%	21,983	15,857	240	38,080	721,645	0	0
2048	4,047,996	4,122,901	7,007,042	1,763,858	1,230,971	1.50%	10.74%	12.24%	18,464	0	246	18,710	698,153	0	0
2049	3,829,466	3,890,866	7,321,005	1,697,730	1,261,453	1.31%	10.75%	12.06%	16,525	0	126	16,651	674,519	0	0
2050	3,613,572	3,662,533	7,661,671	1,630,698	1,292,425	1.31%	10.75%	12.06%	16,931	0	129	17,060	651,137	0	0
2051	3,403,365	3,438,499	8,030,413	1,562,146	1,324,176	1.83%	10.75%	12.58%	24,024	265	0	24,289	627,261	0	0
2052	3,206,568	3,219,252	8,429,541	1,492,326	1,356,780	0.10%	10.76%	10.86%	1,395	0	0	1,395	603,307	0	0
								Total	$ 709,586	$ 2,823,955	$ 245,887	$ 3,779,428			

The contribution rates, contribution amounts, and benefit payments are determined separately for Pension and Healthcare. They are aggregated solely for purposes of display in this exhibit.

These projections reflect 25-year amortization in all years.

Section 3.6A: Table of Projected Actuarial Results ($'s in 000's) (continued)

Fiscal Year End	Valuation Amounts on July 1 (Beginning of FY)			
	Funding Ratio		Unfunded Liability / (Surplus)	
	Pension	Healthcare	Pension	Healthcare
2023	78%	141%	$ 1,703,842	$ (994,639)
2024	78%	142%	1,699,783	(1,049,163)
2025	79%	144%	1,669,727	(1,116,327)
2026	80%	147%	1,578,525	(1,224,991)
2027	78%	146%	1,723,149	(1,207,799)
2028	79%	149%	1,672,139	(1,294,894)
2029	79%	152%	1,612,829	(1,388,402)
2030	80%	156%	1,544,508	(1,488,760)
2031	81%	160%	1,466,384	(1,596,423)
2032	82%	164%	1,377,629	(1,711,950)
2033	83%	169%	1,277,396	(1,835,858)
2034	84%	175%	1,164,420	(1,968,789)
2035	85%	182%	1,037,493	(2,111,339)
2036	87%	189%	895,311	(2,264,240)
2037	89%	197%	736,802	(2,428,281)
2038	91%	207%	560,601	(2,604,241)
2039	94%	217%	365,204	(2,792,958)
2040	98%	229%	148,984	(2,995,348)
2041	98%	243%	141,392	(3,212,516)
2042	98%	258%	132,741	(3,445,342)
2043	98%	275%	122,873	(3,695,107)
2044	98%	295%	111,576	(3,962,981)
2045	98%	316%	100,691	(4,250,224)
2046	98%	340%	100,824	(4,558,314)
2047	98%	367%	106,527	(4,888,729)
2048	98%	397%	74,905	(5,243,184)
2049	98%	431%	61,400	(5,623,275)
2050	99%	470%	48,961	(6,030,973)
2051	99%	514%	35,134	(6,468,267)
2052	100%	565%	12,684	(6,937,215)

These projections reflect 25-year amortization in all years.

Section 3.6B: Table of Projected Actuarial Results ($'s in 000's)

Fiscal Year End	Valuation Amounts on July 1 (Beginning of FY)				Cash Flow Amounts during Following 12 Months									Deferred Asset Gain / (Loss)	
	Pension		Healthcare			Actuarial Contrib. Rates			DB Contributions						
	Actuarial Assets	Accrued Liability	Actuarial Assets	Accrued Liability	Total Salaries	DB	DCR	Total	Employer	State Assistance	Employee	Total	Benefit Payments	Pension	Healthcare
2023	$ 6,100,204	$ 7,804,046	$ 3,437,216	$ 2,442,577	$ 758,938	17.90%	6.72%	24.62%	$ 44,322	$ 91,029	$ 29,310	$ 164,661	$ 687,836	$ (84,677)	$ (51,528)
2024	6,145,743	7,845,526	3,545,120	2,495,957	762,674	18.49%	7.03%	25.52%	42,176	98,766	27,141	168,083	713,234	(112,251)	(65,712)
2025	6,196,750	7,866,477	3,660,412	2,544,085	769,543	23.41%	7.29%	30.70%	40,555	139,595	25,050	205,200	738,588	(176,188)	(98,371)
2026	6,291,293	7,869,818	3,809,864	2,584,873	777,644	22.77%	7.68%	30.45%	37,949	139,121	23,117	200,187	762,473	0	0
2027	6,127,916	7,851,065	3,826,993	2,619,194	786,668	24.12%	8.05%	32.17%	35,479	154,266	21,248	210,993	784,730	0	0
2028	6,139,912	7,812,051	3,941,509	2,646,615	796,835	23.98%	8.40%	32.38%	33,149	157,933	19,446	210,528	806,853	0	0
2029	6,140,008	7,752,837	4,053,972	2,665,570	807,915	23.85%	8.73%	32.58%	30,944	161,745	17,862	210,551	828,160	0	0
2030	6,129,251	7,673,759	4,163,740	2,674,980	820,089	23.74%	9.03%	32.77%	28,949	165,740	16,420	211,109	846,576	0	0
2031	6,109,225	7,575,609	4,271,816	2,675,393	833,636	23.64%	9.29%	32.93%	27,260	169,812	15,210	212,282	862,630	0	0
2032	6,081,677	7,459,306	4,378,760	2,666,810	848,709	23.54%	9.53%	33.07%	25,716	174,070	14,151	213,937	876,590	0	0
2033	6,048,186	7,325,582	4,485,103	2,649,245	865,045	23.47%	9.74%	33.21%	24,394	178,632	7,093	210,119	882,275	0	0
2034	6,010,953	7,175,373	4,591,150	2,622,361	883,121	23.39%	9.93%	33.32%	23,227	183,336	5,917	212,480	889,549	0	0
2035	5,972,403	7,009,896	4,698,937	2,587,598	902,185	23.35%	10.08%	33.43%	22,374	188,286	4,872	215,532	893,381	0	0
2036	5,935,235	6,830,546	4,810,050	2,545,810	922,342	23.30%	10.22%	33.52%	21,583	193,323	4,058	218,964	893,878	0	0
2037	5,902,008	6,638,810	4,926,117	2,497,836	943,547	23.27%	10.33%	33.60%	21,041	198,522	3,302	222,865	891,655	0	0
2038	5,875,564	6,436,165	5,048,241	2,444,000	965,801	23.26%	10.42%	33.68%	20,668	203,977	2,608	227,253	886,101	0	0
2039	5,858,660	6,223,864	5,178,550	2,385,592	989,011	23.26%	10.49%	33.75%	20,472	209,571	2,077	232,120	878,715	0	0
2040	5,854,667	6,003,651	5,317,352	2,322,004	1,012,805	2.00%	10.55%	12.55%	20,256	0	1,722	21,978	869,176	0	0
2041	5,635,536	5,776,928	5,465,838	2,253,322	1,037,390	1.94%	10.60%	12.54%	20,125	0	1,349	21,474	855,473	0	0
2042	5,412,329	5,545,070	5,627,142	2,181,800	1,062,873	1.92%	10.64%	12.56%	20,407	0	1,063	21,470	838,894	0	0
2043	5,186,880	5,309,643	5,803,534	2,108,427	1,089,093	1.91%	10.67%	12.58%	20,583	218	762	21,563	818,070	0	0
2044	4,960,705	5,072,046	5,998,882	2,035,901	1,116,241	1.73%	10.69%	12.42%	19,310	0	558	19,868	795,631	0	0
2045	4,733,138	4,833,462	6,214,942	1,964,718	1,143,969	0.67%	10.71%	11.38%	7,664	0	458	8,122	770,874	0	0
2046	4,494,762	4,595,074	6,454,516	1,896,202	1,172,308	0.18%	10.72%	10.90%	2,110	0	352	2,462	746,287	0	0
2047	4,252,062	4,357,917	6,718,167	1,829,438	1,201,260	3.17%	10.73%	13.90%	21,983	16,097	240	38,320	721,645	0	0
2048	4,048,974	4,122,901	7,007,042	1,763,858	1,230,971	1.51%	10.74%	12.25%	18,588	0	246	18,834	698,153	0	0
2049	3,830,644	3,890,866	7,321,005	1,697,730	1,261,453	1.33%	10.75%	12.08%	16,777	0	126	16,903	674,519	0	0
2050	3,615,096	3,662,533	7,661,671	1,630,698	1,292,425	1.32%	10.75%	12.07%	17,060	0	129	17,189	651,137	0	0
2051	3,405,133	3,438,499	8,030,413	1,562,146	1,324,176	1.85%	10.75%	12.60%	24,024	530	0	24,554	627,261	0	0
2052	3,208,748	3,219,252	8,429,541	1,492,326	1,356,780	0.11%	10.76%	10.87%	1,530	0	0	1,530	603,307	0	0
								Total	**$ 710,675**	**$ 2,824,569**	**$ 245,887**	**$ 3,781,131**			

The contribution rates, contribution amounts, and benefit payments are determined separately for Pension and Healthcare. They are aggregated solely for purposes of display in this exhibit.

These projections reflect 25-year amortization through FY39, and 15-year amortization in FY40 and beyond.

Section 3.6B: Table of Projected Actuarial Results ($'s in 000's) (continued)

Fiscal Year End	Valuation Amounts on July 1 (Beginning of FY)			
	Funding Ratio		Unfunded Liability / (Surplus)	
	Pension	Healthcare	Pension	Healthcare
2023	78%	141%	$ 1,703,842	$ (994,639)
2024	78%	142%	1,699,783	(1,049,163)
2025	79%	144%	1,669,727	(1,116,327)
2026	80%	147%	1,578,525	(1,224,991)
2027	78%	146%	1,723,149	(1,207,799)
2028	79%	149%	1,672,139	(1,294,894)
2029	79%	152%	1,612,829	(1,388,402)
2030	80%	156%	1,544,508	(1,488,760)
2031	81%	160%	1,466,384	(1,596,423)
2032	82%	164%	1,377,629	(1,711,950)
2033	83%	169%	1,277,396	(1,835,858)
2034	84%	175%	1,164,420	(1,968,789)
2035	85%	182%	1,037,493	(2,111,339)
2036	87%	189%	895,311	(2,264,240)
2037	89%	197%	736,802	(2,428,281)
2038	91%	207%	560,601	(2,604,241)
2039	94%	217%	365,204	(2,792,958)
2040	98%	229%	148,984	(2,995,348)
2041	98%	243%	141,392	(3,212,516)
2042	98%	258%	132,741	(3,445,342)
2043	98%	275%	122,763	(3,695,107)
2044	98%	295%	111,341	(3,962,981)
2045	98%	316%	100,324	(4,250,224)
2046	98%	340%	100,312	(4,558,314)
2047	98%	367%	105,855	(4,888,729)
2048	98%	397%	73,927	(5,243,184)
2049	99%	431%	60,222	(5,623,275)
2050	99%	470%	47,437	(6,030,973)
2051	99%	514%	33,366	(6,468,267)
2052	100%	565%	10,504	(6,937,215)

These projections reflect 25-year amortization through FY39, and 15-year amortization in FY40 and beyond.

Section 3.7: Projected Pension Benefit Recipients and Amounts ($’s in 000’s)

Fiscal Year End	Pension Recipient Counts	Pension Benefit Amounts	Fiscal Year End	Pension Recipient Counts	Pension Benefit Amounts
2023	14,126	$ 550,245	2061	3,214	$ 252,774
2024	14,609	568,379	2062	2,926	234,215
2025	15,021	585,728	2063	2,653	215,978
2026	15,372	601,776	2064	2,394	198,109
2027	15,663	616,595	2065	2,149	180,665
2028	15,881	630,201	2066	1,918	163,709
2029	16,020	642,414	2067	1,700	147,317
2030	16,079	652,806	2068	1,496	131,570
2031	16,071	661,317	2069	1,307	116,549
2032	15,974	668,211	2070	1,131	102,337
2033	15,811	666,953	2071	970	89,003
2034	15,568	669,191	2072	825	76,626
2035	15,254	669,274	2073	693	65,252
2036	14,876	667,214	2074	576	54,921
2037	14,460	663,096	2075	473	45,654
2038	13,980	657,203	2076	383	37,455
2039	13,480	649,128	2077	307	30,303
2040	12,963	639,299	2078	243	24,161
2041	12,416	627,816	2079	188	18,972
2042	11,857	614,586	2080	144	14,662
2043	11,280	599,844	2081	109	11,145
2044	10,696	583,902	2082	81	8,327
2045	10,123	566,814	2083	59	6,115
2046	9,562	548,805	2084	43	4,411
2047	9,014	530,049	2085	30	3,127
2048	8,486	510,672	2086	21	2,180
2049	7,978	490,835	2087	15	1,499
2050	7,486	470,709	2088	10	1,017
2051	7,009	450,431	2089	7	685
2052	6,548	430,095	2090	4	459
2053	6,106	409,777	2091	4	309
2054	5,682	389,535	2092	2	211
2055	5,276	369,414	2093	2	147
2056	4,889	349,449	2094	1	104
2057	4,520	329,667	2095	1	75
2058	4,168	310,090	2096	1	55
2059	3,834	290,737	2097	0	0
2060	3,516	271,625	2098	0	0

Counts include retirees, disabilitants, and beneficiaries.

Section 4: Member Data

Section 4.1: Summary of Members Included

As of June 30	2018	2019	2020	2021	2022
Active Members					
1. Number	4,418	4,044	3,789	3,396	3,023[1]
2. Average Age	51.13	51.48	51.92	52.14	52.57
3. Average Credited Service	18.62	19.21	19.76	20.31	20.85
4. Average Entry Age	32.51	32.27	32.16	31.83	31.72
5. Average Annual Earnings	$ 87,374	$ 88,879	$ 90,564	$ 94,143	$ 97,702
6. Number Vested	4,418	4,044	3,789	3,396	3,023
7. Percent Who Are Vested	100.0%	100.0%	100.0%	100.0%	100.0%
Retirees, Disabilitants, and Beneficiaries					
1. Number	13,277	13,491	13,689	13,972	14,126
2. Average Age	70.78	71.30	71.85	72.26	72.60
3. Average Years Since Retirement	14.40	14.74	15.06	15.24	15.51
4. Average Monthly Pension Benefit					
a. Base	$ 2,273	$ 2,303	$ 2,330	$ 2,363	$ 2,411
b. COLA[2]	128	126	126	125	123
c. PRPA[2]	488	518	519	491	561
d. Adjustment	0	0	0	(1)	0
e. Sick	65	67	68	70	72
f. Total	$ 2,954	$ 3,014	$ 3,043	$ 3,048	$ 3,167
Vested Terminations (vested at termination, not refunded contributions, and not commenced benefit)					
1. Number	797	812	764	727	729
2. Average Age	51.01	51.71	52.37	52.68	53.22
3. Average Monthly Pension Benefit	$ 1,350	$ 1,534	$ 1,579	$ 1,635	$ 1,725
Non-Vested Terminations (not vested at termination and not refunded contributions)					
1. Number	1,900	1,810	1,744	1,679	1,616
2. Average Account Balance	$ 20,872	$ 21,612	$ 22,591	$ 23,388	$ 23,906
Total Number of Members	**20,392**	**20,157**	**19,986**	**19,774**	**19,494**

[1] Includes 932 male active members and 2,091 female active members.

[2] Calculated by taking the average of the data field, as provided by the State of Alaska, for all participants in the group.

Summary of Members Included

As of June 30, 2022	DB Tier 1	DB Tier 2	DB Total	DCR Tier 3	Grand Total
Active Members					
1. Number	113	2,910	3,023	5,688	8,711
2. Average Age	64.37	52.11	52.57	42.26	45.84
3. Average Credited Service	30.22	20.49	20.85	6.60	11.55
4. Average Entry Age	34.15	31.62	31.72	35.66	34.29
5. Annual Earnings					
a. Total	$ 11,438,370	$ 283,915,330	$ 295,353,700	$ 437,727,514	$ 733,081,214
b. Average	$ 101,225	$ 97,565	$ 97,702	$ 76,956	$ 84,156

Total and average annual earnings (“valuation pay”) are the annualized earnings for the fiscal year ending on the valuation date.

As of June 30, 2022	Tier 1	Tier 2	Total
Retirees, Disabilitants, and Beneficiaries			
1. Number	10,264	3,862	14,126
2. Average Age	74.99	66.26	72.60
3. Average Years Since Retirement	18.92	6.44	15.51
4. Average Monthly Pension Benefit			
a. Base	$ 2,392	$ 2,462	$ 2,411
b. COLA	147	60	123
c. PRPA	724	127	561
d. Adjustment	0	1	0
e. Sick	70	77	72
f. Total	$ 3,333	$ 2,727	$ 3,167

Summary of Members Included

As of June 30, 2022	Active Members	Inactive Members: Retirees	Covered Spouses	Covered Children / Dependents	Deferred	Total Inactive Members
Retiree Medical Participants						
1. Retiree Coverage Only	2,997	7,814	0	0	423	8,237
2. Retiree + Spouse	0	3,996	3,996	0	543	8,535
3. Retiree + Children / Dependents	0	197	0	131	0	328
4. Family	0	318	318	505	0	1,141
5. Total	2,997	12,325	4,314	636	966	18,241

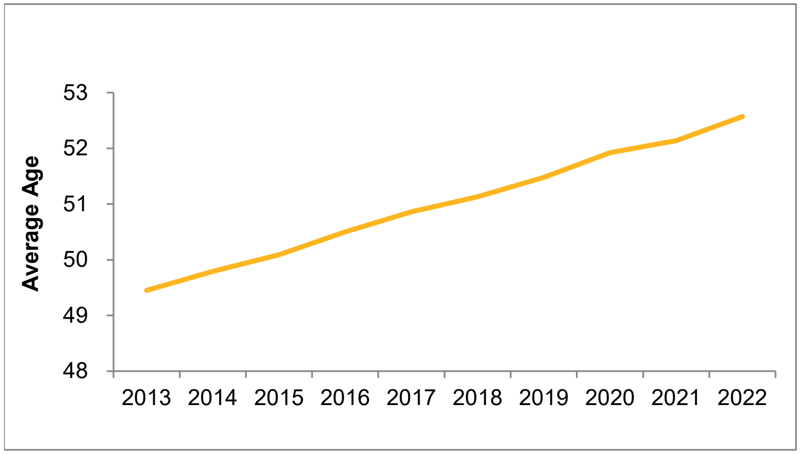
As of June 30, 2022	Retirees	Covered Spouses	Covered Children / Dependents	Deferred	Total Inactive Members
Retiree Medical Participants					
1. Pre-Medicare	2,200	1,260	636	947	5,043
2. Medicare Part A & B	9,907	3,020	0	19	12,946
3. Medicare Part B Only	218	34	0	0	252
4. Total	12,325	4,314	636	966	18,241

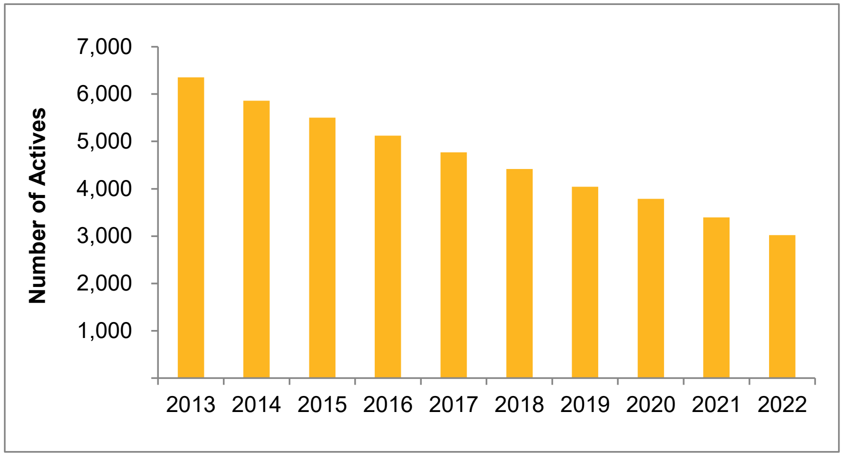
As of June 30, 2022	Retirees
Summary of Retiree Medical Data Received	
1. Retiree records on pension data	14,126
2. Remove duplicates on pension data	(533)
3. Valued in a different retiree healthcare plan[1]	(848)
4. Records without medical coverage	(461)
5. Medical only retirees	41
6. Total	12,325

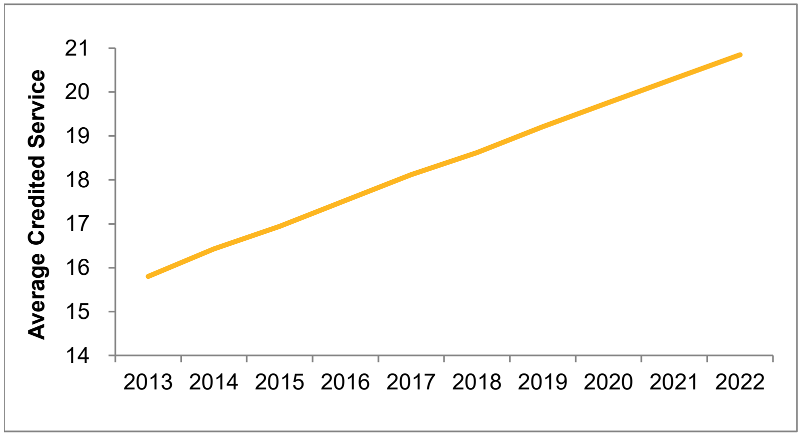
As of June 30	2018	2019	2020	2021	2022
Retiree Medical Retirees					
1. Number	11,714	11,914	12,019	12,138	12,325
2. Average Age	71.00	71.47	72.02	72.48	72.80

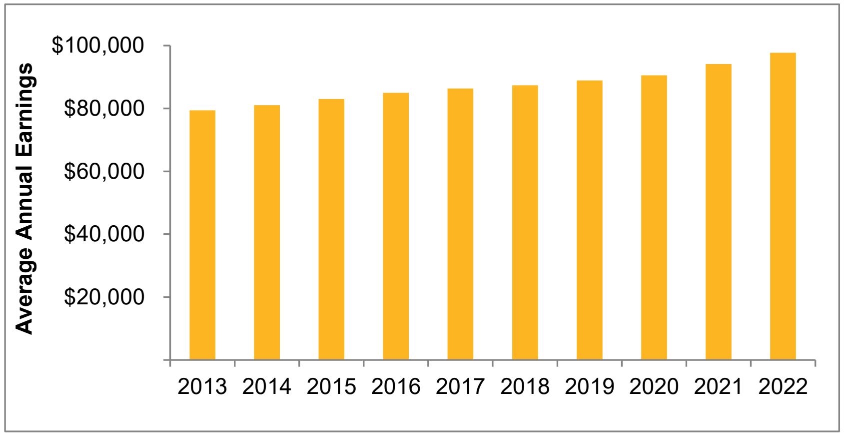
[1] Each member’s retiree medical benefits are valued in the plan indicated in the data from Aetna

Summary of Members Included - Active Members at June 30









Average annual earnings ("valuation pay") are the annualized earnings for the fiscal year ending on the valuation date.

Section 4.2: Age and Service Distribution of Active Members

Annual Earnings by Age

Age	Number	Total Annual Earnings	Average Annual Earnings
0 - 19	0	$ 0	$ 0
20 - 24	0	0	0
25 - 29	0	0	0
30 - 34	0	0	0
35 - 39	10	908,821	90,882
40 - 44	420	39,180,439	93,287
45 - 49	742	71,832,639	96,809
50 - 54	881	87,454,084	99,267
55 - 59	527	52,125,887	98,911
60 - 64	272	26,873,041	98,798
65 - 69	104	10,236,778	98,431
70 - 74	48	4,872,498	101,510
75+	19	1,869,513	98,395
Total	**3,023**	**$295,353,700**	**$ 97,702**

Annual Earnings by Credited Service

Years of Service	Number	Total Annual Earnings	Average Annual Earnings
0	0	$ 0	$ 0
1	1	53,264	53,264
2	4	326,267	81,567
3	3	102,100	34,033
4	6	422,274	70,379
0 - 4	**14**	**$ 903,905**	**$ 64,565**
5 - 9	81	6,019,002	74,309
10 - 14	192	16,193,103	84,339
15 - 19	956	90,842,789	95,024
20 - 24	1,198	120,450,569	100,543
25 - 29	428	44,602,104	104,211
30 - 34	117	12,212,111	104,377
35 - 39	26	2,870,993	110,423
40+	11	1,259,124	114,466
Total	**3,023**	**$295,353,700**	**$ 97,702**

Years of Credited Service by Age

	Years of Service									
Age	**0 - 4**	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25 - 29**	**30 - 34**	**35 - 39**	**40+**	**Total**
0 - 19	0	0	0	0	0	0	0	0	0	0
20 - 24	0	0	0	0	0	0	0	0	0	0
25 - 29	0	0	0	0	0	0	0	0	0	0
30 - 34	0	0	0	0	0	0	0	0	0	0
35 - 39	0	1	1	8	0	0	0	0	0	10
40 - 44	1	14	52	278	75	0	0	0	0	420
45 - 49	1	25	58	264	360	34	0	0	0	742
50 - 54	7	25	42	213	409	179	6	0	0	881
55 - 59	0	13	23	107	199	121	57	7	0	527
60 - 64	3	1	9	53	99	68	33	4	2	272
65 - 69	1	2	6	23	33	15	13	10	1	104
70 - 74	1	0	1	7	14	8	8	3	6	48
75+	0	0	0	3	9	3	0	2	2	19
Total	**14**	**81**	**192**	**956**	**1,198**	**428**	**117**	**26**	**11**	**3,023**

Total and average annual earnings (“valuation pay”) are the annualized earnings for the fiscal year ending on the valuation date.

Section 4.3: Member Data Reconciliation

Pension

		Inactive Members					
	Active Members	Due a Refund	Deferred Benefits	Retired Members	Disabled Members	Bene-ficiaries	Total
As of June 30, 2021	**3,396**	**1,679**	**727**	**12,459**	**20**	**1,493**	**19,774**
Vested Terminations	(125)	0	125	0	0	0	0
Non-Vested Terminations	(4)	4	0	0	0	0	0
Refund of Contributions	0	(43)	(1)	0	0	0	(44)
Disability Retirements	0	0	0	0	0	0	0
Age Retirements	(300)	(6)	(84)	394	(4)	0	0
Deaths With Beneficiary	(4)	0	(2)	(117)	0	123	0
Deaths Without Beneficiary	(3)	(6)	(1)	(157)	0	(68)	(235)
Data Corrections	0	(2)	1	(1)	0	(20)	(22)
Transfers In/Out	9	0	0	0	0	0	9
Rehires	54	(10)	(36)	(8)	0	0	0
Pick Ups*	0	0	0	0	0	12	12
Net Change	**(373)**	**(63)**	**2**	**111**	**(4)**	**47**	**(280)**
As of June 30, 2022	**3,023**	**1,616**	**729**	**12,570**	**16**	**1,540**	**19,494**

* Pickup beneficiaries are primarily new DROs.

Healthcare

		Inactive Members				
	Active Members	Retirees	Covered Spouses	Covered Children / Dependents	Deferred	Total Inactive Members
As of June 30, 2021	**3,366**	**12,138**	**4,266**	**661**	**971**	**18,036**
Vested Terminations	(92)	0	0	0	92	92
Non-Vested Terminations	(4)	0	0	0	0	0
Refund of Contributions	0	0	0	0	0	0
Disability Retirements	(1)	1	1	0	0	2
Age Retirements	(278)	278	162	88	0	528
Deferred Retirements	0	49	24	12	(49)	36
Retired without Medical Coverage	(44)	0	0	0	44	44
Deceased	(7)	(294)	(26)	(1)	(3)	(324)
New Beneficiaries	0	63	(63)	0	0	0
Added Retiree Medical Coverage	0	93	39	18	(59)	91
Added Dependent Coverage	0	0	53	39	0	92
Dropped Retiree Medical Coverage	0	(2)	(1)	0	2	(1)
Dropped Dependent Coverage	0	0	(140)	(181)	0	(321)
Rehires	60	(5)	(3)	0	(37)	(45)
Transfers In/Out	(3)	4	2	0	5	11
Net Change	**(369)**	**187**	**48**	**(25)**	**(5)**	**205**
As of June 30, 2022	**2,997**	**12,325**	**4,314**	**636**	**966**	**18,241**

Section 4.4: Schedule of Active Member Data

Valuation Date	Number	Annual Earnings (000's)	Annual Average Earnings	Percent Increase in Average Earnings	Number of Participating Employers
June 30, 2022	3,023	$ 295,354	$ 97,702	3.8%	57
June 30, 2021	3,396	319,711	94,143	4.0%	56
June 30, 2020	3,789	343,146	90,564	1.9%	56
June 30, 2019	4,044	359,426	88,879	1.7%	56
June 30, 2018	4,418	386,016	87,374	1.2%	56
June 30, 2017	4,772	411,951	86,327	1.6%	57
June 30, 2016	5,123	435,222	84,954	2.4%	57
June 30, 2015	5,502	456,636	82,995	2.4%	58
June 30, 2014	5,861	474,873	81,023	2.1%	58
June 30, 2013	6,352	504,260	79,386	2.6%	58

Total and average annual earnings ("valuation pay") are the annualized earnings for the fiscal year ending on the valuation date.

Section 4.5: Active Member Payroll Reconciliation

Payroll Field	Payroll Data (000's)
a) DRB actual reported salaries FY22 in employer list	$ 816,150
b) DRB actual reported salaries FY22 in valuation data	723,385
c) Annualized valuation data	733,081
d) Valuation payroll as of June 30, 2022	766,219
e) Rate payroll for FY23	758,938
f) Rate payroll for FY25	769,543

a) Actual reported salaries from DRB employer listing showing all payroll paid during FY22, including those who were not active as of June 30, 2022
b) Payroll from valuation data for people who are in active status as of June 30, 2022
c) Payroll from (b) annualized for both new entrants and part-timers
d) Payroll from (c) with one year of salary scale applied to estimate salaries payable for the upcoming year
e) Payroll from (d) with the part-timer annualization removed
f) Payroll from (e) with two years of assumed decrements and salary scale, and 0% population growth

Section 4.6: Summary of New Pension Benefit Recipients

During the Year Ending June 30	2018	2019	2020	2021	2022
Service					
1. Number	465	367	331	447	394
2. Average Age at Commencement	59.98	59.87	59.71	59.79	58.49
3. Average Monthly Pension Benefit	$ 3,527	$ 3,562	$ 3,693	$ 3,593	$ 4,079
Survivor (including surviving spouse and DROs)					
1. Number	87	96	127	145	135
2. Average Age at Commencement	71.61	74.36	74.16	76.80	73.76
3. Average Monthly Pension Benefit	$ 2,022	$ 1,795	$ 1,903	$ 1,951	$ 2,071
Disability					
1. Number	3	5	2	1	0
2. Average Age at Commencement	49.92	51.51	53.65	54.35	0.00
3. Average Monthly Pension Benefit	$ 3,625	$ 4,182	$ 3,019	$ 4,886	$ 0
Total					
1. Number	555	468	460	593	529
2. Average Age at Commencement	61.75	62.75	63.67	63.94	62.39
3. Average Monthly Pension Benefit	$ 3,292	$ 3,206	$ 3,196	$ 3,194	$ 3,567

Summary of New Pension Benefit Recipients

Average Pension Benefit Payments

	Years of Credited Service						
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+
Period 7/1/2021 – 6/30/2022:							
Average Monthly Pension	$ 1,073	$ 994	$ 1,828	$ 2,952	$ 3,984	$ 4,743	$ 6,936
Average Final Avg Salary	$ 56,500	$ 63,629	$ 79,736	$ 92,533	$ 98,208	$ 101,942	$ 112,372
Number of Recipients	5	19	15	69	139	101	46
Period 7/1/2020 – 6/30/2021:							
Average Monthly Pension	$ 451	$ 764	$ 1,509	$ 2,684	$ 3,625	$ 4,659	$ 6,090
Average Final Avg Salary	$ 43,545	$ 54,444	$ 71,764	$ 88,437	$ 94,909	$ 97,881	$ 98,847
Number of Recipients	8	24	33	83	142	112	46
Period 7/1/2019 – 6/30/2020:							
Average Monthly Pension	$ 243	$ 1,054	$ 1,647	$ 2,600	$ 3,616	$ 4,874	$ 6,772
Average Final Avg Salary	$ 35,203	$ 70,014	$ 76,621	$ 86,341	$ 91,619	$ 96,657	$ 107,454
Number of Recipients	8	19	26	72	90	78	40
Period 7/1/2018 – 6/30/2019:							
Average Monthly Pension	$ 334	$ 891	$ 1,540	$ 2,760	$ 3,567	$ 4,666	$ 6,777
Average Final Avg Salary	$ 21,317	$ 57,735	$ 72,728	$ 85,580	$ 92,422	$ 96,096	$ 104,880
Number of Recipients	4	23	39	87	93	85	41
Period 7/1/2017 – 6/30/2018:							
Average Monthly Pension	$ 204	$ 899	$ 1,583	$ 2,583	$ 3,422	$ 4,580	$ 6,083
Average Final Avg Salary	$ 34,164	$ 56,061	$ 75,433	$ 85,174	$ 90,449	$ 94,803	$ 102,076
Number of Recipients	5	21	61	85	109	130	57
Period 7/1/2016 – 6/30/2017:							
Average Monthly Pension	$ 426	$ 795	$ 1,626	$ 2,433	$ 3,549	$ 4,536	$ 6,351
Average Final Avg Salary	$ 37,851	$ 56,206	$ 75,706	$ 81,394	$ 91,313	$ 95,651	$ 101,423
Number of Recipients	10	22	60	75	100	64	48
Period 7/1/2015 – 6/30/2016:							
Average Monthly Pension	$ 245	$ 1,002	$ 1,535	$ 2,540	$ 3,445	$ 4,472	$ 6,168
Average Final Avg Salary	$ 33,030	$ 59,102	$ 74,725	$ 85,087	$ 89,590	$ 91,468	$ 98,446
Number of Recipients	11	31	82	69	105	74	54
Period 7/1/2014 – 6/30/2015:							
Average Monthly Pension	$ 349	$ 1,041	$ 1,342	$ 2,205	$ 3,267	$ 4,220	$ 5,900
Average Final Avg Salary	$ 30,580	$ 66,389	$ 66,444	$ 75,510	$ 88,520	$ 90,069	$ 96,693
Number of Recipients	11	33	70	67	137	125	94
Period 7/1/2013 – 6/30/2014:							
Average Monthly Pension	$ 235	$ 904	$ 1,435	$ 2,398	$ 3,016	$ 4,073	$ 7,485
Average Final Avg Salary	$ 32,410	$ 57,124	$ 63,001	$ 75,489	$ 84,962	$ 93,746	$ 111,694
Number of Recipients	8	31	31	28	22	18	12
Period 7/1/2012 – 6/30/2013:							
Average Monthly Pension	$ 253	$ 1,030	$ 1,496	$ 2,450	$ 3,281	$ 4,384	$ 6,052
Average Final Avg Salary	$ 34,796	$ 66,429	$ 70,981	$ 79,364	$ 84,530	$ 89,012	$ 94,842
Number of Recipients	10	57	67	90	101	79	64

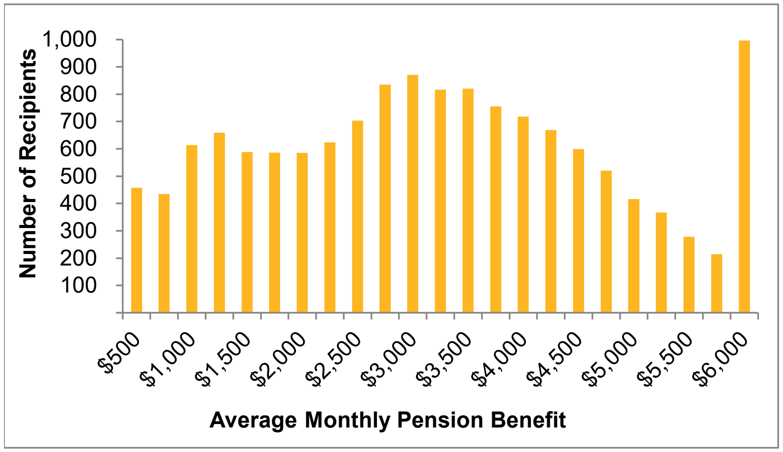
"Average Monthly Pension" includes postretirement pension adjustments and cost-of-living increases.

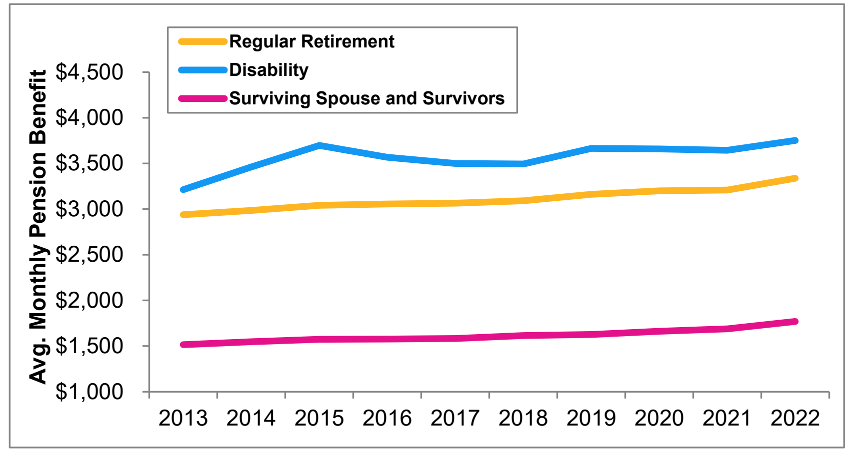
Beneficiaries are not included in the table above.

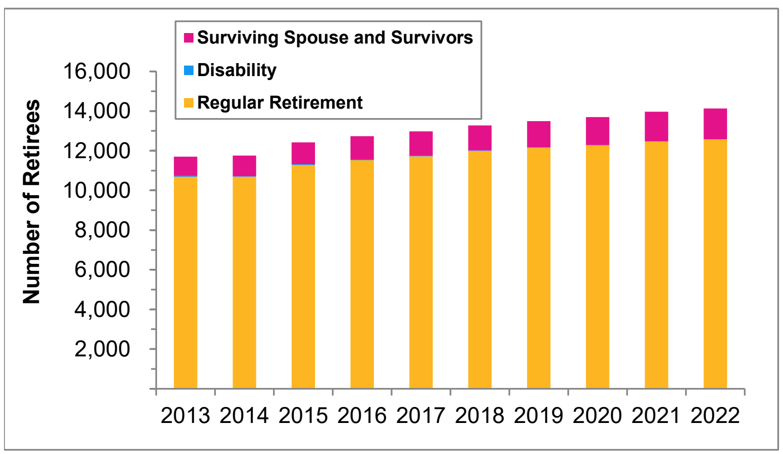
Section 4.7: Summary of All Pension Benefit Recipients

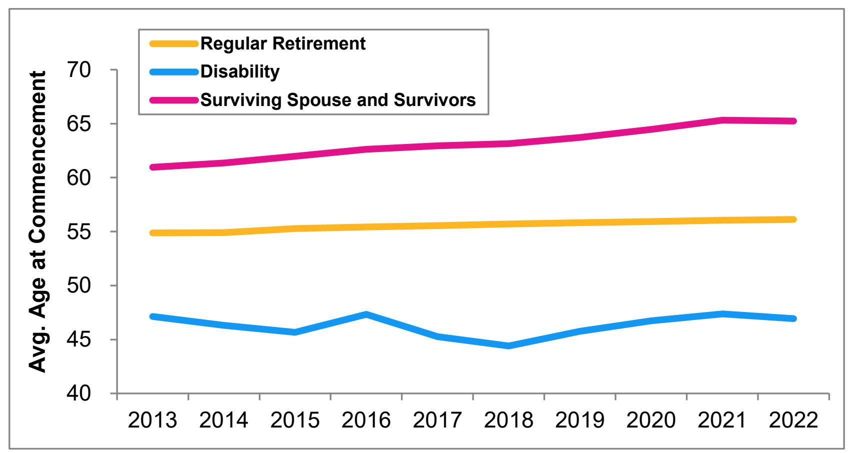
As of June 30	2018	2019	2020	2021	2022
Service					
1. Number, Fiscal Year Start	11,716	11,988	12,147	12,267	12,459
2. Net Change	272	159	120	192	111
3. Number, Fiscal Year End	11,988	12,147	12,267	12,459	12,570
4. Average Age at Commencement	55.70	55.82	55.93	56.05	56.12
5. Average Current Age	70.50	70.99	71.50	71.85	72.20
6. Average Monthly Pension Benefit	$ 3,093	$ 3,161	$ 3,199	$ 3,210	$ 3,338
Surviving Spouse (including DROs)					
1. Number, Fiscal Year Start	1,237	1,261	1,315	1,400	1,493
2. Net Change	24	54	85	93	47
3. Number, Fiscal Year End	1,261	1,315	1,400	1,493	1,540
4. Average Age at Commencement	63.16	63.73	64.49	65.32	65.24
5. Average Current Age	73.90	74.65	75.26	75.97	76.13
6. Average Monthly Pension Benefit	$ 1,618	$ 1,629	$ 1,665	$ 1,688	$ 1,770
Survivor (other than spouse)					
1. Number, Fiscal Year Start	3	3	3	2	0
2. Net Change	0	0	(1)	(2)	0
3. Number, Fiscal Year End	3	3	2	0	0
4. Average Age at Commencement	53.85	53.85	53.94	0.00	0.00
5. Average Current Age	60.65	61.65	61.56	0.00	0.00
6. Average Monthly Pension Benefit	$ 749	$ 765	$ 705	$ 0	$ 0
Disability					
1. Number, Fiscal Year Start	27	25	26	20	20
2. Net Change	(2)	1	(6)	0	(4)
3. Number, Fiscal Year End	25	26	20	20	16
4. Average Age at Commencement	44.40	45.75	46.74	47.37	46.92
5. Average Current Age	50.02	51.08	51.73	52.85	53.23
6. Average Monthly Pension Benefit	$ 3,494	$ 3,666	$ 3,658	$ 3,643	$ 3,752
Total					
1. Number, Fiscal Year Start	12,983	13,277	13,491	13,689	13,972
2. Net Change	294	214	198	283	154
3. Number, Fiscal Year End	13,277	13,491	13,689	13,972	14,126
4. Average Age at Commencement	56.39	56.56	56.79	57.02	57.09
5. Average Current Age	70.78	71.30	71.85	72.26	72.60
6. Average Monthly Pension Benefit	$ 2,954	$ 3,014	$ 3,043	$ 3,048	$ 3,167

Summary of All Pension Benefit Recipients









Summary of All Pension Benefit Recipients

Distribution of Annual Pension Benefits for Benefit Recipients

Annual Pension Benefit by Age

Age	Number	Total Annual Pension Benefit	Average Annual Pension Benefit
0 - 19	0	$ 0	$ 0
20 - 24	0	0	0
25 - 29	0	0	0
30 - 34	0	0	0
35 - 39	0	0	0
40 - 44	6	185,086	30,848
45 - 49	66	2,589,686	39,238
50 - 54	282	12,961,903	45,964
55 - 59	698	31,141,008	44,615
60 - 64	1,599	61,948,984	38,742
65 - 69	2,624	97,313,596	37,086
70 - 74	3,329	118,456,102	35,583
75+	5,522	212,304,175	38,447
Total	**14,126**	**$536,900,540**	**$ 38,008**

Annual Pension Benefit by Years Since Commenced

Years Since Comm.	Number	Total Annual Pension Benefit	Average Annual Pension Benefit
0	468	$ 19,871,349	$ 42,460
1	533	21,957,990	41,197
2	464	18,370,535	39,592
3	467	18,712,392	40,069
4	482	20,163,296	41,833
0 - 4	**2,414**	**$ 99,075,562**	**$ 41,042**
5 - 9	2,515	97,855,022	38,909
10 - 14	2,151	77,048,086	35,820
15 - 19	2,019	65,415,464	32,400
20 - 24	2,069	73,529,769	35,539
25 - 29	1,665	67,904,294	40,783
30 - 34	674	28,520,266	42,315
35 - 39	514	23,990,419	46,674
40+	105	3,561,658	33,921
Total	**14,126**	**$536,900,540**	**$ 38,008**

Years Since Commencement by Age

	Years Since Commencement									
Age	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	Total
0 - 19	0	0	0	0	0	0	0	0	0	0
20 - 24	0	0	0	0	0	0	0	0	0	0
25 - 29	0	0	0	0	0	0	0	0	0	0
30 - 34	0	0	0	0	0	0	0	0	0	0
35 - 39	0	0	0	0	0	0	0	0	0	0
40 - 44	5	1	0	0	0	0	0	0	0	6
45 - 49	56	9	1	0	0	0	0	0	0	66
50 - 54	231	46	3	0	2	0	0	0	0	282
55 - 59	430	195	59	13	0	1	0	0	0	698
60 - 64	751	458	240	123	23	3	1	0	0	1,599
65 - 69	408	911	666	378	212	48	0	0	1	2,624
70 - 74	216	554	732	851	632	298	41	2	3	3,329
75+	317	341	450	654	1,200	1,315	632	512	101	5,522
Total	**2,414**	**2,515**	**2,151**	**2,019**	**2,069**	**1,665**	**674**	**514**	**105**	**14,126**

Section 4.8: Pension Benefit Recipients by Type of Benefit and Option Elected

Amount of Monthly Pension Benefit	Number of Recipients	Type of Pension Benefit			Option Selected			
		1	2	3	1	2	3	4
$ 1 – 300	231	156	75	0	143	43	39	6
301 – 600	387	252	135	0	230	62	74	21
601 – 900	614	471	143	0	340	123	118	33
901 – 1,200	802	631	171	0	469	153	140	40
1,201 – 1,500	721	555	166	0	413	152	136	20
1,501 – 1,800	708	524	184	0	405	148	132	23
1,801 – 2,100	705	539	166	0	398	134	152	21
2,101 – 2,400	813	681	132	0	381	192	207	33
2,401 – 2,700	927	830	97	0	419	225	255	28
2,701 – 3,000	1,051	968	80	3	472	251	294	34
3,001 – 3,300	991	923	64	4	418	232	313	28
3,301 – 3,600	958	924	32	2	371	231	330	26
3,601 – 3,900	886	855	31	0	365	187	310	24
3,901 – 4,200	811	793	16	2	324	173	284	30
4,200+	3,521	3,468	48	5	1,369	652	1,380	120
Total	14,126	12,570	1,540	16	6,517	2,958	4,164	487

Type of Pension Benefit
1. Regular Retirement
2. Survivor Payment
3. Disability

Option Selected
1. Whole Life Annuity
2. 75% Joint and Contingent Annuity
3. 50% Joint and Contingent Annuity
4. 66 2/3% Joint and Survivor Annuity

Section 4.9: Pension Benefit Recipients Added to and Removed from Rolls

Year Ended	Added to Rolls		Removed from Rolls		Rolls at End of Year		Percent Increase in Annual Pension Benefits	Average Annual Pension Benefit
	No.[1]	Annual Pension Benefits[1]	No.[1]	Annual Pension Benefits[1]	No.	Annual Pension Benefits		
June 30, 2022	529	$ 22,643,316	375	$ (3,174,745)	14,126	$ 536,900,540	5.1%	$ 38,008
June 30, 2021	593	22,728,504	310	11,391,465	13,972	511,082,479	2.3%	36,579
June 30, 2020	460	17,641,920	262	5,527,983	13,689	499,745,440	2.5%	36,507
June 30, 2019	468	18,004,896	254	871,684	13,491	487,631,503	3.6%	36,145
June 30, 2018	555	21,924,986	261	6,926,129	13,277	470,498,291	3.3%	35,437
June 30, 2017	487	17,151,684	230	7,736,025	12,983	455,499,434	2.1%	35,084
June 30, 2016	530	18,364,581	222	6,144,109	12,726	446,083,775	2.8%	35,053
June 30, 2015	888	34,120,658	220	3,531,501	12,418	433,863,303	7.6%	34,938
June 30, 2014	226	5,964,256	181	(1,150,187)	11,750	403,274,146	1.8%	34,321
June 30, 2013	576	19,387,542	172	1,652,575	11,705	396,159,703	4.7%	33,845

[1] Numbers are estimated, and include other internal transfers.

Section 5: Basis of the Actuarial Valuation

Section 5.1: Summary of Plan Provisions

Effective Date

July 1, 1955, with amendments through June 30, 2022. Chapter 97, 1990 Session Laws of Alaska, created a two-tier retirement system. Members who were first hired under TRS before July 1, 1990 (Tier 1) are eligible for different benefits than members hired after June 30, 1990 (Tier 2). Chapter 9, 2005 Session Laws of Alaska, closed the plan to new members hired after June 30, 2006.

Administration of Plan

The Commissioner of Administration or the Commissioner's designee is the administrator of the system. The Attorney General of the state is the legal counsel for the system and shall advise the administrator and represent the system in legal proceedings.

Prior to June 30, 2005, the Teachers' Retirement Board prescribed policies and adopted regulations and performed other activities necessary to carry out the provisions of the system. The Alaska State Pension Investment Board, Department of Revenue, Treasury Division was responsible for investing TRS funds.

On July 27, 2005, Senate Bill 141, enacted as Chapter 9, 2005 Session laws of Alaska, replaced the Teachers' Retirement Board and the Alaska State Pension Investment Board with the Alaska Retirement Management Board.

Employers Included

Currently, there are 57 employers participating in TRS, including the State of Alaska, 53 school districts, and three other eligible organizations.

Membership

Membership in TRS is mandatory for the following employees hired before July 1, 2006:

- certificated full-time and part-time elementary and secondary teachers, certificated school nurses, and certificated employees in positions requiring teaching certificates;
- positions requiring a teaching certificate as a condition of employment in the Department of Education and Early Development and the Department of Labor and Workforce Development;
- University of Alaska full-time and part-time teachers, and full-time administrative employees in positions requiring academic standing if approved by the TRS administrator;
- certain full-time or part-time teachers of Alaska Native language or culture who have elected to be covered under TRS;
- members on approved sabbatical leave under AS 14.20.310;
- certain State legislators who have elected to be covered under TRS; and
- a teacher who has filed for worker's compensation benefits due to an on-the-job assault and who, as a result of the physical injury, is placed on leave without pay.

Employees participating in the University of Alaska's Optional Retirement Plan or other retirement plans funded by the State are not covered by TRS.

Employees who work half-time in TRS and Public Employees' Retirement System (PERS) simultaneously are eligible for half-time TRS and PERS credit.

Senate Bill 141, signed into law on July 27, 2005, closes the plan effective July 1, 2006 to new members first hired on or after July 1, 2006.

Credited Service

TRS members receive a year of membership credit if they work a minimum of 172 days during the school year (July 1 through June 30 of the following year). Fractional credit is determined based on the number of days worked. Part-time members who work at least 50% of full-time receive membership credit for each day in proportion to full-time service. Credit is granted for all Alaskan public school service.

Members may claim other types of service, including:

- Outside teaching service in out-of-state schools or Alaska private schools (not more than ten years may be claimed);
- Military service (not more than five years of military service or ten years of combined outside and military service may be claimed);
- Alaska Bureau of Indian Affairs (BIA) service;
- Retroactive Alaskan service that was not creditable at the time it occurred, but later became creditable because of legislative change;
- Unused sick leave credit after members retire; and
- Leave of absence without pay.

Except for retroactive Alaska service that occurred before July 1, 1955, and unused sick leave, contributions are required for all claimed service.

Members receiving TRS disability benefits continue to earn TRS credit while disabled.

Survivors who are receiving occupational death benefits continue to earn TRS service credit while occupational survivor benefits are being paid.

Employer Contributions

TRS employers contribute the amounts required, in addition to employees' contributions, to fund the benefits of the system.

The normal cost rate is a uniform rate for all participating employers (less the value of members' contributions).

The past service rate is a uniform rate for all participating employers to amortize the unfunded past service liability with payments that are a level percentage of payroll amount over a closed 25-year period starting June 30, 2014. Effective June 30, 2018, each future year's unfunded service liability is separately amortized on a level percent of pay basis over 25 years.

Employer rates cannot be less than the normal cost rate.

Pursuant to AS14.25.070 effective July 1, 2008, each TRS employer will pay a simple uniform contribution rate of 12.56% of member payroll.

Additional State Contributions

Pursuant to AS14.25.085 effective July 1, 2008, the State shall contribute an amount (in addition to the State contribution as an employer) that, when combined with the employer contribution of 12.56%, will be sufficient to pay the total contribution rate adopted by the Board.

Member Contributions

Mandatory Contributions

Members are required to contribute 8.65% of their base salaries. Members' contributions are deducted from gross salaries before federal income taxes are withheld.

Contributions for Claimed Service

Member contributions are also required for most of the claimed service described above.

1% Supplemental Contributions

Members who joined the system before July 1, 1982 and elected to participate in the supplemental contributions provision are required to contribute an additional 1% of their salaries. Supplemental contributions are deducted from gross salaries after federal income taxes are withheld. Under the supplemental provision, an eligible spouse or dependent child will receive a survivor's allowance or spouse's pension if the member dies (see below). Supplemental contributions are only refundable upon death (see below).

Interest

Members' contributions earn 4.5% interest, compounded annually on June 30.

Refund of Contributions

Terminated members may receive refunds of their member contribution accounts which includes their mandatory contributions, indebtedness payments, and interest earned. Terminated members' accounts may be attached to satisfy claims under Alaska Statute 09.38.065, federal income tax levies, and valid Qualified Domestic Relations Orders.

Reinstatement of Contributions

Refunded accounts and the corresponding TRS service may be reinstated upon reemployment in TRS prior to July 1, 2010. Interest accrues on refunds until paid in full or members retire.

Retirement Benefits

Eligibility

a. Members, including deferred vested members, are eligible for normal retirement at age 55 or early retirement at age 50 if they were hired before July 1, 1990 (Tier 1), and age 60 or early retirement at age 55 if they were hired on or after July 1, 1990 (Tier 2). Additionally, they must have at least:

   (i) eight years of paid-up membership service;

   (ii) 15 years of paid-up creditable service, the last five years of which are membership service, and they were first hired under TRS before July 1, 1975;

   (iii) five years of paid-up membership service and three years of paid-up Alaska Bureau of Indian Affairs service;

   (iv) 12 years of combined part-time and full-time paid-up membership service;

   (v) two years of paid-up membership service if they are vested in PERS; or

   (vi) one year of paid-up membership service if they are retired from PERS.

b. Members may retire at any age when they have:

   (i) 25 years of paid-up creditable service, the last five years of which are membership service;

   (ii) 20 years of paid-up membership service;

   (iii) 20 years of combined paid-up membership and Alaska Bureau of Indian Affairs service, the last five years of which are membership service; or

   (iv) 20 years of combined paid-up part-time and full-time membership service.

Benefit Type

Lifetime benefits are paid to members. Eligible members may receive normal, unreduced benefits when they (1) reach normal retirement age and complete the service required; or (2) satisfy the minimum service requirements to retire at any age under (b) above. Members may receive early, actuarially reduced benefits when they reach early retirement age and complete the service required.

Members may select joint and survivor options and a last survivor option. Under these options and early retirement, benefits are actuarially adjusted so that members receive the actuarial equivalents of their normal benefit amounts.

Benefit Calculations

Retirement benefits are calculated by multiplying the average base salary (ABS) times the total TRS service times the percentage multiplier. The ABS is determined by averaging the salaries earned during the three highest school years. Members must earn at least 115 days of credit in a school year to include it in the ABS calculation. TRS pays a minimum benefit of $25.00 per month for each year of service when the calculated benefit is less.

The percentage multipliers are 2% for the first 20 years and 2.5% for all remaining service. Service before July 1, 1990 is calculated at 2%.

Salaries are subject to compensation limits under IRC 401(a)(17) for members first hired on or after July 1, 1996. Retirement benefit amounts are subject to IRC 415(b) limits regardless of hire date.

Indebtedness

Members who terminate and refund their TRS contributions are not eligible to retire unless they return to TRS employment and pay back their refunds plus interest or accrue additional service which qualifies them for retirement. TRS refunds must be paid in full if the corresponding service is to count toward the minimum service requirements for retirement. Refunded TRS service is included in total service for the purpose of calculating retirement benefits. However, when refunds are not completely paid before retirement, benefits are actuarially reduced for life. Indebtedness balances may also be created when a member purchases qualified claimed service.

Reemployment of Retired Members

Retirees who return to work in a permanent full-time or part-time TRS position after a Normal Retirement are eligible to return under the Standard Option.

Under the Standard Option, retirement and retiree healthcare benefits are suspended while retired members are reemployed under TRS. During reemployment, members earn additional TRS service and contributions are withheld from their wages.

Members retired under the Retirement Incentive Programs (RIPs) who return to employment will:

a. forfeit the three years of incentive credits that they received;
b. owe TRS 110% of the benefits that they received under the RIP, which may include costs for health insurance, excluding amounts that they paid to participate; and
c. be charged 7% interest from the date that they are reemployed until their indebtedness is paid in full or they retire again. If the indebtedness is not completely paid, future benefits will be actuarially reduced for life.

Employers make contributions to the unfunded liability of the plan on behalf of rehired retired members at the rate the employer is making contributions to the unfunded liability of the plan for other members.

Postemployment Healthcare Benefits

When pension benefits begin, major medical benefits are provided by TRS to (1) all employees first hired before July 1, 1990 (Tier 1) and their surviving spouses and (2) members and their surviving spouses who have 25 years of membership service, are disabled or age 60 or older, regardless of their initial hire dates. Employees first hired after June 30, 1990 (Tier 2) and their surviving spouses may receive major medical benefits prior to age 60 by paying premiums.

Medical, prescription drug, dental, vision, and audio coverage is provided through the AlaskaCare Retiree Health Plan. Health plan provisions do not vary by retirement tier or age, except for Medicare coordination. Participants in dental, vision, and audio coverage pay a full self-supporting rate and those benefits are not included in this valuation.

Starting in 2022, prior authorization is required for certain specialty medications for all participants. There is no change to the medications that are covered by the plan.

Starting in 2022, certain preventive benefits for pre-Medicare participants are covered by the plan.

Surviving spouses continue coverage only if a pension payment form that provided survivor benefits was elected. Alternate payees (i.e. individuals who are the subject of a domestic relations order or DRO) are allowed to participate in the plan, but must pay the full cost.

Where premiums are required prior to age 60 (Tier 2), the valuation bases this payment upon the age of the retiree.

Participants in the defined benefit plan are covered under the following benefit design:

Plan Feature	Amounts
Deductible (single/family)	$150 / $450
Coinsurance (most services)	20%
Outpatient surgery/testing	0%
Maximum Out-of-Pocket (single/family, excluding deductible)	$800 / $2,400
Rx Copays (generic/brand/mail-order), does not apply to OOP max	$4 / $8 / $0
Lifetime Maximum	$2,000,000

The plan coordinates with Medicare on a traditional Coordination of Benefits Method. Starting in 2019, the prescription drug coverage is through a Medicare Part D EGWP arrangement.

Disability Benefits

Monthly disability benefits are paid to permanently disabled members until they die, recover, or become eligible for normal retirement. To be eligible, members must have at least five years of paid-up membership service.

Disability benefits are equal to 50% of the member’s base salary at the time of disability. The benefit is increased by 10% of the base salary for each minor child, up to a maximum of 40%. Members continue to earn TRS service until eligible for normal retirement.

Members are appointed to normal retirement on the first of the month after they become eligible.

Death Benefits

Death benefits may be paid to a spouse, dependent children, or a designated beneficiary upon the death of a member.

Occupational Death

When an active member dies from occupational causes, a monthly survivor's pension may be paid to the spouse or to the member's dependent children if there is no spouse, unless benefits are payable under the supplemental contributions provision. The pension equals 40% of the member's base salary on the date of death or disability. On the member's normal retirement date, the benefit converts to a normal retirement benefit based on the member's average base salary on the date of death and TRS service, including service accumulated from the date of death to normal retirement date.

If there is no surviving spouse or dependent children, the designated beneficiary receives the member's contribution account, which includes mandatory contributions, supplemental contributions, indebtedness payments, and interest earned. The designated beneficiary also receives a lump sum payment equal to $1,000 plus $100 for each year of TRS service, up to a maximum of $3,000.

Non-Occupational Death

When a vested member dies from non-occupational causes, the surviving spouse may elect to receive a monthly 50% joint and survivor benefit or a lump sum benefit (see below), unless benefits are payable under the supplemental contributions provision. The monthly benefit is based on the member's average base salary and TRS service accrued on the date of death.

Upon the death of an active member who has less than one year of service or an inactive member who is not vested, the designated beneficiary receives the member's contribution account, which includes mandatory contributions, supplemental contributions, indebtedness payments, and interest earned. If the member has more than one year of TRS service or is vested, the designated beneficiary also receives a lump sum payment equal to $1,000 plus $100 for each year of TRS service, up to a maximum of $3,000. An additional $500 may be payable if the member is survived by dependent children.

Supplemental Contributions Provision

Members are eligible for supplemental coverage if they joined TRS before July 1, 1982, elected to participate in the supplemental provision, and made the required contributions. A survivor's allowance or spouse's pension may be payable if the member made supplemental contributions for at least one year and dies while in membership service or while disabled under TRS. In addition, the allowance and pension may be payable if the member dies while retired or in deferred vested status if supplemental contributions were made for at least five years.

Survivor's Allowance

If the member is survived by dependent children, the surviving spouse and dependent children are entitled to a survivor's allowance. The allowance for the spouse is equal to 35% of the member's base salary at the time of death or disability, plus 10% for each dependent child up to a maximum of 40%. The allowance terminates and a spouse's pension becomes payable when there is no longer an eligible dependent child.

Spouse's Pension

A monthly spouse's pension is payable to the surviving spouse if there are no dependent children. The spouse's pension is equal to 50% of the retirement benefit that the deceased member was receiving or the unreduced retirement benefit that the deceased member would have received if retired at the time of death. The spouse's pension begins on the first of the month after the member's death or termination of the survivor's allowance.

Death After Retirement

If a joint and survivor option was selected at retirement, the eligible spouse receives continuing, lifetime monthly benefits after the member dies. A survivor's allowance or spouse's pension may be payable if the member participated in the supplemental contributions provision. If a joint and survivor option was not selected and benefits are not payable under the supplemental contributions provision, the designated beneficiary receives the member's contribution account, less any benefits already paid and the member's last benefit check.

Postretirement Pension Adjustments

Postretirement pension adjustments (PRPAs) are granted annually to eligible benefit recipients when the consumer price index (CPI) for urban wage earners and clerical workers for Anchorage increases during the preceding calendar year. PRPAs are calculated by multiplying the recipient's base benefit including past PRPAs, but excluding the Alaska COLA, times:

a. The lesser of 75% of the CPI increase in the preceding calendar year or 9% if the recipient is at least age 65 or on TRS disability; or
b. The lesser of 50% of the CPI increase in the preceding calendar year or 6% if the recipient is at least age 60, or under age 60 if the recipient has been receiving benefits for at least eight years.

Ad hoc PRPAs, up to a maximum of 4%, may be granted to eligible recipients who were first hired before July 1, 1990 (Tier 1) if the CPI increases and the funded ratio is at least 105%.

In a year where an ad hoc PRPA is granted, eligible recipients will receive the higher of the two calculations.

Alaska Cost-of-Living Allowance (COLA)

Eligible benefit recipients who reside in Alaska receive an Alaska COLA equal to 10% of their base benefits. The following benefit recipients are eligible:

a. members who were first hired under TRS before July 1, 1990 (Tier 1) and their survivors;
b. members who were first hired under TRS after June 30, 1990 (Tier 2) and their survivors if they are at least age 65; and
c. all disabled members.

Changes in Benefit Provisions Valued Since the Prior Valuation

There were no changes in benefit provisions since the prior valuation.

Section 5.2: Description of Actuarial Methods and Valuation Procedures

The funding method used in this valuation was adopted by the Board in October 2006. Changes in methods were adopted by the Board in January 2019 based on the experience study for the period July 1, 2013 to June 30, 2017. The asset smoothing method used to determine valuation assets was changed effective June 30, 2014.

Benefits valued are those delineated in Alaska State statutes as of the valuation date. Changes in State statutes effective after the valuation date are not taken into consideration in setting the assumptions and methods.

Actuarial Cost Method

Liabilities and contributions shown in the report are computed using the Entry Age Normal Actuarial Cost Method, level percent of pay.

Effective June 30, 2018, the Board adopted a layered UAAL amortization method: Layer #1 equals the sum of (i) the UAAL at June 30, 2018 based on the 2017 valuation, plus (ii) the FY18 experience gain/loss. Layer #1 is amortized over the remainder of the 25-year closed period that was originally established in 2014[1]. Layer #2 equals the change in UAAL at June 30, 2018 due to the experience study and EGWP implementation. Layer #2 is amortized over a separate closed 25-year period starting in 2018. Future layers will be created each year based on the difference between actual and expected UAAL occurring that year, and will be amortized over separate closed 25-year periods. The UAAL amortization continues to be on a level percent of pay basis. State statutes allow the contribution rate to be determined on payroll for all members, defined benefit and defined contribution member payroll combined.

Projected pension and postemployment healthcare benefits were determined for all active members. Cost factors designed to produce annual costs as a constant percentage of each member's expected compensation in each year from the assumed entry age to the assumed retirement age were applied to the projected benefits to determine the normal cost (the portion of the total cost of the plan allocated to the current year under the method). The normal cost is determined by summing intermediate results for active members and determining an average normal cost rate which is then related to the total payroll of active members. The actuarial accrued liability for active members (the portion of the total cost of the plan allocated to prior years under the method) was determined as the excess of the actuarial present value of projected benefits over the actuarial present value of future normal costs.

The actuarial accrued liability for retired members and their beneficiaries currently receiving benefits, terminated vested members and disabled members not yet receiving benefits was determined as the actuarial present value of the benefits expected to be paid. No future normal costs are payable for these members.

The actuarial accrued liability under this method at any point in time is the theoretical amount of the fund that would have been accumulated had annual contributions equal to the normal cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date). The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of plan assets measured on the valuation date.

Under this method, experience gains or losses, i.e., decreases or increases in accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the unfunded actuarial accrued liability.

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[1] Layer #1 is referred to as "initial amount" in Sections 1.2 and 1.3.

Valuation of Assets

The actuarial asset value was reinitialized to equal Fair Value of Assets as of June 30, 2014. Beginning in FY15, the asset valuation method recognizes 20% of the gain or loss each year, for a period of five years. All assets are valued at fair value. Assets are accounted for on an accrued basis and are taken directly from financial statements audited by KPMG LLP.

Changes in Methods Since the Prior Valuation

There were no changes in the asset or valuation methods since the prior valuation.

Valuation of Retiree Medical and Prescription Drug Benefits

This section outlines the detailed methodology used in the internal model developed by Buck to calculate the initial per capita claims cost rates for the TRS postemployment healthcare plan. Note that the methodology reflects the results of our annual experience rate update for the period from July 1, 2021 to June 30, 2022.

Base claims cost rates are incurred healthcare costs expressed as a rate per member per year. Ideally, claims cost rates should be derived for each significant component of cost that can be expected to require differing projection assumptions or methods (i.e., medical claims, prescription drug claims, administrative costs, etc.). Separate analysis is limited by the availability and historical credibility of cost and enrollment data for each component of cost. This valuation reflects non-prescription claims separated by Medicare status, including eligibility for free Part A coverage. Prescription costs are analyzed separately as in prior valuations. Administrative costs are assumed in the final per capita claims cost rates used for valuation purposes, as described below. Analysis to date on Medicare Part A coverage is limited since Part A claim data is not available by individual, nor is this status incorporated into historical claim data.

<u>Benefits</u>

Medical, prescription drug, dental, vision and audio coverage is provided through the AlaskaCare Retiree Health Plan and is available to employees of the State and subdivisions who meet retirement criteria based on the retirement plan tier in effect at their date of hire. Health plan provisions do not vary by retirement tier or age, except for Medicare coordination for those Medicare-eligible. Dental, vision and audio claims (DVA) are excluded from data analyzed for this valuation because those are retiree-pay all benefits where rates are assumed to be self-supporting. Buck relies upon rates set by a third-party for the DVA benefits. Buck reviewed historical rate-setting information and views contribution rate adjustments made are not unreasonable.

<u>Administration and Data Sources</u>

The plan was administered by Wells Fargo Insurance Services (acquired by HealthSmart, in January 2012) from July 1, 2009 through December 31, 2013 and by Aetna effective January 1, 2014.

Claims incurred for the period from July 2020 through June 2022 (FY21 through FY22) were provided by the State of Alaska from reports extracted from their data warehouse, which separated claims by Medicare status. Monthly enrollment data for the same period was provided by Aetna.

Aetna also provided census information identifying Medicare Part B only participants. These participants are identified when hospital claims are denied by Medicare; Aetna then flags that participant as a Part B only participant. Buck added newly identified participants to our list of Medicare Part B only participants. Buck assumes that once identified as Part B only, that participant remains in that status until we are notified otherwise.

Aetna provided a snapshot file as of July 1, 2022 of retirees and dependents that included a coverage level indicator. The monthly enrollment data includes double coverage participants. These are participants whereby both the retiree and spouse are retirees from the State and both are reflected with Couple coverage in the enrollment. In this case, such a couple would show up as four members in the monthly enrollment (each would be both a retiree and a spouse). As a result, the snapshot census file was used to adjust the total member counts in the monthly enrollment reports to estimate the number of unique participants enrolled in coverage. Based on the snapshot files from the last two valuations, the total member count in the monthly enrollment reports needs to be reduced by approximately 13% to account for the number of participants with double coverage.

Aetna does not provide separate experience by Medicare status in standard reporting so the special reports mentioned above from the data warehouse were used this year to obtain that information and incorporate it into the per capita rate development for each year of experience (with corresponding weights applied in the final per capita cost).

Methodology

Buck projected historical claim data to FY23 for retirees using the following summarized steps:

1. Develop historical annual incurred claim cost rates – an analysis of medical costs was completed based on claims information and enrollment data provided by the State of Alaska and Aetna for each year in the experience period of FY21 through FY22.
   - Costs for medical services and prescriptions were analyzed separately, and separate trend rates were developed to project expected future medical and prescription costs for the valuation year (e.g. from the experience period up through FY23).
   - Because the reports provided reflected incurred claims, no additional adjustment was needed to determine incurred claims to be used in the valuation.
   - An offset for costs expected to be reimbursed by Medicare was incorporated beginning at age 65. Alaska retirees who do not have 40 quarters of Medicare-covered compensation do not qualify for Medicare Part A coverage free of charge. This is a relatively small and closed group. Medicare was applied to State employment for all employees hired after March 31, 1986. For the “no-Part A” individuals who are required to enroll in Medicare Part B, the State is the primary payer for hospital bills and other Part A services. Claim experience is not available separately for participants with both Medicare Parts A and B and those with Part B only. For Medicare Part B only participants, a lower average claims cost was applied to retirees covered by both Medicare Part A and B vs. retirees covered only by Medicare Part B based upon manual rate models that estimate the Medicare covered proportion of medical costs. To the extent that no-Part A claims can be isolated and applied strictly to the appropriate closed group, actuarial accrued liability will be more accurate.
   - Based on census data received from Aetna, less than 1% of the current retiree population was identified as having coverage only under Medicare Part B. We assume that 2% of actives hired before April 1, 1986 and current retirees who are not yet Medicare eligible will not be eligible for Medicare Part A.
   - Based upon a reconciliation of valuation census data to the snapshot eligibility files provided by Aetna as of July 1, 2021, and July 1, 2022, Buck adjusted member counts used for duplicate records where participants have double coverage; i.e. primary coverage as a retiree and secondary coverage as the covered spouse of another retiree. This is to reflect the total cost per distinct individual/member which is then applied to distinct members in the valuation census.
   - Buck understands that pharmacy claims reported do not reflect rebates. Based on actual pharmacy rebate information provided by Optum, rebates were assumed to be 16.2% of pre-Medicare, and 14.3% of Medicare prescription drug claims for FY21; and 20.1% of pre-Medicare, and 13.5% of Medicare prescription drug claims for FY22.
2. Develop estimated EGWP reimbursements – Segal provided estimated 2023 EGWP subsidies, developed with the assistance of OptumRx. These amounts are applicable only to Medicare-eligible participants.

3. Adjust for claim fluctuation, anomalous experience, etc. – explicit adjustments are often made for anticipated large claims or other anomalous experience. FY21 and FY22 experience was thoroughly reviewed to assess the impact of COVID-19 and whether an adjustment to FY21 and FY22 claims was appropriate for use in the June 30, 2022 valuation. FY21 medical per capita claims were noticeably lower than expected, so a 4% load was added to the FY21 medical claims used in the per capita claims cost development to better reflect future expected long-term costs of the plan. FY22 medical per capita claims were reasonable when compared to pre-COVID levels, so no adjustments were made to the FY22 medical claims used in the per capita claims cost development. Total prescription drug claims experience for FY21 and FY22 was reasonable and consistent with FY19 and FY20 experience. Therefore, no adjustment was made to FY21 and FY22 prescription drug claims. Due to group size and demographics, we did not make any additional large claim adjustments. We do blend both Alaska plan-specific and national trend factors as described below. Buck compared data utilized to lag reports and quarterly plan experience presentations provided by the State and Aetna to assess accuracy and reasonableness of data.
4. Trend all data points to the projection period – project prior years' experience forward to FY23 for retiree benefits on an incurred claim basis. Trend factors derived from historical Alaska-specific experience and national trend factors are shown in the table in item 5 below.
5. Apply credibility to prior experience – adjust prior year's data by assigning weight to recent periods, as shown at the right of the table below. The Board approved a change in the weighting of experience periods beginning with the June 30, 2017 valuation as outlined below. Note also that for both years of prescription drugs we averaged projected plan costs using Alaska-specific trend factors and national trend factors, assigning 75% weight to Alaska-specific trends and 25% to national trends. For both years of medical we applied 100% weight to national trends because the Alaska-specific trends were impacted by COVID-19:

Alaska-Specific and National Average Weighted Trend from Experience Period to Valuation Year

Experience Period	Medical	Prescription	Weighting Factors
FY21 to FY22	8.1% Pre-Medicare / 4.8% Medicare	8.0%	50%
FY22 to FY23	7.4% Pre-Medicare / 5.6% Medicare	9.5%	50%

Trend assumptions used for rate development are assessed annually and as additional/improved reporting becomes available, we will incorporate into rate development as appropriate.

6. Starting in 2022, prior authorization is required for certain specialty medications. There is no change to the medications that are covered by the plan. Segal provided an estimate of the impact of this change to the DB retiree health plan cost for calendar year 2022. The resulting adjustment factors for pre-Medicare prescription drug, Medicare prescription drug, and EGWP costs were applied to claims experience incurred before January 1, 2022. Additionally, starting in 2022, certain preventive benefits for pre-Medicare participants are covered by the plan. Segal provided an estimate of the impact of this change to the DB retiree health plan cost for calendar year 2022. The resulting adjustment factor for pre-Medicare medical costs was applied to claims experience incurred before January 1, 2022.
7. Develop separate administration costs – no adjustments were made for internal administrative costs. Third party retiree plan administration fees for FY23 are based upon total fees projected to 2023 by Segal based on actual FY22 fees. The annual per participant per year administrative cost rate for medical and prescription benefits is $449.

Healthcare Reform

Healthcare Reform legislation passed on March 23, 2010 included several provisions with potential implications for the State of Alaska Retiree Health Plan liability. Buck evaluated the impact due to these provisions.

Because the State plan is retiree-only, and was in effect at the time the legislation was enacted, not all provisions of the health reform legislation apply to the State plan. Unlimited lifetime benefits and dependent coverage to age 26 are two of these provisions. We reviewed the impact of including these provisions, but there was no decision made to adopt them, and no requirement to do so.

Because Transitional Reinsurance fees are only in effect until 2016, we excluded these for valuation purposes.

The Further Consolidated Appropriations Act, 2020 passed in December 2019 repealed several healthcare-related taxes, including the Cadillac Tax.

The Tax Cuts and Jobs Act passed in December 2017 included the elimination of the individual mandate penalty and changed the inflation measure for purposes of determining the limits for the High Cost Excise Tax to use chained CPI. It is our understanding the law does not directly impact other provisions of the ACA. While the nullification of the ACA’s individual mandate penalty does not directly impact employer group health plans, it could contribute to the destabilization of the individual market and increase the number of uninsured. Such destabilization could translate to increased costs for employers. We have considered this when setting our healthcare cost trend assumptions and will continue to monitor this issue.

The Inflation Reduction Act was signed into law on August 16, 2022. The law contains several provisions that are expected to impact Alaska's Medicare prescription drug plan (EGWP), which will be considered at the next measurement date.

We have not identified any other specific provisions of healthcare reform or its potential repeal that would be expected to have a significant impact on the measured obligation. We will continue to monitor legislative activity.

Data

In accordance with actuarial standards, we note the following specific data sources and steps taken to value retiree medical benefits:

The Division of Retirement and Benefits provided pension valuation census data, which for people currently in receipt of healthcare benefits was supplemented by coverage data from the healthcare claims administrator (Aetna).

Certain adjustments and assumptions were made to prepare the data for valuation:

- All records provided with retiree medical coverage on the Aetna data were included in this valuation and we relied on the Aetna data as the source of medical coverage for current retirees and their dependents.
- Some records in the Aetna data were duplicates due to the double coverage (i.e. coverage as a retiree and as a spouse of another retiree) allowed under the plan. Records were adjusted for these members so that each member was only valued once. Any additional value of the double coverage (due to coordination of benefits) is small and reflected in the per capita costs.
- Covered children included in the Aetna data were valued until age 23, unless disabled. We assumed that those dependents over 23 were only eligible and valued due to being disabled.
- For individuals included in the pension data expecting a future pension, we valued health benefits starting at the same point that the pension benefit is assumed to start.

We are not aware of any other data issues that would be expected to have a material impact on the results and there are no unresolved matters related to the data.

The chart below shows the basis of setting the per capita claims cost assumption, which includes both PERS and TRS.

	Medical		Prescription Drugs (Rx)	
	Pre-Medicare	**Medicare**	**Pre-Medicare**	**Medicare**
A. Fiscal 2021				
1. Incurred Claims	$ 196,566,470	$ 86,512,435	$ 60,691,609	$ 207,822,858
2. Adjustments for Rx Rebates and COVID (Medical only)	7,862,659	3,460,497	(9,832,041)	(29,718,669)
3. Net incurred claims	$ 204,429,129	$ 89,972,933	$ 50,859,568	$ 178,104,189
4. Average Enrollment	18,106	47,025	18,106	47,025
5. Claim Cost Rate (3) / (4)	11,291	1,913	2,809	3,787
6. Trend to Fiscal 2023	1.161	1.107	1.183	1.183
7. Fiscal 2023 Incurred Cost Rate (5) x (6)	$ 13,108	$ 2,117	$ 3,322	$ 4,479
8. Adjustment Factor for 2022 Plan Changes	1.014	1.000	0.913	0.976
9. Adjusted Fiscal 2023 Incurred Cost Rate (7) x (8)	$ 13,290	$ 2,117	$ 3,034	$ 4,371
B. Fiscal 2022				
1. Incurred Claims	$ 197,733,173	$ 98,249,082	$ 64,076,270	$ 230,832,315
2. Adjustments for Rx Rebates	0	0	(12,879,330)	(31,162,363)
3. Net incurred claims	$ 197,733,173	$ 98,249,082	$ 51,196,940	$ 199,669,953
4. Average Enrollment	17,072	48,698	17,072	48,698
5. Claim Cost Rate (3) / (4)	11,582	2,018	2,999	4,100
6. Trend to Fiscal 2023	1.074	1.056	1.095	1.095
7. Fiscal 2023 Incurred Cost Rate (5) x (6)	$ 12,439	$ 2,131	$ 3,284	$ 4,490
8. Adjustment Factor for 2022 Plan Changes	1.007	1.000	0.957	0.988
9. Adjusted Fiscal 2023 Incurred Cost Rate (7) x (8)	$ 12,526	$ 2,131	$ 3,141	$ 4,436

	Medical		Prescription Drugs (Rx)	
	Pre-Medicare	**Medicare**	**Pre-Medicare**	**Medicare**
C. Adjusted Incurred Cost Rate by Fiscal Year				
1. Fiscal 2021 A.(9)	13,290	2,117	3,034	4,371
2. Fiscal 2022 B.(9)	12,526	2,131	3,141	4,436
D. Weighting by Fiscal Year				
1. Fiscal 2021	50%	50%	50%	50%
2. Fiscal 2022	50%	50%	50%	50%
E. Fiscal 2023 Incurred Cost Rate				
1. Rate at Average Age C x D	$ 12,908	$ 2,124	$ 3,088	$ 4,403
2. Average Aging Factor	0.822	1.279	0.832	1.127
3. Rate at Age 65 (1) / (2)	$ 15,706	$ 1,661	$ 3,712	$ 3,907
F. Development of Part A&B and Part B Only Cost from Pooled Rate Above				
1. Part A&B Average Enrollment		48,233		
2. Part B Only Average Enrollment		465		
3. Total Medicare Average Enrollment B(4)		48,698		
4. Cost ratio for those with Part B only to those with Parts A&B		3.300		
5. Factor to determine cost for those with Parts A&B (2) / (3) x (4) + (1) / (3) x 1.00		1.022		
6. Medicare per capita cost for all participants: E(3)		$ 1,661		
7. Cost for those eligible for Parts A&B: (6) / (5)		$ 1,625		
8. Cost for those eligible for Part B only: (7) x (4)		$ 5,363		

Following the development of total projected costs, a distribution of per capita claims cost was developed. This was accomplished by allocating total projected costs to the population census used in the valuation. The allocation was done separately for each of prescription drugs and medical costs for the Medicare eligible and pre-Medicare populations. The allocation weights were developed using participant counts by age and assumed morbidity and aging factors. Results were tested for reasonableness based on historical trend and external benchmarks for costs paid by Medicare.

Below are the results of this analysis:

Distribution of Per Capita Claims Cost by Age for the Period July 1, 2022 through June 30, 2023

Age	Medical and Medicare Parts A & B	Medical and Medicare Part B Only	Prescription Drug	Medicare EGWP Subsidy
45	$ 9,585	$ 9,585	$ 2,382	$ 0
50	10,844	10,844	2,829	0
55	12,270	12,270	3,369	0
60	13,882	13,882	3,532	0
65	1,625	5,363	3,907	1,309
70	1,794	5,921	4,335	1,452
75	1,981	6,537	4,810	1,611
80	2,209	7,289	4,738	1,587

Section 5.3: Summary of Actuarial Assumptions

The demographic and economic assumptions used in the June 30, 2022 valuation are described below. Unless noted otherwise, these assumptions were adopted by the Board at the June 2022 meeting based on the experience study for the period July 1, 2017 to June 30, 2021.

Investment Return

7.25% per year, net of investment expenses.

Salary Scale

Salary scale rates based on the 2017-2021 actual experience (see Table 1).

Inflation – 2.50% per year.

Productivity – 0.25% per year.

Payroll Growth

2.75% per year (inflation + productivity).

Total Inflation

Total inflation as measured by the Consumer Price Index for urban and clerical workers for Anchorage is assumed to increase 2.50% annually.

Mortality (Pre-Commencement)

Mortality rates based on the 2017-2021 actual experience, to the extent the experience was statistically credible.

- Pension: Pub-2010 Teachers Employee table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 Teachers Employee table, headcount-weighted, and projected with MP-2021 generational improvement.

Deaths are assumed to result from occupational causes 15% of the time.

Mortality (Post-Commencement)

Mortality rates based on the 2017-2021 actual experience, to the extent the experience was statistically credible.

Retiree mortality in accordance with the following tables:

- Pension: 97% of male and 97% of female rates of the Pub-2010 Teachers Retiree table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: 98% of male and 100% of female rates of the Pub-2010 Teachers Retiree table, headcount-weighted, and projected with MP-2021 generational improvement.

Beneficiary mortality in accordance with the following tables. These tables are applied only after the death of the original member.

- Pension: 100% of male and 95% of female rates of the Pub-2010 Contingent Survivor table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: 100% of male and 94% of female rates of the Pub-2010 Contingent Survivor table, headcount-weighted, and projected with MP-2021 generational improvement.

Turnover

Select and ultimate rates based on the 2017-2021 actual experience (see Table 2).

Disability

No changes to the incidence rates from the prior valuation due to insufficient 2017-2021 actual experience (see Table 3). Disability rates cease once a member is eligible for retirement.

Post-disability mortality in accordance with the following tables:

- Pension: Pub-2010 Non-Safety Disabled Retiree table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 Non-Safety Disabled Retiree table, headcount-weighted, and projected with MP-2021 generational improvement.

Retirement

Retirement rates based on the 2017-2021 actual experience (see Table 4).

Deferred vested members are assumed to retire at their earliest unreduced retirement date.

The modified cash refund annuity is valued as a three-year certain and life annuity.

Spouse Age Difference

Males are assumed to be three years older than their wives. Females are assumed to be two years younger than their husbands.

Percent Married for Pension

85% of male members and 75% of female members are assumed to be married at termination from active service.

Dependent Spouse Medical Coverage Election

Applies to members who do not have double medical coverage. 60% of male members and 50% of female members are assumed to be married and cover a dependent spouse.

Dependent Children

- Pension: For the participants who are assumed to be married, those between ages 25 and 45 are assumed to have two dependent children.
- Healthcare: Benefits for dependent children have been valued only for members currently covering their dependent children. These benefits are only valued through the dependent children’s age 23 (unless the child is disabled).

Imputed Data

Data changes from the prior year which are deemed to have an immaterial impact on liabilities and contribution rates are assumed to be correct in the current year's client data.

Non-vested terminations with appropriate refund dates are assumed to have received a full refund of contributions. Active members with missing salary and service are assumed to be terminated with status based on their vesting percentage.

Active Data Adjustment

No adjustment was made to reflect participants who terminate employment before the valuation date and are subsequently rehired after the valuation date.

Administrative Expenses

The Normal Cost as of June 30, 2022 was increased by the following amounts. These amounts are based on the average of actual administrative expenses during the last two fiscal years. For projections, the percent increase was assumed to remain constant in future years.

- Pension: $3,626,000
- Healthcare: $1,940,000

Rehire Assumption

The Normal Cost used for determining contribution rates and in the projections includes a rehire assumption to account for anticipated rehires. The Normal Cost shown in the report includes the following assumptions based on the four years of rehire loss experience through June 30, 2021. For projections, these assumptions were assumed to grade to zero uniformly over a 20-year period.

- Pension: 12.00%
- Healthcare: 0.20%

Re-Employment Option

All re-employed retirees are assumed to return to work under the Standard Option.

Service

Total credited service is provided by the State. This service is assumed to be the only service that should be used to calculate benefits. Additionally, the State provides claimed service (including Bureau of Indian Affairs Service). Claimed service is used for vesting and eligibility purposes as described in Section 5.1.

Part-Time Service

Part-time employees are assumed to earn 0.75 years of credited service per year.

Unused Sick Leave

5.25 days of unused sick leave for each year of service are assumed to be available to be credited once the member is retired, terminates, or dies.

Final Average Earnings

Final Average Earnings is provided on the data for active members. This amount is used as a minimum in the calculation of the average earnings in the future.

Contribution Refunds

0% of terminating members with vested benefits are assumed to have their contributions refunded. 100% of those with non-vested benefits are assumed to have their contributions refunded.

Early Retirement Factors

State of Alaska staff provided the early retirement factors, which reflect grandfathered factors.

Alaska Cost-of-Living Adjustments (COLA)

Of those benefit recipients who are eligible for the Alaska COLA, 60% are assumed to remain in Alaska and receive the COLA.

Postretirement Pension Adjustment (PRPA)

50% and 75% of assumed inflation, or 1.25% and 1.875% respectively, is valued for the annual automatic PRPA as specified in the statute.

Healthcare Participation

100% of system paid members and their spouses are assumed to elect healthcare benefits as soon as they are eligible. 20% of non-system paid members and their spouses are assumed to elect healthcare benefits as soon as they are eligible.

Medicare Part B Only

We assume that 2% of actives hired before April 1, 1986 and current retirees who are not yet Medicare eligible will not be eligible for Medicare Part A.

Healthcare Per Capita Claims Cost

Sample claims cost rates adjusted to age 65 for FY23 medical and prescription drugs are shown below. The prescription drug costs reflect the plan change to require prior authorization for certain specialty medications. The pre-Medicare medical cost reflects the coverage of additional preventive benefits.

	Medical	Prescription Drugs
Pre-Medicare	$ 15,706	$ 3,712
Medicare Parts A & B	$ 1,625	$ 3,907
Medicare Part B Only	$ 5,363	$ 3,907
Medicare Part D – EGWP	N/A	$ 1,309

Members are assumed to attain Medicare eligibility at age 65. All costs are for the 2023 fiscal year (July 1, 2022 – June 30, 2023).

The EGWP subsidy is assumed to increase in future years by the trend rates shown on the following pages. No future legislative changes or other events are anticipated to impact the EGWP subsidy. If any legislative or other changes occur in the future that impact the EGWP subsidy (which could either increase or decrease the plan's Actuarial Accrued Liability), those changes will be evaluated and quantified when they occur.

Healthcare Morbidity

Morbidity rates (also called aging factors) are used to estimate utilization of healthcare benefits at each age to reflect the fact that healthcare utilization typically increases with age. Separate morbidity rates are used for medical and prescription drug benefits. These rates are based on the 2017-2021 actual experience.

Age	Medical	Prescription Drugs
0 - 44	2.0%	4.5%
45 - 54	2.5%	3.5%
55 - 64	2.5%	1.0%
65 - 74	2.0%	2.1%
75 - 84	2.2%	(0.3%)
85 - 94	0.5%	(2.5%)
95+	0.0%	0.0%

Healthcare Third Party Administrator Fees

$449 per person per year; assumed to increase at 4.50% per year.

Healthcare Cost Trend

The table below shows the rate used to project the cost from the shown fiscal year to the next fiscal year. For example, 7.00% is applied to the FY23 pre-Medicare medical claims costs to get the FY24 medical claims costs.

	Medical Pre-65	Medical Post-65	Prescription Drugs / EGWP
FY23	7.00%	5.50%	7.50%
FY24	6.70%	5.50%	7.20%
FY25	6.40%	5.40%	6.90%
FY26	6.20%	5.40%	6.65%
FY27	6.05%	5.35%	6.35%
FY28	5.85%	5.35%	6.10%
FY29	5.65%	5.30%	5.80%
FY30	5.45%	5.30%	5.55%
FY31-FY38	5.30%	5.30%	5.30%
FY39	5.25%	5.25%	5.25%
FY40	5.20%	5.20%	5.20%
FY41	5.10%	5.10%	5.10%
FY42	5.05%	5.05%	5.05%
FY43	4.95%	4.95%	4.95%
FY44	4.90%	4.90%	4.90%
FY45	4.80%	4.80%	4.80%
FY46	4.75%	4.75%	4.75%
FY47	4.70%	4.70%	4.70%
FY48	4.60%	4.60%	4.60%
FY49	4.55%	4.55%	4.55%
FY50+	4.50%	4.50%	4.50%

For the June 30, 2014 valuation and later, the updated Society of Actuaries' Healthcare Cost Trend Model is used to project medical and prescription drug costs. This model estimates trend amounts that are projected out for 80 years. The model has been populated with assumptions that are specific to the State of Alaska.

Retired Member Contributions for Medical Benefits

Currently contributions are required for TRS members who are under age 60 and have less than 25 years of service. Eligible Tier 1 members are exempt from contribution requirements. Annual FY23 contributions based on monthly rates shown below for calendar 2023 are assumed based on the coverage category for current retirees. The retiree only rate shown is used for current active and inactive members and spouses in Tier 2 who are assumed to retire prior to age 60 with less than 25 years of service and who are not disabled. For dependent children, we value 1/3 of the annual retiree contribution to estimate the per child rate based on the assumed number of children in rates where children are covered.

Coverage Category	Calendar 2023 Annual Contribution	Calendar 2023 Monthly Contribution	Calendar 2022 Monthly Contribution
Retiree Only	$ 8,448	$ 704	$ 704
Retiree and Spouse	$ 16,896	$ 1,408	$ 1,408
Retiree and Child(ren)	$ 11,940	$ 995	$ 995
Retiree and Family	$ 20,388	$ 1,699	$ 1,699
Composite	$ 12,552	$ 1,046	$ 1,046

Trend Rate for Retired Member Medical Contributions

The table below shows the rate used to project the retired member medical contributions from the shown fiscal year to the next fiscal year. For example, 4.0% is applied to the FY23 retired member medical contributions to get the FY24 retired member medical contributions.

Trend Assumptions	
FY23+	4.0%

Graded trend rates for retired member medical contributions are consistent with the rates used for the June 30, 2021 valuation. Actual FY23 retired member medical contributions are reflected in the valuation.

Changes in Assumptions Since the Prior Valuation

Effective for the June 30, 2022 valuation, the Board adopted the changes to the demographic and economic assumptions recommended by the actuary, based on the results of an experience study performed on the plan experience from July 1, 2017 to June 30, 2021. The changes in assumptions were adopted at the June 2022 Board meeting.

The healthcare per capita claims cost assumption is updated annually as described in Section 5.2. The amounts included in the Normal Cost for administrative expenses were changed from $3,217,000 to $3,626,000 for pension, and from $1,604,000 to $1,940,000 for healthcare (based on the most recent two years of actual administrative expenses paid from plan assets).

Table 1: Salary Scale

Years of Service	Percent Increase
< 1	7.00%
1	6.50%
2	6.00%
3	5.75%
4	5.50%
5	5.25%
6	5.00%
7	4.75%
8	4.50%
9	4.25%
10	4.00%
11	3.75%
12	3.50%
13	3.45%
14	3.35%
15	3.25%
16	3.15%
17	3.05%
18	3.00%
19	2.95%
20+	2.85%

Table 2: Turnover Rates

Select Rates during the First 8 Years of Employment

Years of Service	Male	Female
< 1	20.40%	17.00%
1	20.40%	17.00%
2	16.80%	14.00%
3	14.40%	12.00%
4	12.00%	10.00%
5	10.80%	9.00%
6	9.00%	7.50%
7	7.20%	6.00%

Ultimate Rates after the First 8 Years of Employment

Age	Male	Female
< 30	3.60%	4.60%
30 - 34	3.60%	5.40%
35 - 39	3.60%	3.90%
40 - 44	3.10%	2.60%
45 - 49	3.10%	2.60%
50 - 54	4.60%	4.80%
55+	2.80%	4.80%

Table 3: Disability Rates

Age	Male	Female	Age	Male	Female
< 31	0.0337%	0.0612%	50	0.0601%	0.1093%
31	0.0337%	0.0613%	51	0.0634%	0.1152%
32	0.0337%	0.0613%	52	0.0666%	0.1211%
33	0.0342%	0.0622%	53	0.0746%	0.1356%
34	0.0347%	0.0631%	54	0.0826%	0.1501%
35	0.0353%	0.0641%	55	0.0905%	0.1645%
36	0.0357%	0.0650%	56	0.0985%	0.1790%
37	0.0362%	0.0659%	57	0.1064%	0.1935%
38	0.0371%	0.0674%	58	0.1245%	0.2263%
39	0.0379%	0.0689%	59	0.1426%	0.2592%
40	0.0387%	0.0703%	60	0.1606%	0.2920%
41	0.0395%	0.0718%	61	0.1787%	0.3249%
42	0.0403%	0.0733%	62	0.1967%	0.3577%
43	0.0423%	0.0770%	63	0.2253%	0.4096%
44	0.0443%	0.0806%	64	0.2572%	0.4677%
45	0.0464%	0.0843%	65	0.2933%	0.5332%
46	0.0483%	0.0879%	66	0.3343%	0.6079%
47	0.0504%	0.0916%	67	0.3812%	0.6930%
48	0.0536%	0.0975%	68	0.4345%	0.7900%
49	0.0569%	0.1034%	69	0.4953%	0.9006%
			70+	0.5647%	1.0267%

Table 4: Retirement Rates

	Reduced		Unreduced	
Age	Male	Female	Male	Female
< 45	N/A	N/A	3.00%	3.00%
45	N/A	N/A	5.50%	7.00%
46	N/A	N/A	5.50%	7.00%
47	N/A	N/A	5.50%	7.00%
48	N/A	N/A	5.50%	7.00%
49	N/A	N/A	5.50%	7.00%
50	5.00%	5.00%	12.50%	13.00%
51	5.00%	5.00%	12.50%	13.00%
52	5.00%	10.00%	12.50%	13.00%
53	5.00%	5.00%	12.50%	13.00%
54	10.00%	5.00%	12.50%	13.00%
55	14.50%	11.00%	20.00%	17.50%
56	9.50%	11.00%	20.00%	17.50%
57	9.50%	11.00%	20.00%	17.50%
58	9.50%	11.00%	20.00%	17.50%
59	9.50%	11.00%	20.00%	17.50%
60 - 64	N/A	N/A	19.50%	23.50%
65 - 69	N/A	N/A	28.00%	23.50%
70 - 74	N/A	N/A	30.00%	36.00%
75 - 79	N/A	N/A	50.00%	50.00%
80+	N/A	N/A	100.00%	100.00%

Section 6: Assessment of Risks (ASOP 51 Disclosures)

Funding future retirement benefits prior to when those benefits become due involves assumptions regarding future economic and demographic experience. These assumptions are applied to calculate actuarial liabilities, current contribution requirements, and the funded status of the plan. However, to the extent future experience deviates from the assumptions used, variations will occur in these calculated values. These variations create risk to the plan. Understanding the risks to the funding of the plan is important.

Actuarial Standard of Practice No. 51 (ASOP 51)[1] requires certain disclosures of potential risks to the plan and provides useful information for intended users of actuarial reports that determine plan contributions or evaluate the adequacy of specified contribution levels to support benefit provisions.

Under ASOP 51, risk is defined as the potential of actual future measurements deviating from expected future measurements resulting from actual future experience deviating from actuarially assumed experience.

It is important to note that not all risk is negative, but all risk should be understood and accepted based on knowledge, judgement, and educated decisions. Future measurements may deviate in ways that produce positive or negative financial impacts to the plan.

In the actuary's professional judgment, the following risks may reasonably be anticipated to significantly affect the pension plan's future financial condition and contribution requirements.

- Investment Risk – potential that the investment return will be different than the 7.25% expected in the actuarial valuation
- Contribution Risk – potential that the contribution actually made will be different than the actuarially determined contribution
- Long-Term Return on Investment Risk – potential that changes in long-term capital market assumptions or the plan's asset allocation will create the need to update the long-term return on investment assumption
- Longevity Risk – potential that participants live longer than expected compared to the valuation mortality assumptions
- Salary Increase Risk – potential that future salaries will be different than expected in the actuarial valuation
- Inflation Risk – potential that the consumer price index (CPI) for urban wage earners and clerical workers for Anchorage is different than the 2.5% assumed in the valuation
- Other Demographic Risk – potential that other demographic experience will be different than expected

The following information is provided to comply with ASOP 51 and furnish beneficial information on potential risks to the plan. **This list is not all-inclusive**; it is an attempt to identify the more significant risks and how those risks might affect the results shown in this report.

Note that ASOP 51 does not require the actuary to evaluate the ability or willingness of the plan sponsor to make contributions to the plan when due, or to assess the likelihood or consequences of potential future changes in law. In addition, this valuation report is not intended to provide investment advice or to provide guidance on the management or reduction of risk.

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[1] ASOP 51 does not apply to the healthcare portion of the plan. Accordingly, all figures in this section relate to the pension portion.

Assessment of Risks

Investment Risk

Plan costs are very sensitive to the market return.

- Any return on assets lower than assumed will increase costs.
- The plan uses an actuarial value of assets that smooths gains and losses on market returns over a five-year period to help control some of the volatility in costs due to investment risk.
- Historical experience of actual returns is shown in Section 2.4 of this report. This historical experience illustrates how returns can vary over time.

Contribution Risk

There is a risk to the plan when the employer's and/or State's actual contribution amount and the actuarially determined contribution differ.

- If the actual contribution is lower than the actuarially determined contribution, the plan may not be sustainable in the long term.
- Any underpayment of the contribution will increase future contribution amounts to help pay off the additional Unfunded Actuarial Accrued Liability associated with the underpayment(s).
- As long as the Board consistently adopts the actuarially determined contributions, this risk is mitigated due to Alaska statutes requiring the State to contribute additional funds necessary to pay the total contributions adopted by the Board.

Long-Term Return on Investment Risk

Inherent in the long-term return on investment assumption is the expectation that the current rate will be used until the last benefit payment of the plan is made. There is a risk that sustained changes in economic conditions, changes in long-term future capital market assumptions, or changes to the plan's asset allocation will necessitate an update to the long-term return on investment assumption used.

- Under a lower long-term return on investment assumption, less investment return is available to pay plan benefits. This may lead to a need for increased employer contributions.
- The liabilities will be higher at a lower assumed rate of return because future benefits will have a lower discount rate applied when calculating the present value.
- A 1% decrease in the long-term return on investment assumption will increase actuarial accrued liability by approximately 11%.
- This risk may be increased due to the plan being closed to new entrants. As the plan continues to mature, the magnitude of negative cash flow discussed in the Plan Maturity Measures later in this section will grow, thereby creating a need for more liquid assets that may not garner the same long-term return as currently assumed.

Longevity Risk

Plan costs will be increased as participants are expected to live longer.

- Benefits are paid over a longer lifetime when life expectancy is expected to increase. The longer duration of payments leads to higher liabilities.
- Health care has been improving, which affects the life expectancy of participants. As health care improves, leading to longer life expectancies, costs to the plan could increase.

- The mortality assumption for the plan mitigates this risk by assuming future improvement in mortality. However, any improvement in future mortality greater than that expected by the current mortality assumption would lead to increased costs for the plan.
- The Postretirement Pension Adjustments and Alaska Cost-of-Living Allowance increase longevity risk because members who live longer than expected will incur more benefit payment increases than expected and therefore increase costs.

Salary Increase Risk

Plan costs will be increased if actual salary increases are larger than expected.

- Higher-than-expected salary increases will produce higher benefits.
- The higher benefits may be partially offset by increased employee contributions due to higher salaries.
- If future payroll grows at a rate different than assumed, contributions as a percentage of payroll will be affected.

Inflation Risk

Plan costs will be increased if the actual CPI for Anchorage is greater than the 2.5% assumed in the valuation.

- Retirement benefits will be greater than expected if the CPI is greater than the assumed rate, which will increase costs.
- This risk is mitigated by the 75% and 50% of CPI provisions and the 9% and 6% maximums.
- This risk is also mitigated by the age and time in payment requirements to receive an increase.
- Inflation risk may be associated with the interaction of inflation with other assumptions, but this is not significant as a standalone assumption, and therefore is considered as part of the associated assumption risk instead of being discussed here.

Other Demographic Risk

The plan is subject to risks associated with other demographic assumptions (e.g., retirement, termination, and retired members remaining in Alaska assumptions). Differences between actual and expected experience for these assumptions tend to have less impact on the overall costs of the plan. The demographic assumptions used in the valuation are re-evaluated regularly as part of the four-year experience studies to ensure the assumptions are consistent with long-term expectations.

Historical Information

Monitoring certain information over time may help understand risks faced by the plan. Historical information is included throughout this report. Some examples are:

- Funded Ratio History shown in the Executive Summary illustrates how the plan's funded status (comparison of actuarial accrued liabilities to actuarial value of assets) has changed over time.
- Section 1.6 shows historical analysis of financial experience including how contribution rates have changed over time.
- Section 2.4 shows the volatility of asset returns over time.
- Section 4 includes various historical information showing how member census data has changed over time.
- Section 7 includes historical information for the plan's funding progress, solvency test results, and changes in member demographics.

Plan Maturity Measures

There are certain measures that may aid in understanding the significant risks to the plan.

Ratio of Retired Liability to Total Liability ($'s in $000's)

As of June 30	2018	2019	2020	2021	2022
1. Retiree and Beneficiary Accrued Liability	$ 5,353,494	$ 5,495,907	$ 5,570,625	$ 5,657,056	$ 5,977,257
2. Total Accrued Liability	$ 7,276,290	$ 7,388,020	$ 7,447,036	$ 7,471,887	$ 7,804,046
3. Ratio, (1) ÷ (2)	73.6%	74.4%	74.8%	75.7%	76.6%

A high percentage of liability concentrated on participants in pay status indicates a mature plan (often a ratio above 60% - 65%). Because the plan was closed to new entrants in 2006, we expect the percentage in item #3 to continue to increase over time. An increasing percentage may indicate a need for a less risky asset allocation, which may lead to a lower long-term return on asset assumption and increased costs. Higher percentages may also indicate greater investment risk as benefit payments may be greater than contributions creating an increased reliance on investment returns. This ratio should be monitored each year in the future.

Ratio of Cash Flow to Assets ($'s in $000's)

During FYE June 30	2018	2019	2020	2021	2022
1. Contributions	$ 189,267	$ 199,933	$ 207,899	$ 196,748	$ 202,459
2. Benefit Payments	458,512	472,717	490,447	501,429	511,762
3. Cash Flow, (1) - (2)	$ (269,245)	$ (272,784)	$ (282,548)	$ (304,681)	$ (309,303)
4. Fair Value of Assets	$ 5,472,727	$ 5,511,929	$ 5,444,799	$ 6,731,481	$ 6,026,651
5. Ratio, (3) ÷ (4)	(4.9%)	(4.9%)	(5.2%)	(4.5%)	(5.1%)

When this cash flow ratio is negative, more cash is being paid out than deposited in the trust. Negative cash flow indicates the trust needs to rely on investment returns to cover benefit payments and / or may need to invest in more liquid assets to cover the benefit payments. More liquid assets may not generate the same returns as less liquid assets, which can increase the investment risk. Currently, the low magnitude of the ratio implies there may already be enough liquid assets to cover the benefit payments, less investment return is needed to cover the shortfall, or only a small portion of assets will need to be converted to cash. Therefore, the investment risk is likely not amplified at this time. However, due to the plan being closed, we expect this measure to become increasingly negative over time. This maturity measure should be monitored in the future.

Contribution Volatility ($'s in $000's)

As of June 30	2018	2019	2020	2021	2022
1. Fair Value of Assets	$ 5,472,727	$ 5,511,929	$ 5,444,799	$ 6,731,481	$ 6,026,651
2. DB/DCR Payroll	$ 738,653	$ 725,659	$ 741,090	$ 750,334	$ 758,938
3. Asset to Payroll Ratio, (1) ÷ (2)	740.9%	759.6%	734.7%	897.1%	794.1%
4. Accrued Liability	$ 7,276,290	$ 7,388,020	$ 7,447,036	$ 7,471,887	$ 7,804,046
5. Liability to Payroll Ratio, (4) ÷ (2)	985.1%	1,018.1%	1,004.9%	995.8%	1,028.3%

Plans that have higher asset-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, a plan with an asset-to-payroll ratio of 10% may experience twice the contribution volatility due to investment return volatility than a plan with an asset-to-payroll ratio of 5%. Plans that have higher liability-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to changes in liability. For example, if an assumption change increases the liability of two plans by the same percent, the plan with a liability-to-payroll ratio of 10% may experience twice the contribution volatility than a plan with a liability-to-payroll ratio of 5%.

Section 7: Historical Information[1]

Section 7.1: Funding Progress

Funding Progress - Pension ($'s in 000's)

Valuation Date	Actuarial Accrued Liability	Valuation Assets	Assets as Pct. of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)	Active Member Payroll	UAAL as Pct. of Active Member Payroll
June 30, 2022	$ 7,804,046	$ 6,100,204	78.2%	$ 1,703,842	$ 303,011	562.3%
June 30, 2021	7,471,887	5,910,369	79.1%	1,561,518	326,551	478.2%
June 30, 2020	7,447,036	5,587,064	75.0%	1,859,972	349,236	532.6%
June 30, 2019	7,388,020	5,563,931	75.3%	1,824,089	366,037	498.3%
June 30, 2018	7,276,290	5,541,600	76.2%	1,734,690	392,609	441.8%
June 30, 2017	7,217,525	5,476,835	75.9%	1,740,690	425,841	408.8%
June 30, 2016	7,159,788	5,428,687	75.8%	1,731,101	449,629	385.0%
June 30, 2015	7,051,724	5,422,651	76.9%	1,629,073	473,734	343.9%
June 30, 2014	6,921,362	3,771,139	54.5%	3,150,223	490,667	642.0%
June 30, 2013	6,589,553	3,170,313	48.1%	3,419,240	527,474	648.2%
June 30, 2012	6,399,777	3,194,994	49.9%	3,204,783	554,277	578.2%
June 30, 2011	6,196,104	3,345,949	54.0%	2,850,155	571,143	499.0%
June 30, 2010	6,006,981	3,259,868	54.3%	2,747,113	591,943	464.1%
June 30, 2009	5,463,987	3,115,719	57.0%	2,348,268	583,746	402.3%
June 30, 2008	5,231,654	3,670,086	70.2%	1,561,568	575,946	271.1%
June 30, 2007	5,043,448	3,441,867	68.2%	1,601,581	582,743	274.8%
June 30, 2006	4,859,336	3,296,934	67.8%	1,562,402	603,035	259.1%

Change in assumptions reflected in 2022, 2018, 2014, 2010, and 2006 valuations.

Change in methods reflected in 2014 and 2006 valuations.

[1] GASB 67 replaced GASB 25 effective for the fiscal year ending June 30, 2014, and GASB 74 replaced GASB 43 effective for the fiscal year ending June 30, 2017. At the request of the State, historical accounting information has been included in this section as if GASB 25 and GASB 43 were still effective.

Funding Progress - Healthcare ($'s in 000's)

Valuation Date	Actuarial Accrued Liability	Valuation Assets	Assets as Pct. of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)	Active Member Payroll	UAAL as Pct. of Active Member Payroll
June 30, 2022	$ 2,442,577	$ 3,437,216	140.7%	$ (994,639)	$ 303,011	(328.3%)
June 30, 2021	2,439,603	3,267,737	133.9%	(828,134)	326,551	(253.6%)
June 30, 2020	2,489,675	3,021,283	121.4%	(531,608)	349,236	(152.2%)
June 30, 2019	2,518,644	2,947,562	117.0%	(428,918)	366,037	(117.2%)
June 30, 2018	2,684,150	2,898,709	108.0%	(214,559)	392,609	(54.6%)
June 30, 2017	2,927,093	2,836,802	96.9%	90,291	425,841	21.2%
June 30, 2016	2,747,836	2,771,704	100.9%	(23,868)	449,629	(5.3%)
June 30, 2015	2,677,393	2,686,272	100.3%	(8,879)	473,734	(1.9%)
June 30, 2014	2,919,670	2,248,135	77.0%	671,535	490,667	136.9%
June 30, 2013	3,002,554	1,803,763	60.1%	1,198,791	527,474	227.3%
June 30, 2012	2,946,667	1,674,160	56.8%	1,272,507	554,277	229.6%
June 30, 2011	2,932,691	1,591,988	54.3%	1,340,703	571,143	234.7%
June 30, 2010	2,840,807	1,479,260	52.1%	1,361,547	591,943	230.0%
June 30, 2009	2,383,527	1,357,239	56.9%	1,026,288	583,746	175.8%
June 30, 2008	2,387,524	1,266,890	53.1%	1,120,634	575,946	194.6%
June 30, 2007	2,145,955	982,532	45.8%	1,163,423	582,743	199.6%
June 30, 2006	2,370,515	844,766	35.6%	1,525,749	603,035	253.0%

Change in assumptions reflected in 2022, 2018, 2016, 2014, 2012, 2010, 2008, and 2006 valuations.

Change in methods reflected in 2018, 2014, 2006 valuations.

Section 7.2: Solvency Test

Solvency Test - Pension ($'s in 000's)

	Actuarial Accrued Liability (AAL)				Portion of AAL Covered by Valuation Assets		
Valuation Date	(1) Active Member Contributions	(2) Inactive Members	(3) Active Members Employer Financed	Valuation Assets	(1)	(2)	(3)
June 30, 2022	$ 594,033	$ 6,169,712	$ 1,040,301	$ 6,100,204	100.0%	89.2%	0.0%
June 30, 2021	634,029	5,833,812	1,004,046	5,910,369	100.0%	90.4%	0.0%
June 30, 2020	668,105	5,749,353	1,029,578	5,587,064	100.0%	85.6%	0.0%
June 30, 2019	673,540	5,672,003	1,042,477	5,563,931	100.0%	86.2%	0.0%
June 30, 2018	690,775	5,502,418	1,083,097	5,541,600	100.0%	88.2%	0.0%
June 30, 2017	706,772	5,418,948	1,091,805	5,476,835	100.0%	88.0%	0.0%
June 30, 2016	709,903	5,329,673	1,120,212	5,428,687	100.0%	88.5%	0.0%
June 30, 2015	714,422	5,192,935	1,144,367	5,422,651	100.0%	90.7%	0.0%
June 30, 2014	718,694	5,042,250	1,160,418	3,771,139	100.0%	60.5%	0.0%
June 30, 2013	726,139	4,726,282	1,137,132	3,170,313	100.0%	51.7%	0.0%
June 30, 2012	727,435	4,532,982	1,139,360	3,194,994	100.0%	54.4%	0.0%
June 30, 2011	717,819	4,352,035	1,126,250	3,345,949	100.0%	60.4%	0.0%
June 30, 2010	716,675	4,153,119	1,137,187	3,259,868	100.0%	61.2%	0.0%
June 30, 2009	692,105	3,815,020	956,862	3,115,719	100.0%	63.5%	0.0%
June 30, 2008	654,662	3,700,812	876,180	3,670,086	100.0%	81.5%	0.0%
June 30, 2007	638,420	3,567,894	837,134	3,441,867	100.0%	78.6%	0.0%
June 30, 2006	615,207	3,432,703	811,426	3,296,934	100.0%	78.1%	0.0%

Change in assumptions reflected in 2022, 2018, 2014, 2010, and 2006 valuations.

Change in methods reflected in 2014 and 2006 valuations.

Solvency Test - Healthcare ($'s in 000's)

	Actuarial Accrued Liability (AAL)				Portion of AAL Covered by Valuation Assets		
Valuation Date	(1) Active Member Contributions	(2) Inactive Members	(3) Active Members Employer Financed	Valuation Assets	(1)	(2)	(3)
June 30, 2022	$ 0	$ 1,841,588	$ 600,989	$ 3,437,216	100.0%	100.0%	100.0%
June 30, 2021	0	1,778,645	660,958	3,267,737	100.0%	100.0%	100.0%
June 30, 2020	0	1,776,704	712,971	3,021,283	100.0%	100.0%	100.0%
June 30, 2019	0	1,788,124	730,520	2,947,562	100.0%	100.0%	100.0%
June 30, 2018	0	1,874,333	809,817	2,898,709	100.0%	100.0%	100.0%
June 30, 2017	0	1,980,148	946,945	2,836,802	100.0%	100.0%	90.5%
June 30, 2016	0	1,853,084	894,752	2,771,704	100.0%	100.0%	100.0%
June 30, 2015	0	1,870,987	806,406	2,686,272	100.0%	100.0%	100.0%
June 30, 2014	0	2,008,223	911,447	2,248,135	100.0%	100.0%	26.3%
June 30, 2013	0	2,012,114	990,440	1,803,763	100.0%	89.6%	0.0%
June 30, 2012	0	1,933,288	1,013,379	1,674,160	100.0%	86.6%	0.0%
June 30, 2011	0	1,879,564	1,053,127	1,591,988	100.0%	84.7%	0.0%
June 30, 2010	0	1,755,961	1,084,846	1,479,260	100.0%	84.2%	0.0%
June 30, 2009	0	1,477,788	905,739	1,357,239	100.0%	91.8%	0.0%
June 30, 2008	0	1,480,864	906,660	1,266,890	100.0%	85.6%	0.0%
June 30, 2007	0	1,344,131	801,824	982,532	100.0%	73.1%	0.0%
June 30, 2006	0	1,493,219	877,296	844,766	100.0%	56.6%	0.0%

Change in assumptions reflected in 2022, 2018, 2016, 2014, 2012, 2010, 2008, and 2006 valuations.

Change in methods reflected in 2018, 2014, 2006 valuations.

Section 7.3: Member Data

As of June 30	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Active Members										
1. Number	6,352	5,861	5,502	5,123	4,772	4,418	4,044	3,789	3,396	3,023
2. Average Age	49.45	49.79	50.09	50.50	50.86	51.13	51.48	51.92	52.14	52.57
3. Average Credited Service	15.80	16.43	16.94	17.53	18.12	18.62	19.21	19.76	20.31	20.85
4. Average Entry Age	33.65	33.36	33.15	32.97	32.74	32.51	32.27	32.16	31.83	31.72
5. Average Annual Earnings	$ 79,386	$ 81,023	$ 82,995	$ 84,954	$ 86,327	$ 87,374	$ 88,879	$ 90,564	$ 94,143	$ 97,702
6. Number Vested	5,880	5,586	5,297	4,966	4,772	4,418	4,044	3,789	3,396	3,023
7. Percent Who Are Vested	92.6%	95.3%	96.3%	96.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Retirees, Disabilitants, and Beneficiaries										
1. Number	11,705	11,750	12,418	12,726	12,983	13,277	13,491	13,689	13,972	14,126
2. Average Age	68.38	69.09	69.35	69.85	70.36	70.78	71.30	71.85	72.26	72.60
3. Average Years Since Retirement	N/A	N/A	13.50	13.78	14.13	14.40	14.74	15.06	15.24	15.51
4. Average Monthly Pension Benefit	$ 2,820	$ 2,860	$ 2,912	$ 2,921	$ 2,924	$ 2,954	$ 3,014	$ 3,043	$ 3,048	$ 3,167
Vested Terminations (vested at termination, not refunded contributions, and not commenced benefit)										
1. Number	906	1,274	890	875	876	797	812	764	727	729
2. Average Age	49.68	52.56	50.09	50.25	50.82	51.01	51.71	52.37	52.68	53.22
3. Average Monthly Pension Benefit	$ 1,283	$ 1,916	$ 1,273	$ 1,352	$ 1,441	$ 1,350	$ 1,534	$ 1,579	$ 1,635	$ 1,725
Non-Vested Terminations (not vested at termination and not refunded contributions)										
1. Number	2,448	2,328	2,218	2,103	1,994	1,900	1,810	1,744	1,679	1,616
2. Average Account Balance	$ 17,866	$ 18,452	$ 18,962	$ 19,728	$ 20,290	$ 20,872	$ 21,612	$ 22,591	$ 23,388	$ 23,906
Total Number of Members	**21,411**	**21,213**	**21,028**	**20,827**	**20,625**	**20,392**	**20,157**	**19,986**	**19,774**	**19,494**

Average annual earnings (“valuation pay”) are the annualized earnings for the fiscal year ending on the valuation date.

Glossary of Terms

Actuarial Accrued Liability

Total accumulated cost to fund pension or postemployment benefits arising from service in all prior years.

Actuarial Cost Method

Technique used to assign or allocate, in a systematic and consistent manner, the expected cost of a pension or postemployment plan for a group of plan members to the years of service that give rise to that cost.

Actuarial Present Value of Projected Benefits

Amount which, together with future interest, is expected to be sufficient to pay all future benefits.

Actuarial Valuation

Study of probable amounts of future pension or postemployment benefits and the necessary amount of contributions to fund those benefits.

Actuary

Person who performs mathematical calculations pertaining to pension and insurance benefits based on specific procedures and assumptions.

GASB 67 and 68

Governmental Accounting Standards Board Statement Number 67 amends Number 25 effective for the fiscal year beginning after June 15, 2013 and defines new financial reporting requirements for public pension plans.

Governmental Accounting Standards Board Statement Number 68 amends Number 27 effective for fiscal years beginning after June 15, 2014 and defines new accounting and financial reporting requirements for employers sponsoring public pension plans.

GASB 74 and 75

Governmental Accounting Standards Board Statement Number 74 amends Number 43 effective for the fiscal year beginning after June 15, 2016 and defines new financial reporting requirements for public postemployment benefit plans.

Governmental Accounting Standards Board Statement Number 75 amends Number 45 effective for fiscal years beginning after June 15, 2017 and defines new accounting and financial reporting requirements for employers sponsoring public postemployment benefit plans.

Normal Cost

That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual participant or the plan as a whole.

Rate Payroll

Members' earnings used to determine contribution rates.

Unfunded Actuarial Accrued Liability (UAAL)

The portion of the actuarial accrued liability not offset by plan assets.

Valuation Payroll

Members' earnings used to determine Normal Cost and Actuarial Accrued Liability.

Vested Benefits

Benefits which are unconditionally guaranteed regardless of employment.

State of Alaska

Public Employees' Retirement System Defined Contribution Retirement Plan

For Occupational Death & Disability and Retiree Medical Benefits

Actuarial Valuation Report

As of June 30, 2022

April 2023

April 24, 2023

State of Alaska
The Alaska Retirement Management Board
The Department of Revenue, Treasury Division
The Department of Administration, Division of Retirement and Benefits
P.O. Box 110203
Juneau, AK 99811-0203

Certification of Actuarial Valuation

Dear Members of The Alaska Retirement Management Board, The Department of Revenue and The Department of Administration:

This report summarizes the annual actuarial valuation results of the State of Alaska Public Employees' Retirement System Defined Contribution Retirement (PERS DCR) Plan as of June 30, 2022 performed by Buck Global, LLC (Buck).

The actuarial valuation is based on financial information provided in the financial statements audited by KPMG LLP, member data provided by the Division of Retirement and Benefits, and medical enrollment data provided by the healthcare claims administrator (Aetna), as summarized in this report. The benefits considered are those delineated in Alaska statutes effective June 30, 2022. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities and other factors under PERS DCR were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Buck is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of PERS DCR as of June 30, 2022.

PERS DCR is funded by Employer Contributions in accordance with the funding policy adopted by the Alaska Retirement Management Board (Board). The funding objective for PERS DCR is to pay required contributions that remain level as a percent of PERS DCR compensation. The Board has also established a funding policy objective that the required contributions be sufficient to pay the Normal Costs of active plan members, plan expenses, and amortize the Unfunded Actuarial Accrued Liability as a level percent of PERS DCR compensation over closed layered 25-year periods. This objective is currently being met and is projected to continue to be met as required by the Alaska State statutes. Absent future gains/losses, actuarially determined contributions are expected to remain level as a percent of pay and the funded status of the occupational death & disability trust and the retiree medical trust are expected to remain at or above 100%.

The Board and staff of the State of Alaska may use this report for the review of the operations of PERS DCR. Use of this report for any other purpose or by anyone other than the Board or staff of the State of Alaska may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, Buck recommends requesting its advanced review of any statement to be based on information contained in this report. Buck will accept no liability for any such statement made without its prior review.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the actuarial assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. In particular, retiree group benefits models necessarily rely on the use of approximations and estimates and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. An analysis of the potential range of such future differences is beyond the scope of this valuation.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the plan. The actuary performs an analysis of plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The last full experience analysis was performed for the period July 1, 2017 to June 30, 2021. Based on that experience study, the Board adopted new assumptions effective beginning with the June 30, 2022 valuation to better reflect expected future experience. Based on our annual analysis of recent claims experience, changes were made to the healthcare per capita claims cost rates effective June 30, 2022 to better reflect expected future healthcare experience. A summary of the actuarial assumptions and methods used in this actuarial valuation is shown in Sections 4.2 and 4.3. We certify that the assumptions and methods described in Sections 4.2 and 4.3 of this report meet the requirements of all applicable Actuarial Standards of Practice.

Actuarial Standards of Practice No. 27 (ASOP 27) and No. 35 (ASOP 35) require the actuary to disclose the information and analysis used to support the actuary's determination that the assumptions selected by the plan sponsor do not significantly conflict with what, in the actuary's professional judgment, are reasonable for the purpose of the measurement. Buck provides advice on reasonable assumptions when performing periodic experience studies. The Board selects the assumptions used and annually the signing actuary reviews the assumptions through discussions with the Board staff and analyzing actuarial gain/loss experience. In the case of the Board's selection of the expected return on assets (EROA), the signing actuary has used economic information and tools provided by Buck's Financial Risk Management (FRM) practice. A spreadsheet tool created by the FRM practice converts averages, standard deviations, and correlations from Buck's Capital Markets Assumptions that are used for stochastic forecasting into approximate percentile ranges for the arithmetic and geometric average returns. It is intended to suggest possible reasonable ranges for EROA without attempting to predict or select a specific best estimate rate of return. It takes into account the duration (horizon) of investment and the target allocation of assets in the portfolio to various asset classes. Based on the actuary's analysis, including consistency with other assumptions used in the valuation, the percentiles generated by the spreadsheet tool described above, and review of actuarial gain/loss analysis, the actuary believes the assumptions do not significantly conflict with what, in the actuary's professional judgment, are reasonable for the purpose of the measurement.

ACFR Information

We have prepared the following information in this report for the Actuarial Section and Statistical Section of the ACFR: (i) member data tables in Section 3; (ii) summary of actuarial assumptions in Section 4.3; and (iii) historical information in Section 5.

Governmental Accounting Standards Board (GASB) Statement No. 74 (GASB 74) was effective for PERS DCR beginning with fiscal year ending June 30, 2017. Please see our separate GASB 74 report for other information needed for the ACFR.

Assessment of Risks

Actuarial Standard of Practice No. 51 (ASOP 51) applies to actuaries performing funding calculations related to a pension plan. ASOP 51 does not apply to actuaries performing services in connection with other post-employment benefits, such as medical benefits. Accordingly, ASOP 51 does not apply to the retiree medical portion of PERS DCR. We also believe ASOP 51 does not apply to the occupational death & disability portion of PERS DCR. Therefore, information related to ASOP 51 is not included in this report. However, it may be beneficial to review the ASOP 51 information provided in the PERS valuation report for information on risks that may also relate to the occupational death & disability benefits provided by this plan.

Use of Models

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. In addition to the EROA analysis spreadsheet model disclosed above, Buck uses third-party software in the performance of annual actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of the plan using data and assumptions as of the measurement date under the funding methods specified in this report. The output from the third-party vendor software is used as input to an internally developed model that applies applicable funding methods and policies to the derived liabilities and other inputs, such as plan assets and contributions, to generate many of the exhibits found in this report. Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal model are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed. Significant changes to the internal model that are applicable to multiple clients are generally developed, checked, and reviewed by multiple experts within Buck who are familiar with the details of the required changes.

Buck used manual rate models to determine relative plan values for the defined benefit (DB) retiree medical plan and the DCR retiree medical plan, and to reflect the different Medicare coordination methods between the two plans. The manual rate models are intended to provide benchmark data and pricing capabilities, calculate per capita costs, and calculate actuarial values of different commercial health plans. Buck relied on the models, which were developed using industry data by actuaries and consultants at OptumInsight.

COVID-19

The potential impact of the ongoing COVID-19 pandemic on costs and liabilities was considered and an adjustment was made in setting the medical per capita claims cost assumption. FY21 medical claims were adjusted for a COVID-19 related decline in those claims during the fiscal year. FY22 medical claims were not adjusted. A more detailed explanation on these adjustments is shown in Sections 4.2 and 4.3 and in the valuation report for the DB plan.

This report was prepared under the overall direction of David Kershner, who meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. He is a Fellow of the Society of Actuaries, an Enrolled Actuary, a Member of the American Academy of Actuaries, and a Fellow of the Conference of Consulting Actuaries.

We are available to discuss this report with you at your convenience. David can be reached at 602-803-6174 and Brett can be reached at 260-423-1072.

Respectfully submitted,

David J. Kershner, FSA, EA, MAAA, FCA
Principal
Buck

Brett Hunter, ASA, EA, MAAA
Senior Consultant
Buck

The undersigned actuary is responsible for all assumptions related to the average annual per capita health claims cost and the health care cost trend rates, and hereby affirms his qualification to render opinions in such matters in accordance with the Qualification Standards of the American Academy of Actuaries.

Stephen R. Oates, ASA, EA, MAAA, FCA
Principal
Buck

Contents

Executive Summary

Overview

The State of Alaska Public Employees' Retirement System Defined Contribution Retirement (PERS DCR) Plan provides occupational death & disability and retiree medical benefits to eligible members hired after June 30, 2006 or who have elected participation in this plan. The Commissioner of the Department of Administration is responsible for administering the plan. The Alaska Retirement Management Board has fiduciary responsibility over the assets of the plan. This report presents the results of the actuarial valuation of PERS DCR as of the valuation date of June 30, 2022.

Purpose

An actuarial valuation is performed on the plan annually as of the end of the fiscal year. The main purposes of the actuarial valuation detailed in this report are:

1. To determine the Employer contribution necessary to meet the Board's funding policy for the plan;
2. To disclose the funding assets and liability measures as of the valuation date;
3. To review the current funded status of the plan and assess the funded status as an appropriate measure for determining actuarially determined contributions;
4. To compare actual and expected experience under the plan during the last fiscal year; and
5. To report trends in contributions, assets, liabilities, and funded status over the last several years.

The actuarial valuation provides a "snapshot" of the funded position of PERS DCR based on the plan provisions, membership data, assets, and actuarial methods and assumptions as of the valuation date.

Funded Status

Where presented, references to "funded ratio" and "unfunded actuarial accrued liability" typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

Funded Status as of June 30 ($'s in 000's)		2021	2022
Occupational Death & Disability			
a.	Actuarial Accrued Liability	$ 11,740	$ 14,952
b.	Valuation Assets	53,075	62,938
c.	Unfunded Actuarial Accrued Liability, (a) - (b)	$ (41,335)	$ (47,986)
d.	Funded Ratio based on Valuation Assets, (b) ÷ (a)	452.1%	420.9%
e.	Fair Value of Assets	$ 60,145	$ 61,458
f.	Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	512.3%	411.0%

Funded Status as of June 30 ($'s in 000's)	2021	2022
Retiree Medical		
a. Actuarial Accrued Liability	$ 168,472	$ 169,396
b. Valuation Assets	180,536	212,638
c. Unfunded Actuarial Accrued Liability, (a) - (b)	$ (12,064)	$ (43,242)
d. Funded Ratio based on Valuation Assets, (b) ÷ (a)	107.2%	125.5%
e. Fair Value of Assets	$ 204,555	$ 207,686
f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	121.4%	122.6%

The key reasons for the change in the funded status are explained below. The funded status for healthcare benefits is not necessarily an appropriate measure to confirm that assets are sufficient to settle health plan obligations as there are no available financial instruments for purchase. Future experience is likely to vary from assumptions so there is potential for actuarial gains or losses.

1. Investment Experience

The asset valuation method recognizes 20% of the investment gain or loss each year, for a period of five years. The FY22 investment return based on fair value of assets was approximately (6.3)% compared to the expected investment return of 7.38% (net of investment expenses). This resulted in a market asset loss of approximately $8,596,000 (occupational death & disability) and $29,106,000 (retiree medical). Due to the recognition of investment gains and losses over a 5-year period, the FY22 investment return based on actuarial value of assets was approximately 8.2%, which resulted in an actuarial asset gain of approximately $476,000 (occupational death & disability) and $1,638,000 (retiree medical).

2. Salary Increases

Salary increases for continuing active members during FY22 were higher than expected based on the valuation assumptions, resulting in a liability loss of approximately $160,000.

3. Demographic Experience

The number of active members increased 3.2% from 23,933 at June 30, 2021 to 24,702 at June 30, 2022. The average age of active members increased from 41.26 to 41.35 and average credited service increased from 4.93 to 5.11 years.

The demographic experience gains/losses are shown on page 5.

4. Retiree Medical Claims Experience

Please refer to the State of Alaska Public Employees' Retirement System (PERS) Defined Benefit Plan Actuarial Valuation Report as of June 30, 2022 for a full description of the assumptions and costs of the retiree medical plan. Adjustments to these costs and assumptions are described in this report.

The recent claims experience described in Section 4.2 of this report (Section 5.2 of the PERS report) created an actuarial gain of approximately $3,679,000. The EGWP subsidy received by the plan during FY22 was approximately $139,000; the expected EGWP subsidy for FY22 was approximately $129,000.

5. Changes in Methods Since the Prior Valuation

There were no changes in actuarial methods since the prior valuation.

6. Changes in Assumptions Since the Prior Valuation

Effective for the June 30, 2022 valuation, the Board adopted the changes to the demographic and economic assumptions recommended by the actuary, based on the results of an experience study performed on the plan experience from July 1, 2017 to June 30, 2021. The changes in assumptions were adopted at the June 2022 Board meeting. The effect of the new assumptions was to increase the Actuarial Accrued Liability as of June 30, 2022 by approximately $1,222,000 for occupational death & disability, and decrease the Actuarial Accrued Liability as of June 30, 2022 by approximately $22,348,000 for retiree medical.

Healthcare claim costs are updated annually as described in Section 4.2. The amounts included in the Normal Cost for administrative expenses were updated based on the last two years of actual administrative expenses paid from plan assets.

7. Changes in Benefit Provisions Since the Prior Valuation

There have been no changes in benefit provisions valued since the prior valuation.

Comparative Summary of Contribution Rates

Occupational Death & Disability	FY 2024	FY 2025
Peace Officer/Firefighter		
a. Employer Normal Cost Rate	0.68%	0.69%
b. Past Service Cost Rate	(0.24)%	(0.20)%
c. Total Employer Contribution Rate, (a) + (b), not less than (a)	0.68%	0.69%
Others		
a. Employer Normal Cost Rate	0.30%	0.24%
b. Past Service Cost Rate	(0.19)%	(0.22)%
c. Total Employer Contribution Rate, (a) + (b), not less than (a)	0.30%	0.24%

Retiree Medical	FY 2024	FY 2025
a. Employer Normal Cost Rate	1.01%	0.83%
b. Past Service Cost Rate	(0.02)%	(0.14)%
c. Total Employer Contribution Rate, (a) + (b), not less than (a)	1.01%	0.83%

Total		FY 2024	FY 2025
Peace Officer/Firefighter			
a.	Employer Normal Cost Rate	1.69%	1.52%
b.	Past Service Cost Rate	(0.26)%	(0.34)%
c.	Total Employer Contribution Rate, (a) + (b), not less than (a)	1.69%	1.52%
Others			
a.	Employer Normal Cost Rate	1.31%	1.07%
b.	Past Service Cost Rate	(0.21)%	(0.36)%
c.	Total Employer Contribution Rate, (a) + (b), not less than (a)	1.31%	1.07%

The exhibit below shows the historical Board-adopted employer contribution rates for PERS DCR.

		Total Employer Contribution Rate		
Valuation Date	Fiscal Year	Occupational Death & Disability (PF / Others)	Retiree Medical	Total (PF / Others)
June 30, 2008	FY11	1.18% / 0.31%	0.55%	1.73% / 0.86%
June 30, 2009	FY12	0.97% / 0.11%	0.51%	1.48% / 0.62%
June 30, 2010	FY13	0.99% / 0.14%	0.48%	1.47% / 0.62%
June 30, 2011	FY14	1.14% / 0.20%	0.48%	1.62% / 0.68%
June 30, 2012	FY15	1.06% / 0.22%	1.66%	2.72% / 1.88%
June 30, 2013	FY16	1.05% / 0.22%	1.68%	2.73% / 1.90%
June 30, 2014	FY17	0.49% / 0.17%	1.18%	1.67% / 1.35%
June 30, 2015	FY18	0.43% / 0.16%	1.03%	1.46% / 1.19%
June 30, 2016	FY19	0.76% / 0.26%	0.94%	1.70% / 1.20%
June 30, 2017	FY20	0.72% / 0.26%	1.32%	2.04% / 1.58%
June 30, 2018	FY21	0.70% / 0.31%	1.27%	1.97% / 1.58%
June 30, 2019	FY22	0.68% / 0.31%	1.07%	1.75% / 1.38%
June 30, 2020	FY23	0.68% / 0.30%	1.10%	1.78% / 1.40%
June 30, 2021	FY24	0.68% / 0.30%	1.01%	1.69% / 1.31%
June 30, 2022	FY25	TBD	TBD	TBD

Summary of Actuarial Accrued Liability Gain/(Loss)

The following table shows the FY22 gain/(loss) on actuarial accrued liability as of June 30, 2022 ($'s in 000's):

	Occupational Death & Disability	Retiree Medical
Retirement Experience	$ 0	$ (185)
Termination Experience	31	4,563
Disability Experience	2,109	355
Active Mortality Experience	1,966	(39)
Inactive Mortality Experience	(26)	(11)
Salary Increases	(160)	N/A
New Entrants	(76)	(1,887)
Rehires	(62)	(3,029)
Transfers Between P/F and Others	(45)	(11)
Benefit Payments Different than Expected	177	(316)
Per Capita Claims Cost	N/A	3,679
Miscellaneous[1]	347	2,445
Total	$ 4,261	$ 5,564

Other items that increased/(decreased) the actuarial accrued liability as of June 30, 2022 are shown below ($'s in 000's):

	Occupational Death & Disability	Retiree Medical
Experience Study Assumption Changes	$ 1,222	$ (22,348)

[1] Includes the effects of various data changes that are typical when new census data is received for the annual valuation, as well as other items that do not fit neatly into any of the other categories.

Section 1: Actuarial Funding Results

Section 1.1: Actuarial Liabilities and Normal Cost ($'s in 000's)

Peace Officer / Firefighter

As of June 30, 2022	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
Active Members		
Occupational Death Benefits	$ 3,743	$ (49)
Occupational Disability Benefits	16,268	5,296
Medical and Prescription Drug Benefits	46,106	24,278
Medicare Part D Subsidy	(9,818)	(5,212)
Subtotal	$ 56,299	$ 24,313
Benefit Recipients		
Survivor Benefits	$ 311	$ 311
Disability Benefits	6,768	6,768
Medical and Prescription Drug Benefits	1,355	1,355
Medicare Part D Subsidy	(278)	(278)
Subtotal	$ 8,156	$ 8,156
Total	**$ 64,455**	**$ 32,469**
Total Occupational Death & Disability	**$ 27,090**	**$ 12,326**
Total Retiree Medical, Net of Part D Subsidy	**$ 37,365**	**$ 20,143**
Total Retiree Medical, Gross of Part D Subsidy	**$ 47,461**	**$ 25,633**

As of June 30, 2022	Normal Cost
Active Members	
Occupational Death Benefits	$ 467
Occupational Disability Benefits	1,246
Medical and Prescription Drug Benefits	2,339
Medicare Part D Subsidy	(496)
Subtotal	$ 3,556
Administrative Expense Load	
Occupational Death & Disability	$ 11
Retiree Medical	13
Subtotal	$ 24
Total	**$ 3,580**
Total Occupational Death & Disability	**$ 1,724**
Total Retiree Medical, Net of Part D Subsidy	**$ 1,856**
Total Retiree Medical, Gross of Part D Subsidy	**$ 2,352**

Section 1.1: Actuarial Liabilities and Normal Cost ($'s in 000's)

Others

As of June 30, 2022		Present Value of Projected Benefits		Actuarial Accrued (Past Service) Liability
Active Members				
Occupational Death Benefits	$	6,912	$	589
Occupational Disability Benefits		14,492		1,523
Medical and Prescription Drug Benefits		271,491		183,466
Medicare Part D Subsidy		(62,156)		(42,205)
Subtotal	$	230,739	$	143,373
Benefit Recipients				
Survivor Benefits	$	0	$	0
Disability Benefits		514		514
Medical and Prescription Drug Benefits		10,441		10,441
Medicare Part D Subsidy		(2,449)		(2,449)
Subtotal	$	8,506	$	8,506
Total	**$**	**239,245**	**$**	**151,879**
Total Occupational Death & Disability	**$**	**21,918**	**$**	**2,626**
Total Retiree Medical, Net of Part D Subsidy	**$**	**217,327**	**$**	**149,253**
Total Retiree Medical, Gross of Part D Subsidy	**$**	**281,932**	**$**	**193,907**

As of June 30, 2022		Normal Cost
Active Members		
Occupational Death Benefits	$	1,073
Occupational Disability Benefits		2,282
Medical and Prescription Drug Benefits		15,311
Medicare Part D Subsidy		(3,485)
Subtotal	$	15,181
Administrative Expense Load		
Occupational Death & Disability	$	22
Retiree Medical		26
Subtotal	$	48
Total	**$**	**15,229**
Total Occupational Death & Disability	**$**	**3,377**
Total Retiree Medical, Net of Part D Subsidy	**$**	**11,852**
Total Retiree Medical, Gross of Part D Subsidy	**$**	**15,337**

Section 1.1: Actuarial Liabilities and Normal Cost ($'s in 000's)

All Members

As of June 30, 2022		Present Value of Projected Benefits		Actuarial Accrued (Past Service) Liability
Active Members				
Occupational Death Benefits	$	10,655	$	540
Occupational Disability Benefits		30,760		6,819
Medical and Prescription Drug Benefits		317,597		207,744
Medicare Part D Subsidy		(71,974)		(47,417)
Subtotal	$	287,038	$	167,686
Benefit Recipients				
Survivor Benefits	$	311	$	311
Disability Benefits		7,282		7,282
Medical and Prescription Drug Benefits		11,796		11,796
Medicare Part D Subsidy		(2,727)		(2,727)
Subtotal	$	16,662	$	16,662
Total	**$**	**303,700**	**$**	**184,348**
Total Occupational Death & Disability	**$**	**49,008**	**$**	**14,952**
Total Retiree Medical, Net of Part D Subsidy	**$**	**254,692**	**$**	**169,396**
Total Retiree Medical, Gross of Part D Subsidy	**$**	**329,393**	**$**	**219,540**

As of June 30, 2022		Normal Cost
Active Members		
Occupational Death Benefits	$	1,540
Occupational Disability Benefits		3,528
Medical and Prescription Drug Benefits		17,650
Medicare Part D Subsidy		(3,981)
Subtotal	$	18,737
Administrative Expense Load		
Occupational Death & Disability	$	33
Retiree Medical		39
Subtotal	$	72
Total	**$**	**18,809**
Total Occupational Death & Disability	**$**	**5,101**
Total Retiree Medical, Net of Part D Subsidy	**$**	**13,708**
Total Retiree Medical, Gross of Part D Subsidy	**$**	**17,689**

Section 1.2: Actuarial Contributions as of June 30, 2022 for FY25 ($’s in 000’s)

Peace Officer / Firefighter

Normal Cost Rate		Occupational Death & Disability		Retiree Medical
1. Total Normal Cost	$	1,724	$	1,856
2. DCR Plan Rate Payroll Projected for FY23		249,857		249,857
3. Employer Normal Cost Rate, (1) ÷ (2)		0.69%		0.74%

Past Service Rate				
1. Actuarial Accrued Liability	$	12,326	$	20,143
2. Valuation Assets		18,616		25,285
3. Unfunded Actuarial Accrued Liability, (1) - (2)	$	(6,290)	$	(5,142)
4. Funded Ratio based on Valuation Assets		151.0%		125.5%
5. Past Service Cost Amortization Payment		(490)		(287)
6. DCR Plan Rate Payroll Projected for FY23		249,857		249,857
7. Past Service Cost Rate, (5) ÷ (6)		(0.20%)		(0.11%)
Total Employer Contribution Rate, not less than Normal Cost Rate		**0.69%**		**0.74%**

The table below shows the total employer contribution rate based on total DB and DCR Plan payroll for informational purposes.

Total Employer Contribution Rate as Percent of Total Payroll		Occupational Death & Disability		Retiree Medical
1. Total Normal Cost	$	1,724	$	1,856
2. Total DB and DCR Plan Rate Payroll Projected for FY23		392,011		392,011
3. Employer Normal Cost Rate, (1) ÷ (2)		0.44%		0.47%
4. Past Service Cost Amortization Payment		(490)		(287)
5. Past Service Cost Rate, (4) ÷ (2)		(0.12%)		(0.08%)
Total Employer Contribution Rate, not less than Normal Cost Rate		**0.44%**		**0.47%**

Peace Officer / Firefighter

Schedule of Past Service Cost Amortizations - Occupational Death & Disability ($'s in 000's)

	Amortization Period		Balances		
Layer	**Date Created**	**Years Remaining**	**Initial**	**Outstanding**	**Beginning-of-Year Payment**
Initial Unfunded Liability	06/30/2007	10	$ (100)	$ (89)	$ (11)
FY08 Gain	06/30/2008	11	(586)	(534)	(60)
Change in Assumptions	06/30/2009	12	(104)	(98)	(10)
FY09 Loss	06/30/2009	12	446	419	44
Change in Assumptions	06/30/2010	13	79	75	7
FY10 Gain	06/30/2010	13	(282)	(273)	(27)
FY11 Loss	06/30/2011	14	73	69	6
FY12 Gain	06/30/2012	15	(349)	(348)	(31)
FY13 Gain	06/30/2013	16	(204)	(204)	(17)
Change in Assumptions	06/30/2014	17	(1,274)	(1,289)	(105)
PRPA Modification	06/30/2014	17	(91)	(91)	(7)
FY14 Gain	06/30/2014	17	(95)	(97)	(8)
FY15 Gain	06/30/2015	18	(664)	(673)	(53)
FY16 Loss	06/30/2016	19	4	4	0
FY17 Gain	06/30/2017	20	(525)	(533)	(39)
FY18 Gain	06/30/2018	21	(262)	(264)	(19)
Change in Assumptions	06/30/2018	21	(633)	(639)	(45)
FY19 Loss	06/30/2019	22	219	220	15
FY20 Gain	06/30/2020	23	(792)	(798)	(53)
FY21 Gain	06/30/2021	24	(1,842)	(1,850)	(121)
Change in Assumptions	06/30/2022	25	1,590	1,590	101
FY22 Gain	06/30/2022	25	(887)	(887)	(57)
Total				**$ (6,290)**	**$ (490)**

Peace Officer / Firefighter

Schedule of Past Service Cost Amortizations - Retiree Medical ($'s in 000's)

	Amortization Period		Balances		
Layer	Date Created	Years Remaining	Initial	Outstanding	Beginning-of-Year Payment
Initial Unfunded Liability	06/30/2007	10	$ (21)	$ (21)	$ (3)
Change in Assumptions	06/30/2008	11	17	14	2
FY08 Gain	06/30/2008	11	(62)	(57)	(6)
Change in Assumptions	06/30/2009	12	(8)	(8)	(1)
FY09 Gain	06/30/2009	12	(38)	(37)	(4)
Change in Assumptions	06/30/2010	13	41	39	4
FY10 Gain	06/30/2010	13	(46)	(41)	(4)
FY11 Loss	06/30/2011	14	70	67	6
Change in Assumptions	06/30/2012	15	3,085	3,067	271
FY12 Gain	06/30/2012	15	(273)	(271)	(24)
FY13 Loss	06/30/2013	16	880	885	75
Change in Assumptions	06/30/2014	17	(3,034)	(3,067)	(249)
FY14 Loss	06/30/2014	17	1,213	1,226	99
FY15 Gain	06/30/2015	18	(712)	(722)	(56)
EGWP Gain	06/30/2016	19	(1,675)	(1,702)	(128)
FY16 Loss	06/30/2016	19	1,116	1,134	85
Change in Assumptions	06/30/2017	20	2,244	2,273	166
FY17 Gain	06/30/2017	20	(50)	(52)	(4)
FY18 Gain	06/30/2018	21	(231)	(233)	(16)
Change in Assumptions/Methods	06/30/2018	21	(649)	(654)	(46)
FY19 Gain	06/30/2019	22	(1,291)	(1,301)	(89)
Change in Assumptions	06/30/2020	23	1,116	1,124	75
FY20 Gain	06/30/2020	23	(1,082)	(1,090)	(73)
Prescription Drug Plan Changes	06/30/2021	24	(235)	(236)	(15)
FY21 Gain	06/30/2021	24	(1,726)	(1,734)	(113)
Change in Assumptions	06/30/2022	25	(1,769)	(1,769)	(113)
FY22 Gain	06/30/2022	25	(1,976)	(1,976)	(126)
Total				**$ (5,142)**	**$ (287)**

Section 1.2: Actuarial Contributions as of June 30, 2022 for FY25 ($'s in 000's)

Others

Normal Cost Rate	Occupational Death & Disability	Retiree Medical
1. Total Normal Cost	$ 3,377	$ 11,852
2. DCR Plan Rate Payroll Projected for FY23	1,395,484	1,395,484
3. Employer Normal Cost Rate, (1) ÷ (2)	0.24%	0.85%

Past Service Rate		
1. Actuarial Accrued Liability	$ 2,626	$ 149,253
2. Valuation Assets	44,322	187,353
3. Unfunded Actuarial Accrued Liability, (1) - (2)	$ (41,696)	$ (38,100)
4. Funded Ratio based on Valuation Assets	1,687.8%	125.5%
5. Past Service Cost Amortization Payment	(3,041)	(2,041)
6. DCR Plan Rate Payroll Projected for FY23	1,395,484	1,395,484
7. Past Service Cost Rate, (5) ÷ (6)	(0.22%)	(0.15%)
Total Employer Contribution Rate, not less than Normal Cost Rate	**0.24%**	**0.85%**

The table below shows the total employer contribution rate based on total DB and DCR Plan payroll for informational purposes.

Total Employer Contribution Rate as Percent of Total Payroll	Occupational Death & Disability	Retiree Medical
1. Total Normal Cost	$ 3,377	$ 11,852
2. Total DB and DCR Plan Rate Payroll Projected for FY23	2,049,996	2,049,996
3. Employer Normal Cost Rate, (1) ÷ (2)	0.16%	0.58%
4. Past Service Cost Amortization Payment	(3,041)	(2,041)
5. Past Service Cost Rate, (4) ÷ (2)	(0.15%)	(0.10%)
Total Employer Contribution Rate, not less than Normal Cost Rate	**0.16%**	**0.58%**

Others

Schedule of Past Service Cost Amortizations - Occupational Death & Disability ($'s in 000's)

	Amortization Period		Balances		
Layer	**Date Created**	**Years Remaining**	**Initial**	**Outstanding**	**Beginning-of-Year Payment**
Initial Unfunded Liability	06/30/2007	10	$ (40)	$ (36)	$ (4)
FY08 Gain	06/30/2008	11	(318)	(291)	(32)
Change in Assumptions	06/30/2009	12	(92)	(86)	(9)
FY09 Gain	06/30/2009	12	(1,924)	(1,804)	(189)
Change in Assumptions	06/30/2010	13	24	24	3
FY10 Gain	06/30/2010	13	(994)	(955)	(94)
FY11 Gain	06/30/2011	14	(1,184)	(1,157)	(107)
FY12 Gain	06/30/2012	15	(1,233)	(1,224)	(108)
FY13 Gain	06/30/2013	16	(779)	(783)	(66)
Change in Assumptions	06/30/2014	17	(51)	(50)	(4)
PRPA Modification	06/30/2014	17	(27)	(28)	(3)
FY14 Gain	06/30/2014	17	(2,003)	(2,022)	(164)
FY15 Gain	06/30/2015	18	(1,850)	(1,876)	(146)
FY16 Gain	06/30/2016	19	(2,361)	(2,396)	(180)
FY17 Gain	06/30/2017	20	(2,377)	(2,406)	(175)
FY18 Gain	06/30/2018	21	(2,590)	(2,611)	(184)
Change in Assumptions	06/30/2018	21	(272)	(275)	(20)
FY19 Gain	06/30/2019	22	(3,984)	(4,017)	(276)
FY20 Gain	06/30/2020	23	(4,803)	(4,838)	(324)
FY21 Gain	06/30/2021	24	(7,268)	(7,301)	(477)
Change in Assumptions	06/30/2022	25	(368)	(368)	(23)
FY22 Gain	06/30/2022	25	(7,196)	(7,196)	(459)
Total				**$ (41,696)**	**$ (3,041)**

Others

Schedule of Past Service Cost Amortizations - Retiree Medical ($'s in 000's)

Layer	Amortization Period: Date Created	Amortization Period: Years Remaining	Balances: Initial	Balances: Outstanding	Beginning-of-Year Payment
Initial Unfunded Liability	06/30/2007	10	$ (335)	$ (295)	$ (35)
Change in Assumptions	06/30/2008	11	165	151	16
FY08 Gain	06/30/2008	11	(702)	(638)	(72)
Change in Assumptions	06/30/2009	12	(122)	(114)	(12)
FY09 Gain	06/30/2009	12	(438)	(411)	(43)
Change in Assumptions	06/30/2010	13	(572)	(549)	(54)
FY10 Loss	06/30/2010	13	579	552	54
FY11 Loss	06/30/2011	14	820	805	75
Change in Assumptions	06/30/2012	15	25,180	25,024	2,214
FY12 Loss	06/30/2012	15	1,451	1,441	128
FY13 Loss	06/30/2013	16	9,974	10,016	847
Change in Assumptions	06/30/2014	17	(21,822)	(22,063)	(1,789)
FY14 Loss	06/30/2014	17	7,002	7,081	575
FY15 Gain	06/30/2015	18	(8,726)	(8,852)	(691)
EGWP Gain	06/30/2016	19	(17,884)	(18,144)	(1,367)
FY16 Loss	06/30/2016	19	10,367	10,518	793
Change in Assumptions	06/30/2017	20	21,288	21,550	1,570
FY17 Gain	06/30/2017	20	(1,658)	(1,677)	(122)
FY18 Loss	06/30/2018	21	118	119	8
Change in Assumptions/Methods	06/30/2018	21	(8,993)	(9,063)	(641)
FY19 Gain	06/30/2019	22	(10,841)	(10,935)	(752)
Change in Assumptions	06/30/2020	23	6,369	6,416	430
FY20 Gain	06/30/2020	23	(6,288)	(6,334)	(424)
Prescription Drug Plan Changes	06/30/2021	24	(1,794)	(1,802)	(118)
FY21 Gain	06/30/2021	24	(13,896)	(13,957)	(912)
Change in Assumptions	06/30/2022	25	(20,579)	(20,579)	(1,313)
FY22 Gain	06/30/2022	25	(6,360)	(6,360)	(406)
Total				**$ (38,100)**	**$ (2,041)**

Section 1.2: Actuarial Contributions as of June 30, 2022 for FY25 ($'s in 000's)

All Members

Normal Cost Rate	Occupational Death & Disability	Retiree Medical
1. Total Normal Cost	$ 5,101	$ 13,708
2. DCR Plan Rate Payroll Projected for FY23	1,645,341	1,645,341
3. Employer Normal Cost Rate, (1) ÷ (2)	0.31%	0.83%

Past Service Rate		
1. Actuarial Accrued Liability	$ 14,952	$ 169,396
2. Valuation Assets	62,938	212,638
3. Unfunded Actuarial Accrued Liability, (1) - (2)	$ (47,986)	$ (43,242)
4. Funded Ratio based on Valuation Assets	420.9%	125.5%
5. Past Service Cost Amortization Payment	(3,531)	(2,328)
6. DCR Plan Rate Payroll Projected for FY23	1,645,341	1,645,341
7. Past Service Cost Rate, (5) ÷ (6)	(0.21%)	(0.14%)
Total Employer Contribution Rate, not less than Normal Cost Rate	**0.31%**	**0.83%**

The table below shows the total employer contribution rate based on total DB and DCR Plan payroll for informational purposes.

Total Employer Contribution Rate as Percent of Total Payroll	Occupational Death & Disability	Retiree Medical
1. Total Normal Cost	$ 5,101	$ 13,708
2. Total DB and DCR Plan Rate Payroll Projected for FY23	2,442,007	2,442,007
3. Employer Normal Cost Rate, (1) ÷ (2)	0.21%	0.56%
4. Past Service Cost Amortization Payment	(3,531)	(2,328)
5. Past Service Cost Rate, (4) ÷ (2)	(0.14%)	(0.10%)
Total Employer Contribution Rate, not less than Normal Cost Rate	**0.21%**	**0.56%**

All Members

Schedule of Past Service Cost Amortizations - Occupational Death & Disability ($'s in 000's)

	Amortization Period		Balances		
Layer	**Date Created**	**Years Remaining**	**Initial**	**Outstanding**	**Beginning-of-Year Payment**
Initial Unfunded Liability	06/30/2007	10	$ (140)	$ (125)	$ (15)
FY08 Gain	06/30/2008	11	(904)	(825)	(92)
Change in Assumptions	06/30/2009	12	(196)	(184)	(19)
FY09 Gain	06/30/2009	12	(1,478)	(1,385)	(145)
Change in Assumptions	06/30/2010	13	103	99	10
FY10 Gain	06/30/2010	13	(1,276)	(1,228)	(121)
FY11 Gain	06/30/2011	14	(1,111)	(1,088)	(101)
FY12 Gain	06/30/2012	15	(1,582)	(1,572)	(139)
FY13 Gain	06/30/2013	16	(983)	(987)	(83)
Change in Assumptions	06/30/2014	17	(1,325)	(1,339)	(109)
PRPA Modification	06/30/2014	17	(118)	(119)	(10)
FY14 Gain	06/30/2014	17	(2,098)	(2,119)	(172)
FY15 Gain	06/30/2015	18	(2,514)	(2,549)	(199)
FY16 Gain	06/30/2016	19	(2,357)	(2,392)	(180)
FY17 Gain	06/30/2017	20	(2,902)	(2,939)	(214)
FY18 Gain	06/30/2018	21	(2,852)	(2,875)	(203)
Change in Assumptions	06/30/2018	21	(905)	(914)	(65)
FY19 Gain	06/30/2019	22	(3,765)	(3,797)	(261)
FY20 Gain	06/30/2020	23	(5,595)	(5,636)	(377)
FY21 Gain	06/30/2021	24	(9,110)	(9,151)	(598)
Change in Assumptions	06/30/2022	25	1,222	1,222	78
FY22 Gain	06/30/2022	25	(8,083)	(8,083)	(516)
Total				**$ (47,986)**	**$ (3,531)**

All Members

Schedule of Past Service Cost Amortizations - Retiree Medical ($'s in 000's)

	Amortization Period		Balances		
Layer	Date Created	Years Remaining	Initial	Outstanding	Beginning-of-Year Payment
Initial Unfunded Liability	06/30/2007	10	$ (356)	$ (316)	$ (38)
Change in Assumptions	06/30/2008	11	182	165	18
FY08 Gain	06/30/2008	11	(764)	(695)	(78)
Change in Assumptions	06/30/2009	12	(130)	(122)	(13)
FY09 Gain	06/30/2009	12	(476)	(448)	(47)
Change in Assumptions	06/30/2010	13	(531)	(510)	(50)
FY10 Loss	06/30/2010	13	533	511	50
FY11 Loss	06/30/2011	14	890	872	81
Change in Assumptions	06/30/2012	15	28,265	28,091	2,485
FY12 Loss	06/30/2012	15	1,178	1,170	104
FY13 Loss	06/30/2013	16	10,854	10,901	922
Change in Assumptions	06/30/2014	17	(24,856)	(25,130)	(2,038)
FY14 Loss	06/30/2014	17	8,215	8,307	674
FY15 Gain	06/30/2015	18	(9,438)	(9,574)	(747)
EGWP Gain	06/30/2016	19	(19,559)	(19,846)	(1,495)
FY16 Loss	06/30/2016	19	11,483	11,652	878
Change in Assumptions	06/30/2017	20	23,532	23,823	1,736
FY17 Gain	06/30/2017	20	(1,708)	(1,729)	(126)
FY18 Gain	06/30/2018	21	(113)	(114)	(8)
Change in Assumptions/Methods	06/30/2018	21	(9,642)	(9,717)	(687)
FY19 Gain	06/30/2019	22	(12,132)	(12,236)	(841)
Change in Assumptions	06/30/2020	23	7,485	7,540	505
FY20 Gain	06/30/2020	23	(7,370)	(7,424)	(497)
Prescription Drug Plan Changes	06/30/2021	24	(2,029)	(2,038)	(133)
FY21 Gain	06/30/2021	24	(15,622)	(15,691)	(1,025)
Change in Assumptions	06/30/2022	25	(22,348)	(22,348)	(1,426)
FY22 Gain	06/30/2022	25	(8,336)	(8,336)	(532)
Total				**$ (43,242)**	**$ (2,328)**

Section 1.3: Actuarial Gain/(Loss) for FY22 ($'s in 000's)

	Occupational Death & Disability	Retiree Medical
1. Expected Actuarial Accrued Liability		
a. Actuarial Accrued Liability as of June 30, 2021	$ 11,740	$ 168,472
b. Normal Cost	5,456	15,587
c. Interest on (a) and (b) at 7.38%	1,269	13,584
d. Employer Group Waiver Plan	0	140
e. Benefit Payments	(456)	(463)
f. Interest on (d) and (e) at 7.38%, adjusted for timing	(18)	(12)
g. Experience Study Assumptions/Methods	1,222	(22,348)
h. Expected Actuarial Accrued Liability as of June 30, 2022 (a) + (b) + (c) + (d) + (e) + (f) + (g)	$ 19,213	$ 174,960
2. Actual Actuarial Accrued Liability as of June 30, 2022	14,952	169,396
3. Liability Gain/(Loss), (1)(h) - (2)	**$ 4,261**	**$ 5,564**
4. Expected Actuarial Asset Value		
a. Actuarial Asset Value as of June 30, 2021	$ 53,075	$ 180,536
b. Interest on (a) at 7.38%	3,917	13,324
c. Employer Contributions	5,769	16,920
d. Employer Group Waiver Plan	0	140
e. Interest on (c) and (d) at 7.38%, adjusted for timing	209	618
f. Benefit Payments	(456)	(463)
g. Administrative Expenses	(33)	(56)
h. Interest on (f) and (g) at 7.38%, adjusted for timing	(19)	(19)
i. Expected Actuarial Asset Value as of June 30, 2022 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h)	$ 62,462	$ 211,000
5. Actuarial Asset Value as of June 30, 2022	62,938	212,638
6. Actuarial Asset Gain/(Loss), (5) - (4)(i)	**$ 476**	**$ 1,638**
7. Total Actuarial Gain/(Loss), (3) + (6)	**$ 4,737**	**$ 7,202**
8. Contribution Gain/(Loss)	**$ 3,363**	**$ 1,166**
9. Administrative Expense Gain/(Loss)	**$ (17)**	**$ (32)**
10. FY22 Gain/(Loss), (7) + (8) + (9)	**$ 8,083**	**$ 8,336**

Section 1.4: History of Unfunded Liability and Funded Ratio ($'s in 000's)

Occupational Death & Disability

Valuation Date	Total Actuarial Accrued Liability	Valuation Assets	Assets as a Percent of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)
June 30, 2007	$ 48	$ 188	391.7%	$ (140)
June 30, 2008	242	1,288	532.2%	(1,046)
June 30, 2009	403	3,138	778.7%	(2,735)
June 30, 2010	853	4,801	562.8%	(3,948)
June 30, 2011	1,949	7,049	361.7%	(5,100)
June 30, 2012	2,412	9,142	379.0%	(6,730)
June 30, 2013	3,603	11,373	315.7%	(7,770)
June 30, 2014	3,627	14,995	413.4%	(11,368)
June 30, 2015	5,049	19,014	376.6%	(13,965)
June 30, 2016	6,763	23,176	342.7%	(16,413)
June 30, 2017	7,540	26,944	357.3%	(19,404)
June 30, 2018	7,713	30,961	401.4%	(23,248)
June 30, 2019	9,774	36,701	375.5%	(26,927)
June 30, 2020	10,634	43,029	404.6%	(32,395)
June 30, 2021	11,740	53,075	452.1%	(41,335)
June 30, 2022	14,952	62,938	420.9%	(47,986)

Retiree Medical

Valuation Date	Total Actuarial Accrued Liability	Valuation Assets	Assets as a Percent of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)
June 30, 2007	$ 711	$ 1,067	150.1%	$ (356)
June 30, 2008	1,776	2,719	153.1%	(943)
June 30, 2009	3,913	5,475	139.9%	(1,562)
June 30, 2010	7,185	8,767	122.0%	(1,582)
June 30, 2011	11,302	12,009	106.3%	(707)
June 30, 2012	44,509	15,773	35.4%	28,736
June 30, 2013	60,282	20,336	33.7%	39,946
June 30, 2014	50,217	26,466	52.7%	23,751
June 30, 2015	58,683	44,188	75.3%	14,495
June 30, 2016	70,289	63,851	90.8%	6,438
June 30, 2017	109,703	81,559	74.3%	28,144
June 30, 2018	118,598	100,097	84.4%	18,501
June 30, 2019	124,946	118,783	95.1%	6,163
June 30, 2020	150,701	144,747	96.0%	5,954
June 30, 2021	168,472	180,536	107.2%	(12,064)
June 30, 2022	169,396	212,638	125.5%	(43,242)

Section 2: Plan Assets

Section 2.1: Summary of Fair Value of Assets ($'s in 000's)

As of June 30, 2022	Occupational Death & Disability	Retiree Medical	Allocation Percent
Cash and Short-Term Investments			
- Cash and Cash Equivalents	$ 950	$ 3,135	1.5%
- Subtotal	$ 950	$ 3,135	1.5%
Fixed Income Investments			
- Domestic Fixed Income Pool	$ 13,018	$ 44,033	21.3%
- International Fixed Income Pool	0	0	0.0%
- Tactical Fixed Income Pool	0	0	0.0%
- High Yield Pool	0	0	0.0%
- Treasury Inflation Protection Pool	0	0	0.0%
- Emerging Debt Pool	0	0	0.0%
- Subtotal	$ 13,018	$ 44,033	21.3%
Equity Investments			
- Domestic Equity Pool	$ 14,818	$ 50,116	24.2%
- International Equity Pool	8,041	27,199	13.1%
- Private Equity Pool	10,070	34,063	16.4%
- Emerging Markets Equity Pool	1,800	6,088	3.0%
- Alternative Equity Strategies	3,564	12,056	5.8%
- Subtotal	$ 38,293	$ 129,522	62.5%
Other Investments			
- Real Estate Pool	$ 4,610	$ 15,594	7.5%
- Other Investments Pool	4,408	14,909	7.2%
- Absolute Return Pool	0	0	0.0%
- Other Assets	0	0	0.0%
- Subtotal	$ 9,018	$ 30,503	14.7%
Total Cash and Investments	$ 61,279	$ 207,193	100.0%
Net Accrued Receivables	179	493	
Net Assets	$ 61,458	$ 207,686	
Peace Officer / Firefighter	$ 18,178	N/A	
Others	43,280	N/A	
All Members	$ 61,458	$ 207,686	

Section 2.2: Changes in Fair Value of Assets During FY22 ($'s in 000's)

Fiscal Year 2022	Occupational Death & Disability	Retiree Medical
1. Fair Value of Assets as of June 30, 2021	$ 60,145	$ 204,555
2. Additions:		
a. Member Contributions	$ 0	$ 0
b. Employer Contributions	5,769	16,920
c. Interest and Dividend Income	825	2,794
d. Net Appreciation/(Depreciation) in Fair Value of Investments	(4,641)	(15,687)
e. Employer Group Waiver Plan	0	140
f. Other	1	0
g. Total Additions	$ 1,954	$ 4,167
3. Deductions:		
a. Medical Benefits	$ 0	$ 463
b. Death & Disability Benefits	456	0
c. Investment Expenses	152	517
d. Administrative Expenses	33	56
e. Total Deductions	$ 641	$ 1,036
4. Fair Value of Assets as of June 30, 2022	$ 61,458	$ 207,686
5. Approximate Fair Value Investment Return Rate during FY22 Net of Investment Expenses	-6.3%	-6.3%

Section 2.3: Development of Actuarial Value of Assets ($'s in 000's)

The actuarial value of assets and the fair value were $0 at June 30, 2006. Investment gains and losses are recognized 20% per year over 5 years. In no event may valuation assets be less than 80% or more than 120% of fair value as of the current valuation date.

	Occupational Death & Disability	Retiree Medical
1. Investment Gain/(Loss) for FY22		
a. Fair Value as of June 30, 2021	$ 60,145	$ 204,555
b. Contributions	5,769	16,920
c. Employer Group Waiver Plan	0	140
d. Benefit Payments	456	463
e. Administrative Expenses	33	56
f. Actual Investment Return (net of investment expenses)	(3,967)	(13,410)
g. Expected Return Rate (net of investment expenses)	7.38%	7.38%
h. Expected Return	4,629	15,696
i. Investment Gain/(Loss) for the Year (f) - (h)	(8,596)	(29,106)
2. Actuarial Value as of June 30, 2022		
a. Fair Value as of June 30, 2022	$ 61,458	$ 207,686
b. Deferred Investment Gain/(Loss)	(1,480)	(4,952)
c. Preliminary Actuarial Value as of June 30, 2022, (a) - (b)	62,938	212,638
d. Upper Limit: 120% of Fair Value as of June 30, 2022	73,749	249,223
e. Lower Limit: 80% of Fair Value as of June 30, 2022	49,167	166,149
f. Actuarial Value at June 30, 2022, (c) limited by (d) and (e)	62,938	212,638
3. Ratio of Actuarial Value of Assets to Fair Value of Assets	102.4%	102.4%
4. Approximate Actuarial Value Investment Return Rate during FY22 Net of Investment Expenses	8.2%	8.2%
5. Actuarial Value Allocation[1]		
a. Peace Officer / Firefighter	$ 18,616	$ 25,285
b. Others	44,322	187,353
c. All Members	$ 62,938	$ 212,638

[1] Occupational death & disability allocated using fair value of assets. Retiree medical allocated based on retiree medical actuarial accrued liability.

The tables below show the development of the gains/(losses) to be recognized in the current year ($'s in 000's):

Occupational Death & Disability				
Fiscal Year Ending	**Asset Gain / (Loss)**	**Gain / (Loss) Recognized in Prior Years**	**Gain / (Loss) Recognized This Year**	**Gain / (Loss) Deferred to Future Years**
June 30, 2018	$ 23	$ 20	$ 3	$ 0
June 30, 2019	(370)	(222)	(74)	(74)
June 30, 2020	(1,178)	(472)	(236)	(470)
June 30, 2021	9,901	1,980	1,980	5,941
June 30, 2022	(8,596)	0	(1,719)	(6,877)
Total	**$ (220)**	**$ 1,306**	**$ (46)**	**$ (1,480)**

Retiree Medical				
Fiscal Year Ending	**Asset Gain / (Loss)**	**Gain / (Loss) Recognized in Prior Years**	**Gain / (Loss) Recognized This Year**	**Gain / (Loss) Deferred to Future Years**
June 30, 2018	$ (58)	$ (48)	$ (10)	$ 0
June 30, 2019	(1,212)	(726)	(242)	(244)
June 30, 2020	(3,825)	(1,530)	(765)	(1,530)
June 30, 2021	33,513	6,703	6,703	20,107
June 30, 2022	(29,106)	0	(5,821)	(23,285)
Total	**$ (688)**	**$ 4,399**	**$ (135)**	**$ (4,952)**

Section 2.4: Historical Asset Rates of Return

Year Ending	Actuarial Value		Fair Value	
	Annual	Cumulative	Annual	Cumulative
June 30, 2008	5.0%	5.0%	(7.1%)	(7.1%)
June 30, 2009	2.4%	3.7%	(13.0%)	(10.1%)
June 30, 2010	3.9%	3.8%	6.6%	(4.8%)
June 30, 2011	7.3%	4.6%	19.2%	0.7%
June 30, 2012	6.9%	5.1%	2.0%	0.9%
June 30, 2013	7.9%	5.5%	11.8%	2.7%
June 30, 2014	10.9%	6.3%	18.0%	4.7%
June 30, 2015	9.5%	6.7%	3.3%	4.6%
June 30, 2016	6.7%	6.7%	0.2%	4.1%
June 30, 2017	7.8%	6.8%	12.6%	4.9%
June 30, 2018	7.9%	6.9%	7.9%	5.2%
June 30, 2019	6.6%	6.9%	6.2%	5.2%
June 30, 2020	6.4%	6.8%	4.3%	5.2%
June 30, 2021	11.3%	7.2%	29.6%	6.7%
June 30, 2022	8.2%	7.2%	(6.3%)	5.8%

Rates of return are shown based on combined assets for OD&D and Retiree Medical.

Cumulative returns are since fiscal year ending June 30, 2008.

Section 3: Member Data

Section 3.1: Summary of Members Included

As of June 30	2018	2019	2020	2021	2022
Active Members - Peace Officer / Firefighter					
1. Number	1,905	2,038	2,228	2,350	2,482[1]
2. Average Age	35.63	35.76	35.92	36.40	36.65
3. Average Credited Service	4.83	5.09	5.36	5.71	5.91
4. Average Entry Age	30.80	30.67	30.56	30.69	30.74
5. Average Annual Earnings	$ 78,603	$ 84,593	$ 87,365	$ 90,022	$ 95,429
Active Members - Others					
1. Number	18,473	19,864	20,695	21,583	22,220[2]
2. Average Age	41.34	41.49	41.78	41.79	41.87
3. Average Credited Service	4.08	4.25	4.59	4.84	5.02
4. Average Entry Age	37.26	37.24	37.19	36.95	36.85
5. Average Annual Earnings	$ 57,349	$ 58,223	$ 59,603	$ 61,129	$ 62,371
Active Members - Total					
1. Number	20,378	21,902	22,923	23,933	24,702[3]
2. Average Age	40.80	40.96	41.21	41.26	41.35
3. Average Credited Service	4.15	4.33	4.66	4.93	5.11
4. Average Entry Age	36.65	36.63	36.55	36.33	36.24
5. Average Annual Earnings	$ 59,336	$ 60,676	$ 62,302	$ 63,966	$ 65,693
Disabilitants and Beneficiaries (Occupational Death & Disability)					
1. Number	15	16	15	14	16
2. Average Age	43.66	42.28	44.66	47.27	46.22
3. Average Monthly Death & Disability Benefit	$ 2,285	$ 2,404	$ 2,698	$ 2,601	$ 2,791
Retirees, Surviving Spouses, and Dependent Spouses (Retiree Medical)					
1. Number	23	43	66	93	166
2. Average Age	69.97	69.72	68.85	69.75	69.46
Total Number of Members	**20,416**	**21,961**	**23,004**	**24,040**	**24,884**

Average annual earnings (“valuation pay”) are the annualized earnings for the fiscal year ending on the valuation date.

[1] Includes 2,072 male active members and 410 female active members.

[2] Includes 9,673 male active members and 12,547 female active members.

[3] Includes 11,745 male active members and 12,957 female active members.

Section 3.2: Age and Service Distribution of Active Members

Annual Earnings by Age

Age	Number	Total Annual Earnings	Average Annual Earnings
0 - 19	120	$ 4,370,840	$ 36,424
20 - 24	1,456	67,382,569	46,279
25 - 29	3,041	175,979,490	57,869
30 - 34	4,050	266,550,938	65,815
35 - 39	3,998	282,957,815	70,775
40 - 44	3,197	226,859,340	70,960
45 - 49	2,610	179,481,566	68,767
50 - 54	2,311	155,817,626	67,424
55 - 59	1,860	125,530,044	67,489
60 - 64	1,378	92,555,224	67,166
65 - 69	505	34,582,576	68,480
70 - 74	136	8,355,694	61,439
75+	40	2,318,179	57,954
Total	**24,702**	**$1,622,741,901**	**$ 65,693**

Annual Earnings by Credited Service

Years of Service	Number	Total Annual Earnings	Average Annual Earnings
0	4,548	$ 220,028,910	$ 48,379
1	3,012	169,357,375	56,228
2	2,474	147,936,480	59,796
3	2,427	153,783,513	63,364
4	1,889	124,827,090	66,081
0 - 4	**14,350**	**$ 815,933,368**	**$ 56,859**
5 - 9	6,453	474,512,127	73,534
10 - 14	3,515	296,020,583	84,216
15 - 19	384	36,275,823	94,468
20 - 24	0	0	0
25 - 29	0	0	0
30 - 34	0	0	0
35 - 39	0	0	0
40+	0	0	0
Total	**24,702**	**$1,622,741,901**	**$ 65,693**

Years of Credited Service by Age

	Years of Service									
Age	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	Total
0 - 19	120	0	0	0	0	0	0	0	0	120
20 - 24	1,452	4	0	0	0	0	0	0	0	1,456
25 - 29	2,659	379	3	0	0	0	0	0	0	3,041
30 - 34	2,647	1,181	219	3	0	0	0	0	0	4,050
35 - 39	1,985	1,226	722	65	0	0	0	0	0	3,998
40 - 44	1,582	922	618	75	0	0	0	0	0	3,197
45 - 49	1,248	760	534	68	0	0	0	0	0	2,610
50 - 54	1,058	717	482	54	0	0	0	0	0	2,311
55 - 59	777	583	451	49	0	0	0	0	0	1,860
60 - 64	562	451	326	39	0	0	0	0	0	1,378
65 - 69	186	174	121	24	0	0	0	0	0	505
70 - 74	59	39	32	6	0	0	0	0	0	136
75+	15	17	7	1	0	0	0	0	0	40
Total	**14,350**	**6,453**	**3,515**	**384**	**0**	**0**	**0**	**0**	**0**	**24,702**

Total and average annual earnings (“valuation pay”) are the annualized earnings for the fiscal year ending on the valuation date.

Section 3.3: Member Data Reconciliation

	Actives	Retirees and Surviving Spouses	Dependent Spouses	OD&D Disabilitants	OD&D Beneficiaries	Total
As of June 30, 2021 [1]	**23,933**	**67**	**26**	**13**	**1**	**24,040**
New Entrants	4,253	0	0	0	0	4,253
Rehires	674	0	0	0	0	674
Vested Terminations	(706)	0	0	0	0	(706)
Non-Vested Terminations	(2,577)	0	0	0	0	(2,577)
Refund of Contributions	(774)	0	0	0	0	(774)
Disability Retirements	(2)	0	0	2	0	0
Age Retirements	(65)	65	18	0	0	18
Deaths With Beneficiary	(32)	0	0	0	0	(32)
Deaths Without Beneficiary	(2)	(1)	0	0	0	(3)
Converted To/From DB Plan	(11)	0	0	0	0	(11)
Added Dependent Coverage	0	0	1	0	0	1
Dropped Dependent Coverage	0	0	0	0	0	0
Transfers In/Out	(3)	(1)	(1)	0	0	(5)
Data Corrections	14	(6)	(2)	0	0	6
Net Change	**769**	**57**	**16**	**2**	**0**	**844**
As of June 30, 2022 [2]	**24,702**	**124**	**42**	**15**	**1**	**24,884**

[1] 89 participants are expected to receive retiree medical benefits in a different plan and are included for OD&D benefits only.

[2] 94 participants are expected to receive retiree medical benefits in a different plan and are included for OD&D benefits only.

Section 3.4: Schedule of Active Member Data

Valuation Date	Number	Annual Earnings (000's)	Annual Average Earnings	Percent Increase in Average Earnings	Number of Participating Employers
June 30, 2022	24,702	$ 1,622,742	$ 65,693	2.7%	150
June 30, 2021	23,933	1,530,905	63,966	2.7%	151
June 30, 2020	22,923	1,428,140	62,302	2.7%	153
June 30, 2019	21,902	1,328,934	60,676	2.3%	155
June 30, 2018	20,378	1,209,152	59,336	2.3%	155
June 30, 2017	19,171	1,112,398	58,025	1.5%	157
June 30, 2016	18,215	1,041,437	57,175	3.4%	157
June 30, 2015	17,098	945,496	55,299	1.9%	159
June 30, 2014	15,800	857,150	54,250	3.7%	159
June 30, 2013	14,316	748,658	52,295	4.7%	159

Total and average annual earnings ("valuation pay") are the annualized earnings for the fiscal year ending on the valuation date.

Section 3.5: Active Member Payroll Reconciliation

Payroll Field	Payroll Data (000's)
a) DRB actual reported salaries FY22 in employer list	$ 1,524,781
b) DRB actual reported salaries FY22 in valuation data	1,444,430
c) Annualized valuation data	1,622,742
d) Valuation payroll as of June 30, 2022	1,704,971
e) Rate payroll for FY23	1,645,341

a) Actual reported salaries from DRB employer listing showing all payroll paid during FY22, including those who were not active as of June 30, 2022
b) Payroll from valuation data for people who are in active status as of June 30, 2022
c) Payroll from (b) annualized for both new entrants and part-timers
d) Payroll from (c) with one year of salary scale applied to estimate salaries payable for the upcoming year
e) Payroll from (d) with the part-timer annualization removed

Section 4: Basis of the Actuarial Valuation

Section 4.1: Summary of Plan Provisions

Effective Date

July 1, 2006, with amendments through June 30, 2022.

Administration of Plan

The Commissioner of Administration or the Commissioner's designee is the administrator of the Plan. The Attorney General of the state is the legal counsel for the Plan and shall advise the administrator and represent the Plan in legal proceedings.

The Alaska Retirement Management Board prescribes policies, adopts regulations, invests the funds, and performs other activities necessary to carry out the provisions of the Plan.

Employers Included

Currently there are 150 employers participating in PERS DCR, including the State of Alaska, and 149 political subdivisions and public organizations.

Membership

An employee of a participating employer who first enters service on or after July 1, 2006, or a member of the defined benefit plan who works for an employer who began participation on or after July 1, 2006, and meets the following criteria is a member in the Plan:

- Permanent full-time or part-time employees of the State of Alaska, participating political subdivisions or public organizations. An employee must be regularly scheduled to work 30 or more hours per week to be considered full-time by the PERS. An employee must be regularly scheduled to work 15 or more hours per week but less than 30 hours to be considered a part-time employee for PERS purposes.
- Elected state officials.
- Elected municipal officials who are compensated and receive at least $2,001.00 per month.

Members can convert to PERS DCR if they are an eligible non-vested member of the PERS defined benefit plan whose employer consents to transfers to the defined contribution plan and they elect to transfer his or her account balance to PERS DCR.

Member Contributions

Other than the member-paid premiums discussed later in this section, there are no member contributions for the occupational death & disability and retiree medical benefits.

Retiree Medical Benefits

- Member must retire directly from the plan to be eligible for retiree medical coverage. Normal retirement eligibility is the earlier of a) 25 years of service as a peace officer or firefighter and 30 years of service for any other employee or b) Medicare eligible and 10 years of service.
- No subsidized retiree medical benefits are provided until normal retirement eligibility. The member's and any covered dependent's premium is 100% until the member is Medicare eligible. Upon the member's Medicare-eligibility, the required contribution will follow the service-based schedule shown below.
- Coverage cannot be denied except for failure to pay premium.
- Members who are receiving disability benefits or survivors who are receiving monthly survivor benefits are not eligible until the member meets, or would have met if he/she had lived, the normal retirement eligibility requirements.
- The following is a summary of the medical benefit design adopted in July 2016. The plan description below is used for valuation purposes and indicates participant cost-sharing. Please refer to the benefit handbook for more details.

Plan Design Feature	In-Network[1]	Out-of-Network[1 2]
Deductible (single / family)	$300 / $600	
Medical services (participant share)	20%	40%
Emergency Room Copay (non-emergent use)	$100	$100
Medical Out-of-Pocket Maximum (single / family, including deductible)	$1,500 / $3,000	$3,000 / $6,000
Medicare Coordination	Exclusion	Exclusion
Pharmacy	No Deductible	No Deductible
Retail Generic (per 30-day fill)	20% $10 min / $50 max	
Retail Non-Formulary Brand (per 30-day fill)	25% $25 min / $75 max	40%
Retail Formulary Brand (per 30-day fill)	35% $80 min / $150 max	
Mail-Order Generic	$20 copay	
Mail-Order Non-Formulary Brand	$50 copay	40%
Mail-Order Formulary Brand	$100 copay	
Pharmacy Out-of-Pocket Max (single / family)	$1,000 / $2,000	
Medicare Pharmacy Arrangement	Retiree Drug Subsidy / Employer Group Waiver Plan effective 1/1/2019	
Wellness / Preventative	100% covered, not subject to deductible	20%, after deductible

[1] Section 1.1 of the AlaskaCare Defined Contribution Retiree Benefit Plan states that this health plan shall be updated from time to time to reflect changes in benefits, including annual adjustments to the premium, deductible, coinsurance, medical out-of-pocket limit, and prescription drug out-of-pocket limit.

[2] OON applies only to non-Medicare eligible participants.

- Buck used manual rate models to determine relative plan values for the defined benefit (DB) retiree medical plan and the DCR retiree medical plan outlined above. We applied the ratio of the DCR retiree medical plan value to the DB retiree medical plan value to the per capita costs determined for each of pre/post-Medicare medical and pharmacy benefits to estimate corresponding values for the DCR retiree medical plan design. These factors are noted in Section 4.3. We further adjusted the Medicare medical manual rate to reflect the Medicare coordination method adopted. The estimated 2023 reimbursements under EGWP were provided by Segal Consulting (who worked with the EGWP administrator, Optum, to develop those estimates). We reflect estimated discounts and pharmacy rebates in the defined benefit medical cost so no further adjustment was needed for the DCR retiree medical plan. The medical network differential is reflected in the relative plan value adjustments.
- Starting in 2022, prior authorization is required for certain specialty medications. There is no change to the medications that are covered by the plan.
- The retiree medical plan's coverage is supplemental to Medicare. Medicare coordination is described in the DCR Plan Handbook, referred to in the industry as exclusion coordination: Medicare payment is deducted from the Medicare allowable expense and plan parameters are applied to the remaining amount. Starting in 2019, the prescription drug coverage is through a Medicare Part D EGWP arrangement.
- The premium for Medicare-eligible retirees will be based on the member's years of service. The percentage of premium paid by the member is as follows:

Years of Service	Percent of Premium Paid by Member
< 15	30%
15 – 19	25%
20 – 24	20%
25 – 29	15%
30+	10%

- The premium for dependents who are not eligible for Medicare aligns with the member's subsidy. While a member is not Medicare-eligible, premiums are 100% of the estimated cost.
- Members have a separate defined contribution Health Reimbursement Arrangement account, which is not reflected in this valuation, that can be used to pay for premiums or other medical expenses.
- For valuation purposes, retiree premiums were assumed to equal the percentages outlined in the table above times the age-related plan costs. Future premiums calculated and charged to DCR participants will need to be determined reflecting any appropriate adjustments to the defined benefit (DB) plan data because current DB premiums were determined using information based upon enrollment with members who have double coverage.
- Coverage will continue for surviving spouses of covered retired members.

Occupational Disability Benefits

- Benefit is 40% of salary at date of disability.
- For Peace Officer and Firefighters there is a Disability Benefit Adjustment such that:
  - The disability benefit is increased by 75% of the cost-of-living increase in the preceding calendar year or 9%, whichever is less.
  - At the time the disabled member retires, the retirement benefit will be increased by a percentage equal to the total cumulative percentage that has been applied to the disability benefit. Monthly annuity payments are made from the member's contribution balance until the fund is exhausted, at which the plan pays all remaining payments.
- For Others, there is no increase in the occupational disability benefit after commencement.
- Member earns service while on occupational disability.
- Benefits cease when the member becomes eligible for normal retirement at Medicare-eligible age and 10 years of service, or at any age with 30 years of service for Others members or 25 years of service for Peace Officer/Firefighter members.
- Peace Officer/Firefighter members may select the defined contribution account or the monthly benefit payable as if they were retiring under Tier 3 (service continues during disability, final average salary is as of date of disability), but with payments first made from the member's DC account until it's exhausted.
- No subsidized retiree medical benefits are provided until normal retirement eligibility. The member's premium is 100% of the estimated cost until they are Medicare eligible. Medicare-eligible premiums follow the service-based schedule above.

Occupational Death Benefits

- Benefit is 40% of salary for Others members and 50% of salary for Peace Officer/Firefighter members.
- Survivor's Pension Adjustment: A survivor's pension is increased by 50% of the cost-of-living increase in the preceding calendar year or 6%, whichever is less, if the recipient is at least age 60 on July 1, or under age 60 if the recipient has been receiving PERS benefits for at least 5 years as of July 1.
- Benefits cease when the member would have become eligible for normal retirement.
- The period during which the survivor is receiving benefits is counted as service credit toward retiree medical benefits.
- No subsidized retiree medical benefits are provided until the member would have been eligible for normal retirement. The surviving spouse's premium is 100% of the estimated cost until the member would have been Medicare eligible. Medicare-eligible premiums follow the service-based schedule above.

Changes in Benefit Provisions Valued Since the Prior Valuation

There were no changes in benefit provisions since the prior valuation.

Section 4.2: Description of Actuarial Methods and Valuation Procedures

The funding method used in this valuation was adopted by the Board in October 2006, and was modified as part of the experience study for the period July 1, 2013 to June 30, 2017. The asset smoothing method used to determine valuation assets was implemented effective June 30, 2006.

Benefits valued are those delineated in Alaska State statutes as of the valuation date. Changes in State statutes effective after the valuation date are not taken into consideration in setting the assumptions and methods.

Actuarial Cost Method

Liabilities and contributions shown in the report are computed using the Entry Age Normal Actuarial Cost Method, level percent of pay. Each year's difference between actual and expected unfunded actuarial accrued liability is amortized over 25 years as a level percentage of expected payroll.

Cost factors designed to produce annual costs as a constant percentage of each member's expected compensation in each year for death & disability benefits and retiree medical benefits, from the assumed entry age to the last age with a future benefit were applied to the projected benefits to determine the normal cost (the portion of the total cost of the plan allocated to the current year under the method). The normal cost is determined by summing intermediate results for active members and determining an average normal cost rate which is then related to the total DCR Plan payroll of active members. The actuarial accrued liability for active members (the portion of the total cost of the plan allocated to prior years under the method) was determined as the excess of the actuarial present value of projected benefits over the actuarial present value of future normal costs.

The actuarial accrued liability for beneficiaries and disabled members currently receiving benefits (if any) was determined as the actuarial present value of the benefits expected to be paid. No future normal costs are payable for these members.

The actuarial accrued liability under this method at any point in time is the theoretical amount of the fund that would have been accumulated had annual contributions equal to the normal cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date). The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of plan assets measured on the valuation date.

Under this method, experience gains or losses, i.e., decreases or increases in accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the unfunded actuarial accrued liability.

Valuation of Assets

Effective June 30, 2006, the asset valuation method recognizes 20% of the investment gain or loss in each of the current and preceding four years. This method was phased in over five years. Fair Value of Assets was $0 as of June 30, 2006. All assets are valued at fair value. Assets are accounted for on an accrued basis and are taken directly from financial statements audited by KPMG LLP. Valuation assets are constrained to a range of 80% to 120% of the fair value of assets.

Changes in Methods Since the Prior Valuation

There were no changes in the asset or valuation methods since the prior valuation.

Valuation of Retiree Medical and Prescription Drug Benefits

The methodology used for the valuation of the retiree medical benefits is described in Section 5.2 of the State of Alaska Public Employees' Retirement System Defined Benefit Plan Actuarial Valuation Report as of June 30, 2022.

Starting in 2022, prior authorization is required for certain specialty medications. There is no change to the medications that are covered by the plan. Segal provided an estimate of the impact of this change to the DB retiree health plan cost for calendar year 2022. The resulting adjustment factors for pre-Medicare prescription drug, Medicare prescription drug, and EGWP costs were applied to claims experience incurred before January 1, 2022. Those base claims costs were used for the DCR valuation with further adjustments as noted below. Additionally, starting in 2022, certain common preventive benefits are covered for the DB plan. The resulting adjustment factor for pre-Medicare medical costs was applied to claims experience incurred before January 1, 2022. However, preventive benefits were already covered under the DCR plan so the pre-65 DCR medical adjustment factor referenced below was increased from 3.1% to 4.4%.

Due to the lack of experience for the DCR retiree medical plan, base claims costs are based on those described in the actuarial valuation as of June 30, 2022 for the Defined Benefit (DB) retiree medical plan covering TRS and PERS. The DB rates were used with some adjustments. The claims costs were adjusted to reflect the differences between the DCR medical plan and the DB medical plan. These differences include network steerage, different coverage levels, different Medicare coordination for medical benefits, and an indexing of the retiree out-of-pocket dollar amounts. To account for higher initial copays, deductibles, and out-of-pocket limits, projected FY23 claims costs were reduced 4.4% for pre-Medicare medical claims, 3.1% for Medicare medical claims, and 8.9% for prescription drugs. In addition, to account for the difference in Medicare coordination, projected FY23 medical claims costs for Medicare eligible retirees were further reduced 29.5%.

FY21 and FY22 experience was thoroughly reviewed to assess the impact of COVID-19 and whether an adjustment to FY21 and FY22 claims was appropriate for use in the June 30, 2022 valuation. FY21 medical per capita claims were noticeably lower than expected, so a 4% load was added to the FY21 medical claims used in the per capita claims cost development to better reflect future expected long-term costs of the plan. FY22 medical per capita claims were reasonable when compared to pre-COVID levels, so no adjustments were made to the FY22 medical claims used in the per capita claims cost development.

No implicit subsidies are assumed. Employees projected to retire with 30 years of service (25 years of service for Peace/Fire) prior to Medicare are valued with commencement deferred to Medicare eligibility, because those members will be required to pay the full plan premium prior to Medicare. Explicit subsidies for disabled and normal retirement are determined using the plan-defined percentages of age-related total projected plan costs, again with no implicit subsidy assumed.

The State transitioned to an Employer Group Waiver Program (EGWP) for DCR participants effective January 1, 2019. The estimated 2023 reimbursements under EGWP were provided by Segal Consulting (who worked with the EGWP administrator, Optum, to develop those estimates).

Healthcare Reform

Healthcare Reform legislation passed on March 23, 2010 included several provisions with potential implications for the State of Alaska Retiree Health Plan liability. Buck evaluated the impact due to these provisions.

Because the State plan is retiree-only, not all provisions are required. Unlimited lifetime benefits and dependent coverage to age 26 are two of these provisions. The adopted DCR plan does not place lifetime limits on benefits, but does restrict dependent child coverage.

The Further Consolidated Appropriations Act, 2020 passed in December 2019 repealed several healthcare-related taxes, including the Cadillac Tax.

The Tax Cuts and Jobs Act passed in December 2017 included the elimination of the individual mandate penalty and changed the inflation measure for purposes of determining the limits for the High Cost Excise Tax to use chained CPI. It is our understanding the law does not directly impact other provisions of the ACA. While the nullification of the ACA's individual mandate penalty does not directly impact employer group health plans, it could contribute to the destabilization of the individual market and increase the number of uninsured. Such destabilization could translate to increased costs for employers. We have considered this when setting our healthcare cost trend assumptions and will continue to monitor this issue.

The Inflation Reduction Act was signed into law on August 16, 2022. The law contains several provisions that are expected to impact Alaska's Medicare prescription drug plan (EGWP), which will be considered at the next measurement date.

We have not identified any other specific provisions of healthcare reform or its potential repeal that would be expected to have a significant impact on the measured obligation. We will continue to monitor legislative activity.

Section 4.3: Summary of Actuarial Assumptions

The demographic and economic assumptions used in the June 30, 2022 valuation are described below. Unless noted otherwise, these assumptions were adopted by the Board at the June 2022 meeting based on the experience study for the period July 1, 2017 to June 30, 2021.

Investment Return

7.25% per year, net of investment expenses.

Salary Scale

Salary scale rates based on the 2017-2021 actual experience (see Table 1).

Inflation – 2.50% per year.

Productivity – 0.25% per year.

Payroll Growth

2.75% per year (inflation + productivity).

Total Inflation

Total inflation as measured by the Consumer Price Index for urban and clerical workers for Anchorage is assumed to increase 2.50% annually.

Mortality (Pre-Commencement)

Mortality rates based on the 2017-2021 actual experience, to the extent the experience was statistically credible.

Employee mortality for Peace Officer/Firefighters in accordance with the following tables:

- Occ D&D: Pub-2010 Safety Employee table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 Safety Employee table, headcount-weighted, and projected with MP-2021 generational improvement.

Employee mortality for Others in accordance with the following tables:

- Occ D&D: Pub-2010 General Employee table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 General Employee table, headcount-weighted, and projected with MP-2021 generational improvement.

Deaths are assumed to result from occupational causes 70% of the time for Peace Officer/Firefighters, and 35% of the time for Others.

Mortality (Post-Commencement)

Mortality rates based on the 2017-2021 actual experience, to the extent the experience was statistically credible.

Retiree mortality for Peace Officer/Firefighters in accordance with the following tables:

- Occ D&D: Pub-2010 Safety Retiree table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 Safety Retiree table, headcount-weighted, and projected with MP-2021 generational improvement.

Retiree mortality for Others in accordance with the following tables:

- Occ D&D: 98% of male and 106% of female rates of the Pub-2010 General Retiree table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: 101% of male and 110% of female rates of the Pub-2010 General Retiree table, headcount-weighted, and projected with MP-2021 generational improvement.

Beneficiary mortality for Peace Officer/Firefighters in accordance with the following tables. These tables are applied only after the death of the original member.

- Occ D&D: Pub-2010 Contingent Survivor table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 Contingent Survivor table, headcount-weighted, and projected with MP-2021 generational improvement.

Beneficiary mortality for Others in accordance with the following tables. These tables are applied only after the death of the original member.

- Occ D&D: 102% of male and 108% of female rates of the Pub-2010 Contingent Survivor table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: 101% of male and 108% of female rates of the Pub-2010 Contingent Survivor table, headcount-weighted, and projected with MP-2021 generational improvement.

Turnover

Select and ultimate rates based on the 2017-2021 actual experience (see Tables 2a and 2b).

Disability

No changes to the incidence rates from the prior valuation due to insufficient 2017-2021 actual experience (see Tables 3a and 3b). For retiree medical benefits, the disability rates cease once a member is eligible for retirement. However, the disability rates continue after retirement eligibility for occupational death & disability benefits.

Disabilities are assumed to be occupational 70% of the time for Peace Officer/Firefighters, and 35% of the time for Others.

For Peace Officer/Firefighters, members are assumed to take the monthly annuity 100% of the time.

Post-disability mortality for Peace Officer/Firefighters in accordance with the following tables:

- Occ D&D: Pub-2010 Safety Disabled Retiree table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 Safety Disabled Retiree table, headcount-weighted, and projected with MP-2021 generational improvement.

Post-disability mortality for Others in accordance with the following tables:

- Occ D&D: Pub-2010 Non-Safety Disabled Retiree table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 Non-Safety Disabled Retiree table, headcount-weighted, and projected with MP-2021 generational improvement.

Retirement

Retirement rates based on the 2017-2021 actual experience (see Table 4).

Spouse Age Difference

Males are assumed to be three years older than their wives. Females are assumed to be two years younger than their husbands.

Percent Married for Occupational Death & Disability

For Others, 75% of male members and 70% of female members are assumed to be married at termination from active service. For Peace Officer/Firefighters, 85% of male members and 60% of female members are assumed to be married at termination from active service.

Dependent Spouse Medical Coverage Election

Applies to members who do not have double medical coverage. For Peace Officer/Firefighters, 75% of male members and 50% of female members are assumed to be married and cover a dependent spouse. For Others, 60% of male members and 50% of female members are assumed to be married and cover a dependent spouse.

Part-Time Service

Peace Officer/Firefighter members are assumed to be full-time employees. For Other members, part-time employees are assumed to earn 0.75 years of service per year.

Peace Officer / Firefighter Occupational Disability Retirement Benefit Commencement

The occupational disability retirement benefit is assumed to be first payable from the member's DC account and the retirement benefit payable from the occupational death & disability trust will commence five years later.

Imputed Data

Data changes from the prior year which are deemed to have immaterial impact on liabilities and contribution rates are assumed to be correct in the current year's client data.

Non-vested terminations with appropriate refund dates are assumed to have received a full refund of contributions. Active members with missing salary and service are assumed to be terminated with status based on their vesting percentage.

Administrative Expenses

The Normal Cost as of June 30, 2022 was increased by $33,000 for occupational death & disability and $39,000 for retiree medical. These amounts are based on the average of actual administrative expenses during the last two fiscal years.

Retiree Medical Participation

Death / Disability Decrement		Retirement Decrement	
Age	Percent Participation	Age	Percent Participation*
< 56	75.0%	55	50.0%
56	77.5%	56	55.0%
57	80.0%	57	60.0%
58	82.5%	58	65.0%
59	85.0%	59	70.0%
60	87.5%	60	75.0%
61	90.0%	61	80.0%
62	92.5%	62	85.0%
63	95.0%	63	90.0%
64	97.5%	64	95.0%
65+	100.0%	65+	**Years of Service**
			< 15 75.0%
			15 – 19 80.0%
			20 – 24 85.0%
			25 – 29 90.0%
			30+ 95.0%

* Participation assumption is a combination of (i) the service-based rates for retirement from employment at age 65+ and (ii) the age-based rates for retirement from employment before age 65. These rates reflect the expected plan election rate that varies by reason for decrement, duration that a member may pay full cost prior to Medicare eligibility, and availability of alternative and/or lower cost options, particularly in the Medicare market. This assumption is based on observed trends in participation from a range of other plans.

Healthcare Per Capita Claims Cost

Sample claims cost rates (before base claims cost adjustments described below) adjusted to age 65 for FY23 medical and prescription drugs are shown below. The prescription drug costs reflect the plan change to require prior authorization for certain specialty medications.

	Medical	Prescription Drugs
Pre-Medicare	$ 15,706	$ 3,712
Medicare Parts A & B	$ 1,625	$ 3,907
Medicare Part D – EGWP	N/A	$ 1,309

Members are assumed to attain Medicare eligibility at age 65. All costs are for the 2023 fiscal year (July 1, 2022 – June 30, 2023).

The EGWP subsidy is assumed to increase in future years by the trend rates shown on the following pages. No future legislative changes or other events are anticipated to impact the EGWP subsidy. If any legislative or other changes occur in the future that impact the EGWP subsidy (which could either increase or decrease the plan's Actuarial Accrued Liability), those changes will be evaluated and quantified at the next measurement date.

Base Claims Cost Adjustments

Due to higher initial copays, deductibles, out-of-pocket limits, and member cost sharing compared to the DB medical plan, the following cost adjustments are applied to the per capita claims cost rates above:

- 0.956 for the pre-Medicare plan.
- 0.674 for both the Medicare medical plan and Medicare coordination method (3.1% reduction for the medical plan and 29.5% reduction for the coordination method).
- 0.911 for the prescription drug plan.

Healthcare Morbidity

Morbidity rates (also called aging factors) are used to estimate utilization of healthcare benefits at each age to reflect the fact that healthcare utilization typically increases with age. Separate morbidity rates are used for medical and prescription drug benefits. These rates are based on the 2017-2021 actual experience.

Age	Medical	Prescription Drugs
0 – 44	2.0%	4.5%
45 – 54	2.5%	3.5%
55 – 64	2.5%	1.0%
65 – 74	2.0%	2.1%
75 – 84	2.2%	-0.3%
85 – 94	0.5%	-2.5%
95+	0.0%	0.0%

Healthcare Third Party Administrator Fees

$449 per person per year; assumed to increase at 4.50% per year.

Healthcare Cost Trend

The table below shows the rate used to project the cost from the shown fiscal year to the next fiscal year. For example, 7.00% is applied to the FY23 pre-Medicare medical claims costs to get the FY24 medical claims costs.

	Medical Pre-65	Medical Post-65	Prescription Drugs / EGWP
FY23	7.00%	5.50%	7.50%
FY24	6.70%	5.50%	7.20%
FY25	6.40%	5.40%	6.90%
FY26	6.20%	5.40%	6.65%
FY27	6.05%	5.35%	6.35%
FY28	5.85%	5.35%	6.10%
FY29	5.65%	5.30%	5.80%
FY30	5.45%	5.30%	5.55%
FY31-FY38	5.30%	5.30%	5.30%
FY39	5.25%	5.25%	5.25%
FY40	5.20%	5.20%	5.20%
FY41	5.10%	5.10%	5.10%
FY42	5.05%	5.05%	5.05%
FY43	4.95%	4.95%	4.95%
FY44	4.90%	4.90%	4.90%
FY45	4.80%	4.80%	4.80%
FY46	4.75%	4.75%	4.75%
FY47	4.70%	4.70%	4.70%
FY48	4.60%	4.60%	4.60%
FY49	4.55%	4.55%	4.55%
FY50+	4.50%	4.50%	4.50%

For the June 30, 2014 valuation and later, the updated Society of Actuaries' Healthcare Cost Trend Model is used to project medical and prescription drug costs. This model estimates trend amounts that are projected out for 80 years. The model has been populated with assumptions that are specific to the State of Alaska.

Changes in Assumptions Since the Prior Valuation

Effective for the June 30, 2022 valuation, the Board adopted the changes to the demographic and economic assumptions recommended by the actuary, based on the results of an experience study performed on the plan experience from July 1, 2017 to June 30, 2021. The changes in assumptions were adopted at the June 2022 Board meeting.

The healthcare per capita claims cost assumption is updated annually as described in Section 4.2. The amounts included in the Normal Cost for administrative expenses were changed from $16,000 to $33,000 for occupational death & disability, and from $24,000 to $39,000 for retiree medical (based on the most recent two years of actual administrative expenses paid from plan assets).

Table 1: Salary Scales

Peace Officer / Firefighter	
Years of Service	Percent Increase
< 1	8.50%
1	7.75%
2	7.25%
3	7.00%
4	6.75%
5	6.25%
6	5.75%
7	5.50%
8	5.25%
9	5.05%
10	4.95%
11	4.85%
12	4.75%
13	4.65%
14	4.55%
15	4.45%
16	4.35%
17	4.25%
18	4.05%
19	4.05%
20+	3.85%

Others	
Years of Service	Percent Increase
< 1	6.75%
1	6.00%
2	5.50%
3	5.00%
4	4.75%
5	4.25%
6	4.05%
7	3.95%
8	3.75%
9	3.55%
10	3.45%
11	3.25%
12	3.10%
13	3.05%
14	3.00%
15	2.95%
16	2.90%
17+	2.85%

Table 2a: Turnover Rates for Peace Officer / Firefighter

Select Rates during the First 5 Years of Employment

Years of Service	Male	Female
< 1	17.00%	27.00%
1	12.00%	21.00%
2	11.00%	15.00%
3	11.00%	13.00%
4	10.00%	9.00%

Ultimate Rates after the First 5 Years of Employment

Age	Male	Female
< 30	6.60%	10.20%
30 - 34	6.80%	10.00%
35 - 39	6.70%	9.90%
40 - 44	6.50%	9.50%
45 - 49	6.50%	9.30%
50 - 54	8.50%	9.10%
55 - 59	9.80%	9.60%
60 - 64	12.50%	10.30%
65+	19.20%	10.70%

Table 2b: Turnover Rates for Others

Select Rates during the First 5 Years of Employment

Years of Service	Male	Female
< 1	28.00%	29.00%
1	20.00%	24.00%
2	16.00%	19.00%
3	14.00%	16.00%
4	12.00%	14.00%

Ultimate Rates after the First 5 Years of Employment

Age	Male	Female
< 30	13.70%	15.80%
30 - 34	12.20%	11.20%
35 - 39	9.70%	10.20%
40 - 44	8.50%	10.60%
45 - 49	8.90%	8.90%
50 - 54	8.40%	8.70%
55 - 59	8.70%	9.50%
60 - 64	10.10%	11.80%
65+	11.20%	15.70%

Table 3a: Disability Rates for Peace Officer / Firefighter

Age	Male	Female
< 23	0.0179%	0.0112%
23	0.0244%	0.0153%
24	0.0310%	0.0194%
25	0.0374%	0.0234%
26	0.0440%	0.0275%
27	0.0505%	0.0316%
28	0.0526%	0.0329%
29	0.0548%	0.0343%
30	0.0570%	0.0356%
31	0.0591%	0.0370%
32	0.0612%	0.0383%
33	0.0634%	0.0397%
34	0.0657%	0.0411%
35	0.0679%	0.0425%
36	0.0702%	0.0439%
37	0.0724%	0.0453%
38	0.0757%	0.0473%
39	0.0789%	0.0493%
40	0.0822%	0.0514%
41	0.0854%	0.0534%
42	0.0886%	0.0554%
43	0.0977%	0.0611%
44	0.1066%	0.0667%
45	0.1157%	0.0723%

Age	Male	Female
46	0.1247%	0.0780%
47	0.1337%	0.0836%
48	0.1462%	0.0914%
49	0.1588%	0.0993%
50	0.1714%	0.1071%
51	0.1839%	0.1150%
52	0.1965%	0.1228%
53	0.2294%	0.1434%
54	0.2624%	0.1640%
55	0.2954%	0.1846%
56	0.3283%	0.2052%
57	0.3613%	0.2258%
58	0.4112%	0.2570%
59	0.4611%	0.2882%
60	0.5110%	0.3194%
61	0.5610%	0.3506%
62	0.6109%	0.3818%
63	0.6109%	0.3818%
64	0.6109%	0.3818%
65	0.6109%	0.3818%
66	0.6109%	0.3818%
67	0.6109%	0.3818%
68	0.4073%	0.2546%
69	0.2036%	0.1273%
70+	0.2036%	0.1273%

Table 3b: Disability Rates for Others

Age	Male	Female	Age	Male	Female
< 23	0.0327%	0.0376%	46	0.1125%	0.1154%
23	0.0360%	0.0400%	47	0.1208%	0.1236%
24	0.0392%	0.0424%	48	0.1329%	0.1360%
25	0.0425%	0.0448%	49	0.1451%	0.1484%
26	0.0456%	0.0472%	50	0.1572%	0.1608%
27	0.0489%	0.0496%	51	0.1694%	0.1734%
28	0.0501%	0.0510%	52	0.1815%	0.1858%
29	0.0513%	0.0524%	53	0.2132%	0.2168%
30	0.0524%	0.0538%	54	0.2450%	0.2478%
31	0.0536%	0.0554%	55	0.2766%	0.2788%
32	0.0548%	0.0568%	56	0.3084%	0.3098%
33	0.0566%	0.0586%	57	0.3401%	0.3408%
34	0.0584%	0.0606%	58	0.4068%	0.4096%
35	0.0602%	0.0624%	59	0.4736%	0.4784%
36	0.0620%	0.0644%	60	0.5405%	0.5470%
37	0.0638%	0.0662%	61	0.6072%	0.6158%
38	0.0669%	0.0696%	62	0.6740%	0.6844%
39	0.0701%	0.0728%	63	0.8526%	0.8450%
40	0.0734%	0.0762%	64	1.0314%	1.0054%
41	0.0765%	0.0794%	65	1.2101%	1.1660%
42	0.0797%	0.0826%	66	1.3889%	1.3264%
43	0.0879%	0.0908%	67	1.5675%	1.4870%
44	0.0962%	0.0990%	68	1.0451%	0.9914%
45	0.1043%	0.1072%	69	0.5225%	0.4956%
			70+	0.5225%	0.4956%

Table 4: Retirement Rates

Age	Rate
< 55	2.00%
55	3.00%
56	3.00%
57	3.00%
58	3.00%
59	3.00%
60	5.00%
61	5.00%
62	10.00%
63	5.00%
64	5.00%
65	25.00%
66	25.00%
67	25.00%
68	20.00%
69	20.00%
70+	100.00%

Section 5: Historical Information[1]

Section 5.1: Funding Progress

Funding Progress - Occupational Death & Disability ($'s in 000's)

Valuation Date	Actuarial Accrued Liability	Valuation Assets	Assets as Pct. of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)	Active Member Payroll	UAAL as Pct. of Active Member Payroll
June 30, 2022	$ 14,952	$ 62,938	420.9%	$ (47,986)	$ 1,645,341	(2.9%)
June 30, 2021	11,740	53,075	452.1%	(41,335)	1,548,116	(2.7%)
June 30, 2020	10,634	43,029	404.6%	(32,395)	1,443,017	(2.2%)
June 30, 2019	9,774	36,701	375.5%	(26,927)	1,342,839	(2.0%)
June 30, 2018	7,713	30,961	401.4%	(23,248)	1,218,186	(1.9%)
June 30, 2017	7,540	26,944	357.3%	(19,404)	1,131,441	(1.7%)
June 30, 2016	6,763	23,176	342.7%	(16,413)	1,059,791	(1.5%)
June 30, 2015	5,049	19,014	376.6%	(13,965)	958,135	(1.5%)
June 30, 2014	3,627	14,995	413.4%	(11,368)	865,146	(1.3%)
June 30, 2013	3,603	11,373	315.7%	(7,770)	802,645	(1.0%)
June 30, 2012	2,412	9,142	379.0%	(6,730)	675,976	(1.0%)
June 30, 2011	1,949	7,049	361.7%	(5,100)	564,434	(0.9%)
June 30, 2010	853	4,801	562.8%	(3,948)	455,113	(0.9%)
June 30, 2009	403	3,138	778.7%	(2,735)	340,360	(0.8%)
June 30, 2008	242	1,288	532.2%	(1,046)	221,931	(0.5%)
June 30, 2007	48	188	391.7%	(140)	115,329	(0.1%)

Change in assumptions reflected in 2022, 2018, 2014, 2010, and 2009 valuations.

[1] GASB 74 replaced GASB 43 effective for the fiscal year ending June 30, 2017. At the request of the State, historical accounting information has been included in this section as if GASB 43 were still effective.

Funding Progress - Retiree Medical ($'s in 000's)

Valuation Date	Actuarial Accrued Liability	Valuation Assets	Assets as Pct. of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)	Active Member Payroll	UAAL as Pct. of Active Member Payroll
June 30, 2022	$ 169,396	$ 212,638	125.5%	$ (43,242)	$ 1,645,341	(2.6%)
June 30, 2021	168,472	180,536	107.2%	(12,064)	1,548,116	(0.8%)
June 30, 2020	150,701	144,747	96.0%	5,954	1,443,017	0.4%
June 30, 2019	124,946	118,783	95.1%	6,163	1,342,839	0.5%
June 30, 2018	118,598	100,097	84.4%	18,501	1,218,186	1.5%
June 30, 2017	109,703	81,559	74.3%	28,144	1,131,441	2.5%
June 30, 2016	70,289	63,851	90.8%	6,438	1,059,791	0.6%
June 30, 2015	58,683	44,188	75.3%	14,495	958,135	1.5%
June 30, 2014	50,217	26,466	52.7%	23,751	865,146	2.7%
June 30, 2013	60,282	20,336	33.7%	39,946	802,645	5.0%
June 30, 2012	44,509	15,773	35.4%	28,736	675,976	4.3%
June 30, 2011	11,302	12,009	106.3%	(707)	564,434	(0.1%)
June 30, 2010	7,185	8,767	122.0%	(1,582)	455,113	(0.3%)
June 30, 2009	3,913	5,475	139.9%	(1,562)	340,360	(0.5%)
June 30, 2008	1,776	2,719	153.1%	(943)	221,931	(0.4%)
June 30, 2007	711	1,067	150.1%	(356)	115,329	(0.3%)

Change in assumptions reflected in 2022, 2020, 2018, 2017, 2014, 2012, 2011, 2010, 2009, and 2008 valuations.

Change in methods reflected in 2018 valuation.

Change in plan provisions reflected in 2021 and 2016 valuations.

Section 5.2: Solvency Test

Solvency Test - Occupational Death & Disability ($'s in 000's)

	Actuarial Accrued Liability (AAL)				Portion of AAL Covered by Valuation Assets		
Valuation Date	(1) Active Member Contributions	(2) Inactive Members	(3) Active Members Employer Financed	Valuation Assets	(1)	(2)	(3)
June 30, 2022	$ 0	$ 7,593	$ 7,359	$ 62,938	100.0%	100.0%	100.0%
June 30, 2021	0	5,743	5,997	53,075	100.0%	100.0%	100.0%
June 30, 2020	0	5,432	5,202	43,029	100.0%	100.0%	100.0%
June 30, 2019	0	5,350	4,424	36,701	100.0%	100.0%	100.0%
June 30, 2018	0	3,978	3,735	30,961	100.0%	100.0%	100.0%
June 30, 2017	0	3,437	4,103	26,944	100.0%	100.0%	100.0%
June 30, 2016	0	3,147	3,616	23,176	100.0%	100.0%	100.0%
June 30, 2015	0	2,502	2,547	19,014	100.0%	100.0%	100.0%
June 30, 2014	0	1,367	2,260	14,995	100.0%	100.0%	100.0%
June 30, 2013	0	666	2,937	11,373	100.0%	100.0%	100.0%
June 30, 2012	0	197	2,215	9,142	100.0%	100.0%	100.0%
June 30, 2011	0	228	1,721	7,049	100.0%	100.0%	100.0%
June 30, 2010	0	0	853	4,801	100.0%	100.0%	100.0%
June 30, 2009	0	0	403	3,138	100.0%	100.0%	100.0%
June 30, 2008	0	0	242	1,288	100.0%	100.0%	100.0%
June 30, 2007	0	0	48	188	100.0%	100.0%	100.0%

Change in assumptions reflected in 2022, 2018, 2014, 2010, and 2009 valuations.

Solvency Test - Retiree Medical ($'s in 000's)

	Actuarial Accrued Liability (AAL)				Portion of AAL Covered by Valuation Assets		
Valuation Date	(1) Active Member Contributions	(2) Inactive Members	(3) Active Members Employer Financed	Valuation Assets	(1)	(2)	(3)
June 30, 2022	$ 0	$ 9,069	$ 160,327	$ 212,638	100.0%	100.0%	100.0%
June 30, 2021	0	5,191	163,281	180,536	100.0%	100.0%	100.0%
June 30, 2020	0	3,885	146,816	144,747	100.0%	100.0%	95.9%
June 30, 2019	0	2,647	122,299	118,783	100.0%	100.0%	95.0%
June 30, 2018	0	1,915	116,683	100,097	100.0%	100.0%	84.1%
June 30, 2017	0	982	108,721	81,559	100.0%	100.0%	74.1%
June 30, 2016	0	528	69,761	63,851	100.0%	100.0%	90.8%
June 30, 2015	0	339	58,344	44,188	100.0%	100.0%	75.2%
June 30, 2014	0	124	50,093	26,466	100.0%	100.0%	52.6%
June 30, 2013	0	101	60,181	20,336	100.0%	100.0%	33.6%
June 30, 2012	0	0	44,509	15,773	100.0%	100.0%	35.4%
June 30, 2011	0	0	11,302	12,009	100.0%	100.0%	100.0%
June 30, 2010	0	0	7,185	8,767	100.0%	100.0%	100.0%
June 30, 2009	0	0	3,913	5,475	100.0%	100.0%	100.0%
June 30, 2008	0	0	1,776	2,719	100.0%	100.0%	100.0%
June 30, 2007	0	0	711	1,067	100.0%	100.0%	100.0%

Change in assumptions reflected in 2022, 2020, 2018, 2017, 2014, 2012, 2011, 2010, 2009, and 2008 valuations.

Change in methods reflected in 2018 valuation.

Change in plan provisions reflected in 2021 and 2016 valuations.

Section 5.3: Member Data

As of June 30	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Active Members - Peace Officer / Firefighter										
1. Number	1,108	1,313	1,438	1,605	1,701	1,905	2,038	2,228	2,350	2,482
2. Average Age	34.35	34.80	34.93	35.17	35.59	35.63	35.76	35.92	36.40	36.65
3. Average Credited Service	3.07	3.28	3.71	4.12	4.65	4.83	5.09	5.36	5.71	5.91
4. Average Entry Age	31.28	31.52	31.22	31.05	30.94	30.80	30.67	30.56	30.69	30.74
5. Average Annual Earnings	$ 68,197	$ 69,904	$ 71,839	$ 76,213	$ 77,800	$ 78,603	$ 84,593	$ 87,365	$ 90,022	$ 95,429
Active Members - Others										
1. Number	13,208	14,487	15,660	16,610	17,470	18,473	19,864	20,695	21,583	22,220
2. Average Age	39.96	40.19	40.54	40.90	41.22	41.34	41.49	41.78	41.79	41.87
3. Average Credited Service	2.55	2.94	3.24	3.51	3.83	4.08	4.25	4.59	4.84	5.02
4. Average Entry Age	37.41	37.25	37.30	37.39	37.39	37.26	37.24	37.19	36.95	36.85
5. Average Annual Earnings	$ 50,961	$ 52,831	$ 53,780	$ 55,335	$ 56,100	$ 57,349	$ 58,223	$ 59,603	$ 61,129	$ 62,371
Active Members - Total										
1. Number	14,316	15,800	17,098	18,215	19,171	20,378	21,902	22,923	23,933	24,702
2. Average Age	39.53	39.74	40.07	40.39	40.72	40.80	40.96	41.21	41.26	41.35
3. Average Credited Service	2.59	2.97	3.28	3.56	3.90	4.15	4.33	4.66	4.93	5.11
4. Average Entry Age	36.94	36.77	36.79	36.83	36.82	36.65	36.63	36.55	36.33	36.24
5. Average Annual Earnings	$ 52,295	$ 54,250	$ 55,299	$ 57,175	$ 58,025	$ 59,336	$ 60,676	$ 62,302	$ 63,966	$ 65,693
Disabilitants and Beneficiaries (Occupational Death & Disability)										
1. Number	4	6	12	12	14	15	16	15	14	16
2. Average Age	39	34	43	44	42	44	42.28	44.66	47.27	46.22
3. Average Monthly Death & Disability Benefit	2,320	2,554	2,399	2,442	2,199	2,285	$ 2,404	$ 2,698	$ 2,601	$ 2,791
Retirees, Surviving Spouses, and Dependent Spouses (Retiree Medical)										
1. Number	0	0	0	0	9	23	43	66	93	166
2. Average Age	N/A	N/A	N/A	N/A	70.76	69.97	69.72	68.85	69.75	69.46
Total Number of Members	**14,320**	**15,806**	**17,110**	**18,227**	**19,194**	**20,416**	**21,961**	**23,004**	**24,040**	**24,884**

Average annual earnings (“valuation pay”) are the annualized earnings for the fiscal year ending on the valuation date.

Glossary of Terms

Actuarial Accrued Liability

Total accumulated cost to fund pension or postemployment benefits arising from service in all prior years.

Actuarial Cost Method

Technique used to assign or allocate, in a systematic and consistent manner, the expected cost of a pension or postemployment plan for a group of plan members to the years of service that give rise to that cost.

Actuarial Present Value of Projected Benefits

Amount which, together with future interest, is expected to be sufficient to pay all future benefits.

Actuarial Valuation

Study of probable amounts of future pension or postemployment benefits and the necessary amount of contributions to fund those benefits.

Actuary

Person who performs mathematical calculations pertaining to pension and insurance benefits based on specific procedures and assumptions.

GASB 74 and 75

Governmental Accounting Standards Board Statement Number 74 amends Number 43 effective for the fiscal year beginning after June 15, 2016 and defines new financial reporting requirements for public postemployment benefit plans. Governmental Accounting Standards Board Statement Number 75 amends Number 45 effective for fiscal years beginning after June 15, 2017 and defines new accounting and financial reporting requirements for employers sponsoring public postemployment benefit plans.

Normal Cost

That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual participant or the plan as a whole.

Rate Payroll

Members' earnings used to determine contribution rates.

Unfunded Actuarial Accrued Liability (UAAL)

The portion of the actuarial accrued liability not offset by plan assets.

Valuation Payroll

Members' earnings used to determine Normal Cost and Actuarial Accrued Liability.

Vested Benefits

Benefits which are unconditionally guaranteed regardless of employment.

State of Alaska

Teachers' Retirement System Defined Contribution Retirement Plan

For Occupational Death & Disability and Retiree Medical Benefits

Actuarial Valuation Report
As of June 30, 2022

April 2023

April 24, 2023

State of Alaska
The Alaska Retirement Management Board
The Department of Revenue, Treasury Division
The Department of Administration, Division of Retirement and Benefits
P.O. Box 110203
Juneau, AK 99811-0203

Certification of Actuarial Valuation

Dear Members of The Alaska Retirement Management Board, The Department of Revenue and The Department of Administration:

This report summarizes the annual actuarial valuation results of the State of Alaska Teachers' Retirement System Defined Contribution Retirement (TRS DCR) Plan as of June 30, 2022 performed by Buck Global, LLC (Buck).

The actuarial valuation is based on financial information provided in the financial statements audited by KPMG LLP, member data provided by the Division of Retirement and Benefits, and medical enrollment data provided by the healthcare claims administrator (Aetna), as summarized in this report. The benefits considered are those delineated in Alaska statutes effective June 30, 2022. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities and other factors under TRS DCR were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Buck is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of TRS DCR as of June 30, 2022.

TRS DCR is funded by Employer Contributions in accordance with the funding policy adopted by the Alaska Retirement Management Board (Board). The funding objective for TRS DCR is to pay required contributions that remain level as a percent of TRS DCR compensation. The Board has also established a funding policy objective that the required contributions be sufficient to pay the Normal Costs of active plan members, plan expenses, and amortize the Unfunded Actuarial Accrued Liability as a level percent of TRS DCR compensation over closed layered 25-year periods. This objective is currently being met and is projected to continue to be met as required by the Alaska State statutes. Absent future gains/losses, actuarially determined contributions are expected to remain level as a percent of pay and the funded status of the occupational death & disability trust and the retiree medical trust are expected to remain at or above 100%.

The Board and staff of the State of Alaska may use this report for the review of the operations of TRS DCR. Use of this report for any other purpose or by anyone other than the Board or staff of the State of Alaska may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, Buck recommends requesting its advanced review of any statement to be based on information contained in this report. Buck will accept no liability for any such statement made without its prior review.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the actuarial assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. In particular, retiree group benefits models necessarily rely on the use of approximations and estimates and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. An analysis of the potential range of such future differences is beyond the scope of this valuation.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the plan. The actuary performs an analysis of plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The last full experience analysis was performed for the period July 1, 2017 to June 30, 2021. Based on that experience study, the Board adopted new assumptions effective beginning with the June 30, 2022 valuation to better reflect expected future experience. Based on our annual analysis of recent claims experience, changes were made to the healthcare per capita claims cost rates effective June 30, 2022 to better reflect expected future healthcare experience. A summary of the actuarial assumptions and methods used in this actuarial valuation is shown in Sections 4.2 and 4.3. We certify that the assumptions and methods described in Sections 4.2 and 4.3 of this report meet the requirements of all applicable Actuarial Standards of Practice.

Actuarial Standards of Practice No. 27 (ASOP 27) and No. 35 (ASOP 35) require the actuary to disclose the information and analysis used to support the actuary's determination that the assumptions selected by the plan sponsor do not significantly conflict with what, in the actuary's professional judgment, are reasonable for the purpose of the measurement. Buck provides advice on reasonable assumptions when performing periodic experience studies. The Board selects the assumptions used and annually the signing actuary reviews the assumptions through discussions with the Board staff and analyzing actuarial gain/loss experience. In the case of the Board's selection of the expected return on assets (EROA), the signing actuary has used economic information and tools provided by Buck's Financial Risk Management (FRM) practice. A spreadsheet tool created by the FRM practice converts averages, standard deviations, and correlations from Buck's Capital Markets Assumptions that are used for stochastic forecasting into approximate percentile ranges for the arithmetic and geometric average returns. It is intended to suggest possible reasonable ranges for EROA without attempting to predict or select a specific best estimate rate of return. It takes into account the duration (horizon) of investment and the target allocation of assets in the portfolio to various asset classes. Based on the actuary's analysis, including consistency with other assumptions used in the valuation, the percentiles generated by the spreadsheet tool described above, and review of actuarial gain/loss analysis, the actuary believes the assumptions do not significantly conflict with what, in the actuary's professional judgment, are reasonable for the purpose of the measurement.

ACFR Information

We have prepared the following information in this report for the Actuarial Section and Statistical Section of the ACFR: (i) member data tables in Section 3; (ii) summary of actuarial assumptions in Section 4.3; and (iii) historical information in Section 5.

Governmental Accounting Standards Board (GASB) Statement No. 74 (GASB 74) was effective for TRS DCR beginning with fiscal year ending June 30, 2017. Please see our separate GASB 74 report for other information needed for the ACFR.

Assessment of Risks

Actuarial Standard of Practice No. 51 (ASOP 51) applies to actuaries performing funding calculations related to a pension plan. ASOP 51 does not apply to actuaries performing services in connection with other post-employment benefits, such as medical benefits. Accordingly, ASOP 51 does not apply to the retiree medical portion of TRS DCR. We also believe ASOP 51 does not apply to the occupational death & disability portion of TRS DCR. Therefore, information related to ASOP 51 is not included in this report. However, it may be beneficial to review the ASOP 51 information provided in the TRS valuation report for information on risks that may also relate to the occupational death & disability benefits provided by this plan.

Use of Models

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. In addition to the EROA analysis spreadsheet model disclosed above, Buck uses third-party software in the performance of annual actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of the plan using data and assumptions as of the measurement date under the funding methods specified in this report. The output from the third-party vendor software is used as input to an internally developed model that applies applicable funding methods and policies to the derived liabilities and other inputs, such as plan assets and contributions, to generate many of the exhibits found in this report. Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal model are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed. Significant changes to the internal model that are applicable to multiple clients are generally developed, checked, and reviewed by multiple experts within Buck who are familiar with the details of the required changes.

Buck used manual rate models to determine relative plan values for the defined benefit (DB) retiree medical plan and the DCR retiree medical plan, and to reflect the different Medicare coordination methods between the two plans. The manual rate models are intended to provide benchmark data and pricing capabilities, calculate per capita costs, and calculate actuarial values of different commercial health plans. Buck relied on the models, which were developed using industry data by actuaries and consultants at OptumInsight.

COVID-19

The potential impact of the ongoing COVID-19 pandemic on costs and liabilities was considered and an adjustment was made in setting the medical per capita claims cost assumption. FY21 medical claims were adjusted for a COVID-19 related decline in those claims during the fiscal year. FY22 medical claims were not adjusted. A more detailed explanation on these adjustments is shown in Sections 4.2 and 4.3 and in the valuation report for the DB plan.

This report was prepared under the overall direction of David Kershner, who meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. He is a Fellow of the Society of Actuaries, an Enrolled Actuary, a Member of the American Academy of Actuaries, and a Fellow of the Conference of Consulting Actuaries.

We are available to discuss this report with you at your convenience. David can be reached at 602-803-6174 and Brett can be reached at 260-423-1072.

Respectfully submitted,

David J. Kershner, FSA, EA, MAAA, FCA
Principal
Buck

Brett Hunter, ASA, EA, MAAA
Senior Consultant
Buck

The undersigned actuary is responsible for all assumptions related to the average annual per capita health claims cost and the health care cost trend rates, and hereby affirms his qualification to render opinions in such matters in accordance with the Qualification Standards of the American Academy of Actuaries.

Stephen R. Oates, ASA, EA, MAAA, FCA
Principal
Buck

Contents

Executive Summary

Overview

The State of Alaska Teachers' Retirement System Defined Contribution Retirement (TRS DCR) Plan provides occupational death & disability and retiree medical benefits to teachers and other eligible members hired after June 30, 2006 or who have elected participation in this plan. The Commissioner of the Department of Administration is responsible for administering the plan. The Alaska Retirement Management Board has fiduciary responsibility over the assets of the plan. This report presents the results of the actuarial valuation of TRS DCR as of the valuation date of June 30, 2022.

Purpose

An actuarial valuation is performed on the plan annually as of the end of the fiscal year. The main purposes of the actuarial valuation detailed in this report are:

1. To determine the Employer contribution necessary to meet the Board's funding policy for the plan;
2. To disclose the funding assets and liability measures as of the valuation date;
3. To review the current funded status of the plan and assess the funded status as an appropriate measure for determining actuarially determined contributions;
4. To compare actual and expected experience under the plan during the last fiscal year; and
5. To report trends in contributions, assets, liabilities, and funded status over the last several years.

The actuarial valuation provides a "snapshot" of the funded position of TRS DCR based on the plan provisions, membership data, assets, and actuarial methods and assumptions as of the valuation date.

Funded Status

Where presented, references to "funded ratio" and "unfunded actuarial accrued liability" typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

Funded Status as of June 30 ($'s in 000's)		2021	2022
Occupational Death & Disability			
a.	Actuarial Accrued Liability	$ 205	$ 199
b.	Valuation Assets	5,843	6,700
c.	Unfunded Actuarial Accrued Liability, (a) - (b)	$ (5,638)	$ (6,501)
d.	Funded Ratio based on Valuation Assets, (b) ÷ (a)	2,850.2%	3,366.8%
e.	Fair Value of Assets	$ 6,623	$ 6,557
f.	Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	3,230.7%	3,295.0%

Funded Status as of June 30 ($'s in 000's)	2021	2022
Retiree Medical		
a. Actuarial Accrued Liability	$ 44,396	$ 47,797
b. Valuation Assets	59,380	68,403
c. Unfunded Actuarial Accrued Liability, (a) - (b)	$ (14,984)	$ (20,606)
d. Funded Ratio based on Valuation Assets, (b) ÷ (a)	133.8%	143.1%
e. Fair Value of Assets	$ 67,278	$ 66,909
f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	151.5%	140.0%

The key reasons for the change in the funded status are explained below. The funded status for healthcare benefits is not necessarily an appropriate measure to confirm that assets are sufficient to settle health plan obligations as there are no available financial instruments for purchase. Future experience is likely to vary from assumptions so there is potential for actuarial gains or losses.

1. Investment Experience

The asset valuation method recognizes 20% of the investment gain or loss each year, for a period of five years. The FY22 investment return based on fair value of assets was approximately (6.2)% compared to the expected investment return of 7.38% (net of investment expenses). This resulted in a market asset loss of approximately $925,000 (occupational death & disability) and $9,418,000 (retiree medical). Due to the recognition of investment gains and losses over a 5-year period, the FY22 investment return based on actuarial value of assets was approximately 8.3%, which resulted in an actuarial asset gain of approximately $56,000 (occupational death & disability) and $557,000 (retiree medical).

2. Salary Increases

Salary increases for continuing active members during FY22 were higher than expected based on the valuation assumptions, resulting in a liability loss of approximately $1,000.

3. Demographic Experience

The number of active members increased 3.0% from 5,521 at June 30, 2021 to 5,688 at June 30, 2022. The average age of active members increased from 41.90 to 42.26 and average credited service increased from 6.34 to 6.60 years.

The demographic experience gains/losses are shown on page 4.

4. Retiree Medical Claims Experience

Please refer to the State of Alaska Teachers' Retirement System (TRS) Defined Benefit Plan Actuarial Valuation Report as of June 30, 2022 for a full description of the assumptions and costs of the retiree medical plan. Adjustments to these costs and assumptions are described in this report.

The recent claims experience described in Section 4.2 of this report (Section 5.2 of the TRS report) created an actuarial gain of approximately $1,006,000. The EGWP subsidy received by the plan during FY22 was approximately $18,000; the expected EGWP subsidy for FY22 was approximately $25,000.

5. **Changes in Methods Since the Prior Valuation**

   There were no changes in actuarial methods since the prior valuation.

6. **Changes in Assumptions Since the Prior Valuation**

   Effective for the June 30, 2022 valuation, the Board adopted the changes to the demographic and economic assumptions recommended by the actuary, based on the results of an experience study performed on the plan experience from July 1, 2017 to June 30, 2021. The changes in assumptions were adopted at the June 2022 Board meeting. The effect of the new assumptions was to decrease the Actuarial Accrued Liability as of June 30, 2022 by less than $1,000 for occupational death & disability and by approximately $3,374,000 for retiree medical.

   Healthcare claim costs are updated annually as described in Section 4.2. The amounts included in the Normal Cost for administrative expenses were updated based on the last two years of actual administrative expenses paid from plan assets.

7. **Changes in Benefit Provisions Since the Prior Valuation**

   There have been no changes in benefit provisions valued since the prior valuation.

Comparative Summary of Contribution Rates

	FY 2024	FY 2025
Occupational Death & Disability		
a. Employer Normal Cost Rate	0.08%	0.08%
b. Past Service Cost Rate	(0.11)%	(0.11)%
c. Total Employer Contribution Rate, (a) + (b), not less than (a)	0.08%	0.08%
Retiree Medical		
a. Employer Normal Cost Rate	0.82%	0.68%
b. Past Service Cost Rate	(0.22)%	(0.29)%
c. Total Employer Contribution Rate, (a) + (b), not less than (a)	0.82%	0.68%
Total		
a. Employer Normal Cost Rate	0.90%	0.76%
b. Past Service Cost Rate	(0.33)%	(0.40)%
c. Total Employer Contribution Rate, (a) + (b), not less than (a)	0.90%	0.76%

The exhibit below shows the historical Board-adopted employer contribution rates for TRS DCR.

		Total Employer Contribution Rate		
Valuation Date	**Fiscal Year**	**Occupational Death & Disability**	**Retiree Medical**	**Total**
June 30, 2011	FY14	0.00%	0.47%	0.47%
June 30, 2012	FY15	0.00%	2.04%	2.04%
June 30, 2013	FY16	0.00%	2.04%	2.04%
June 30, 2014	FY17	0.00%	1.05%	1.05%
June 30, 2015	FY18	0.00%	0.91%	0.91%
June 30, 2016	FY19	0.08%	0.79%	0.87%
June 30, 2017	FY20	0.08%	1.09%	1.17%
June 30, 2018	FY21	0.08%	0.93%	1.01%
June 30, 2019	FY22	0.08%	0.83%	0.91%
June 30, 2020	FY23	0.08%	0.87%	0.95%
June 30, 2021	FY24	0.08%	0.82%	0.90%
June 30, 2022	FY25	TBD	TBD	TBD

Summary of Actuarial Accrued Liability Gain/(Loss)

The following table shows the FY22 gain/(loss) on actuarial accrued liability as of June 30, 2022 ($'s in 000's):

	Occupational Death & Disability	Retiree Medical
Retirement Experience	$ 0	$ 89
Termination Experience	(3)	2,157
Disability Experience	235	(35)
Active Mortality Experience	122	(60)
Inactive Mortality Experience	(1)	(13)
Salary Increases	(1)	N/A
New Entrants	0	(630)
Rehires	0	(2,402)
Benefit Payments Different than Expected	9	(17)
Per Capita Claims Cost	N/A	1,006
Miscellaneous[1]	(8)	(5)
Total	$ 353	$ 90

[1] Includes the effects of various data changes that are typical when new census data is received for the annual valuation, as well as other items that do not fit neatly into any of the other categories.

Other items that increased/(decreased) the actuarial accrued liability as of June 30, 2022 are shown below ($'s in 000's):

	Occupational Death & Disability	Retiree Medical
Experience Study Assumption Changes	$ 0*	$ (3,374)

* Impact was less than $1,000.

Section 1: Actuarial Funding Results

Section 1.1: Actuarial Liabilities and Normal Cost ($'s in 000's)

As of June 30, 2022	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
Active Members		
Occupational Death Benefits	$ 746	$ 106
Occupational Disability Benefits	1,481	(81)
Medical and Prescription Drug Benefits	85,800	59,854
Medicare Part D Subsidy	(20,034)	(13,970)
Subtotal	$ 67,993	$ 45,909
Benefit Recipients		
Survivor Benefits	$ 0	$ 0
Disability Benefits	174	174
Medical and Prescription Drug Benefits	2,495	2,495
Medicare Part D Subsidy	(582)	(582)
Subtotal	$ 2,087	$ 2,087
Total	**$ 70,080**	**$ 47,996**
Total Occupational Death & Disability	**$ 2,401**	**$ 199**
Total Retiree Medical, Net of Part D Subsidy	**$ 67,679**	**$ 47,797**
Total Retiree Medical, Gross of Part D Subsidy	**$ 88,295**	**$ 62,349**

As of June 30, 2022	Normal Cost
Active Members	
Occupational Death Benefits	$ 103
Occupational Disability Benefits	236
Medical and Prescription Drug Benefits	4,008
Medicare Part D Subsidy	(936)
Subtotal	$ 3,411
Administrative Expense Load	
Occupational Death & Disability	$ 9
Retiree Medical	35
Subtotal	$ 44
Total	**$ 3,455**
Total Occupational Death & Disability	**$ 348**
Total Retiree Medical, Net of Part D Subsidy	**$ 3,107**
Total Retiree Medical, Gross of Part D Subsidy	**$ 4,043**

Section 1.2: Actuarial Contributions as of June 30, 2022 for FY25 ($'s in 000's)

Normal Cost Rate	Occupational Death & Disability	Retiree Medical
1. Total Normal Cost	$ 348	$ 3,107
2. DCR Plan Rate Payroll Projected for FY23	455,927	455,927
3. Employer Normal Cost Rate, (1) ÷ (2)	0.08%	0.68%
Past Service Cost Rate		
1. Actuarial Accrued Liability	$ 199	$ 47,797
2. Valuation Assets	6,700	68,403
3. Unfunded Actuarial Accrued Liability, (1) - (2)	$ (6,501)	$ (20,606)
4. Funded Ratio based on Valuation Assets	3,366.8%	143.1%
5. Past Service Cost Amortization Payment	(515)	(1,300)
6. DCR Plan Rate Payroll Projected for FY23	455,927	455,927
7. Past Service Cost Rate, (5) ÷ (6)	(0.11%)	(0.29%)
Total Employer Contribution Rate, not less than Normal Cost Rate	**0.08%**	**0.68%**

The table below shows the total employer contribution rate based on total DB and DCR Plan payroll for informational purposes.

Total Employer Contribution Rate as Percent of Total Payroll	Occupational Death & Disability	Retiree Medical
1. Total Normal Cost	$ 348	$ 3,107
2. Total DB and DCR Plan Rate Payroll Projected for FY23	758,938	758,938
3. Employer Normal Cost Rate, (1) ÷ (2)	0.05%	0.41%
4. Past Service Cost Amortization Payment	(515)	(1,300)
5. Past Service Cost Rate, (4) ÷ (2)	(0.07%)	(0.17%)
Total Employer Contribution Rate, not less than Normal Cost Rate	**0.05%**	**0.41%**

Schedule of Past Service Cost Amortizations - Occupational Death & Disability ($'s in 000's)

Layer	Amortization Period		Balances		Beginning-of-Year Payment
	Date Created	Years Remaining	Initial	Outstanding	
Initial Unfunded Liability	06/30/2007	10	$ 16	$ 13	$ 2
FY08 Gain	06/30/2008	11	(392)	(352)	(39)
Change in Assumptions	06/30/2009	12	(82)	(75)	(8)
FY09 Gain	06/30/2009	12	(594)	(558)	(58)
Change in Assumptions	06/30/2010	13	(7)	(8)	(1)
FY10 Gain	06/30/2010	13	(479)	(460)	(45)
FY11 Gain	06/30/2011	14	(560)	(547)	(51)
FY12 Gain	06/30/2012	15	(129)	(129)	(11)
FY13 Gain	06/30/2013	16	(149)	(148)	(13)
Change in Assumptions	06/30/2014	17	(50)	(53)	(4)
PRPA Modification	06/30/2014	17	(25)	(25)	(2)
FY14 Gain	06/30/2014	17	(255)	(258)	(21)
FY15 Gain	06/30/2015	18	(275)	(278)	(22)
FY16 Gain	06/30/2016	19	(209)	(214)	(16)
FY17 Gain	06/30/2017	20	(251)	(252)	(18)
Change in Assumptions[1]	06/30/2018	21	0	0	0
FY18 Gain	06/30/2018	21	(257)	(259)	(18)
FY19 Gain	06/30/2019	22	(338)	(340)	(23)
FY20 Gain	06/30/2020	23	(637)	(642)	(43)
FY21 Gain	06/30/2021	24	(985)	(989)	(65)
Change in Assumptions[1]	06/30/2022	25	0	0	0
FY22 Gain	06/30/2022	25	(927)	(927)	(59)
Total				**$ (6,501)**	**$ (515)**

[1] The net effect of changing assumptions was less than $1,000.

Schedule of Past Service Cost Amortizations - Retiree Medical ($'s in 000's)

Layer	Amortization Period		Balances		
	Date Created	Years Remaining	Initial	Outstanding	Beginning-of-Year Payment
Initial Unfunded Liability	06/30/2007	10	$ (239)	$ (210)	$ (25)
Change in Assumptions	06/30/2008	11	84	79	9
FY08 Gain	06/30/2008	11	(393)	(352)	(39)
Change in Assumptions	06/30/2009	12	(69)	(63)	(7)
FY09 Gain	06/30/2009	12	(281)	(265)	(28)
Change in Assumptions[1]	06/30/2010	13	0	0	0
FY10 Gain	06/30/2010	13	(545)	(523)	(51)
FY11 Gain	06/30/2011	14	(94)	(90)	(8)
Change in Assumptions	06/30/2012	15	11,518	11,448	1,013
FY12 Gain	06/30/2012	15	(60)	(56)	(5)
FY13 Loss	06/30/2013	16	3,439	3,457	292
Change in Assumptions	06/30/2014	17	(9,736)	(9,845)	(798)
FY14 Loss	06/30/2014	17	1,616	1,632	132
FY15 Gain	06/30/2015	18	(3,485)	(3,534)	(276)
EGWP Impact	06/30/2016	19	(6,400)	(6,494)	(489)
FY16 Loss	06/30/2016	19	958	975	73
Change in Assumptions	06/30/2017	20	7,645	7,739	564
FY17 Gain	06/30/2017	20	(1,451)	(1,469)	(107)
Change in Assumptions/Methods	06/30/2018	21	(9,505)	(9,577)	(677)
FY18 Loss	06/30/2018	21	2,491	2,511	178
FY19 Gain	06/30/2019	22	(4,904)	(4,947)	(340)
Change in Assumptions	06/30/2020	23	2,153	2,169	145
FY20 Gain	06/30/2020	23	(1,655)	(1,667)	(112)
Prescription Drug Plan Changes	06/30/2021	24	(528)	(530)	(35)
FY21 Gain	06/30/2021	24	(5,449)	(5,473)	(357)
Change in Assumptions	06/30/2022	25	(3,374)	(3,374)	(215)
FY22 Gain	06/30/2022	25	(2,147)	(2,147)	(137)
Total				**$ (20,606)**	**$ (1,300)**

[1] The net effect of changing assumptions was less than $1,000. The demographic assumption changes decreased liability by $133,000 and the economic assumptions changes increased the liability by $133,000. Therefore, the net effect of all assumptions changes is $0 for amortization purposes.

Section 1.3: Actuarial Gain/(Loss) for FY22 ($'s in 000's)

	Occupational Death & Disability	Retiree Medical
1. Expected Actuarial Accrued Liability		
a. Actuarial Accrued Liability as of June 30, 2021	$ 205	$ 44,396
b. Normal Cost	335	3,448
c. Interest on (a) and (b) at 7.38%	40	3,531
d. Employer Group Waiver Plan	0	18
e. Benefit Payments	(27)	(128)
f. Interest on (d) and (e) at 7.38%, adjusted for timing	(1)	(4)
g. Assumptions/Methods Changes	0	(3,374)
h. Expected Actuarial Accrued Liability as of June 30, 2022 (a) + (b) + (c) + (d) + (e) + (f) + (g)	$ 552	$ 47,887
2. Actual Actuarial Accrued Liability as of June 30, 2022	199	47,797
3. Liability Gain/(Loss), (1)(h) - (2)	**$ 353**	**$ 90**
4. Expected Actuarial Asset Value		
a. Actuarial Asset Value as of June 30, 2021	$ 5,843	$ 59,380
b. Interest on (a) at 7.38%	431	4,382
c. Employer Contributions	393	4,086
d. Employer Group Waiver Plan	0	18
e. Interest on (c) and (d) at 7.38%, adjusted for timing	14	149
f. Benefit Payments	(27)	(128)
g. Administrative Expenses	(9)	(35)
h. Interest on (f) and (g) at 7.38%, adjusted for timing	(1)	(6)
i. Expected Actuarial Asset Value as of June 30, 2022 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h)	$ 6,644	$ 67,846
5. Actuarial Asset Value as of June 30, 2022	6,700	68,403
6. Actuarial Asset Gain/(Loss), (5) - (4)(i)	**$ 56**	**$ 557**
7. Total Actuarial Gain/(Loss), (3) + (6)	**$ 409**	**$ 647**
8. Contribution Gain/(Loss)	**$ 522**	**$ 1,513**
9. Administrative Expense Gain/(Loss)	**$ (4)**	**$ (13)**
10. FY22 Gain/(Loss), (7) + (8) + (9)	**$ 927**	**$ 2,147**

Section 1.4: History of Unfunded Liability and Funded Ratio ($'s in 000's)

Occupational Death & Disability

Valuation Date	Total Actuarial Accrued Liability	Valuation Assets	Assets as a Percent of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)
June 30, 2007	$ 16	$ 0	0.0%	$ 16
June 30, 2008	44	420	954.5%	(376)
June 30, 2009	14	1,071	7650.0%	(1,057)
June 30, 2010	18	1,577	8761.1%	(1,559)
June 30, 2011	57	2,193	3847.4%	(2,136)
June 30, 2012	63	2,348	3727.0%	(2,285)
June 30, 2013	80	2,532	3165.0%	(2,452)
June 30, 2014	23	2,820	12260.9%	(2,797)
June 30, 2015	29	3,114	10737.9%	(3,085)
June 30, 2016	19	3,323	17489.5%	(3,304)
June 30, 2017	26	3,588	13800.0%	(3,562)
June 30, 2018	30	3,845	12816.7%	(3,815)
June 30, 2019	240	4,359	1816.3%	(4,119)
June 30, 2020	223	4,933	2212.1%	(4,710)
June 30, 2021	205	5,843	2850.2%	(5,638)
June 30, 2022	199	6,700	3366.8%	(6,501)

Retiree Medical

Valuation Date	Total Actuarial Accrued Liability	Valuation Assets	Assets as a Percent of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)
June 30, 2007	$ 358	$ 597	166.8%	$ (239)
June 30, 2008	757	1,308	172.8%	(551)
June 30, 2009	1,446	2,353	162.7%	(907)
June 30, 2010	2,430	3,895	160.3%	(1,465)
June 30, 2011	3,801	5,373	141.4%	(1,572)
June 30, 2012	16,811	6,937	41.3%	9,874
June 30, 2013	22,058	8,614	39.1%	13,444
June 30, 2014	16,273	10,791	66.3%	5,482
June 30, 2015	19,768	17,733	89.7%	2,035
June 30, 2016	21,988	25,410	115.6%	(3,422)
June 30, 2017	33,681	30,998	92.0%	2,683
June 30, 2018	32,429	36,776	113.4%	(4,347)
June 30, 2019	32,981	42,307	128.3%	(9,326)
June 30, 2020	40,634	49,554	122.0%	(8,920)
June 30, 2021	44,396	59,380	133.8%	(14,984)
June 30, 2022	47,797	68,403	143.1%	(20,606)

Section 2: Plan Assets

Section 2.1: Summary of Fair Value of Assets ($'s in 000's)

As of June 30, 2022	Occupational Death & Disability	Retiree Medical	Allocation Percent
Cash and Short-Term Investments			
- Cash and Cash Equivalents	$ 87	$ 894	1.3%
- Subtotal	$ 87	$ 894	1.3%
Fixed Income Investments			
- Domestic Fixed Income Pool	$ 1,389	$ 14,176	21.3%
- International Fixed Income Pool	0	0	0.0%
- Tactical Fixed Income Pool	0	0	0.0%
- High Yield Pool	0	0	0.0%
- Treasury Inflation Protection Pool	0	0	0.0%
- Emerging Debt Pool	0	0	0.0%
- Subtotal	$ 1,389	$ 14,176	21.3%
Equity Investments			
- Domestic Equity Pool	$ 1,582	$ 16,134	24.2%
- International Equity Pool	858	8,756	13.1%
- Private Equity Pool	1,075	10,966	16.5%
- Emerging Markets Equity Pool	192	1,960	3.0%
- Alternative Equity Strategies	380	3,880	5.8%
- Subtotal	$ 4,087	$ 41,696	62.6%
Other Investments			
- Real Estate Pool	$ 493	$ 5,020	7.6%
- Other Investments Pool	471	4,800	7.2%
- Absolute Return Pool	0	0	0.0%
- Other Assets	0	0	0.0%
- Subtotal	$ 964	$ 9,820	14.8%
Total Cash and Investments	$ 6,527	$ 66,586	100.0%
Net Accrued Receivables	30	323	
Net Assets	$ 6,557	$ 66,909	

Section 2.2: Changes in Fair Value of Assets During FY22 ($'s in 000's)

Fiscal Year 2022	Occupational Death & Disability	Retiree Medical
1. Fair Value of Assets as of June 30, 2021	$ 6,623	$ 67,278
2. Additions:		
a. Member Contributions	$ 0	$ 0
b. Employer Contributions	393	4,086
c. Interest and Dividend Income	89	905
d. Net Appreciation/(Depreciation) in Fair Value of Investments	(494)	(5,037)
e. Employer Group Waiver Plan	0	18
f. Other	0	0
g. Total Additions	$ (12)	$ (28)
3. Deductions:		
a. Medical Benefits	$ 0	$ 128
b. Death & Disability Benefits	27	0
c. Investment Expenses	18	178
d. Administrative Expenses	9	35
e. Total Deductions	$ 54	$ 341
4. Fair Value of Assets as of June 30, 2022	$ 6,557	$ 66,909
5. Approximate Fair Value Investment Return Rate during FY22 Net of Investment Expenses	(6.2%)	(6.2%)

Section 2.3: Development of Actuarial Value of Assets ($'s in 000's)

The actuarial value of assets and the fair value were $0 at June 30, 2006. Investment gains and losses are recognized 20% per year over 5 years. In no event may valuation assets be less than 80% or more than 120% of fair value as of the current valuation date.

	Occupational Death & Disability	Retiree Medical
1. Investment Gain/(Loss) for FY22		
a. Fair Value as of June 30, 2021	$ 6,623	$ 67,278
b. Contributions	393	4,086
c. Employer Group Waiver Plan	0	18
d. Benefit Payments	27	128
e. Administrative Expenses	9	35
f. Actual Investment Return (net of investment expenses)	(423)	(4,310)
g. Expected Return Rate (net of investment expenses)	7.38%	7.38%
h. Expected Return	502	5,108
i. Investment Gain/(Loss) for the Year (f) - (h)	(925)	(9,418)
2. Actuarial Value as of June 30, 2022		
a. Fair Value as of June 30, 2022	$ 6,557	$ 66,909
b. Deferred Investment Gain/(Loss)	(143)	(1,494)
c. Preliminary Actuarial Value as of June 30, 2022, (a) - (b)	6,700	68,403
d. Upper Limit: 120% of Fair Value as of June 30, 2022	7,868	80,290
e. Lower Limit: 80% of Fair Value as of June 30, 2022	5,246	53,528
f. Actuarial Value at June 30, 2022, (c) limited by (d) and (e)	6,700	68,403
3. Ratio of Actuarial Value of Assets to Fair Value of Assets	102.2%	102.2%
4. Approximate Actuarial Value Investment Return Rate during FY22 Net of Investment Expenses	8.3%	8.3%

The tables below show the development of the gains/(losses) to be recognized in the current year ($'s in 000's):

Occupational Death & Disability				
Fiscal Year Ending	**Asset Gain / (Loss)**	**Gain / (Loss) Recognized in Prior Years**	**Gain / (Loss) Recognized This Year**	**Gain / (Loss) Deferred to Future Years**
June 30, 2018	$ 8	$ 8	$ 0	$ 0
June 30, 2019	(48)	(30)	(10)	(8)
June 30, 2020	(140)	(56)	(28)	(56)
June 30, 2021	1,103	221	221	661
June 30, 2022	(925)	0	(185)	(740)
Total	**$ (2)**	**$ 143**	**$ (2)**	**$ (143)**

Retiree Medical				
Fiscal Year Ending	**Asset Gain / (Loss)**	**Gain / (Loss) Recognized in Prior Years**	**Gain / (Loss) Recognized This Year**	**Gain / (Loss) Deferred to Future Years**
June 30, 2018	$ (19)	$ (16)	$ (3)	$ 0
June 30, 2019	(460)	(276)	(92)	(92)
June 30, 2020	(1,367)	(546)	(273)	(548)
June 30, 2021	11,132	2,226	2,226	6,680
June 30, 2022	(9,418)	0	(1,884)	(7,534)
Total	**$ (132)**	**$ 1,388**	**$ (26)**	**$ (1,494)**

Section 2.4: Historical Asset Rates of Return

	Actuarial Value		Fair Value	
Year Ending	Annual	Cumulative	Annual	Cumulative
June 30, 2008	6.4%	6.4%	(0.3%)	(0.3%)
June 30, 2009	3.2%	4.8%	(12.0%)	(6.3%)
June 30, 2010	4.2%	4.6%	6.4%	(2.3%)
June 30, 2011	7.4%	5.3%	18.9%	2.6%
June 30, 2012	6.9%	5.6%	1.6%	2.4%
June 30, 2013	7.7%	6.0%	11.9%	3.9%
June 30, 2014	10.9%	6.6%	18.0%	5.8%
June 30, 2015	9.5%	7.0%	3.1%	5.5%
June 30, 2016	6.5%	6.9%	(0.1%)	4.9%
June 30, 2017	7.6%	7.0%	12.6%	5.6%
June 30, 2018	7.8%	7.1%	8.0%	5.8%
June 30, 2019	6.4%	7.0%	6.2%	5.9%
June 30, 2020	6.3%	7.0%	4.3%	5.7%
June 30, 2021	11.3%	7.3%	29.5%	7.3%
June 30, 2022	8.3%	7.3%	(6.2%)	6.3%

Rates of return are shown based on combined assets for OD&D and Retiree Medical.

Cumulative returns are since fiscal year ending June 30, 2008.

Section 3: Member Data

Section 3.1: Summary of Members Included

As of June 30	2018	2019	2020	2021	2022
Active Members					
1. Number	4,915	4,998	5,332	5,521	5,688 [1]
2. Average Age	40.64	41.06	41.63	41.90	42.26
3. Average Credited Service	5.30	5.67	6.03	6.34	6.60
4. Average Entry Age	35.34	35.39	35.60	35.56	35.66
5. Average Annual Earnings	$ 68,119	$ 69,619	$ 71,118	$ 74,045	$ 76,956
Disabilitants and Beneficiaries (Occupational Death & Disability)					
1. Number	0	1	1	1	1
2. Average Age	N/A	53.45	54.45	55.45	56.45
3. Average Monthly Death & Disability Benefit	N/A	$ 2,024	$ 2,024	$ 2,024	$ 2,170
Retirees, Surviving Spouses, and Dependent Spouses (Retiree Medical)					
1. Number	9	12	17	24	35
2. Average Age	68.59	68.54	68.79	67.71	69.66
Total Number of Members	**4,924**	**5,011**	**5,350**	**5,546**	**5,724**

Average annual earnings (“valuation pay”) are the annualized earnings for the fiscal year ending on the valuation date.

[1] Includes 1,491 male active members and 4,197 female active members.

Section 3.2: Age and Service Distribution of Active Members

Annual Earnings by Age

Age	Number	Total Annual Earnings	Average Annual Earnings
0 - 19	0	$ 0	$ 0
20 - 24	104	5,695,426	54,764
25 - 29	562	35,093,794	62,444
30 - 34	895	63,279,431	70,703
35 - 39	1,120	87,641,129	78,251
40 - 44	964	76,341,532	79,192
45 - 49	693	56,341,880	81,301
50 - 54	550	45,132,752	82,060
55 - 59	416	34,907,787	83,913
60 - 64	262	22,967,760	87,663
65 - 69	94	7,932,649	84,390
70 - 74	21	1,783,921	84,949
75+	7	609,453	87,065
Total	**5,688**	**$437,727,514**	**$ 76,956**

Annual Earnings by Credited Service

Years of Service	Number	Total Annual Earnings	Average Annual Earnings
0	159	$ 9,124,198	$ 57,385
1	697	44,530,493	63,889
2	550	37,784,490	68,699
3	492	35,110,031	71,362
4	473	35,157,436	74,329
0 - 4	**2,371**	**$161,706,648**	**$ 68,202**
5 - 9	1,800	141,742,765	78,746
10 - 14	1,215	106,234,786	87,436
15 - 19	300	27,879,926	92,933
20 - 24	2	163,389	81,695
25 - 29	0	0	0
30 - 34	0	0	0
35 - 39	0	0	0
40+	0	0	0
Total	**5,688**	**$437,727,514**	**$ 76,956**

Years of Credited Service by Age

	Years of Service									
Age	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	Total
0 - 19	0	0	0	0	0	0	0	0	0	0
20 - 24	103	1	0	0	0	0	0	0	0	104
25 - 29	463	99	0	0	0	0	0	0	0	562
30 - 34	442	401	52	0	0	0	0	0	0	895
35 - 39	358	364	362	36	0	0	0	0	0	1,120
40 - 44	316	288	277	82	1	0	0	0	0	964
45 - 49	243	214	172	64	0	0	0	0	0	693
50 - 54	177	180	145	48	0	0	0	0	0	550
55 - 59	140	132	111	32	1	0	0	0	0	416
60 - 64	84	79	72	27	0	0	0	0	0	262
65 - 69	32	34	18	10	0	0	0	0	0	94
70 - 74	12	5	4	0	0	0	0	0	0	21
75+	1	3	2	1	0	0	0	0	0	7
Total	**2,371**	**1,800**	**1,215**	**300**	**2**	**0**	**0**	**0**	**0**	**5,688**

Total and average annual earnings ("valuation pay") are the annualized earnings for the fiscal year ending on the valuation date.

Section 3.3: Member Data Reconciliation

	Actives	Retirees and Surviving Spouses	Dependent Spouses	OD&D Disabilitants	OD&D Beneficiaries	Total
As of June 30, 2021 [1]	**5,521**	**20**	**4**	**1**	**0**	**5,546**
New Entrants	738	0	0	0	0	738
Rehires	268	0	0	0	0	268
Vested Terminations	(356)	0	0	0	0	(356)
Non-Vested Terminations	(414)	0	0	0	0	(414)
Refund of Contributions	(50)	0	0	0	0	(50)
Disability Retirements	0	0	0	0	0	0
Age Retirements	(6)	6	3	0	0	3
Deaths With Beneficiary	0	0	0	0	0	0
Deaths Without Beneficiary	(5)	0	0	0	0	(5)
Transfers In/Out	(8)	1	1	0	0	(6)
Data Corrections	0	0	0	0	0	0
Net Change	**167**	**7**	**4**	**0**	**0**	**178**
As of June 30, 2022 [2]	**5,688**	**27**	**8**	**1**	**0**	**5,724**

[1] 128 participants are expected to receive retiree medical benefits in a different plan and are included for OD&D benefits only.

[2] 124 participants are expected to receive retiree medical benefits in a different plan and are included for OD&D benefits only.

Section 3.4: Schedule of Active Member Data

Valuation Date	Number	Annual Earnings (000's)	Annual Average Earnings	Percent Increase in Average Earnings	Number of Participating Employers
June 30, 2022	5,688	$ 437,728	$ 76,956	3.9%	57
June 30, 2021	5,521	408,805	74,045	4.1%	57
June 30, 2020	5,332	379,201	71,118	2.2%	57
June 30, 2019	4,998	347,957	69,619	2.2%	57
June 30, 2018	4,915	334,803	68,119	2.4%	57
June 30, 2017	4,694	312,347	66,542	2.0%	57
June 30, 2016	4,383	285,854	65,219	2.5%	58
June 30, 2015	4,095	260,584	63,635	2.7%	58
June 30, 2014	3,547	219,701	61,940	2.4%	58
June 30, 2013	3,272	197,944	60,496	3.5%	58

Total and average annual earnings ("valuation pay") are the annualized earnings for the fiscal year ending on the valuation date.

Section 3.5: Active Member Payroll Reconciliation

Payroll Field	Payroll Data (000's)
a) DRB actual reported salaries FY22 in employer list	$ 485,788
b) DRB actual reported salaries FY22 in valuation data	430,240
c) Annualized valuation data	437,728
d) Valuation payroll as of June 30, 2022	460,736
e) Rate payroll for FY23	455,927

a) Actual reported salaries from DRB employer listing showing all payroll paid during FY22, including those who were not active as of June 30, 2022
b) Payroll from valuation data for people who are in active status as of June 30, 2022
c) Payroll from (b) annualized for both new entrants and part-timers
d) Payroll from (c) with one year of salary scale applied to estimate salaries payable for the upcoming year
e) Payroll from (d) with the part-timer annualization removed

Section 4: Basis of the Actuarial Valuation

Section 4.1: Summary of Plan Provisions

Effective Date

July 1, 2006, with amendments through June 30, 2022.

Administration of Plan

The Commissioner of Administration or the Commissioner's designee is the administrator of the Plan. The Attorney General of the state is the legal counsel for the Plan and shall advise the administrator and represent the Plan in legal proceedings.

The Alaska Retirement Management Board prescribes policies, adopts regulations, invests the funds, and performs other activities necessary to carry out the provisions of the Plan.

Employers Included

Currently there are 57 employers participating in TRS DCR, including the State of Alaska, 53 school districts, and three other eligible organizations.

Membership

An employee of a participating employer who first enters service on or after July 1, 2006, or a member of the defined benefit plan who works for an employer who began participation on or after July 1, 2006, and meets the following criteria is a member in the Plan:

- Permanent full-time or part-time elementary or secondary teachers, school nurses, or a person in a position requiring a teaching certificate as a condition of hire in a public school of the State of Alaska, the Department of Education and Early Development, or in the Department of Labor and Workforce Development.
- Full-time or part-time teachers at the University of Alaska or persons occupying full-time administrative positions requiring academic standing who are not in the University's Optional Retirement Plan.

Members can convert to TRS DCR if they are an eligible non-vested member of the TRS defined benefit plan whose employer consents to transfers to the defined contribution plan and they elect to transfer his or her account balance to TRS DCR.

Member Contributions

Other than the member-paid premiums discussed later in this section, there are no member contributions for the occupational death & disability and retiree medical benefits.

Retiree Medical Benefits

- Member must retire directly from the plan to be eligible for retiree medical coverage. Normal retirement eligibility is the earlier of a) 30 years of service or b) Medicare eligible and 10 years of service.
- No subsidized retiree medical benefits are provided until normal retirement eligibility. The member's and any covered dependent's premium is 100% until the member is Medicare eligible. Upon the member's Medicare-eligibility, the required contribution will follow the service-based schedule shown below.
- Coverage cannot be denied except for failure to pay premium.
- Members who are receiving disability benefits or survivors who are receiving monthly survivor benefits are not eligible until the member meets, or would have met if he/she had lived, the normal retirement eligibility requirements.
- The following is a summary of the medical benefit design adopted in July 2016. The plan description below is used for valuation purposes and indicates participant cost-sharing. Please refer to the benefit handbook for more details.

Plan Design Feature	In-Network[1]	Out-of-Network[1 2]
Deductible (single / family)	$300 / $600	
Medical services (participant share)	20%	40%
Emergency Room Copay (non-emergent use)	$100	$100
Medical Out-of-Pocket Maximum (single / family, including deductible)	$1,500 / $3,000	$3,000 / $6,000
Medicare Coordination	Exclusion	Exclusion
Pharmacy	No Deductible	No Deductible
Retail Generic (per 30-day fill)	20% $10 min / $50 max	
Retail Non-Formulary Brand (per 30-day fill)	25% $25 min / $75 max	40%
Retail Formulary Brand (per 30-day fill)	35% $80 min / $150 max	
Mail-Order Generic	$20 copay	
Mail-Order Non-Formulary Brand	$50 copay	40%
Mail-Order Formulary Brand	$100 copay	
Pharmacy Out-of-Pocket Max (single / family)	$1,000 / $2,000	
Medicare Pharmacy Arrangement	Retiree Drug Subsidy / Employer Group Waiver Plan effective 1/1/2019	
Wellness / Preventative	100% covered, not subject to deductible	20%, after deductible

1 Section 1.1 of the AlaskaCare Defined Contribution Retiree Benefit Plan states that this health plan shall be updated from time to time to reflect changes in benefits, including annual adjustments to the premium, deductible, coinsurance, medical out-of-pocket limit, and prescription drug out-of-pocket limit.

2 OON applies only to non-Medicare eligible participants.

- Buck used manual rate models to determine relative plan values for the defined benefit (DB) retiree medical plan and the DCR retiree medical plan outlined above. We applied the ratio of the DCR retiree medical plan value to the DB retiree medical plan value to the per capita costs determined for each of pre/post-Medicare medical and pharmacy benefits to estimate corresponding values for the DCR retiree medical plan design. These factors are noted in Section 4.3. We further adjusted the Medicare medical manual rate to reflect the Medicare coordination method adopted. The estimated 2023 reimbursements under EGWP were provided by Segal Consulting (who worked with the EGWP administrator, Optum, to develop those estimates). We reflect estimated discounts and pharmacy rebates in the defined benefit medical cost so no further adjustment was needed for the DCR retiree medical plan. The medical network differential is reflected in the relative plan value adjustments.
- Starting in 2022, prior authorization is required for certain specialty medications. There is no change to the medications that are covered by the plan.
- The retiree medical plan's coverage is supplemental to Medicare. Medicare coordination is described in the DCR Plan Handbook, referred to in the industry as exclusion coordination: Medicare payment is deducted from the Medicare allowable expense and plan parameters are applied to the remaining amount. Starting in 2019, the prescription drug coverage is through a Medicare Part D EGWP arrangement.
- The premium for Medicare-eligible retirees will be based on the member's years of service. The percentage of premium paid by the member is as follows:

Years of Service	Percent of Premium Paid by Member
< 15	30%
15 – 19	25%
20 – 24	20%
25 – 29	15%
30+	10%

- The premium for dependents who are not eligible for Medicare aligns with the member's subsidy. While a member is not Medicare-eligible, premiums are 100% of the estimated cost.
- Members have a separate defined contribution Health Reimbursement Arrangement account, which is not reflected in this valuation, that can be used to pay for premiums or other medical expenses.
- For valuation purposes, retiree premiums were assumed to equal the percentages outlined in the table above times the age-related plan costs. Future premiums calculated and charged to DCR participants will need to be determined reflecting any appropriate adjustments to the defined benefit (DB) plan data because current DB premiums were determined using information based upon enrollment with members who have double coverage.
- Coverage will continue for surviving spouses of covered retired members.

Occupational Disability Benefits

- Benefit is 40% of salary at date of disability.
- Disability Benefit Adjustment: The disability benefit is increased by 75% of the cost-of-living increase in the preceding calendar year or 9%, whichever is less.
- Member earns service while on occupational disability.
- Benefits cease when the member becomes eligible for normal retirement at Medicare-eligible age and 10 years of service, or at any age with 30 years of service.
- No subsidized retiree medical benefits are provided until normal retirement eligibility. The member's premium is 100% of the estimated cost until they are Medicare eligible. Medicare-eligible premiums follow the service-based schedule above.

Occupational Death Benefits

- Benefit is 40% of salary.
- Survivor's Pension Adjustment: A survivor's pension is increased by 50% of the cost-of-living increase in the preceding calendar year or 6%, whichever is less, if the recipient is at least age 60 on July 1, or under age 60 if the recipient has been receiving TRS benefits for at least 8 years as of July 1.
- Benefits cease when the member would have become eligible for normal retirement.
- The period during which the survivor is receiving benefits is counted as service credit toward retiree medical benefits.
- No subsidized retiree medical benefits are provided until the member would have been eligible for normal retirement. The surviving spouse's premium is 100% of the estimated cost until the member would have been Medicare eligible. Medicare-eligible premiums follow the service-based schedule above.

Changes in Benefit Provisions Valued Since the Prior Valuation

There were no changes in benefit provisions since the prior valuation.

Section 4.2: Description of Actuarial Methods and Valuation Procedures

The funding method used in this valuation was adopted by the Board in October 2006, and was modified as part of the experience study for the period July 1, 2013 to June 30, 2017. The asset smoothing method used to determine valuation assets was implemented effective June 30, 2006.

Benefits valued are those delineated in Alaska State statutes as of the valuation date. Changes in State statutes effective after the valuation date are not taken into consideration in setting the assumptions and methods.

Actuarial Cost Method

Liabilities and contributions shown in the report are computed using the Entry Age Normal Actuarial Cost Method, level percent of pay. Each year's difference between actual and expected unfunded actuarial accrued liability is amortized over 25 years as a level percentage of expected payroll.

Cost factors designed to produce annual costs as a constant percentage of each member's expected compensation in each year for death & disability benefits and retiree medical benefits, from the assumed entry age to the last age with a future benefit were applied to the projected benefits to determine the normal cost (the portion of the total cost of the plan allocated to the current year under the method). The normal cost is determined by summing intermediate results for active members and determining an average normal cost rate which is then related to the total DCR Plan payroll of active members. The actuarial accrued liability for active members (the portion of the total cost of the plan allocated to prior years under the method) was determined as the excess of the actuarial present value of projected benefits over the actuarial present value of future normal costs.

The actuarial accrued liability for beneficiaries and disabled members currently receiving benefits (if any) was determined as the actuarial present value of the benefits expected to be paid. No future normal costs are payable for these members.

The actuarial accrued liability under this method at any point in time is the theoretical amount of the fund that would have been accumulated had annual contributions equal to the normal cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date). The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of plan assets measured on the valuation date.

Under this method, experience gains or losses, i.e., decreases or increases in accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the unfunded actuarial accrued liability.

Valuation of Assets

Effective June 30, 2006, the asset valuation method recognizes 20% of the investment gain or loss in each of the current and preceding four years. This method was phased in over five years. Fair Value of Assets was $0 as of June 30, 2006. All assets are valued at fair value. Assets are accounted for on an accrued basis and are taken directly from financial statements audited by KPMG LLP. Valuation assets are constrained to a range of 80% to 120% of the fair value of assets.

Changes in Methods Since the Prior Valuation

There were no changes in the asset or valuation methods since the prior valuation.

Valuation of Retiree Medical and Prescription Drug Benefits

The methodology used for the valuation of the retiree medical benefits is described in Section 5.2 of the State of Alaska Teachers' Retirement System Defined Benefit Plan Actuarial Valuation Report as of June 30, 2022.

Starting in 2022, prior authorization is required for certain specialty medications. There is no change to the medications that are covered by the plan. Segal provided an estimate of the impact of this change to the DB retiree health plan cost for calendar year 2022. The resulting adjustment factors for pre-Medicare prescription drug, Medicare prescription drug, and EGWP costs were applied to claims experience incurred before January 1, 2022. Those base claims costs were used for the DCR valuation with further adjustments as noted below. Additionally, starting in 2022, certain common preventive benefits are covered for the DB plan. The resulting adjustment factor for pre-Medicare medical costs was applied to claims experience incurred before January 1, 2022. However, preventive benefits were already covered under the DCR plan so the pre-65 DCR medical adjustment factor referenced below was increased from 3.1% to 4.4%.

Due to the lack of experience for the DCR retiree medical plan, base claims costs are based on those described in the actuarial valuation as of June 30, 2022 for the Defined Benefit (DB) retiree medical plan covering TRS and PERS. The DB rates were used with some adjustments. The claims costs were adjusted to reflect the differences between the DCR medical plan and the DB medical plan. These differences include network steerage, different coverage levels, different Medicare coordination for medical benefits, and an indexing of the retiree out-of-pocket dollar amounts. To account for higher initial copays, deductibles, and out-of-pocket limits, projected FY23 claims costs were reduced 4.4% for pre-Medicare medical claims, 3.1% for Medicare medical claims, and 8.9% for prescription drugs. In addition, to account for the difference in Medicare coordination, projected FY23 medical claims costs for Medicare eligible retirees were further reduced 29.5%.

FY21 and FY22 experience was thoroughly reviewed to assess the impact of COVID-19 and whether an adjustment to FY21 and FY22 claims was appropriate for use in the June 30, 2022 valuation. FY21 medical per capita claims were noticeably lower than expected, so a 4% load was added to the FY21 medical claims used in the per capita claims cost development to better reflect future expected long-term costs of the plan. FY22 medical per capita claims were reasonable when compared to pre-COVID levels, so no adjustments were made to the FY22 medical claims used in the per capita claims cost development.

No implicit subsidies are assumed. Employees projected to retire with 30 years of service prior to Medicare are valued with commencement deferred to Medicare eligibility, because those members will be required to pay the full plan premium prior to Medicare. Explicit subsidies for disabled and normal retirement are determined using the plan-defined percentages of age-related total projected plan costs, again with no implicit subsidy assumed.

The State transitioned to an Employer Group Waiver Program (EGWP) for DCR participants effective January 1, 2019. The estimated 2023 reimbursements under EGWP were provided by Segal Consulting (who worked with the EGWP administrator, Optum, to develop those estimates).

Healthcare Reform

Healthcare Reform legislation passed on March 23, 2010 included several provisions with potential implications for the State of Alaska Retiree Health Plan liability. Buck evaluated the impact due to these provisions.

Because the State plan is retiree-only, not all provisions are required. Unlimited lifetime benefits and dependent coverage to age 26 are two of these provisions. The adopted DCR plan does not place lifetime limits on benefits, but does restrict dependent child coverage.

The Further Consolidated Appropriations Act, 2020 passed in December 2019 repealed several healthcare-related taxes, including the Cadillac Tax.

The Tax Cuts and Jobs Act passed in December 2017 included the elimination of the individual mandate penalty and changed the inflation measure for purposes of determining the limits for the High Cost Excise Tax to use chained CPI. It is our understanding the law does not directly impact other provisions of the ACA. While the nullification of the ACA’s individual mandate penalty does not directly impact employer group health plans, it could contribute to the destabilization of the individual market and increase the number of uninsured. Such destabilization could translate to increased costs for employers. We have considered this when setting our healthcare cost trend assumptions and will continue to monitor this issue.

The Inflation Reduction Act was signed into law on August 16, 2022. The law contains several provisions that are expected to impact Alaska's Medicare prescription drug plan (EGWP), which will be considered at the next measurement date.

We have not identified any other specific provisions of healthcare reform or its potential repeal that would be expected to have a significant impact on the measured obligation. We will continue to monitor legislative activity.

Section 4.3: Summary of Actuarial Assumptions

The demographic and economic assumptions used in the June 30, 2022 valuation are described below. Unless noted otherwise, these assumptions were adopted by the Board at the June 2022 meeting based on the experience study for the period July 1, 2017 to June 30, 2021.

Investment Return

7.25% per year, net of investment expenses.

Salary Scale

Salary scale rates based on the 2017-2021 actual experience (see Table 1).

Inflation – 2.50% per year.

Productivity – 0.25% per year.

Payroll Growth

2.75% per year (inflation + productivity).

Total Inflation

Total inflation as measured by the Consumer Price Index for urban and clerical workers for Anchorage is assumed to increase 2.50% annually.

Mortality (Pre-Commencement)

Mortality rates based on the 2017-2021 actual experience, to the extent the experience was statistically credible.

- Occ D&D: Pub-2010 Teachers Employee table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 Teachers Employee table, headcount-weighted, and projected with MP-2021 generational improvement.

Deaths are assumed to result from occupational causes 15% of the time.

Mortality (Post-Commencement)

Mortality rates based on the 2017-2021 actual experience, to the extent the experience was statistically credible.

Retiree mortality in accordance with the following tables:

- Occ D&D: 97% of male and 97% of female rates of the Pub-2010 Teachers Retiree table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: 98% of male and 100% of female rates of the Pub-2010 Teachers Retiree table, headcount-weighted, and projected with MP-2021 generational improvement.

Beneficiary mortality in accordance with the following tables. These tables are applied only after the death of the original member.

- Occ D&D: 100% of male and 95% of female rates of the Pub-2010 Contingent Survivor table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: 100% of male and 94% of female rates of the Pub-2010 Contingent Survivor table, headcount-weighted, and projected with MP-2021 generational improvement.

Turnover

Select and ultimate rates based on the 2017-2021 actual experience (see Table 2).

Disability

No changes to the incidence rates from the prior valuation due to insufficient 2017-2021 actual experience (see Table 3). For retiree medical benefits, the disability rates cease once a member is eligible for retirement. However, the disability rates continue after retirement eligibility for occupational death & disability benefits.

Disabilities are assumed to be occupational 15% of the time.

Post-disability mortality in accordance with the following tables:

- Occ D&D: Pub-2010 Non-Safety Disabled Retiree table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 Non-Safety Disabled Retiree table, headcount-weighted, and projected with MP-2021 generational improvement.

Retirement

Retirement rates based on the 2017-2021 actual experience (see Table 4).

Spouse Age Difference

Males are assumed to be three years older than their wives. Females are assumed to be two years younger than their husbands.

Percent Married for Occupational Death & Disability

85% of male members and 75% of female members are assumed to be married at termination from active service.

Dependent Spouse Medical Coverage Election

Applies to members who do not have double medical coverage. 60% of male members and 50% of female members are assumed to be married and cover a dependent spouse.

Part-Time Service

Part-time employees are assumed to earn 0.75 years of service per year.

Imputed Data

Data changes from the prior year which are deemed to have immaterial impact on liabilities and contribution rates are assumed to be correct in the current year's client data.

Non-vested terminations with appropriate refund dates are assumed to have received a full refund of contributions. Active members with missing salary and service are assumed to be terminated with status based on their vesting percentage.

Administrative Expenses

The Normal Cost as of June 30, 2022 was increased by $9,000 for occupational death & disability and $35,000 for retiree medical. These amounts are based on the average of actual administrative expenses during the last two fiscal years.

Retiree Medical Participation

Death / Disability Decrement		Retirement Decrement		
Age	**Percent Participation**	**Age**	**Percent Participation***	
< 56	75.0%	55	50.0%	
56	77.5%	56	55.0%	
57	80.0%	57	60.0%	
58	82.5%	58	65.0%	
59	85.0%	59	70.0%	
60	87.5%	60	75.0%	
61	90.0%	61	80.0%	
62	92.5%	62	85.0%	
63	95.0%	63	90.0%	
64	97.5%	64	95.0%	
65+	100.0%	65+	**Years of Service**	
			< 15	75.0%
			15 – 19	80.0%
			20 – 24	85.0%
			25 – 29	90.0%
			30+	95.0%

* Participation assumption is a combination of (i) the service-based rates for retirement from employment at age 65+ and (ii) the age-based rates for retirement from employment before age 65. These rates reflect the expected plan election rate that varies by reason for decrement, duration that a member may pay full cost prior to Medicare eligibility, and availability of alternative and/or lower cost options, particularly in the Medicare market. This assumption is based on observed trends in participation from a range of other plans.

Healthcare Per Capita Claims Cost

Sample claims cost rates (before base claims cost adjustments described below) adjusted to age 65 for FY23 medical and prescription drugs are shown below. The prescription drug costs reflect the plan change to require prior authorization for certain specialty medications.

	Medical	Prescription Drugs
Pre-Medicare	$ 15,706	$ 3,712
Medicare Parts A & B	$ 1,625	$ 3,907
Medicare Part D – EGWP	N/A	$ 1,309

Members are assumed to attain Medicare eligibility at age 65. All costs are for the 2023 fiscal year (July 1, 2022 – June 30, 2023).

The EGWP subsidy is assumed to increase in future years by the trend rates shown on the following pages. No future legislative changes or other events are anticipated to impact the EGWP subsidy. If any legislative or other changes occur in the future that impact the EGWP subsidy (which could either increase or decrease the plan's Actuarial Accrued Liability), those changes will be evaluated and quantified at the next measurement date.

Base Claims Cost Adjustments

Due to higher initial copays, deductibles, out-of-pocket limits, and member cost sharing compared to the DB medical plan, the following cost adjustments are applied to the per capita claims cost rates above:

- 0.956 for the pre-Medicare plan.
- 0.674 for both the Medicare medical plan and Medicare coordination method (3.1% reduction for the medical plan and 29.5% reduction for the coordination method).
- 0.911 for the prescription drug plan.

Healthcare Morbidity

Morbidity rates (also called aging factors) are used to estimate utilization of healthcare benefits at each age to reflect the fact that healthcare utilization typically increases with age. Separate morbidity rates are used for medical and prescription drug benefits. These rates are based on the 2017-2021 actual experience.

Age	Medical	Prescription Drugs
0 – 44	2.0%	4.5%
45 – 54	2.5%	3.5%
55 – 64	2.5%	1.0%
65 – 74	2.0%	2.1%
75 – 84	2.2%	-0.3%
85 – 94	0.5%	-2.5%
95+	0.0%	0.0%

Healthcare Third Party Administrator Fees

$449 per person per year; assumed to increase at 4.50% per year.

Healthcare Cost Trend

The table below shows the rate used to project the cost from the shown fiscal year to the next fiscal year. For example, 7.00% is applied to the FY23 pre-Medicare medical claims costs to get the FY24 medical claims costs.

	Medical Pre-65	Medical Post-65	Prescription Drugs / EGWP
FY23	7.00%	5.50%	7.50%
FY24	6.70%	5.50%	7.20%
FY25	6.40%	5.40%	6.90%
FY26	6.20%	5.40%	6.65%
FY27	6.05%	5.35%	6.35%
FY28	5.85%	5.35%	6.10%
FY29	5.65%	5.30%	5.80%
FY30	5.45%	5.30%	5.55%
FY31-FY38	5.30%	5.30%	5.30%
FY39	5.25%	5.25%	5.25%
FY40	5.20%	5.20%	5.20%
FY41	5.10%	5.10%	5.10%
FY42	5.05%	5.05%	5.05%
FY43	4.95%	4.95%	4.95%
FY44	4.90%	4.90%	4.90%
FY45	4.80%	4.80%	4.80%
FY46	4.75%	4.75%	4.75%
FY47	4.70%	4.70%	4.70%
FY48	4.60%	4.60%	4.60%
FY49	4.55%	4.55%	4.55%
FY50+	4.50%	4.50%	4.50%

For the June 30, 2014 valuation and later, the updated Society of Actuaries' Healthcare Cost Trend Model is used to project medical and prescription drug costs. This model estimates trend amounts that are projected out for 80 years. The model has been populated with assumptions that are specific to the State of Alaska.

Changes in Assumptions Since the Prior Valuation

Effective for the June 30, 2022 valuation, the Board adopted the changes to the demographic and economic assumptions recommended by the actuary, based on the results of an experience study performed on the plan experience from July 1, 2017 to June 30, 2021. The changes in assumptions were adopted at the June 2022 Board meeting.

The healthcare per capita claims cost assumption is updated annually as described in Section 4.2. The amounts included in the Normal Cost for administrative expenses were changed from $5,000 to $9,000 for occupational death & disability, and from $22,000 to $35,000 for retiree medical (based on the most recent two years of actual administrative expenses paid from plan assets).

Table 1: Salary Scale

Years of Service	Percent Increase
< 1	7.25%
1	6.75%
2	6.25%
3	5.75%
4	5.25%
5	5.00%
6	4.75%
7	4.50%
8	4.25%
9	4.00%
10	3.75%
11	3.50%
12	3.25%
13	3.05%
14	3.00%
15	2.95%
16	2.90%
17+	2.85%

Table 2: Turnover Rates

Select Rates during the First 6 Years of Employment

Years of Service	Male	Female
< 1	28.00%	31.00%
1	28.00%	21.00%
2	19.00%	18.00%
3	17.00%	13.00%
4	13.00%	13.00%
5	13.00%	10.00%

Ultimate Rates after the First 6 Years of Employment

Age	Male	Female
< 30	10.50%	8.70%
30 - 34	10.50%	8.70%
35 - 39	10.40%	8.60%
40 - 44	10.30%	8.60%
45 - 49	10.00%	8.40%
50 - 54	9.50%	8.10%
55 - 59	8.80%	7.90%
60 - 64	9.30%	8.70%
65+	10.90%	7.40%

Table 3: Disability Rates

Age	Male	Female	Age	Male	Female
< 31	0.0337%	0.0612%	50	0.0601%	0.1093%
31	0.0337%	0.0613%	51	0.0634%	0.1152%
32	0.0337%	0.0613%	52	0.0666%	0.1211%
33	0.0342%	0.0622%	53	0.0746%	0.1356%
34	0.0347%	0.0631%	54	0.0826%	0.1501%
35	0.0353%	0.0641%	55	0.0905%	0.1645%
36	0.0357%	0.0650%	56	0.0985%	0.1790%
37	0.0362%	0.0659%	57	0.1064%	0.1935%
38	0.0371%	0.0674%	58	0.1245%	0.2263%
39	0.0379%	0.0689%	59	0.1426%	0.2592%
40	0.0387%	0.0703%	60	0.1606%	0.2920%
41	0.0395%	0.0718%	61	0.1787%	0.3249%
42	0.0403%	0.0733%	62	0.1967%	0.3577%
43	0.0423%	0.0770%	63	0.2253%	0.4096%
44	0.0443%	0.0806%	64	0.2572%	0.4677%
45	0.0464%	0.0843%	65	0.2933%	0.5332%
46	0.0483%	0.0879%	66	0.3343%	0.6079%
47	0.0504%	0.0916%	67	0.3812%	0.6930%
48	0.0536%	0.0975%	68	0.4345%	0.7900%
49	0.0569%	0.1034%	69	0.4953%	0.9006%
			70+	0.5647%	1.0267%

Table 4: Retirement Rates

Age	Rate
< 55	2.00%
55	3.00%
56	3.00%
57	3.00%
58	3.00%
59	3.00%
60	5.00%
61	5.00%
62	10.00%
63	5.00%
64	5.00%
65	25.00%
66	25.00%
67	25.00%
68	20.00%
69	20.00%
70+	100.00%

Section 5: Historical Information[1]

Section 5.1: Funding Progress

Funding Progress - Occupational Death & Disability ($'s in 000's)

Valuation Date	Actuarial Accrued Liability	Valuation Assets	Assets as Pct. of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)	Active Member Payroll	UAAL as Pct. of Active Member Payroll
June 30, 2022	$ 199	$ 6,700	3,366.8%	$ (6,501)	$ 455,927	(1.4%)
June 30, 2021	205	5,843	2,850.2%	(5,638)	423,783	(1.3%)
June 30, 2020	223	4,933	2,212.1%	(4,710)	391,854	(1.2%)
June 30, 2019	240	4,359	1,816.3%	(4,119)	359,622	(1.1%)
June 30, 2018	30	3,845	12,816.7%	(3,815)	346,044	(1.1%)
June 30, 2017	26	3,588	13,800.0%	(3,562)	327,765	(1.1%)
June 30, 2016	19	3,323	17,489.5%	(3,304)	300,750	(1.1%)
June 30, 2015	29	3,114	10,737.9%	(3,085)	274,892	(1.1%)
June 30, 2014	23	2,820	12,260.9%	(2,797)	232,051	(1.2%)
June 30, 2013	80	2,532	3,165.0%	(2,452)	210,004	(1.2%)
June 30, 2012	63	2,348	3,727.0%	(2,285)	189,680	(1.2%)
June 30, 2011	57	2,193	3,847.4%	(2,136)	160,509	(1.3%)
June 30, 2010	18	1,577	8,761.1%	(1,559)	126,520	(1.2%)
June 30, 2009	14	1,071	7,650.0%	(1,057)	95,141	(1.1%)
June 30, 2008	44	420	954.5%	(376)	59,750	(0.6%)
June 30, 2007	16	0	0.0%	16	30,113	0.1%

Change in assumptions reflected in 2022, 2018, 2014, 2010, and 2009 valuations.

[1] GASB 74 replaced GASB 43 effective for the fiscal year ending June 30, 2017. At the request of the State, historical accounting information has been included in this section as if GASB 43 were still effective.

Funding Progress - Retiree Medical ($’s in 000’s)

Valuation Date	Actuarial Accrued Liability	Valuation Assets	Assets as Pct. of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)	Active Member Payroll	UAAL as Pct. of Active Member Payroll
June 30, 2022	$ 47,797	$ 68,403	143.1%	$ (20,606)	$ 455,927	(4.5%)
June 30, 2021	44,396	59,380	133.8%	(14,984)	423,783	(3.5%)
June 30, 2020	40,634	49,554	122.0%	(8,920)	391,854	(2.3%)
June 30, 2019	32,981	42,307	128.3%	(9,326)	359,622	(2.6%)
June 30, 2018	32,429	36,776	113.4%	(4,347)	346,044	(1.3%)
June 30, 2017	33,681	30,998	92.0%	2,683	327,765	0.8%
June 30, 2016	21,988	25,410	115.6%	(3,422)	300,750	(1.1%)
June 30, 2015	19,768	17,733	89.7%	2,035	274,892	0.7%
June 30, 2014	16,273	10,791	66.3%	5,482	232,051	2.4%
June 30, 2013	22,058	8,614	39.1%	13,444	210,004	6.4%
June 30, 2012	16,811	6,937	41.3%	9,874	189,680	5.2%
June 30, 2011	3,801	5,373	141.4%	(1,572)	160,509	(1.0%)
June 30, 2010	2,430	3,895	160.3%	(1,465)	126,520	(1.2%)
June 30, 2009	1,446	2,353	162.7%	(907)	95,141	(1.0%)
June 30, 2008	757	1,308	172.8%	(551)	59,750	(0.9%)
June 30, 2007	358	597	166.8%	(239)	30,113	(0.8%)

Change in assumptions reflected in 2022, 2020, 2018, 2017, 2014, 2012, 2011, 2010, 2009, and 2008 valuations.

Change in methods reflected in 2018 valuation.

Change in plan provisions reflected in 2021 and 2016 valuations.

Section 5.2: Solvency Test

Solvency Test - Occupational Death & Disability ($'s in 000's)

	Actuarial Accrued Liability (AAL)						
	(1)	(2)	(3)		Portion of AAL Covered by Valuation Assets		
Valuation Date	Active Member Contributions	Inactive Members	Active Members Employer Financed	Valuation Assets	(1)	(2)	(3)
June 30, 2022	$ 0	$ 174	$ 25	$ 6,700	100.0%	100.0%	100.0%
June 30, 2021	0	177	28	5,843	100.0%	100.0%	100.0%
June 30, 2020	0	196	27	4,933	100.0%	100.0%	100.0%
June 30, 2019	0	209	31	4,359	100.0%	100.0%	100.0%
June 30, 2018	0	0	30	3,845	100.0%	100.0%	100.0%
June 30, 2017	0	0	26	3,588	100.0%	100.0%	100.0%
June 30, 2016	0	0	19	3,323	100.0%	100.0%	100.0%
June 30, 2015	0	0	29	3,114	100.0%	100.0%	100.0%
June 30, 2014	0	0	23	2,820	100.0%	100.0%	100.0%
June 30, 2013	0	0	80	2,532	100.0%	100.0%	100.0%
June 30, 2012	0	0	63	2,348	100.0%	100.0%	100.0%
June 30, 2011	0	0	57	2,193	100.0%	100.0%	100.0%
June 30, 2010	0	0	18	1,577	100.0%	100.0%	100.0%
June 30, 2009	0	0	14	1,071	100.0%	100.0%	100.0%
June 30, 2008	0	0	44	420	100.0%	100.0%	100.0%
June 30, 2007	0	0	16	0	100.0%	100.0%	0.0%

Change in assumptions reflected in 2022, 2018, 2014, 2010, and 2009 valuations.

Solvency Test - Retiree Medical ($'s in 000's)

Valuation Date	Actuarial Accrued Liability (AAL) (1) Active Member Contributions	(2) Inactive Members	(3) Active Members Employer Financed	Valuation Assets	Portion of AAL Covered by Valuation Assets (1)	(2)	(3)
June 30, 2022	$ 0	$ 1,913	$ 45,884	$ 68,403	100.0%	100.0%	100.0%
June 30, 2021	0	1,265	43,131	59,380	100.0%	100.0%	100.0%
June 30, 2020	0	925	39,709	49,554	100.0%	100.0%	100.0%
June 30, 2019	0	647	32,334	42,307	100.0%	100.0%	100.0%
June 30, 2018	0	534	31,895	36,776	100.0%	100.0%	100.0%
June 30, 2017	0	199	33,482	30,998	100.0%	100.0%	92.0%
June 30, 2016	0	0	21,988	25,410	100.0%	100.0%	100.0%
June 30, 2015	0	0	19,768	17,733	100.0%	100.0%	89.7%
June 30, 2014	0	0	16,273	10,791	100.0%	100.0%	66.3%
June 30, 2013	0	0	22,058	8,614	100.0%	100.0%	39.1%
June 30, 2012	0	0	16,811	6,937	100.0%	100.0%	41.3%
June 30, 2011	0	0	3,801	5,373	100.0%	100.0%	100.0%
June 30, 2010	0	0	2,430	3,895	100.0%	100.0%	100.0%
June 30, 2009	0	0	1,446	2,353	100.0%	100.0%	100.0%
June 30, 2008	0	0	757	1,308	100.0%	100.0%	100.0%
June 30, 2007	0	0	358	597	100.0%	100.0%	100.0%

Change in assumptions reflected in 2022, 2020, 2018, 2017, 2014, 2012, 2011, 2010, 2009, and 2008 valuations.

Change in methods reflected in 2018 valuation.

Change in plan provisions reflected in 2021 and 2016 valuations.

Section 5.3: Member Data

As of June 30	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Active Members										
1. Number	3,272	3,547	4,095	4,383	4,694	4,915	4,998	5,332	5,521	5,688
2. Average Age	38.10	38.52	39.15	39.57	40.21	40.64	41.06	41.63	41.90	42.26
3. Average Credited Service	3.52	3.90	4.19	4.50	4.88	5.30	5.67	6.03	6.34	6.60
4. Average Entry Age	34.58	34.62	34.96	35.07	35.33	35.34	35.39	35.60	35.56	35.66
5. Average Annual Earnings	$ 60,496	$ 61,940	$ 63,635	$ 65,219	$ 66,542	$ 68,119	$ 69,619	$ 71,118	$ 74,045	$ 76,956
Disabilitants and Beneficiaries (Occupational Death & Disability)										
1. Number	0	0	0	0	0	0	1	1	1	1
2. Average Age	N/A	N/A	N/A	N/A	N/A	N/A	53.45	54.45	55.45	56.45
3. Average Monthly Death & Disability Benefit	N/A	N/A	N/A	N/A	N/A	N/A	$ 2,024	$ 2,024	$ 2,024	$ 2,170
Retirees, Surviving Spouses, and Dependent Spouses (Retiree Medical)										
1. Number	0	0	0	0	4	9	12	17	24	35
2. Average Age	N/A	N/A	N/A	N/A	69.72	68.59	68.54	68.79	67.71	69.66
Total Number of Members	**3,272**	**3,547**	**4,095**	**4,383**	**4,698**	**4,924**	**5,011**	**5,350**	**5,546**	**5,724**

Average annual earnings (“valuation pay”) are the annualized earnings for the fiscal year ending on the valuation date.

Glossary of Terms

Actuarial Accrued Liability

Total accumulated cost to fund pension or postemployment benefits arising from service in all prior years.

Actuarial Cost Method

Technique used to assign or allocate, in a systematic and consistent manner, the expected cost of a pension or postemployment plan for a group of plan members to the years of service that give rise to that cost.

Actuarial Present Value of Projected Benefits

Amount which, together with future interest, is expected to be sufficient to pay all future benefits.

Actuarial Valuation

Study of probable amounts of future pension or postemployment benefits and the necessary amount of contributions to fund those benefits.

Actuary

Person who performs mathematical calculations pertaining to pension and insurance benefits based on specific procedures and assumptions.

GASB 74 and 75

Governmental Accounting Standards Board Statement Number 74 amends Number 43 effective for the fiscal year beginning after June 15, 2016 and defines new financial reporting requirements for public postemployment benefit plans. Governmental Accounting Standards Board Statement Number 75 amends Number 45 effective for fiscal years beginning after June 15, 2017 and defines new accounting and financial reporting requirements for employers sponsoring public postemployment benefit plans.

Normal Cost

That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual participant or the plan as a whole.

Rate Payroll

Members' earnings used to determine contribution rates.

Unfunded Actuarial Accrued Liability (UAAL)

The portion of the actuarial accrued liability not offset by plan assets.

Valuation Payroll

Members' earnings used to determine Normal Cost and Actuarial Accrued Liability.

Vested Benefits

Benefits which are unconditionally guaranteed regardless of employment.

State of Alaska Retirement Systems

Presentation to ARMB Actuarial Committee

- June 30, 2022 Valuations Results (NGNMRS)

June 14, 2023

Valuation Data

- Data provided to us was as of June 30, 2022 except for the Air Guard group.

- Data for the Air Guard group was available as of June 30, 2021 only.
    - We assumed all members as of June 30, 2021 were members as of June 30, 2022 with no status changes.
    - We increased the June 30, 2021 service of active members by one year.
    - This procedure for the Air Guard group will not materially affect the overall valuation results.

Highlights of Valuation Results

- **Assets** underperformed relative to expectations in FY22.
  - Market loss = $7.2M (return = -7.7%)
  - Actuarial loss = $0.1M (return = 6.7%)
- **Liabilities** are $1.0M higher than expected primarily due to new entrants and the Air Guard data assumptions.
- **New assumptions** increased the liabilities by $3.9M.
- **Actuarially Determined Contribution** is zero because the plan is overfunded.

Valuation Results

	6/30/20	6/30/22	FY22 Gain/(Loss)*	Increase/(Decrease) in 6/30/22 Liabilities for New Assumptions
Actuarial Accrued Liability	22,417,247	28,366,668	(1,035,728)	3,890,292
Actuarial Value of Assets	43,020,393	46,215,854	(148,626)	
Market Value of Assets	42,095,708	44,088,041	(7,160,610)	
Funded Ratio - Actuarial	191.9%	162.9%		
Funded Ratio - Market	187.8%	155.4%		
Actuarially Determined Contribution				
- Normal Cost	503,140	690,172		
- Administrative Expense Load	256,000	331,000		
- Past Service Cost	(3,224,638)	(2,691,240)		
- Total	0	0		

*The liability gain/(loss) is for FY21 and FY22.

Actuarial Certification

The purpose of this presentation is to provide the ARMB Actuarial Committee with NGNMRS June 30, 2022 valuation results for discussion at the June 14, 2023 meeting. This presentation should be considered part of the June 30, 2022 actuarial valuation report services.

The data, assumptions, methods, and plan provisions used to determine the results shown in this presentation are as shown in the June 30, 2022 actuarial valuation report. This report includes details related to potential risks associated with the plans, and information regarding our use of models.

Where presented, references to “funded ratio” and “unfunded actuarial accrued liability” typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded actuarial accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e., purchase annuities) all or a portion of its liabilities.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law.

The results were prepared under the direction of David Kershner, who meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. These results have been prepared in accordance with all applicable Actuarial Standards of Practice.

David Kershner
FSA, EA, MAAA, FCA
Principal, Retirement

State of Alaska

National Guard and Naval Militia Retirement System

Actuarial Valuation Report
As of June 30, 2022

May 2023

May 31, 2023

State of Alaska
The Alaska Retirement Management Board
The Department of Revenue, Treasury Division
The Department of Administration, Division of Retirement and Benefits
P.O. Box 110203
Juneau, AK 99811-0203

Certification of Actuarial Valuation

Dear Members of The Alaska Retirement Management Board, The Department of Revenue and The Department of Administration:

This report summarizes the actuarial valuation results of the State of Alaska National Guard and Naval Militia Retirement System (NGNMRS) as of June 30, 2022 performed by Buck Global, LLC (Buck).

The actuarial valuation is based on financial information provided in the financial statements audited by KPMG LLP, and member data provided by the Division of Retirement and Benefits as summarized in this report. The benefits considered are those delineated in Alaska statutes effective June 30, 2022. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities and other factors under NGNMRS were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Buck is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of NGNMRS as of June 30, 2022.

The contribution requirements reflect the cost of benefits accruing in the upcoming year, administrative expenses expected to be paid from the trust, and a level dollar amortization of the initial unfunded actuarial accrued liability and subsequent gains/losses over a period of 20 years less average military service of active members. The contribution levels are recommended by the actuary and adopted by the Board each year. This objective is currently being met and is projected to continue to be met. Absent future gains/losses, actuarially determined contributions are expected to remain zero and the funded status is expected to remain at or above 100%.

The Board and staff of the State of Alaska may use this report for the review of the operations of NGNMRS. Use of this report for any other purpose or by anyone other than the Board or staff of the State of Alaska may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, Buck recommends requesting its advanced review of any statement to be based on information contained in this report. Buck will accept no liability for any such statement made without its prior review.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the actuarial assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. An analysis of the potential range of such future differences is beyond the scope of this valuation.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the plan. The actuary performs an analysis of plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The last full experience analysis was performed for the period July 1, 2017 to June 30, 2021. Based on that experience study, the Board adopted new assumptions effective beginning with the June 30, 2022 valuation to better reflect expected future experience. A summary of the actuarial assumptions and methods used in this actuarial valuation is shown in Sections 4.2 and 4.3. We certify that the assumptions and methods described in Sections 4.2 and 4.3 of this report meet the requirements of all applicable Actuarial Standards of Practice.

Actuarial Standards of Practice No. 27 (ASOP 27) and No. 35 (ASOP 35) require the actuary to disclose the information and analysis used to support the actuary's determination that the assumptions selected by the plan sponsor do not significantly conflict with what, in the actuary's professional judgment, are reasonable for the purpose of the measurement. Buck provides advice on reasonable assumptions when performing periodic experience studies. The Board selects the assumptions used and the signing actuary reviews the assumptions through discussions with the Board staff and analyzing actuarial gain/loss experience. In the case of the Board's selection of the expected return on assets (EROA), the signing actuary has used economic information and tools provided by Buck's Financial Risk Management (FRM) practice. A spreadsheet tool created by the FRM practice converts averages, standard deviations, and correlations from Buck's Capital Markets Assumptions that are used for stochastic forecasting into approximate percentile ranges for the arithmetic and geometric average returns. It is intended to suggest possible reasonable ranges for EROA without attempting to predict or select a specific best estimate rate of return. It takes into account the duration (horizon) of investment and the target allocation of assets in the portfolio to various asset classes. Based on the actuary's analysis, including consistency with other assumptions used in the valuation, the percentiles generated by the spreadsheet tool described above, and review of actuarial gain/loss analysis, the actuary believes the assumptions do not significantly conflict with what, in the actuary's professional judgment, are reasonable for the purpose of the measurement.

ACFR Information

We have prepared the following information in this report for the Actuarial Section and Statistical Section of the ACFR: (i) member data tables in Section 3; (ii) changes in contribution rates in the Executive Summary; and (iii) summary of actuarial assumptions in Section 4.3.

Governmental Accounting Standards Board (GASB) Statement No. 67 (GASB 67) was effective for NGNMRS beginning with fiscal year ending June 30, 2014. Please see our separate GASB 67 report for other information needed for the ACFR.

Assessment of Risks

Actuarial Standard of Practice No. 51 (ASOP 51) applies to actuaries performing funding calculations related to a pension plan. See Section 5 of this report for further details regarding ASOP 51.

Use of Models

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses third-party software in the performance of annual actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of the plan using data and assumptions as of the measurement date under the funding methods specified in this report. The output from the third-party vendor software is used as input to internally developed models that apply applicable funding methods and policies to the derived liabilities and other inputs, such as plan assets and contributions, to generate many of the exhibits found in this report. Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal models are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal models, extra checking and review are completed. Significant changes to the internal models that are applicable to multiple clients are generally developed, checked, and reviewed by multiple experts within Buck who are familiar with the details of the required changes.

This report was prepared under the overall direction of David Kershner, who meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. He is a Fellow of the Society of Actuaries, an Enrolled Actuary, a Member of the American Academy of Actuaries, and a Fellow of the Conference of Consulting Actuaries.

We are available to discuss this report with you at your convenience. David can be reached at 602-803-6174 and Brett can be reached at 260-423-1072.

Respectfully submitted,

David J. Kershner, FSA, EA, MAAA, FCA
Principal
Buck

Brett Hunter, ASA, EA, MAAA
Senior Consultant
Buck

Contents

Executive Summary

Overview

The State of Alaska National Guard and Naval Militia Retirement System (NGNMRS) provides pension benefits to the National Guard, naval militia and other eligible members. The Commissioner of the Department of Administration is responsible for administering the plan. The Alaska Retirement Management Board has fiduciary responsibility over the assets of the plan. This report presents the results of the actuarial valuation of NGNMRS as of the valuation date of June 30, 2022.

Purpose

An actuarial valuation is performed on the plan once every two years as of the end of the fiscal year, and roll-forward valuations are performed every other year. The main purposes of the actuarial valuation detailed in this report are:

1. To determine the Employer contribution necessary to meet the Board’s funding policy for the plan;
2. To disclose the funding assets and liability measures as of the valuation date;
3. To review the current funded status of the plan and assess the funded status as an appropriate measure for determining future actuarially determined contributions;
4. To compare actual and expected experience under the plan during the fiscal year; and
5. To report trends in contributions, assets, liabilities, and funded status over the last several years.

The actuarial valuation provides a “snapshot” of the funded position of NGNMRS based on the plan provisions, membership data, assets, and actuarial methods and assumptions as of the valuation date.

Funded Status

Where presented, references to “funded ratio” and “unfunded actuarial accrued liability” typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded actuarial accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

Funded Status as of June 30		2020		2022
a. Actuarial Accrued Liability	$	22,417,247	$	28,366,668
b. Valuation Assets		43,020,393		46,215,854
c. Unfunded Actuarial Accrued Liability, (a) – (b)	$	(20,603,146)	$	(17,849,186)
d. Funded Ratio based on Valuation Assets, (b) ÷ (a)		191.9%		162.9%
e. Fair Value of Assets	$	42,095,708	$	44,088,041
f. Funding Ratio based on Fair Value of Assets, (e) ÷ (a)		187.8%		155.4%

Actuarially Determined Contribution Amounts		FY23		FY25
a. Normal Cost	$	503,140	$	690,172
b. Past Service Cost		(3,224,638)		(2,691,240)
c. Expense Load		256,000		331,000
d. Total Annual Contribution, (a) + (b) + (c), not less than 0	$	0	$	0

The Actuarially Determined Contribution amount for FY24 based on a roll-forward valuation as of June 30, 2021 was $0.

The key reasons for the change in funded status are described below:

1. **Investment Experience**

   The approximate investment returns based on fair value of assets were 23.0% for FY21 and (7.7)% for FY22, compared to the expected investment return of 7.00% (net of investment expenses). This resulted in market asset gains of approximately $6.6 million for FY21 and market asset losses of approximately $7.2 million for FY22. Due to the recognition of investment gains and losses over a 5-year period, the investment returns based on actuarial value of assets were 9.5% for FY21 and 6.7% for FY22.

2. **Demographic Experience**[1]

   Section 3 provides statistics on active and inactive participants. The number of active participants decreased from 3,934 at June 30, 2020 to 3,909 at June 30, 2022. The average age of active participants increased from 34.20 to 35.15, and average credited service increased from 6.87 years to 7.99 years.

   The number of retirees and QDROs decreased from 708 to 691, and their average age increased from 58.83 to 59.58.

   The number of vested terminated participants increased from 649 to 702, and their average age increased from 57.00 to 57.82.

   The overall effect of the demographic experience was a liability loss of approximately $1.0 million (approximately 3.8% of the expected liability). This loss is mainly attributed to new entrants and rehires that have service accrued prior to June 30, 2022.

3. **Changes in Methods Since the Prior Valuation**

   There were no changes in actuarial methods since the prior valuation.

4. **Changes in Assumptions Since the Prior Valuation**

   Effective for the June 30, 2022 valuation, the Board adopted the changes to the demographic and economic assumptions recommended by the actuary, based on the results of an experience study performed on the plan experience from July 1, 2017 to June 30, 2021. The changes in assumptions were adopted at the June 2022 Board meeting. The effect of the new assumptions was to increase the Actuarial Accrued Liability as of June 30, 2022 by approximately $3.9 million.

   The amount included in the Normal Cost for administrative expenses was changed from $256,000 at June 30, 2020 to $331,000 at June 30, 2022.

5. **Changes in Benefit Provisions Since the Prior Valuation**

   There were no changes in benefit provisions since the prior valuation.

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[1] The data for the Air Guard group was available as of June 30, 2021 only. We assumed the status of each Air Guard member as of June 30, 2021 was the same as of June 30, 2022, and we increased each Air Guard active member's service as of June 30, 2021 by 1 year. Approximating the June 30, 2022 Air Guard data in this way did not materially impact the overall valuation results.

Section 1: Actuarial Funding Results

Section 1.1: Actuarial Liabilities and Normal Cost

As of June 30, 2022	Present Value of Projected Benefits	Actuarial Accrued Liability
Active Members		
Retirement Benefits	$ 17,874,565	$ 14,074,254
Termination Benefits	0	0
Death Benefits	285,330	195,690
Disability Benefits	157,632	125,839
Subtotal	$ 18,317,527	$ 14,395,783
Inactive Members		
Vested Terminated	$ 7,806,050	$ 7,806,050
Retirees (including QDROs)	6,164,835	6,164,835
Subtotal	$ 13,970,885	$ 13,970,885
Total	**$ 32,288,412**	**$ 28,366,668**

As of June 30, 2022	Normal Cost
Active Members	
Retirement Benefits	$ 669,283
Termination Benefits	0
Death Benefits	15,199
Disability Benefits	5,690
Subtotal	$ 690,172
Expense Load	
Administrative Expense	$ 331,000
Total	**$ 1,021,172**

Section 1.2: Actuarial Contributions as of June 30, 2022 (for FY25)

1.	Actuarial Accrued Liability	$	28,366,668
2.	Valuation Assets		46,215,854
3.	Total Unfunded Actuarial Accrued Liability, (1) – (2)	$	(17,849,186)
4.	Past Service Cost Amortization Payment[1]		(2,691,240)
5.	Normal Cost, including Expense Load		1,021,172
6.	**Total Contribution, (4) + (5), not less than 0**	**$**	**0**

[1] Calculated on a level dollar basis over an 8-year period as of June 30, 2022.

Section 1.3: Actuarial Gain/(Loss) for FY22

1.	Expected Actuarial Accrued Liability		
	a. Actuarial Accrued Liability, June 30, 2021	$	22,975,269
	b. Normal Cost for FY22		503,140
	c. Interest on (a) and (b) at 7.00%		1,643,488
	d. Benefit Payments for FY22		(1,620,749)
	e. Interest on (d) at 7.00%, adjusted for timing		(60,500)
	f. Change in Actuarial Assumptions		3,890,292
	g. Expected Actuarial Accrued Liability as of June 30, 2022, (a) + (b) + (c) + (d) + (e) + (f)	$	27,330,940
2.	Actual Actuarial Accrued Liability, June 30, 2022		28,366,668
3.	**Liability Gain/(Loss), (1)(g) – (2)**	**$**	**(1,035,728)**[1]
4.	Expected Actuarial Asset Value		
	a. Actuarial Asset Value, June 30, 2021	$	45,248,391
	b. Interest on (a) at 7.00%		3,167,387
	c. Employer Contributions for FY22		0
	d. Interest on (c) at 7.00%, adjusted for timing		0
	e. Benefit Payments for FY22		(1,620,749)
	f. Interest on (e) at 7.00%, adjusted for timing		(60,500)
	g. Administrative Expenses for FY22		(357,740)
	h. Interest on (g) at 7.00%, adjusted for timing		(12,309)
	i. Expected Actuarial Asset Value as of June 30, 2022, (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h)	$	46,364,480
5.	Actuarial Asset Value, June 30, 2022		46,215,854
6.	**Actuarial Asset Gain/(Loss), (5) – (4)(i)**	**$**	**(148,626)**
7.	**Actuarial Gain/(Loss), (3) + (6)**	**$**	**(1,184,354)**

[1] Includes a liability reduction of $26,547 due to a programming adjustment for calculation of the retiree death benefit of remaining payments. The FY22 liability experience loss excluding the $26,547 programming effect is $1,062,275.

Section 1.4: Development of Change in Unfunded Liability during FY22

1.	June 30, 2021 Unfunded Liability	$	(22,273,122)
	a. Normal Cost		503,140
	b. Interest on (1) and (1)(a)		(1,523,899)
	c. Employer Contributions		0
	d. Interest on (c)		0
	e. Administrative Expenses		357,740
	f. Interest on (e)		12,309
	g. Change in Actuarial Assumptions		3,890,292
	h. Expected Change in Unfunded Liability during FY22	$	3,239,582
2.	Expected June 30, 2022 Unfunded Liability, (1) + (1)(h)	$	(19,033,540)
	a. Liability (gain)/ loss		1,035,728
	b. Asset (gain)/ loss		148,626
	c. Total Actuarial (gain)/ loss during FY22, (2)(a) + (2)(b)	$	1,184,354
3.	Actual June 30, 2022 Unfunded Liability, (2) + (2)(c)	$	(17,849,186)

Section 1.5: History of Unfunded Liability and Funded Ratio

Valuation Date	Actuarial Accrued Liability	Valuation Assets	Assets as a Percent of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)
June 30, 2000	$ 17,967,471	$ 13,734,397	76.4%	$ 4,233,074
June 30, 2002	$ 20,545,214	$ 12,114,025	59.0%	$ 8,431,189
June 30, 2004	$ 19,749,305	$ 13,391,055	67.8%	$ 6,358,250
June 30, 2006	$ 25,457,589	$ 15,587,569	61.2%	$ 9,870,020
June 30, 2007	$ 26,289,978	$ 16,882,529	64.2%	$ 9,407,449
June 30, 2008	$ 28,904,645	$ 28,370,756	98.2%	$ 533,889
June 30, 2009	$ 30,208,411	$ 30,123,348	99.7%	$ 85,063
June 30, 2010	$ 30,034,407	$ 32,000,585	106.5%	$ (1,966,178)
June 30, 2011	$ 31,324,457	$ 33,019,577	105.4%	$ (1,695,120)
June 30, 2012	$ 32,771,017	$ 33,682,091	102.8%	$ (911,074)
June 30, 2013	$ 33,907,968	$ 34,178,622	100.8%	$ (270,654)
June 30, 2014	$ 36,715,287	$ 36,271,836	98.8%	$ 443,451
June 30, 2015	$ 38,313,473	$ 37,855,133	98.8%	$ 458,340
June 30, 2016	$ 31,184,361	$ 38,439,835	123.3%	$ (7,255,474)
June 30, 2017	$ 32,483,912	$ 39,638,736	122.0%	$ (7,154,824)
June 30, 2018[1]	$ 21,934,014	$ 41,031,353	187.1%	$ (19,097,339)
June 30, 2019	$ 22,592,882	$ 41,939,204	185.6%	$ (19,346,322)
June 30, 2020	$ 22,417,247	$ 43,020,393	191.9%	$ (20,603,146)
June 30, 2021	$ 22,975,269	$ 45,248,391	196.9%	$ (22,273,122)
June 30, 2022	$ 28,366,668	$ 46,215,854	162.9%	$ (17,849,186)

[1] Approximately $10.7 million of the decrease in Actuarial Accrued Liability reflected in the June 30, 2018 valuation was due to the elimination of 798 active and vested terminated participants who had cashed out prior to June 30, 2016.

Section 2: Plan Assets

Section 2.1 Summary of Fair Value of Assets

Fair Value of Assets as of June 30	2021	2022
Assets		
1. Cash and Cash Equivalents	$ 1,385,305	$ 578,572
2. Receivables	319	79
3. Domestic Equity Pool	9,838,388	7,925,366
4. International Equity Pool	5,193,795	4,194,787
5. Tactical Fixed Income Pool	0	0
6. Domestic Fixed Income Pool	21,285,474	20,592,295
7. Emerging Market Equity Pool	1,103,370	938,701
8. Taxable Municipal Bonds	0	0
9. Tactical Allocation Strategies Pool	1,861,374	1,611,130
10. Alternative Equity	579,272	454,958
11. Alternative Beta	462,616	501,465
12. Other Opportunistic	30,366	6,200
13. Real Assets	3,325,265	3,253,406
14. Private Equity Pool	4,979,637	4,155,582
15. **Total Assets**	**$ 50,045,181**	**$ 44,212,541**
Liabilities		
16. Accrued expenses	$ 29,429	$ 25,116
17. Due to State of Alaska General Fund	88,798	18,518
18. Securities Lending Collateral Payable	113,918	80,866
19. **Total Liabilities**	**$ 232,145**	**$ 124,500**
Fair Value of Assets, (15) – (19)	**$ 49,813,036**	**$ 44,088,041**

Section 2.2: Changes in Fair Value of Assets

Fair Value of Assets as of June 30	2021	2022
1. Fair Value of Assets at beginning of year	42,095,708	49,813,036
2. Additions		
a. Employer Contributions	$ 0	$ 0
b. Investment Income	9,571,576	(3,635,461)
c. Other	1,690	0
d. Total Additions	$ 9,573,266	$ (3,635,461)
3. Disbursements		
a. Retirement Benefits	$ 1,454,330	$ 1,620,749
b. Administrative Expenses	304,439	357,740
c. Investment Expenses	97,169	111,045
d. Total Deductions	$ 1,855,938	$ 2,089,534
4. Fair Value of Assets at end of year, (1) + (2)(d) - (3)(d)	$ 49,813,036	$ 44,088,041
Approximate Fair Value Investment Return Rate Net of Investment Expenses	23.0%	(7.7)%

Section 2.3: Development of Actuarial Value of Assets

The actuarial value of assets was equal to the market value at June 30, 2006. Future investment gains and losses will be recognized 20% per year over 5 years. In no event may valuation assets be less than 80% or more than 120% of market value as of the valuation date.

1.	Investment Gain/(Loss) for FY22		
a.	Market Value, June 30, 2021	$	49,813,036
b.	Contributions for FY22		0
c.	Benefit Payments for FY22		1,620,749
d.	Administrative Expenses for FY22		357,740
e.	Actual Investment Return (net of investment expenses)		(3,746,506)
f.	Expected Return Rate (net of investment expenses)		7.00%
g.	Expected Return - Weighted for Timing		3,414,104
h.	Investment Gain/(Loss) for the Year, (e) – (g)		(7,160,610)
2.	Actuarial Value, June 30, 2022		
a.	Market Value, June 30, 2022	$	44,088,041
b.	Deferred Investment Gain/(Loss)		(2,127,813)
c.	Preliminary Actuarial Value, June 30, 2022, (a) – (b)	$	46,215,854
d.	Upper Limit: 120% of Market Value, June 30, 2022	$	52,905,649
e.	Lower Limit: 80% of Market Value, June 30, 2022	$	35,270,433
f.	Actuarial Value, June 30, 2022, [(c) limited by (d) and (e)]	$	46,215,854
g.	Ratio of Actuarial Value of Assets to Market Value of Assets		104.8%
h.	Approximate Actuarial Value Investment Return Rate During FY22 (net of investment expenses)		6.7%

The table below shows the development of gains/(losses) to be recognized in the current year:

Fiscal Year Ending	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years
June 30, 2018	$ (681,054)	$ (544,844)	$ (136,210)	$ 0
June 30, 2019	(407,413)	(244,449)	(81,483)	(81,481)
June 30, 2020	(685,847)	(274,338)	(137,169)	(274,340)
June 30, 2021	6,594,160	1,318,832	1,318,832	3,956,496
June 30, 2022	(7,160,610)	0	(1,432,122)	(5,728,488)
Total	**$ (2,340,764)**	**$ 255,201**	**$ (468,152)**	**$ (2,127,813)**

Section 2.4: Historical Asset Rates of Return

Year Ending	Actuarial Value Annual	Actuarial Value Cumulative*	Fair Value Annual	Fair Value Cumulative*
June 30, 2005	N/A	N/A	6.4%	6.4%
June 30, 2006	N/A	N/A	5.2%	5.8%
June 30, 2007	8.4%	8.4%	13.1%	8.2%
June 30, 2008	6.4%	7.4%	(2.3)%	5.5%
June 30, 2009	2.8%	5.8%	(9.8)%	2.2%
June 30, 2010	3.0%	5.1%	11.8%	3.8%
June 30, 2011	4.6%	5.0%	13.4%	5.1%
June 30, 2012	3.4%	4.7%	0.5%	4.5%
June 30, 2013	4.6%	4.7%	7.6%	4.8%
June 30, 2014	8.8%	5.2%	13.4%	5.7%
June 30, 2015	7.0%	5.4%	0.9%	5.2%
June 30, 2016	4.2 %	5.3%	(0.2)%	4.8%
June 30, 2017	4.8 %	5.3%	8.2%	5.0%
June 30, 2018	5.3 %	5.3%	4.6%	5.0%
June 30, 2019	4.1 %	5.2%	5.9%	5.1%
June 30, 2020	5.1 %	5.2%	5.3%	5.1%
June 30, 2021	9.5 %	5.4%	23.0 %	6.0%
June 30, 2022	6.7 %	5.5%	(7.7)%	5.2%

*Cumulative since FYE June 30, 2005.

Section 3: Member Data

Section 3.1: Summary of Members Included

Census Information as of June 30	2014	2016	2018	2020	2022[1]
Active Air Guard Members					
1. Number	2,164	2,174	2,139	2,242	2,300
2. Number Vested	591	417	364	405	505
3. Average Age	36.52	35.16	34.98	35.20	36.33
4. Average Alaska Guard Service	8.95	7.55	7.24	7.26	8.94
5. Average Total Military Service	14.44	13.08	12.68	12.82	13.94
Active Army Guard Members					
1. Number	1,911	1,820	1,575	1,639	1,560
2. Number Vested	242	199	193	218	205
3. Average Age	31.72	32.00	32.45	32.85	33.47
4. Average Alaska Guard Service	5.37	5.72	6.00	6.41	6.68
5. Average Total Military Service	9.83	10.41	10.34	10.82	11.20
Active Naval Militia Members					
1. Number	64	60	63	53	49
2. Number Vested	7	6	8	6	7
3. Average Age	33.75	33.26	34.48	33.85	33.36
4. Average Alaska Guard Service	4.67	4.93	5.44	4.34	5.33
5. Average Total Military Service	10.48	10.72	11.86	10.28	11.02
Total Active Members					
1. Number	4,139	4,054	3,777	3,934	3,909
2. Number Vested	840	622	565	629	717
3. Average Age	34.26	33.71	33.92	34.20	35.15
4. Average Alaska Guard Service	7.23	6.69	6.69	6.87	7.99
5. Average Total Military Service	12.25	11.85	11.69	11.95	12.81
Vested Terminated Members					
1. Number	1,756	1,427	588	649	702
2. Average Age	56.58	58.37	56.10	57.00	57.82
3. Average Alaska Guard Service	15.58	14.41	13.84	13.84	13.90
4. Average Total Military Service	25.27	24.69	24.42	24.58	24.48
Retirees (including QDROs)					
1. Number	639	676	752	708	691
2. Average Age	58.29	58.28	59.18	58.83	59.58
3. Average Years Remaining	11.71	12.00	11.53	12.13	11.81

[1] The data for the Air Guard group was available as of June 30, 2021 only. We assumed the status of each Air Guard member as of June 30, 2021 was the same as of June 30, 2022, and we increased each Air Guard active member's service as of June 30, 2021 by 1 year.

Section 3.2(a): Age and Service Distributions of Active Members – All Actives

	Total Alaska Guard Service									
Age Group	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40+**	**Total**
0-19	58	0	0	0	0	0	0	0	0	58
20-24	412	84	0	0	0	0	0	0	0	496
25-29	361	285	51	0	0	0	0	0	0	697
30-34	312	257	197	27	0	0	0	0	0	793
35-39	209	232	165	104	12	0	0	0	0	722
40-44	116	170	135	111	41	5	0	0	0	578
45-49	47	66	58	68	31	23	3	0	0	296
50-54	15	33	38	29	29	14	15	0	0	173
55-59	4	14	16	12	13	9	9	5	0	82
60-64	0	5	1	2	1	2	1	0	1	13
65-69	0	0	0	1	0	0	0	0	0	1
70-74	0	0	0	0	0	0	0	0	0	0
75+	0	0	0	0	0	0	0	0	0	0
Total	**1,534**	**1,146**	**661**	**354**	**127**	**53**	**28**	**5**	**1**	**3,909**

Section 3.2(b): Age and Service Distributions of Active Members – Air Actives

Total Alaska Guard Service										
Age Group	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40+**	**Total**
0-19	13	0	0	0	0	0	0	0	0	13
20-24	154	45	0	0	0	0	0	0	0	199
25-29	168	182	38	0	0	0	0	0	0	388
30-34	159	171	128	16	0	0	0	0	0	474
35-39	116	138	125	78	8	0	0	0	0	465
40-44	75	119	91	73	32	4	0	0	0	394
45-49	25	46	42	41	24	20	3	0	0	201
50-54	8	18	21	17	16	12	12	0	0	104
55-59	3	6	7	6	8	9	6	5	0	50
60-64	0	5	1	2	1	1	1	0	1	12
65-69	0	0	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0	0	0
75+	0	0	0	0	0	0	0	0	0	0
Total	721	730	453	233	89	46	22	5	1	2,300

Section 3.2(c): Age and Service Distributions of Active Members – Army Actives

	Total Alaska Guard Service									
Age Group	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40+**	**Total**
0-19	44	0	0	0	0	0	0	0	0	44
20-24	250	39	0	0	0	0	0	0	0	289
25-29	187	96	13	0	0	0	0	0	0	296
30-34	148	84	66	11	0	0	0	0	0	309
35-39	88	93	40	26	4	0	0	0	0	251
40-44	40	50	42	38	9	1	0	0	0	180
45-49	20	18	16	27	7	3	0	0	0	91
50-54	7	15	17	11	12	2	3	0	0	67
55-59	1	8	9	5	5	0	3	0	0	31
60-64	0	0	0	0	0	1	0	0	0	1
65-69	0	0	0	1	0	0	0	0	0	1
70-74	0	0	0	0	0	0	0	0	0	0
75+	0	0	0	0	0	0	0	0	0	0
Total	785	403	203	119	37	7	6	0	0	1,560

Section 3.2(d): Age and Service Distributions of Active Members – Navy Actives

	Total Alaska Guard Service									
Age Group	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40+**	**Total**
0-19	1	0	0	0	0	0	0	0	0	1
20-24	8	0	0	0	0	0	0	0	0	8
25-29	6	7	0	0	0	0	0	0	0	13
30-34	5	2	3	0	0	0	0	0	0	10
35-39	5	1	0	0	0	0	0	0	0	6
40-44	1	1	2	0	0	0	0	0	0	4
45-49	2	2	0	0	0	0	0	0	0	4
50-54	0	0	0	1	1	0	0	0	0	2
55-59	0	0	0	1	0	0	0	0	0	1
60-64	0	0	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0	0	0
75+	0	0	0	0	0	0	0	0	0	0
Total	28	13	5	2	1	0	0	0	0	49

Section 3.3: Member Data Reconciliation

	Active Members	Vested Members	Benefit Recipients	Total
Total at June 30, 2020	3,934	649	708	5,291
New Entrants	447	0	0	447
Rehires	63	0	0	63
Non-vested Terminations	(361)	0	0	(361)
Vested Terminations	(71)	71	0	0
Retirements	(33)	(23)	56	0
New Survivors	0	0	0	0
New QDROs	0	0	0	0
Deaths	0	0	(14)	(14)
Data Changes/Expiration of Benefits	(70)[1]	5[2]	(59)[3]	(124)
Total at June 30, 2022	3,909	702	691	5,302

[1] Includes 70 participants who cashed out on or after June 30, 2020.
[2] Includes 15 participants who cashed out on or after June 30, 2020 and 20 participants who were rehired from terminated non-vested status and then terminated as vested between June 30, 2020 and June 30, 2022.
[3] Includes 65 participants with an expiration of benefits, 3 additions (data corrections), and 3 participants who were rehired from terminated non-vested status and then retired between June 30, 2020 and June 30, 2022.

Section 4: Basis of the Actuarial Valuation

Section 4.1: Summary of Plan Provisions

Effective Date

January 1, 1973, with amendments through June 30, 2022.

Members Included

Members of the Alaska National Guard who were active on or after January 1, 1973, and members of the Alaska Naval Militia who were active on or after July 1, 1980.

Eligibility Service

Eligibility service is defined as the combined Alaska guard service, guard service in any other state, active military service and the reserves of them. A member must have 20 years of eligibility service to be vested in the National Guard and Naval Militia Retirement System.

Benefit Service

Benefit service is defined as satisfactory service in any branch of the Alaska guard. A member must have 5 years of benefit service to be vested in the National Guard and Naval Militia Retirement System. Benefit service is also used to determine the length of the member's pension retirement benefit.

Retirement

Eligibility

Members are eligible for voluntary retirement after completing 20 years of satisfactory service in the Alaska National Guard, Alaska Naval Militia or U.S. Armed Forces, and the reserve of them or any combination of that service if they have at least five years of Alaska National Guard or Naval Militia service. Credit is also allowed for Territorial Guard service rendered to the former territory of Alaska.

Members are eligible for involuntary retirement at any time assuming there has been no misconduct.

Benefit

Eligible members may elect to receive:

a. monthly benefits of $100 which are payable for a period equal to the number of months that they were active members;

b. a lump sum benefit equal to the actuarial equivalent of a.; or

c. monthly payments until age 72 equal to the actuarial equivalent of a.

Vesting

Members are 100% vested after 20 years of total service in the Alaska National Guard, Alaska Naval Militia, U.S. Armed Forces or Reserves, or any combination of that service if members have at least five years of Alaska National Guard or Naval Militia service.

Survivor's Benefits

a. Active Members: If the member has at least five years of active service in the Alaska National Guard or Naval Militia, the designated beneficiary will receive a lump sum benefit equal to the retirement benefit.

b. Retired or Terminated Vested Members: The designated beneficiary will receive a lump benefit equal to the remaining benefits payable.

Disability Benefits

Members are eligible to receive monthly disability benefits of $100 (which are payable for a period equal to the number of months that they were active members) at any age if they become incapacitated and are vested in the plan.

Changes Since the Prior Valuation

There have been no changes in benefit provisions since the prior valuation.

Section 4.2: Description of Actuarial Methods and Valuation Procedures

Actuarial Method

Liabilities and contributions shown in the report are computed using the Entry Age Normal Actuarial Cost Method (level dollar basis). Any funding surplus or unfunded accrued liability is amortized over 20 years less the average total military service of active members.

The actuarial accrued liability under this method at any point in time is the theoretical amount of the fund that would have been accumulated had annual contributions equal to the normal cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date).

The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of system assets measured on the valuation date.

Under this method, differences between the actual experience and that assumed in the determination of costs and liabilities will emerge as adjustments in the unfunded actuarial accrued liability, subject to amortization.

Valuation of Assets

Effective June 30, 2006, the asset valuation method recognizes 20% of the investment gain or loss in each of the current and preceding four years. This method was phased in over five years. Assets are initialized at market value as of June 30, 2006. All assets are valued at fair market value. Assets are accounted for on an accrued basis and are taken directly from financial statements audited by KPMG LLP. Valuation assets are constrained to a range of 80% to 120% of the market value of assets.

Changes in Methods Since the Prior Valuation

There have been no changes in methods since the prior valuation.

Section 4.3: Summary of Actuarial Assumptions

The demographic and economic assumptions used in the June 30, 2022 valuation are described below. Unless noted otherwise, these assumptions were adopted by the Board at the June 2022 meeting based on the experience study for the period July 1, 2017 to June 30, 2021.

Investment Return

5.75% per year, net of investment expenses.

Mortality (Pre-Commencement)

Pub-2010 Safety Employee table, amount-weighted, and projected with MP-2021 generational improvement.

Mortality (Post-Commencement)

Retiree mortality in accordance with the Pub-2010 Safety Retiree table, amount-weighted, and projected with MP-2021 generational improvement.

Beneficiary mortality in accordance with the Pub-2010 Contingent Survivor table, amount-weighted, and projected with MP-2021 generational improvement.

Turnover

Select and ultimate rates based on the 2017-2021 actual experience (see Table 1).

Disability

No changes to the incidence rates from the prior valuation due to insufficient 2017-2021 actual experience (see Table 2). Disability rates continue after a member is eligible for retirement.

Post-disability mortality in accordance with the Pub-2010 Safety Disabled Retiree table, amount-weighted, and projected with MP-2021 generational improvement.

Retirement

Retirement rates based on the 2017-2021 actual experience (see Table 3).

Vested terminated members are assumed to retire at the later of current age or age 50 when electing an annuity, and at current age when electing a lump sum.

Imputed Data

Data changes from the prior valuation which are deemed to have an immaterial impact on liabilities and contributions are assumed to be correct in the current year’s client data.

Active and terminated members with a date of termination after the last date of hire are assumed to be terminated with status based on their amount of vesting service.

We assumed the status of each Air Guard member as of June 30, 2021 was the same as of June 30, 2022, and we increased each Air Guard active member’s service as of June 30, 2021 by 1 year.

Form of Payment

50% of members are assumed to elect a lump sum benefit. 50% of members are assumed to elect a monthly annuity with the number of payments equal to the number of months they were active in the plan. A lump sum of the remaining payments is paid if the member should die while receiving payments. Lump sums are calculated based on a 5.75% discount rate annuity certain factor.

Administrative Expenses

The Normal Cost as of June 30, 2022 was increased by $331,000 for administrative expenses. This amount is based on the average of actual administrative expenses during the last two fiscal years.

Changes in Assumptions Since the Prior Valuation

Effective for the June 30, 2022 valuation, the Board adopted the changes to the demographic and economic assumptions recommended by the actuary, based on the results of an experience study performed on the plan experience from July 1, 2017 to June 30, 2021. The changes in assumptions were adopted at the June 2022 Board meeting. The effect of the new assumptions was to increase the Actuarial Accrued Liability as of June 30, 2022 by approximately $3.9 million.

The amount included in the Normal Cost for administrative expenses was changed from $256,000 at June 30, 2020 to $331,000 at June 30, 2022.

Table 1: Turnover Rates

Select Rates during the First 5 Years of Employment

Years of Service	Unisex
< 1	20.00%
1	10.00%
2	10.00%
3	10.00%
4	10.00%

Ultimate Rates after the First 5 Years of Employment

Age	Male	Female
< 30	9.53%	9.94%
30	9.43%	9.84%
31	9.33%	9.74%
32	9.23%	9.63%
33	9.12%	9.51%
34	8.98%	9.37%
35	8.81%	9.20%
36	8.63%	9.00%
37	8.41%	8.77%
38	8.18%	8.53%
39	7.95%	8.29%
40	7.73%	8.06%
41	7.54%	7.87%
42	7.38%	7.70%
43	7.23%	7.55%
44	7.06%	7.37%

Age	Male	Female
45	6.83%	7.13%
46	6.51%	6.79%
47	6.06%	6.32%
48	5.49%	5.73%
49	4.82%	5.03%
50	4.16%	4.33%
51	3.63%	3.79%
52	3.26%	3.40%
53	2.98%	3.12%
54	2.78%	2.91%
55	2.64%	2.75%
56	2.57%	2.67%
57	2.58%	2.69%
58	2.64%	2.76%
59	2.78%	2.90%
60	2.88%	3.00%

Table 2: Disability Rates

Age	Male	Female
< 23	0.0179%	0.0112%
23	0.0244%	0.0153%
24	0.0310%	0.0194%
25	0.0374%	0.0234%
26	0.0440%	0.0275%
27	0.0505%	0.0316%
28	0.0526%	0.0329%
29	0.0548%	0.0343%
30	0.0570%	0.0356%
31	0.0591%	0.0370%
32	0.0612%	0.0383%
33	0.0634%	0.0397%
34	0.0657%	0.0411%
35	0.0679%	0.0425%
36	0.0702%	0.0439%
37	0.0724%	0.0453%
38	0.0757%	0.0473%
39	0.0789%	0.0493%
40	0.0822%	0.0514%
41	0.0854%	0.0534%
42	0.0886%	0.0554%
43	0.0977%	0.0611%
44	0.1066%	0.0667%
45	0.1157%	0.0723%
46	0.1247%	0.0780%
47	0.1337%	0.0836%
48	0.1462%	0.0914%
49	0.1588%	0.0993%
50	0.1714%	0.1071%
51	0.1839%	0.1150%
52	0.1965%	0.1228%
53	0.2294%	0.1434%
54	0.2624%	0.1640%
55	0.2954%	0.1846%
56	0.3283%	0.2052%
57	0.3613%	0.2258%
58	0.4112%	0.2570%
59	0.4611%	0.2882%
60	0.5110%	0.3194%
61	0.5610%	0.3506%
62	0.6109%	0.3818%
63	0.6109%	0.3818%
64	0.6109%	0.3818%
65	0.6109%	0.3818%
66	0.6109%	0.3818%
67	0.6109%	0.3818%
68	0.4073%	0.2546%
69	0.2036%	0.1273%
70+	0.2036%	0.1273%

Table 3: Retirement Rates

Age	Male	Female
< 53	15.34%	18.20%
53	17.70%	21.00%
54	23.60%	28.00%
55	18.50%	16.25%
56	25.90%	22.75%
57	29.60%	26.00%
58	33.30%	29.25%
59	37.00%	32.50%
60	40.70%	35.75%
61	44.40%	35.75%
62	44.40%	35.75%
63	44.40%	35.75%
64	44.40%	35.75%
65+	100.00%	100.00%

Section 5: Assessment of Risks (ASOP 51 Disclosures)

Funding future retirement benefits prior to when those benefits become due involves assumptions regarding future economic and demographic experience. These assumptions are applied to calculate actuarial liabilities, current contribution requirements, and the funded status of the plans. However, to the extent future experience deviates from the assumptions used, variations will occur in these calculated values. These variations create risk to the plans. Understanding the risks to the funding of the plans is important.

Actuarial Standard of Practice No. 51 ("ASOP 51") requires certain disclosures of potential risks to the plan and provides useful information for intended users of actuarial reports that determine plan contributions or evaluate the adequacy of specified contribution levels to support benefit provisions.

Under ASOP 51, risk is defined as the potential of actual future measurements deviating from expected future measurements resulting from actual future experience deviating from actuarially assumed experience.

It is important to note that not all risk is negative, but all risk should be understood and accepted based on knowledge, judgement and educated decisions. Future measurements may deviate in ways that produce positive or negative financial impacts to the plan.

In the actuary's professional judgment, the following risks may reasonably be anticipated to significantly affect the pension plan's future financial condition and contribution requirements.

- Investment Risk – potential that the investment return will be different than the 5.75% expected in the actuarial valuation
- Contribution Risk – potential that the contribution actually made will be different than the actuarially determined contribution in the actuarial valuation
- Long-Term Return on Investment Risk – potential that changes in long-term capital market assumptions or the plan's asset allocation will create the need to update the long-term return on investment assumption
- Longevity Risk – potential that participants live longer than expected compared to the valuation mortality assumptions
- Other Demographic Risk – potential that other demographic experience will be different than expected

The following information is provided to comply with ASOP 51 and furnish beneficial information on potential risks to the plan. **This list is not all-inclusive**; it is an attempt to identify the more significant risks and how those risks might affect the results shown in this report.

Note that ASOP 51 does not require the actuary to evaluate the ability or willingness of the plan sponsor to make contributions to the plan when due, or to assess the likelihood or consequences of potential future changes in law. In addition, this valuation report is not intended to provide investment advice or to provide guidance on the management or reduction of risk.

Assessment of Risks

Investment Risk

Plan costs are very sensitive to the market return.

- Any return on assets lower than assumed will increase costs.
- The plan uses an actuarial value of assets that smooths gains and losses on market returns over a five-year period to help control some of the volatility in costs due to investment risk.
- Historical experience of actual returns is shown in Section 2.4 of this report. This historical experience illustrates how returns can vary over time.

Contribution Risk

There is a risk to the plan when the actual contribution amount and the actuarially determined amount differ.

- If the actual contribution is lower than the actuarially determined contribution, the plan may not be sustainable in the long term.
- Any underpayment of the contribution will increase future contribution amounts to help pay off the additional Unfunded Actuarial Accrued Liability associated with the underpayment(s).

Long-Term Return on Investment Risk

Inherent in the long-term return on investment assumption is the expectation that the current rate will be used until the last benefit payment of the plan is made. There is a risk that sustained changes in economic conditions, changes in long-term future capital market assumptions, or changes to the plan's asset allocations will necessitate an update to the long-term return on investment assumption used.

- Under a lower long-term return on investment assumption, less investment return is available to pay plan benefits. This may lead to a need for increased employer contributions.
- The liabilities will be higher at a lower assumed rate of return because future benefits will have a lower discount rate applied when calculating the present value.
- Historical experience of actual returns is shown in Section 2.4 of this report. The cumulative historical experience illustrates that although market returns have been above and below the assumed rate, the overall return during the time period was slightly below the 5.75%. The assumed rate, asset allocation, and future market expectations should continue to be evaluated. A 1% decrease in the long-term return on investment assumption will increase the actuarial accrued liability by approximately 9%.

Longevity Risk

Plan costs will be increased as participants are expected to live longer.

- Benefits are paid over a longer lifetime when life expectancy is expected to increase. The longer duration of payments leads to higher liabilities.
- Health care has been improving, which affects the life expectancy of participants. As health care improves, leading to longer life expectancies, costs to the plans could increase.
- The mortality assumption for the plan mitigates this risk by assuming future improvements in mortality. However, any improvement in future mortality greater than that expected by the current mortality assumption would lead to increased costs for the plan.

Other Demographic Risk

The plan is subject to risks associated with other demographic assumptions (e.g., retirement and termination assumptions). Differences between actual and expected experience for these assumptions tend to have less impact on the overall costs of the plan. The demographic assumptions used in the valuation are re-evaluated regularly as part of the 4-year experience studies to ensure the assumptions are consistent with long-term expectations.

Historical Information

Monitoring certain information over time may help understand risks faced by the plan. Historical information is included throughout this report. Some examples are:

- Section 1.5 shows how the plan's funded status (comparison of actuarial accrued liabilities to actuarial value of assets) has changed over time.
- Section 2.4 shows the volatility of asset returns over time.
- Section 3 includes various historical information showing how member census data has changed over time.

Plan Maturity Measures

There are certain measures that may aid in understanding the significant risks to the plan.

Ratio of Retired Liability to Total Liability	June 30, 2018	June 30, 2020	June 30, 2022
1. Retiree and Beneficiary Accrued Liability	$ 6,094,900	$ 5,808,004	$ 6,164,835
2. Total Accrued Liability	$ 21,934,014	$ 22,417,247	$ 28,366,668
3. Ratio, (1) ÷ (2)	27.8%	25.9%	21.7%

A high percentage of liability concentrated on participants in pay status indicates a mature plan (often a ratio above 60% - 65%). An increasing percentage may indicate a need for a less risky asset allocation, which may lead to a lower long-term return on asset assumption and increased costs. Higher percentages may also indicate greater investment risk as benefit payments may be greater than contributions creating an increased reliance on investment returns. This ratio should be monitored each year in the future.

Ratio of Cash Flow to Assets	FYE June 30, 2018	FYE June 30, 2020	FYE June 30, 2022
1. Contributions	$ 907,231	$ 860,686	$ 0
2. Benefit Payments	1,359,467	1,641,475	1,620,749
3. Cash Flow, (1) - (2)	$ (452,236)	$ (780,789)	$ (1,620,749)
4. Fair Value of Assets	$ 39,418,117	$ 42,095,708	$ 44,088,041
5. Ratio, (3) ÷ (4)	(1.1%)	(1.9%)	(3.7%)

When this cash flow ratio is negative, more cash is being paid out than deposited in the trust. Negative cash flow indicates the trust needs to rely on investment returns to cover benefit payments and / or may need to invest in more liquid assets to cover the benefit payments. More liquid assets may not generate the same returns as less liquid assets, which can increase the investment risk. Currently, due to the funded status being significantly over 100% negative cash flow is appropriate and expected. Also, the low magnitude of the ratio implies there may already be enough liquid assets to cover the benefit payments, less investment return is needed to cover the shortfall, or only a small portion of assets will need to be converted to cash. Therefore, the investment risk is likely not amplified at this time. This maturity measure should be monitored in the future especially if the funded status decreases closer to 100%.

Glossary of Terms

Actuarial Accrued Liability

Total accumulated cost to fund pension benefits arising from service in all prior years.

Actuarial Cost Method

Technique used to assign or allocate, in a systematic and consistent manner, the expected cost of a pension plan for a group of plan members to the years of service that give rise to that cost.

Actuarial Present Value of Projected Benefits

Amount which, together with future interest, is expected to be sufficient to pay all future benefits.

Actuarial Valuation

Study of probable amounts of future pension benefits and the necessary amount of contributions to fund those benefits.

Actuary

Person who performs mathematical calculations pertaining to pension and insurance benefits based on specific procedures and assumptions.

Annual Required Contribution

Disclosure measure of annual pension cost.

GASB 67 and 68

Governmental Accounting Standards Board Statement Number 67 amends Number 25 effective for the fiscal year beginning after June 15, 2013 and defines new financial reporting requirements for public pension plans.

Governmental Accounting Standards Board Statement Number 68 amends Number 27 effective for fiscal years beginning after June 15, 2014 and defines new accounting and financial reporting requirements for employers sponsoring public pension plans

Normal Cost

That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual member or the plan as a whole.

Unfunded Actuarial Accrued Liability (UAAL)

The portion of the actuarial accrued liability not offset by plan assets.

Vested Benefits

Benefits which are unconditionally guaranteed regardless of employment status.

State of Alaska

Judicial
Retirement System

Actuarial Valuation Report
As of June 30, 2022

April 2023

April 24, 2023

State of Alaska
The Alaska Retirement Management Board
The Department of Revenue, Treasury Division
The Department of Administration, Division of Retirement and Benefits
P.O. Box 110203
Juneau, AK 99811-0203

Certification of Actuarial Valuation

Dear Members of The Alaska Retirement Management Board, The Department of Revenue and The Department of Administration:

This report summarizes the actuarial valuation results of the State of Alaska Judicial Retirement System (JRS) as of June 30, 2022 performed by Buck Global, LLC (Buck).

The actuarial valuation is based on financial information provided in the financial statements audited by KPMG LLP, member data provided by the Division of Retirement and Benefits, and medical enrollment data provided by the healthcare claims administrator (Aetna), as summarized in this report. The benefits considered are those delineated in Alaska statutes effective June 30, 2022. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities, and other factors under JRS were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Buck is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of JRS as of June 30, 2022.

JRS is funded by Employer, State, and Member Contributions in accordance with the funding policy adopted by the Alaska Retirement Management Board (Board) and as required by Alaska state statutes. The funding objective for JRS is to pay required contributions that remain level as a percent of total JRS compensation. The Board has also established a funding policy objective that the required contributions be sufficient to pay the Normal Costs of active plan members, plan expenses, and amortize the annual changes in Unfunded Actuarial Accrued Liability as a level percentage of payroll over closed 25-year periods. The compensation used to determine required contributions is the total compensation of all active members in JRS. This objective is currently being met and is projected to continue to be met. Absent future gains/losses, actuarially determined contributions are expected to remain level as a percent of pay and the funded status of the pension trust and the healthcare trust are expected to remain at or above 100%.

The Board and staff of the State of Alaska may use this report for the review of the operations of JRS. Use of this report for any other purpose or by anyone other than the Board or staff of the State of Alaska may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, Buck recommends requesting its advanced review of any statement to be based on information contained in this report. Buck will accept no liability for any such statement made without its prior review.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the actuarial assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. In particular, retiree group benefits models necessarily rely on the use of approximations and estimates and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. An analysis of the potential range of such future differences is beyond the scope of this valuation.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the plan. The actuary performs an analysis of plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The last full experience analysis was performed for the period July 1, 2017 to June 30, 2021. Based on that experience study, the Board adopted new assumptions effective beginning with the June 30, 2022 valuation to better reflect expected future experience. Based on our analysis of recent claims experience, changes were made to the healthcare per capita claims cost rates effective June 30, 2022 to better reflect expected future healthcare experience. A summary of the actuarial assumptions and methods used in this actuarial valuation is shown in Sections 4.2 and 4.3. We certify that the assumptions and methods described in Sections 4.2 and 4.3 of this report meet the requirements of all applicable Actuarial Standards of Practice.

Actuarial Standards of Practice No. 27 (ASOP 27) and No. 35 (ASOP 35) require the actuary to disclose the information and analysis used to support the actuary’s determination that the assumptions selected by the plan sponsor do not significantly conflict with what, in the actuary’s professional judgment, are reasonable for the purpose of the measurement. Buck provides advice on reasonable assumptions when performing periodic experience studies. The Board selects the assumptions used and the signing actuary reviews the assumptions through discussions with the Board staff and analyzing actuarial gain/loss experience. In the case of the Board’s selection of the expected return on assets (EROA), the signing actuary has used economic information and tools provided by Buck’s Financial Risk Management (FRM) practice. A spreadsheet tool created by the FRM practice converts averages, standard deviations, and correlations from Buck’s Capital Markets Assumptions that are used for stochastic forecasting into approximate percentile ranges for the arithmetic and geometric average returns. It is intended to suggest possible reasonable ranges for EROA without attempting to predict or select a specific best estimate rate of return. It takes into account the duration (horizon) of investment and the target allocation of assets in the portfolio to various asset classes. Based on the actuary’s analysis, including consistency with other assumptions used in the valuation, the percentiles generated by the spreadsheet tool described above, and review of actuarial gain/loss analysis, the actuary believes the assumptions do not significantly conflict with what, in the actuary’s professional judgment, are reasonable for the purpose of the measurement.

ACFR Information

We have prepared the following information in this report for the Actuarial Section and Statistical Section of the ACFR: (i) member data tables in Section 3; (ii) changes in contribution rates in the Executive Summary; and (iii) summary of actuarial assumptions in Section 4.3.

Governmental Accounting Standards Board (GASB) Statement No. 67 (GASB 67) was effective for JRS beginning with fiscal year ending June 30, 2014, and Statement No. 74 (GASB 74) was effective for JRS beginning with fiscal year ending June 30, 2017. Please see our separate GASB 67 and GASB 74 reports for other information needed for the ACFR.

Assessment of Risks

Actuarial Standard of Practice No. 51 (ASOP 51) applies to actuaries performing funding calculations related to a pension plan. ASOP 51 does not apply to actuaries performing services in connection with other post-employment benefits, such as medical benefits. Accordingly, ASOP 51 does not apply to the healthcare portion of JRS. See Section 5 of this report for further details regarding ASOP 51.

Use of Models

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. In addition to the EROA analysis spreadsheet model disclosed above, Buck uses third-party software in the performance of actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of the plan using data and assumptions as of the measurement date under the funding methods specified in this report. The output from the third-party vendor software is used as input to internally developed models that apply applicable funding methods and policies to the derived liabilities and other inputs, such as plan assets and contributions, to generate many of the exhibits found in this report. Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal models are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal models, extra checking and review are completed. Significant changes to the internal models that are applicable to multiple clients are generally developed, checked, and reviewed by multiple experts within Buck who are familiar with the details of the required changes.

Additional models used in valuing health benefits are described later in the report.

COVID-19

The potential impact of the ongoing COVID-19 pandemic on costs and liabilities was considered and an adjustment was made in setting the medical per capita claims cost assumption. FY21 medical claims were adjusted for a COVID-19 related decline in those claims during the fiscal year. FY22 medical claims were not adjusted. A more detailed explanation on these adjustments is shown in Section 4.2.

This report was prepared under the overall direction of David Kershner, who meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. He is a Fellow of the Society of Actuaries, an Enrolled Actuary, a Member of the American Academy of Actuaries, and a Fellow of the Conference of Consulting Actuaries.

We are available to discuss this report with you at your convenience. David can be reached at 602-803-6174 and Brett can be reached at 260-423-1072.

Respectfully submitted,

David J. Kershner, FSA, EA, MAAA, FCA
Principal
Buck

Brett Hunter, ASA, EA, MAAA
Senior Consultant
Buck

The undersigned actuary is responsible for all assumptions related to the average annual per capita health claims cost and the health care cost trend rates, and hereby affirms his qualification to render opinions in such matters in accordance with the Qualification Standards of the American Academy of Actuaries.

Stephen R. Oates, ASA, EA, MAAA, FCA
Principal
Buck

Contents

Executive Summary

Overview

The State of Alaska Judicial Retirement System (JRS) provides pension and postemployment healthcare benefits to judicial and other eligible participants. The Commissioner of the Department of Administration is responsible for administering the plan. The Alaska Retirement Management Board has fiduciary responsibility over the assets of the plan. This report presents the results of the actuarial valuation of JRS as of the valuation date of June 30, 2022.

Purpose

An actuarial valuation is performed on the plan once every two years as of the end of the fiscal year, and roll-forward valuations are performed every other year. The main purposes of the actuarial valuation detailed in this report are:

1. To determine the Employer/State contribution necessary to meet the Board's funding policy for the plan;
2. To disclose the funding assets and liability measures as of the valuation date;
3. To review the current funded status of the plan and assess the funded status as an appropriate measure for determining future actuarially determined contributions;
4. To compare actual and expected experience under the plan during the fiscal year; and
5. To report trends in contributions, assets, liabilities, and funded status over the last several years.

The actuarial valuation provides a "snapshot" of the funded position of JRS based on the plan provisions, membership data, assets, and actuarial methods and assumptions as of the valuation date.

Retiree group benefits models necessarily rely on the use of approximations and estimates, and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements.

Funded Status

Where presented, references to "funded ratio" and "unfunded actuarial accrued liability" typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

Funded Status as of June 30	2020	2022
Pension		
a. Actuarial Accrued Liability	$ 211,742,043	$ 211,705,094
b. Valuation Assets	194,788,043	230,801,847
c. Unfunded Actuarial Accrued Liability, (a) - (b)	$ 16,954,000	$ (19,096,753)
d. Funded Ratio based on Valuation Assets, (b) ÷ (a)	92.0%	109.0%
e. Fair Value of Assets	$ 189,844,025	$ 227,181,866
f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	89.7%	107.3%

Funded Status as of June 30	2020	2022
Healthcare		
a. Actuarial Accrued Liability	$ 16,763,770	$ 18,036,242
b. Valuation Assets	34,805,639	40,855,819
c. Unfunded Actuarial Accrued Liability, (a) - (b)	$ (18,041,869)	$ (22,819,577)
d. Funded Ratio based on Valuation Assets, (b) ÷ (a)	207.6%	226.5%
e. Fair Value of Assets	$ 34,036,503	$ 40,267,620
f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	203.0%	223.3%

The key reasons for the change in the funded status are explained below. The funded status for healthcare benefits is not necessarily an appropriate measure to confirm that assets are sufficient to settle health plan obligations as there are no available financial instruments for purchase. Future experience is likely to vary from assumptions so there is potential for actuarial gains or losses.

1. Investment Experience

The asset valuation method recognizes 20% of the investment gain or loss each year, for a period of five years. The investment returns based on fair value of assets were approximately 30.0% for FY21 and (6.0%) for FY22, compared to the expected investment return of 7.38% per year (net of investment expenses). This resulted in a market asset gain of approximately $42.6 million (pension) and $7.6 million (healthcare) for FY21, and a market asset loss of approximately $32.8 million (pension) and $5.8 million (healthcare) for FY22. Due to the recognition of investment gains and losses over a 5-year period, the investment returns based on actuarial value of assets were approximately 11.5% for FY21 and 8.6% for FY22, which resulted in an FY21 actuarial asset gain of approximately $7.9 million (pension) and $1.4 million (healthcare) and an FY22 actuarial asset gain of approximately $2.4 million (pension) and $0.5 million (healthcare).

2. Salary Increases

Salaries for active judges remained constant between June 30, 2020 and June 30, 2022. However, there was a small liability loss of approximately $29,000 due to judges moving to higher courts. The following table shows the annual base salaries for each of the court appointments:

	June 30, 2020	June 30, 2022
District Court	$ 160,848	$ 160,848
Superior Court	189,720	189,720
Appellate Court	193,836	193,836
Supreme Court	205,176	205,176
Administrative Director	189,720	189,720
Chief Justice	205,776	205,776
Pro Tem	N/A	N/A

3. Demographic Experience

Section 3 provides statistics on active and inactive members. The number of active members increased from 72 at June 30, 2020 to 73 at June 30, 2022. There were 11 new entrants, 1 non-vested termination, and 9 retirements during this 2-year period. The average age of active members decreased from 55.03 to 53.74, their average service increased from 6.83 to 6.85 years, and their average entry age decreased from 48.20 to 46.89.

The number of benefit recipients increased from 144 to 149, and their average age increased from 73.98 to 74.88. The number of vested terminated participants decreased from 2 to 1, and their average age decreased from 55.87 to 55.17.

The overall effect of the demographic experience was a liability loss of approximately $2.2 million (pension) and $0.1[1] million (healthcare).

4. Retiree Medical Claims Experience

As described in Section 4.2, recent medical claims experience and changes in healthcare enrollment data provided to us for the June 30, 2022 valuation generated a liability gain of approximately $1.4 million. Healthcare benefits paid during FY21 and FY22 generated a liability gain of approximately $0.2 million. The EGWP subsidy received by the plan during FY22 was approximately $165,000; the expected EGWP subsidy for FY22 was approximately $137,000.

5. Changes in Methods Since the Prior Valuation

There were no changes in actuarial methods since the prior valuation.

6. Changes in Assumptions Since the Prior Valuation

Effective for the June 30, 2022 valuation, the Board adopted the changes to the demographic and economic assumptions recommended by the actuary, based on the results of an experience study performed on the plan experience from July 1, 2017 to June 30, 2021. The changes in assumptions were adopted at the June 2022 Board meeting. The effect of the new assumptions was to decrease the Actuarial Accrued Liability as of June 30, 2022 by approximately $16.7 million (pension) and $0.6 million (healthcare).

Healthcare claim costs are updated for each valuation as described in Section 4.2. The amounts included in the Normal Cost for administrative expenses were updated based on the last two years of actual administrative expenses paid from plan assets.

7. Changes in Benefit Provisions Since the Prior Valuation

Starting in 2022, prior authorization is required for certain specialty medications for all participants, and certain preventive benefits for pre-Medicare participants are covered by the plan. These changes created an actuarial gain of approximately $0.2 million. There have been no other changes in benefit provisions valued since the prior valuation.

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[1] Includes the effect of changes in Medicare Part B only experience.

Comparative Summary of Contribution Rates

		FY 2023	FY 2025
Pension			
a.	Normal Cost Rate Net of Member Contributions	38.85%	33.59%
b.	Past Service Cost Rate	24.74%	10.62%
c.	Total Employer/State Contribution Rate, (a) + (b), not less than (a)	63.59%	44.21%
Healthcare			
a.	Normal Cost Rate	6.49%	7.32%
b.	Past Service Cost Rate	(8.24%)	(10.61%)
c.	Total Employer/State Contribution Rate, (a) + (b), not less than (a)	6.49%	7.32%
Total			
a.	Normal Cost Rate Net of Member Contributions	45.34%	40.91%
b.	Past Service Cost Rate	24.74%	10.62%
c.	Total Employer/State Contribution Rate, (a) + (b)	70.08%	51.53%

The contribution rates for FY24 based on the June 30, 2021 roll-forward valuation were 58.70% (pension) and 6.54% (healthcare).

Summary of Actuarial Accrued Liability Gain/(Loss) and Other Changes

The following table summarizes the sources of change in the total Employer/State contribution rates as of June 30, 2020, June 30, 2021, and June 30, 2022:

		Pension	Healthcare
1.	Total Employer/State Contribution Rate as of June 30, 2020	63.59%	6.49%
2.	Change during FY21	(4.89%)	0.05%
3.	Total Employer/State Contribution Rate as of June 30, 2021 from Roll-Forward Valuation	58.70%	6.54%
4.	Change due to:		
	a. Investment Experience	(1.18%)	0.00%
	b. Demographic Experience, Health Claims Experience, and New Entrants[1]	2.52%	1.15%
	c. State Appropriation	(2.02%)	0.00%
	d. Actual vs Expected Contributions	(1.49%)	0.00%
	e. Assumption/Method Changes	(12.32%)	(0.29%)
	f. Plan Changes	0.00%	(0.08%)
	g. Total Change, (a) + (b) + (c) + (d) + (e) + (f)	(14.49%)	0.78%
5.	Total Employer/State Contribution Rate as of June 30, 2022, (3) + (4)(g)	44.21%	7.32%

[1] Includes changes in future healthcare claims costs.

The following table shows the 2-year gain/(loss) on actuarial accrued liability as of June 30, 2022:

	Pension	Healthcare
Retirement Experience	$ (940,863)	$ 19,922
Termination Experience	(327,764)	(28,809)
Disability Experience	8,026	14,101
Active Mortality Experience	(89,037)	10,884
Inactive Mortality Experience	(883,123)	(117,823)
Salary Increases	(29,107)	N/A
New Entrants	(990,663)	(213,301)
Inactive Benefit Increases	(322,451)	N/A
Benefit Payments Different than Expected	133,424	174,856
Per Capita Claims Cost	N/A	1,363,271
Medical and Prescription Drug Plan Changes	N/A	223,750
Medicare Part B Only Experience	N/A	4,887
Miscellaneous[1]	814,211	(894,560)
Total	$ (2,627,347)	$ 557,178

Other items that increased/(decreased) the actuarial accrued liability as of June 30, 2022 are shown below:

	Pension	Healthcare
Experience Study Assumption Changes	$ (16,712,342)	$ (630,859)

[1] Includes the effects of various data changes that are typical when new census data is received for the valuation, as well as other items that do not fit neatly into any of the other categories.

Section 1: Actuarial Funding Results

Section 1.1: Actuarial Liabilities and Normal Cost

As of June 30, 2022	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
Active Members		
Retirement Benefits	$ 77,761,491	$ 44,594,305
Disability Benefits	159,531	5,632
Death Benefits	805,495	279,916
Termination Benefits[1]	3,133,654	175,554
Medical and Prescription Drug Benefits	15,266,645	7,112,473
Medicare Part D Subsidy	(2,363,068)	(1,172,323)
Subtotal	$ 94,763,748	$ 50,995,557
Benefit Recipients		
Retiree Benefits	$ 150,275,150	$ 150,275,150
Survivor Benefits	15,616,965	15,616,965
Disability Benefits	0	0
Medical and Prescription Drug Benefits	14,524,454	14,524,454
Medicare Part D Subsidy	(2,752,847)	(2,752,847)
Subtotal	$ 177,663,722	$ 177,663,722
Vested Terminations		
Deferred Retirement Benefits	$ 646,096	$ 646,096
Medical and Prescription Drug Benefits	363,030	363,030
Medicare Part D Subsidy	(38,545)	(38,545)
Subtotal	$ 970,581	$ 970,581
Non-Vested Terminations	$ 111,476	$ 111,476
Total	**$ 273,509,527**	**$ 229,741,336**
Total Pension	**$ 248,509,858**	**$ 211,705,094**
Total Medical, Net of Part D Subsidy	**$ 24,999,669**	**$ 18,036,242**
Total Medical, Gross of Part D Subsidy	**$ 30,154,129**	**$ 21,999,957**

[1] Includes return of contributions.

As of June 30, 2022		Normal Cost
Active Members		
Retirement Benefits	$	4,824,421
Disability Benefits		17,866
Death Benefits		77,954
Termination Benefits[1]		316,752
Medical and Prescription Drug Benefits		1,112,031
Medicare Part D Subsidy		(167,213)
Administrative Expenses (Pension)		102,000
Administrative Expenses (Medical)		34,000
Total	**$**	**6,317,811**
Total Pension	**$**	**5,338,993**
Total Medical, Net of Part D Subsidy	**$**	**978,818**
Total Medical, Gross of Part D Subsidy	**$**	**1,146,031**

[1] Includes return of contributions.

Section 1.2: Actuarial Contributions as of June 30, 2022 (for FY25)

Normal Cost Rate	Pension	Healthcare
1. Total Normal Cost	$ 5,338,993	$ 978,818
2. Base Salaries for Upcoming Fiscal Year	13,366,464	13,366,464
3. Normal Cost Rate, (1) ÷ (2)	39.94%	7.32%
4. Average Member Contribution Rate	6.35%	0.00%
5. Employer Normal Cost Rate, (3) - (4)	33.59%	7.32%

Past Service Rate	Pension	Healthcare
1. Actuarial Accrued Liability	$ 211,705,094	$ 18,036,242
2. Valuation Assets	230,801,847	40,855,819
3. Unfunded Actuarial Accrued Liability, (1) - (2)	$ (19,096,753)	$ (22,819,577)
4. Funded Ratio, (2) ÷ (1)	109.0%	226.5%
5. Past Service Cost Amortization Payment	1,419,486	(1,418,672)
6. Base Salaries for Upcoming Fiscal Year	13,366,464	13,366,464
7. Past Service Rate, (5) ÷ (6)	10.62%	(10.61%)
Total Employer / State Contribution Rate, not less than Normal Cost Rate	**44.21%**	**7.32%**

Schedule of Past Service Cost Amortizations - Pension

Layer	Amortization Period: Date Created	Amortization Period: Years Remaining	Balances: Initial	Balances: Outstanding	Beginning-of-Year Payment
Initial Unfunded Liability[1]	6/30/2002	5	$ 5,864,449	$ 3,448,446	$ 750,044
FY03/04 Loss[1]	6/30/2004	7	855,068	625,333	101,220
Revaluation of Liabilities[1]	6/30/2005	8	9,115,451	7,182,220	1,038,079
FY05/06 Loss[1]	6/30/2006	9	18,186,558	15,199,068	1,992,415
FY07 Loss	6/30/2007	10	1,364,721	1,195,627	143,906
FY08 Gain	6/30/2008	11	(29,014,739)	(26,412,277)	(2,947,870)
FY09 Loss	6/30/2009	12	21,273,454	19,958,028	2,082,465
Change in Assumptions	6/30/2010	13	13,976,981	13,422,120	1,318,255
FY10 Loss	6/30/2010	13	6,474,780	6,217,742	610,676
FY11 Loss	6/30/2011	14	7,397,917	7,245,520	673,718
FY12 Loss	6/30/2012	15	11,916,371	11,843,943	1,047,832
FY13 Loss	6/30/2013	16	7,033,497	6,825,867	577,044
Change in Assumptions	6/30/2014	17	4,219,851	4,266,263	345,931
FY14 Gain	6/30/2014	17	(14,458,986)	(14,618,026)	(1,185,306)
FY15 Gain	6/30/2015	18	(3,325,706)	(3,373,418)	(263,235)
FY16 Gain	6/30/2016	19	(9,932,623)	(10,078,673)	(759,077)
FY17 Gain	6/30/2017	20	(1,137,538)	(1,151,634)	(83,936)
Change in Assumptions	6/30/2018	21	10,343,783	10,423,412	736,910
FY18 Gain	6/30/2018	21	(12,096,419)	(12,189,542)	(861,771)
Change in Assumptions	6/30/2019	22	(14,775,890)	(14,901,307)	(1,024,055)
FY19 Loss	6/30/2019	22	3,344,559	3,372,948	231,797
Change in Assumptions	6/30/2020	23	(21,604,253)	(21,763,015)	(1,456,623)
FY20 Loss	6/30/2020	23	5,424,705	5,464,568	365,750
FY21 Gain	6/30/2021	24	(11,633,233)	(11,685,152)	(763,045)
Change in Assumptions	6/30/2022	25	(16,712,342)	(16,712,342)	(1,066,429)
FY22 Gain	6/30/2022	25	(2,902,472)	(2,902,472)	(185,209)
Total				**$(19,096,753)**	**$ 1,419,486**

[1] The pension and healthcare split was done based on the ratio of unfunded actuarial accrued liability as of June 30, 2006.

Schedule of Past Service Cost Amortizations - Healthcare

Layer	Amortization Period		Balances		Beginning-of-Year Payment
	Date Created	Years Remaining	Initial	Outstanding	
Initial Unfunded Liability[1]	6/30/2002	5	$ 2,295,257	$ 1,349,672	$ 293,556
FY03/04 Loss[1]	6/30/2004	7	334,660	244,745	39,616
Revaluation of Liabilities[1]	6/30/2005	8	3,567,649	2,811,010	406,288
FY05/06 Loss[1]	6/30/2006	9	7,117,943	5,948,684	779,801
FY07 Gain	6/30/2007	10	(810,073)	(709,702)	(85,420)
Change in Assumptions	6/30/2008	11	789,072	718,298	80,169
FY08 Gain	6/30/2008	11	(14,011,596)	(12,754,834)	(1,423,565)
FY09 Loss	6/30/2009	12	901,355	845,622	88,234
Change in Assumptions	6/30/2010	13	2,006,196	1,926,553	189,217
FY10 Gain	6/30/2010	13	(1,930,656)	(1,854,010)	(182,092)
FY11 Loss	6/30/2011	14	550,376	539,038	50,122
Change in Assumptions	6/30/2012	15	353,605	351,454	31,093
FY12 Gain	6/30/2012	15	(5,516,210)	(5,482,685)	(485,052)
FY13 Loss	6/30/2013	16	226,259	227,238	19,210
Change in Assumptions	6/30/2014	17	772,305	780,799	63,311
FY14 Gain	6/30/2014	17	(3,342,464)	(3,379,230)	(274,006)
FY15 Gain	6/30/2015	18	(1,416,996)	(1,437,324)	(112,157)
Change in Method	6/30/2016	19	(3,567,789)	(3,620,251)	(272,660)
FY16 Gain	6/30/2016	19	(425,711)	(431,971)	(32,534)
FY17 Gain	6/30/2017	20	(586,113)	(593,377)	(43,248)
Change in Assumptions/Methods/EGWP	6/30/2018	21	1,009,960	1,017,735	71,951
FY18 Gain	6/30/2018	21	(2,148,478)	(2,165,016)	(153,061)
Change in Assumptions	6/30/2019	22	126,754	127,828	8,785
FY19 Gain	6/30/2019	22	(155,028)	(156,343)	(10,744)
Change in Assumptions	6/30/2020	23	200,955	202,432	13,549
FY20 Gain	6/30/2020	23	(2,842,610)	(2,863,498)	(191,657)
FY21 Gain	6/30/2021	24	(1,754,192)	(1,762,021)	(115,061)
Change in Assumptions	6/30/2022	25	(630,859)	(630,859)	(40,256)
Medical/Prescription Drug Plan Changes	6/30/2022	25	(223,750)	(223,750)	(14,278)
FY22 Gain	6/30/2022	25	(1,845,814)	(1,845,814)	(117,783)
Total				**$(22,819,577)**	**$ (1,418,672)**

[1] The pension and healthcare split was done based on the ratio of unfunded actuarial accrued liability as of June 30, 2006.

Section 1.3: Actuarial Gain/(Loss) for FY22

	Pension	Healthcare
1. Expected Actuarial Accrued Liability		
a. Actuarial Accrued Liability as of June 30, 2021	$ 218,717,460	$ 17,920,646
b. Normal Cost	5,850,927	829,927
c. Interest on (a) and (b) at 7.38%	16,573,147	1,383,792
d. Employer Group Waiver Plan	0	344,091
e. Benefit Payments	(14,770,632)	(1,222,346)
f. Refund of Contributions	0	0
g. Interest on (d) thru (f) at 7.38%, adjusted for timing	(580,813)	(31,831)
h. Assumptions/Methods Changes	(16,712,342)	(630,859)
i. Expected Actuarial Accrued Liability as of June 30, 2022 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h)	$ 209,077,747	$ 18,593,420
2. Actual Actuarial Accrued Liability as of June 30, 2022	211,705,094	18,036,242
3. Liability Gain/(Loss), (1)(i) - (2)	**$ (2,627,347)**	**$ 557,178**
4. Expected Actuarial Asset Value		
a. Actuarial Value of Assets as of June 30, 2021	$ 215,641,198	$ 37,884,167
b. Interest on (a) at 7.38%	15,914,320	2,795,852
c. Employee Contributions	862,028	0
d. Employer Contributions	6,638,140	622,469
e. State Appropriation	4,185,000	0
f. Employer Group Waiver Plan	0	344,091
g. Interest on (c) thru (f) at 7.38%, adjusted for timing	580,683	35,031
h. Benefit Payments	(14,770,632)	(1,222,346)
i. Refund of Contributions	0	0
j. Administrative Expenses	(107,041)	(34,990)
k. Interest on (h) thru (j) at 7.38%, adjusted for timing	(584,692)	(45,570)
l. Expected Actuarial Asset Value as of June 30, 2022 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h) + (i) + (j) + (k)	$ 228,359,004	$ 40,378,704
5. Actual Actuarial Asset Value as of June 30, 2022	230,801,847	40,855,819
6. Actuarial Asset Value Gain/(Loss), (5) - (4)(l)	**$ 2,442,843**	**$ 477,115**
7. Total Actuarial Gain/(Loss), (3) + (6)	**$ (184,504)**	**$ 1,034,293**
8. Contribution Gain/(Loss)	**$ 3,088,369**	**$ 1,038,241**
9. Administrative Expense Gain/(Loss)	**$ (1,393)**	**$ (2,970)**
10. FY22 Gain/(Loss), (7) + (8) + (9)	**$ 2,902,472**	**$ 2,069,564**

Section 1.4: Development of Change in Unfunded Liability During FY22

	Pension	Healthcare
1. 2021 Unfunded Liability	$ 3,076,262	$ (19,963,521)
a. Interest on Unfunded Liability at 7.38%	$ 227,028	$ (1,473,308)
b. Normal Cost	5,850,927	829,927
c. Employee Contributions	(862,028)	0
d. Employer Contributions	(6,638,140)	(622,469)
e. State Appropriation	(4,185,000)	0
f. Administrative Expenses	107,041	34,990
g. Interest on (b) thru (f) at 7.38%, adjusted for timing	(145,005)	39,956
h. Assumptions/Methods Changes	(16,712,342)	(630,859)
i. Expected Change in Unfunded Liability During FY22 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h)	$ (22,357,519)	$ (1,821,763)
2. Expected 2022 Unfunded Liability, (1) + (1)(i)	$ (19,281,257)	$ (21,785,284)
a. Liability (Gain)/Loss During FY22	$ 2,627,347	$ (557,178)
b. Actuarial Assets (Gain)/Loss During FY22	(2,442,843)	(477,115)
c. Total Actuarial (Gain)/Loss During FY22	$ 184,504	$ (1,034,293)
3. Actual 2022 Unfunded Liability, (2) + (2)(c)	$ (19,096,753)	$ (22,819,577)

Section 1.5: History of Unfunded Liability and Funded Ratio

Pension

Valuation Date	Total Actuarial Accrued Liability	Valuation Assets	Assets as a Percent of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)
June 30, 2006	$ 111,819,972	$ 77,310,716	69.1%	$ 34,509,256
June 30, 2007	117,378,824	81,041,009	69.0%	36,337,815
June 30, 2008	130,596,048	122,882,726	94.1%	7,713,322
June 30, 2009	137,586,315	108,691,018	79.0%	28,895,297
June 30, 2010	164,523,775	115,000,226	69.9%	49,523,549
June 30, 2011	173,424,484	116,213,133	67.0%	57,211,351
June 30, 2012	182,267,524	112,870,360	61.9%	69,397,164
June 30, 2013	191,505,115	115,032,531	60.1%	76,472,584
June 30, 2014	194,430,266	128,004,452	65.8%	66,425,814
June 30, 2015	205,160,847	142,191,071	69.3%	62,969,776
June 30, 2016	205,547,759	152,888,596	74.4%	52,659,163
June 30, 2017	216,673,191	165,875,722	76.6%	50,797,469
June 30, 2018	226,559,580	178,489,284	78.8%	48,070,296
June 30, 2019	221,159,289	186,117,830	84.2%	35,041,459
June 30, 2020	211,742,043	194,788,043	92.0%	16,954,000
June 30, 2021	218,717,460	215,641,198	98.6%	3,076,262
June 30, 2022	211,705,094	230,801,847	109.0%	(19,096,753)

Healthcare

Valuation Date	Total Actuarial Accrued Liability	Valuation Assets	Assets as a Percent of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)
June 30, 2006	$ 15,905,786	$ 2,399,387	15.1%	$ 13,506,399
June 30, 2007	16,610,082	3,732,217	22.5%	12,877,865
June 30, 2008	18,141,832	18,352,929	101.2%	(211,097)
June 30, 2009	19,093,191	18,482,598	96.8%	610,593
June 30, 2010	20,304,331	19,693,969	97.0%	610,362
June 30, 2011	21,406,833	20,333,071	95.0%	1,073,762
June 30, 2012	16,654,623	20,835,672	125.1%	(4,181,049)
June 30, 2013	17,583,031	21,706,165	123.4%	(4,123,134)
June 30, 2014	17,207,952	24,074,313	139.9%	(6,866,361)
June 30, 2015	18,304,497	26,800,113	146.4%	(8,495,616)
June 30, 2016	15,731,490	28,454,747	180.9%	(12,723,257)
June 30, 2017	16,874,200	30,468,517	180.6%	(13,594,317)
June 30, 2018	16,846,959	31,868,079	189.2%	(15,021,120)
June 30, 2019	18,089,100	33,319,896	184.2%	(15,230,796)
June 30, 2020	16,763,770	34,805,639	207.6%	(18,041,869)
June 30, 2021	17,920,646	37,884,167	211.4%	(19,963,521)
June 30, 2022	18,036,242	40,855,819	226.5%	(22,819,577)

Section 2: Plan Assets

Section 2.1: Summary of Fair Value of Assets

As of June 30, 2022	Pension	Healthcare	Allocation Percent
Cash and Short-Term Investments			
- Cash and Cash Equivalents	$ 3,247,418	$ 552,364	1.4%
- Subtotal	$ 3,247,418	$ 552,364	1.4%
Fixed Income Investments			
- Domestic Fixed Income Pool	$ 48,047,351	$ 8,599,005	21.3%
- International Fixed Income Pool	0	0	0.0%
- Tactical Fixed Income Pool	0	0	0.0%
- High Yield Pool	0	0	0.0%
- Treasury Inflation Protection Pool	0	0	0.0%
- Emerging Debt Pool	0	0	0.0%
- Subtotal	$ 48,047,351	$ 8,599,005	21.3%
Equity Investments			
- Domestic Equity Pool	$ 54,683,501	$ 9,786,700	24.2%
- International Equity Pool	29,684,190	5,312,200	13.2%
- Private Equity Pool	37,168,110	6,652,003	16.5%
- Emerging Markets Equity Pool	6,642,988	1,188,930	2.9%
- Alternative Equity Strategies	13,154,234	2,354,151	5.8%
- Subtotal	$ 141,333,023	$ 25,293,984	62.6%
Other Investments			
- Real Estate Pool	$ 16,986,777	$ 3,045,093	7.5%
- Other Investments Pool	16,268,492	2,911,603	7.2%
- Absolute Return Pool	0	0	0.0%
- Other Assets	0	3,076	0.0%
- Subtotal	$ 33,255,269	$ 5,959,772	14.7%
Total Cash and Investments	$ 225,883,061	$ 40,405,125	100.0%
Net Accrued Receivables	1,298,805	(137,505)	
Net Assets	$ 227,181,866	$ 40,267,620	

Section 2.2: Changes in Fair Value of Assets During FY21

Fiscal Year 2021	Pension	Healthcare
1. Fair Value of Assets as of June 30, 2020	$ 189,844,025	$ 34,036,503
2. Additions:		
a. Employee Contributions	$ 837,686	$ 0
b. Employer Contributions	6,962,607	654,383
c. State Appropriation	5,145,000	0
d. Interest and Dividend Income	2,691,703	479,199
e. Net Appreciation / Depreciation in Fair Value of Investments	54,569,848	9,640,529
f. Employer Group Waiver Plan	0	168,159
g. Other	7,891	14,345
h. Total Additions	$ 70,214,735	$ 10,956,615
3. Deductions:		
a. Medical Benefits	$ 0	$ 1,692,383
b. Retirement Benefits	14,368,857	0
c. Refund of Contributions	0	0
d. Investment Expenses	544,884	95,170
e. Administrative Expenses	97,022	32,216
f. Total Deductions	$ 15,010,763	$ 1,819,769
4. Fair Value of Assets as of June 30, 2021	$ 245,047,997	$ 43,173,349
5. Approximate Fair Value Investment Return Rate during FY21 Net of Investment Expenses	30.0%	29.9%

Section 2.3: Changes in Fair Value of Assets During FY22

Fiscal Year 2022	Pension	Healthcare
1. Fair Value of Assets as of June 30, 2021	$ 245,047,997	$ 43,173,349
2. Additions:		
a. Employee Contributions	$ 862,028	$ 0
b. Employer Contributions	6,638,140	622,469
c. State Appropriation	4,185,000	0
d. Interest and Dividend Income	3,193,800	567,838
e. Net Appreciation / Depreciation in Fair Value of Investments	(17,274,177)	(3,079,123)
f. Employer Group Waiver Plan	0	344,091
g. Other	0	101
h. Total Additions	$ (2,395,209)	$ (1,544,624)
3. Deductions:		
a. Medical Benefits	$ 0	$ 1,222,346
b. Retirement Benefits	14,770,632	0
c. Refund of Contributions	0	0
d. Investment Expenses	593,249	103,769
e. Administrative Expenses	107,041	34,990
f. Total Deductions	$ 15,470,922	$ 1,361,105
4. Fair Value of Assets as of June 30, 2022	$ 227,181,866	$ 40,267,620
5. Approximate Fair Value Investment Return Rate during FY22 Net of Investment Expenses	(6.0%)	(6.1%)

Section 2.4: Development of Actuarial Value of Assets

Investment gains and losses are recognized 20% per year over 5 years. In no event may valuation assets be less than 80% or more than 120% of fair value as of the current valuation date.

	Pension	Healthcare
1. Deferral of Investment Gain / (Loss) for FY22		
a. Fair Value of Assets as of June 30, 2021	$ 245,047,997	$ 43,173,349
b. Contributions	11,685,168	622,469
c. Employer Group Waiver Plan	0	344,091
d. Benefit Payments	14,770,632	1,222,346
e. Administrative Expenses	107,041	34,990
f. Actual Investment Return (net of investment expenses)	(14,673,626)	(2,614,953)
g. Expected Return Rate (net of investment expenses)	7.38%	7.38%
h. Expected Return, Weighted for Timing	18,080,533	3,175,654
i. Investment Gain / (Loss) for the Year, (f) - (h)	(32,754,159)	(5,790,607)
2. Actuarial Value as of June 30, 2022		
a. Fair Value as of June 30, 2022	$ 227,181,866	$ 40,267,620
b. Deferred Investment Gain / (Loss)	(3,619,981)	(588,199)
c. Preliminary Actuarial Value as of June 30, 2022, (a) - (b)	230,801,847	40,855,819
d. Upper Limit: 120% of Fair Value as of June 30, 2022	272,618,239	48,321,144
e. Lower Limit: 80% of Fair Value as of June 30, 2022	181,745,493	32,214,096
f. Actuarial Value at June 30, 2022, (c) limited by (d) and (e)	230,801,847	40,855,819
3. Ratio of Actuarial Value of Assets to Fair Value of Assets	101.6%	101.5%
4. Approximate Actuarial Value Investment Return Rate during FY22 Net of Investment Expenses	8.6%	8.6%

The tables below show the development of the gains/(losses) to be recognized in the current year:

Pension				
Fiscal Year Ending	**Asset Gain / (Loss)**	**Gain / (Loss) Recognized in Prior Years**	**Gain / (Loss) Recognized This Year**	**Gain / (Loss) Deferred to Future Years**
June 30, 2018	$ 292,590	$ 234,072	$ 58,518	$ 0
June 30, 2019	(2,647,188)	(1,588,313)	(529,438)	(529,437)
June 30, 2020	(6,148,327)	(2,459,330)	(1,229,665)	(2,459,332)
June 30, 2021	42,620,191	8,524,038	8,524,038	25,572,115
June 30, 2022	(32,754,159)	0	(6,550,832)	(26,203,327)
Total	**$ 1,363,107**	**$ 4,710,467**	**$ 272,621**	**$ (3,619,981)**

Healthcare				
Fiscal Year Ending	**Asset Gain / (Loss)**	**Gain / (Loss) Recognized in Prior Years**	**Gain / (Loss) Recognized This Year**	**Gain / (Loss) Deferred to Future Years**
June 30, 2018	$ 98,500	$ 78,800	$ 19,700	$ 0
June 30, 2019	(409,783)	(245,870)	(81,957)	(81,956)
June 30, 2020	(1,023,945)	(409,578)	(204,789)	(409,578)
June 30, 2021	7,559,703	1,511,941	1,511,941	4,535,821
June 30, 2022	(5,790,607)	0	(1,158,121)	(4,632,486)
Total	**$ 433,868**	**$ 935,293**	**$ 86,774**	**$ (588,199)**

Section 2.5: Historical Asset Rates of Return

	Actuarial Value		Fair Value	
Year Ending	Annual	Cumulative	Annual	Cumulative
June 30, 2005	8.0%	8.0%	8.0%	8.0%
June 30, 2006	11.0%	9.5%	11.0%	9.5%
June 30, 2007	10.2%	9.7%	18.1%	12.3%
June 30, 2008	7.4%	9.1%	(4.8%)	7.7%
June 30, 2009	(9.7%)	5.1%	(20.6%)	1.4%
June 30, 2010	8.7%	5.7%	10.6%	2.8%
June 30, 2011	5.0%	5.6%	20.8%	5.2%
June 30, 2012	0.7%	5.0%	0.1%	4.6%
June 30, 2013	3.6%	4.8%	12.3%	5.4%
June 30, 2014	12.2%	5.5%	18.3%	6.6%
June 30, 2015	10.8%	6.0%	3.0%	6.3%
June 30, 2016	6.6%	6.0%	(0.5%)	5.7%
June 30, 2017	8.3%	6.2%	13.0%	6.3%
June 30, 2018	8.1%	6.3%	8.3%	6.4%
June 30, 2019	5.7%	6.3%	6.0%	6.4%
June 30, 2020	5.9%	6.3%	4.1%	6.2%
June 30, 2021	11.5%	6.6%	30.0%	7.5%
June 30, 2022	8.6%	6.7%	(6.0%)	6.7%

Rates of return are shown based on combined assets for Pension and Healthcare.

Cumulative returns are since fiscal year ending June 30, 2005.

Section 3: Member Data

Section 3.1: Summary of Members Included

As of June 30	2014	2016	2018	2020	2022
Active Members					
1. Number	76	76	71	72	73
2. Average Age	57.65	58.80	57.53	55.03	53.74
3. Average Service	8.70	9.39	9.49	6.83	6.85
4. Average Entry Age	48.95	49.41	48.04	48.20	46.89
5. Average Annual Earnings	$ 175,964	$ 178,903	$ 182,045	$ 182,739	$ 183,102
6. Number Vested	48	54	51	36	35
7. Percent Who Are Vested	63.2%	71.1%	71.8%	50.0%	47.9%
Retirees, Disabilitants, and Beneficiaries					
1. Number	108	109	125	144	149
2. Average Age	72.09	73.34	73.71	73.98	74.88
3. Average Monthly Pension Benefit	$ 8,141	$ 8,529	$ 8,291	$ 8,305	$ 8,395
Vested Terminations (vested at termination, not refunded contributions, and not commenced benefit)					
1. Number	4	3	3	2	1
2. Average Age	53.53	57.35	59.05	55.87	55.17
3. Average Monthly Pension Benefit	$ 5,704	$ 7,017	$ 7,623	$ 6,305	$ 4,049
Non-Vested Terminations (not vested at termination and not refunded contributions)					
1. Number	0	0	0	1	2
2. Average Account Balance	$ 0	$ 0	$ 0	$ 66,828	$ 55,738
Total Number of Members	**188**	**188**	**199**	**219**	**225**

As of June 30, 2022	Retirees
Summary of Retiree Medical Data Received	
1. Retiree records on pension data	149
2. Remove duplicates on pension data	(4)
3. Valued in a different retiree healthcare plan	(48)
4. Records without medical coverage	(1)
5. Total	96

Section 3.2: Age and Service Distribution of Active Members

Annual Earnings by Age

Age	Number	Total Annual Earnings	Average Annual Earnings
0 - 19	0	$ 0	$ 0
20 - 24	0	0	0
25 - 29	0	0	0
30 - 34	1	189,720	189,720
35 - 39	3	540,288	180,096
40 - 44	7	1,285,752	183,679
45 - 49	13	2,399,316	184,563
50 - 54	15	2,767,416	184,494
55 - 59	18	3,188,100	177,117
60 - 64	9	1,636,320	181,813
65 - 69	7	1,359,552	194,222
70 - 74	0	0	0
75+	0	0	0
Total	**73**	**$ 13,366,464**	**$ 183,102**

Annual Earnings by Service

Years of Service	Number	Total Annual Earnings	Average Annual Earnings
0	5	$ 919,728	$ 183,946
1	6	1,100,148	183,358
2	8	1,460,016	182,502
3	13	2,408,616	185,278
4	6	1,051,704	175,284
0 - 4	**38**	**$ 6,940,212**	**$ 182,637**
5 - 9	17	3,197,340	188,079
10 - 14	11	1,987,488	180,681
15 - 19	5	890,856	178,171
20 - 24	2	350,568	175,284
25 - 29	0	0	0
30 - 34	0	0	0
35 - 39	0	0	0
40+	0	0	0
Total	**73**	**$ 13,366,464**	**$ 183,102**

Years of Service by Age

	Years of Service									
Age	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	Total
0 - 19	0	0	0	0	0	0	0	0	0	0
20 - 24	0	0	0	0	0	0	0	0	0	0
25 - 29	0	0	0	0	0	0	0	0	0	0
30 - 34	1	0	0	0	0	0	0	0	0	1
35 - 39	3	0	0	0	0	0	0	0	0	3
40 - 44	7	0	0	0	0	0	0	0	0	7
45 - 49	7	5	1	0	0	0	0	0	0	13
50 - 54	7	6	1	1	0	0	0	0	0	15
55 - 59	9	2	2	4	1	0	0	0	0	18
60 - 64	4	3	2	0	0	0	0	0	0	9
65 - 69	0	1	5	0	1	0	0	0	0	7
70 - 74	0	0	0	0	0	0	0	0	0	0
75+	0	0	0	0	0	0	0	0	0	0
Total	**38**	**17**	**11**	**5**	**2**	**0**	**0**	**0**	**0**	**73**

Section 3.3: Member Data Reconciliation

Pension

		Inactive Members			
	Active Members	Due a Refund	Deferred Benefits	Benefit Recipients	Total
As of June 30, 2020	**72**	**1**	**2**	**144**	**219**
New Entrants	11	0	0	0	11
Rehires	0	0	0	0	0
Vested Terminations	0	0	0	0	0
Non-Vested Terminations	(1)	1	0	0	0
Refund of Contributions	0	0	0	0	0
Retirements	(9)	0	(1)	10	0
Deceased	0	0	0	(8)	(8)
New Beneficiaries	0	0	0	3	3
New QDROs	0	0	0	0	0
Transfers In/Out	0	0	0	0	0
Data Corrections	0	0	0	0	0
Net Change	**1**	**1**	**(1)**	**5**	**6**
As of June 30, 2022	**73**	**2**	**1**	**149**	**225**

Healthcare

	Active Members	Inactive Members Retirees	Covered Spouses	Covered Children / Dependents	Deferred	Total Inactive Members
As of June 30, 2020	**56**	**89**	**39**	**4**	**2**	**134**
New Entrants	11	0	0	0	0	0
Rehires	0	0	0	0	0	0
Vested Terminations	0	0	0	0	0	0
Non-Vested Terminations	0	0	0	0	0	0
Refund of Contributions	0	0	0	0	0	0
Disability Retirements	0	0	0	0	0	0
Age Retirements	(6)	6	4	3	0	13
Deferred Retirements	0	1	1	0	(1)	1
Deceased	0	(5)	0	0	0	(5)
New Beneficiaries	0	1	(1)	0	0	0
Added Retiree Medical Coverage	0	0	0	0	0	0
Added Dependent Coverage	0	0	1	0	0	1
Dropped Retiree Medical Coverage	0	0	0	0	0	0
Dropped Dependent Coverage	0	0	0	(2)	0	(2)
Transfers In/Out	8	4	1	0	0	5
Net Change	**13**	**7**	**6**	**1**	**(1)**	**13**
As of June 30, 2022	**69**	**96**	**45**	**5**	**1**	**147**

Section 4: Basis of the Actuarial Valuation

Section 4.1: Summary of Plan Provisions

Effective Date

May 4, 1963, with amendments through June 30, 2022.

Administration of Plan

The Commissioner of Administration is responsible for administering the Judicial Retirement System (JRS). The Alaska Retirement Management Board is responsible for managing and investing the fund.

Membership

Membership in JRS is mandatory for all Supreme Court justices and Superior, District, and Appellate Court judges. The administrative director of the Court System may elect to participate in either JRS or Public Employees' Retirement System (PERS).

Credited Service

Members receive credit for each day of JRS employment. Earlier service as a magistrate or deputy magistrate before July 1, 1967 is covered under JRS. JRS members become vested in the plan after completing five years of credited service.

Member Contributions

Mandatory Contributions: Members hired after July 1, 1978, are required to contribute 7% of their base salaries. Contributions are required for a maximum of 15 years. Members hired before July 1, 1978 are not required to contribute.

Interest: Members' contributions earn 4.5% interest, compounded semiannually on June 30 and December 31.

Refund of Contributions: Non-vested members may receive a refund of their contributions and interest earned if they terminate employment. Refunded contributions, plus 7% indebtedness interest, must be repaid before appointment to retirement.

JRS contributions for terminated members may be attached to satisfy claims under Alaska Statute 09.38.065 or federal tax levies. Contributions that are attached to satisfy claims or tax levies may be reinstated at any time. The member is not required to return to JRS employment.

Retirement Benefits

Normal Retirement: Members are eligible for normal retirement at age 60 if they have at least five years of JRS service. Terminated vested members may defer retirement and begin receiving normal retirement benefits when they reach age 60. Vesting is completion of at least five years of JRS service.

Early Retirement: Members are eligible for early retirement at any age if they have at least 20 years of service. Terminated vested members may defer retirement and begin receiving early retirement benefits when they reach age 55. Under early retirement, members receive reduced benefits equal to the actuarial equivalent of their normal retirement benefits. Early benefits are based on the member's service and early retirement date.

Benefit Type: Lifetime monthly benefits are paid to the member. Upon the member's death, a survivor's benefit (see below) may be payable if the member has an eligible spouse or dependent children.

Benefit Calculations for Normal Retirement: 5% of authorized monthly base salary for each year of JRS service up to a maximum of 15 years. JRS retirement benefit payments are recalculated when the salary for the office held by the member at the time of retirement changes. The maximum JRS benefit payable to a member is 75% of the authorized salary.

Disability Benefits

Members are eligible to receive monthly disability benefits at any age if they become incapacitated and they have at least two years of JRS service. Disability benefits are calculated the same as normal retirement benefits.

Survivor's Benefits

Survivor's benefits are payable to the spouse of a member if they have been married for at least one year immediately preceding the member's death and the member has at least two years of JRS service. The monthly survivor's benefit is equal to the greater of:

a. 50% of the monthly benefit that the member would have received if retired at the time of death; or

b. 30% of the authorized monthly base salary if the member was not eligible to retire, or was entitled to less than 60% of the authorized monthly base salary.

If there is no eligible surviving spouse, the member's dependent children receive, in equal shares, 50% of the benefit under (a) or (b) until age 19, or age 23 and attending an accredited educational or technical institution on a full-time basis.

When there is both an eligible surviving spouse and dependent children residing in separate households, the spouse and children share equally the benefit under (a) or (b) while the children are under age 19, or age 23 and attending an accredited educational or technical institution on a full-time basis.

When there is no surviving spouse or dependent children, the member's contribution account balance, including interest earned, will be paid to the designated beneficiary.

Postemployment Healthcare Benefits

Medical benefits are provided at no cost to JRS members, their spouses, and dependents while monthly retirement, disability, and survivor benefits are being paid.

Starting in 2022, prior authorization is required for certain specialty medications for all participants. There is no change to the medications that are covered by the plan.

Starting in 2022, certain preventive benefits for pre-Medicare participants are covered by the plan.

Participants in the defined benefit plan are covered under the following benefit design:

Plan Feature	Amounts
Deductible (single/family)	$150 / $450
Coinsurance (most services)	20%
Outpatient surgery/testing	0%
Maximum Out-of-Pocket (single/family, excluding deductible)	$800 / $2,400
Rx Copays (generic/brand/mail-order), does not apply to OOP max	$4 / $8 / $0
Lifetime Maximum	$2,000,000

The plan coordinates with Medicare on a traditional Coordination of Benefits Method. Starting in 2019, the prescription drug coverage is through a Medicare Part D EGWP arrangement.

Changes in Benefit Provisions Valued Since the Prior Valuation

Starting in 2022, prior authorization is required for certain specialty medications for all participants, and certain preventive benefits for pre-Medicare participants are now covered by the plan. There were no other changes in benefit provisions since the prior valuation.

Section 4.2: Description of Actuarial Methods and Valuation Procedures

The funding method used in this valuation was adopted by the Board in October 2006. Changes in methods were adopted by the Board in January 2019 based on the experience study for the period July 1, 2013 to June 30, 2017. The asset smoothing method used to determine valuation assets was changed effective June 30, 2014.

Benefits valued are those delineated in Alaska State statutes as of the valuation date. Changes in State statutes effective after the valuation date are not taken into consideration in setting the assumptions and methods.

Actuarial Cost Method

Liabilities and contributions shown in the report are computed using the Entry Age Normal Actuarial Cost Method, level percent of pay.

Each year's difference between actual and expected unfunded actuarial accrued liability is amortized over 25 years as a level percent of expected payroll.

Projected pension and postemployment healthcare benefits were determined for all active members. Cost factors designed to produce annual costs as a constant percentage of each member's expected compensation in each year from the assumed entry age to the assumed retirement age were applied to the projected benefits to determine the normal cost (the portion of the total cost of the plan allocated to the current year under the method). The normal cost is determined by summing intermediate results for active members and determining an average normal cost rate which is then related to the total payroll of active members. The actuarial accrued liability for active members (the portion of the total cost of the plan allocated to prior years under the method) was determined as the excess of the actuarial present value of projected benefits over the actuarial present value of future normal costs.

The actuarial accrued liability for retired members and their beneficiaries currently receiving benefits, terminated vested members and disabled members not yet receiving benefits was determined as the actuarial present value of the benefits expected to be paid. No future normal costs are payable for these members.

The actuarial accrued liability under this method at any point in time is the theoretical amount of the fund that would have been accumulated had annual contributions equal to the normal cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date). The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of plan assets measured on the valuation date.

Under this method, experience gains or losses, i.e., decreases or increases in accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the unfunded actuarial accrued liability.

Valuation of Assets

The actuarial asset value was initialized to equal Fair Value of Assets as of June 30, 2006. Beginning in FY07, the asset valuation method recognizes 20% of the gain or loss each year, for a period of five years. All assets are valued at fair value. Assets are accounted for on an accrued basis and are taken directly from financial statements audited by KPMG LLP. Valuation assets are constrained to a range of 80% to 120% of the fair value of assets.

Changes in Methods Since the Prior Valuation

There were no changes in the asset or valuation methods since the prior valuation.

Valuation of Retiree Medical and Prescription Drug Benefits

This section outlines the detailed methodology used in the internal model developed by Buck to calculate the initial per capita claims cost rates for the JRS postemployment healthcare plan. Note that the methodology reflects the results of our experience rate update for the period from July 1, 2021 to June 30, 2022.

Base claims cost rates are incurred healthcare costs expressed as a rate per member per year. Ideally, claims cost rates should be derived for each significant component of cost that can be expected to require differing projection assumptions or methods (i.e., medical claims, prescription drug claims, administrative costs, etc.). Separate analysis is limited by the availability and historical credibility of cost and enrollment data for each component of cost. This valuation reflects non-prescription claims separated by Medicare status, including eligibility for free Part A coverage. Prescription costs are analyzed separately as in prior valuations. Administrative costs are assumed in the final per capita claims cost rates used for valuation purposes, as described below. Analysis to date on Medicare Part A coverage is limited since Part A claim data is not available by individual, nor is this status incorporated into historical claim data.

<u>Benefits</u>

Medical, prescription drug, dental, vision and audio coverage is provided through the AlaskaCare Retiree Health Plan and is available to employees of the State and subdivisions who meet retirement criteria based on the retirement plan tier in effect at their date of hire. Health plan provisions do not vary by retirement tier or age, except for Medicare coordination for those Medicare-eligible. Dental, vision and audio claims (DVA) are excluded from data analyzed for this valuation because those are retiree-pay all benefits where rates are assumed to be self-supporting. Buck relies upon rates set by a third-party for the DVA benefits. Buck reviewed historical rate-setting information and views contribution rate adjustments made are not unreasonable.

<u>Administration and Data Sources</u>

The plan was administered by Wells Fargo Insurance Services (acquired by HealthSmart, in January 2012) from July 1, 2009 through December 31, 2013 and by Aetna effective January 1, 2014.

Claims incurred for the period from July 2020 through June 2022 (FY21 through FY22) were provided by the State of Alaska from reports extracted from their data warehouse, which separated claims by Medicare status. Monthly enrollment data for the same period was provided by Aetna.

Aetna also provided census information identifying Medicare Part B only participants. These participants are identified when hospital claims are denied by Medicare; Aetna then flags that participant as a Part B only participant. Buck added newly identified participants to our list of Medicare Part B only participants. Buck assumes that once identified as Part B only, that participant remains in that status until we are notified otherwise.

Aetna provided a snapshot file as of July 1, 2022 of retirees and dependents that included a coverage level indicator. The monthly enrollment data includes double coverage participants. These are participants whereby both the retiree and spouse are retirees from the State and both are reflected with Couple coverage in the enrollment. In this case, such a couple would show up as four members in the monthly enrollment (each would be both a retiree and a spouse). As a result, the snapshot census file was used to adjust the total member counts in the monthly enrollment reports to estimate the number of unique participants enrolled in coverage. Based on the snapshot files from the last two valuations, the total member count in the monthly enrollment reports needs to be reduced by approximately 13% to account for the number of participants with double coverage.

Aetna does not provide separate experience by Medicare status in standard reporting so the special reports mentioned above from the data warehouse were used this year to obtain that information and incorporate it into the per capita rate development for each year of experience (with corresponding weights applied in the final per capita cost).

Methodology

Buck projected historical claim data to FY23 for retirees using the following summarized steps:

1. Develop historical annual incurred claim cost rates – an analysis of medical costs was completed based on claims information and enrollment data provided by the State of Alaska and Aetna for each year in the experience period of FY21 through FY22.
    - Costs for medical services and prescriptions were analyzed separately, and separate trend rates were developed to project expected future medical and prescription costs for the valuation year (e.g. from the experience period up through FY23).
    - Because the reports provided reflected incurred claims, no additional adjustment was needed to determine incurred claims to be used in the valuation.
    - An offset for costs expected to be reimbursed by Medicare was incorporated beginning at age 65. Alaska retirees who do not have 40 quarters of Medicare-covered compensation do not qualify for Medicare Part A coverage free of charge. This is a relatively small and closed group. Medicare was applied to State employment for all employees hired after March 31, 1986. For the "no-Part A" individuals who are required to enroll in Medicare Part B, the State is the primary payer for hospital bills and other Part A services. Claim experience is not available separately for participants with both Medicare Parts A and B and those with Part B only. For Medicare Part B only participants, a lower average claims cost was applied to retirees covered by both Medicare Part A and B vs. retirees covered only by Medicare Part B based upon manual rate models that estimate the Medicare covered proportion of medical costs. To the extent that no-Part A claims can be isolated and applied strictly to the appropriate closed group, actuarial accrued liability will be more accurate.
    - Based on census data received from Aetna, less than 1% of the current retiree population was identified as having coverage only under Medicare Part B. We assume that 2% of actives hired before April 1, 1986 and current retirees who are not yet Medicare eligible will not be eligible for Medicare Part A.
    - Based upon a reconciliation of valuation census data to the snapshot eligibility files provided by Aetna as of July 1, 2021, and July 1, 2022, Buck adjusted member counts used for duplicate records where participants have double coverage; i.e. primary coverage as a retiree and secondary coverage as the covered spouse of another retiree. This is to reflect the total cost per distinct individual/member which is then applied to distinct members in the valuation census.
    - Buck understands that pharmacy claims reported do not reflect rebates. Based on actual pharmacy rebate information provided by Optum, rebates were assumed to be 16.2% of pre-Medicare, and 14.3% of Medicare prescription drug claims for FY21; and 20.1% of pre-Medicare, and 13.5% of Medicare prescription drug claims for FY22.
2. Develop estimated EGWP reimbursements – Segal provided estimated 2023 EGWP subsidies, developed with the assistance of OptumRx. These amounts are applicable only to Medicare-eligible participants.
3. Adjust for claim fluctuation, anomalous experience, etc. – explicit adjustments are often made for anticipated large claims or other anomalous experience. FY21 and FY22 experience was thoroughly reviewed to assess the impact of COVID-19 and whether an adjustment to FY21 and FY22 claims was appropriate for use in the June 30, 2022 valuation. FY21 medical per capita claims were noticeably lower than expected, so a 4% load was added to the FY21 medical claims used in the per capita claims cost development to better reflect future expected long-term costs of the plan. FY22 medical per capita claims were reasonable when compared to pre-COVID levels, so no adjustments were made to the FY22 medical claims used in the per capita claims cost development. Total prescription drug claims experience for FY21 and FY22 was reasonable and consistent with FY19 and FY20 experience. Therefore, no adjustment was made to FY21 and FY22 prescription drug claims. Due to group size and demographics, we did not make any additional large claim

adjustments. We do blend both Alaska plan-specific and national trend factors as described below. Buck compared data utilized to lag reports and quarterly plan experience presentations provided by the State and Aetna to assess accuracy and reasonableness of data.

4. Trend all data points to the projection period – project prior years' experience forward to FY23 for retiree benefits on an incurred claim basis. Trend factors derived from historical Alaska-specific experience and national trend factors are shown in the table in item 5 below.

5. Apply credibility to prior experience – adjust prior year's data by assigning weight to recent periods, as shown at the right of the table below. The Board approved a change in the weighting of experience periods beginning with the June 30, 2017 valuation as outlined below. Note also that for both years of prescription drugs we averaged projected plan costs using Alaska-specific trend factors and national trend factors, assigning 75% weight to Alaska-specific trends and 25% to national trends. For both years of medical we applied 100% weight to national trends because the Alaska-specific trends were impacted by COVID-19:

Alaska-Specific and National Average Weighted Trend from Experience Period to Valuation Year			
Experience Period	**Medical**	**Prescription**	**Weighting Factors**
FY21 to FY22	8.1% Pre-Medicare / 4.8% Medicare	8.0%	50%
FY22 to FY23	7.4% Pre-Medicare / 5.6% Medicare	9.5%	50%

Trend assumptions used for rate development are assessed annually and as additional/improved reporting becomes available, we will incorporate into rate development as appropriate.

6. Starting in 2022, prior authorization is required for certain specialty medications. There is no change to the medications that are covered by the plan. Segal provided an estimate of the impact of this change to the DB retiree health plan cost for calendar year 2022. The resulting adjustment factors for pre-Medicare prescription drug, Medicare prescription drug, and EGWP costs were applied to claims experience incurred before January 1, 2022. Additionally, starting in 2022, certain preventive benefits for pre-Medicare participants are covered by the plan. Segal provided an estimate of the impact of this change to the DB retiree health plan cost for calendar year 2022. The resulting adjustment factor for pre-Medicare medical costs was applied to claims experience incurred before January 1, 2022.

7. Develop separate administration costs – no adjustments were made for internal administrative costs. Third party retiree plan administration fees for FY23 are based upon total fees projected to 2023 by Segal based on actual FY22 fees. The annual per participant per year administrative cost rate for medical and prescription benefits is $449.

Healthcare Reform

Healthcare Reform legislation passed on March 23, 2010 included several provisions with potential implications for the State of Alaska Retiree Health Plan liability. Buck evaluated the impact due to these provisions.

Because the State plan is retiree-only, and was in effect at the time the legislation was enacted, not all provisions of the health reform legislation apply to the State plan. Unlimited lifetime benefits and dependent coverage to age 26 are two of these provisions. We reviewed the impact of including these provisions, but there was no decision made to adopt them, and no requirement to do so.

Because Transitional Reinsurance fees are only in effect until 2016, we excluded these for valuation purposes.

The Further Consolidated Appropriations Act, 2020 passed in December 2019 repealed several healthcare-related taxes, including the Cadillac Tax.

The Tax Cuts and Jobs Act passed in December 2017 included the elimination of the individual mandate penalty and changed the inflation measure for purposes of determining the limits for the High Cost Excise Tax to use chained CPI. It is our understanding the law does not directly impact other provisions of the ACA. While the nullification of the ACA's individual mandate penalty does not directly impact employer group health plans, it could contribute to the destabilization of the individual market and increase the number of uninsured. Such destabilization could translate to increased costs for employers. We have considered this when setting our healthcare cost trend assumptions and will continue to monitor this issue.

The Inflation Reduction Act was signed into law on August 16, 2022. The law contains several provisions that are expected to impact Alaska's Medicare prescription drug plan (EGWP), which will be considered at the next measurement date.

We have not identified any other specific provisions of healthcare reform or its potential repeal that would be expected to have a significant impact on the measured obligation. We will continue to monitor legislative activity.

Data

In accordance with actuarial standards, we note the following specific data sources and steps taken to value retiree medical benefits:

The Division of Retirement and Benefits provided pension valuation census data, which for people currently in receipt of healthcare benefits was supplemented by coverage data from the healthcare claims administrator (Aetna).

Certain adjustments and assumptions were made to prepare the data for valuation:

- All records provided with retiree medical coverage on the Aetna data were included in this valuation and we relied on the Aetna data as the source of medical coverage for current retirees and their dependents.
- Some records in the Aetna data were duplicates due to the double coverage (i.e. coverage as a retiree and as a spouse of another retiree) allowed under the plan. Records were adjusted for these members so that each member was only valued once. Any additional value of the double coverage (due to coordination of benefits) is small and reflected in the per capita costs.
- Covered children included in the Aetna data were valued until age 23, unless disabled. We assumed that those dependents over 23 were only eligible and valued due to being disabled.
- For individuals included in the pension data expecting a future pension, we valued health benefits starting at the same point that the pension benefit is assumed to start.

We are not aware of any other data issues that would be expected to have a material impact on the results and there are no unresolved matters related to the data.

The chart below shows the basis of setting the per capita claims cost assumption, which includes PERS, TRS, and JRS.

	Medical		Prescription Drugs (Rx)	
	Pre-Medicare	**Medicare**	**Pre-Medicare**	**Medicare**
A. Fiscal 2021				
1. Incurred Claims	$ 196,566,470	$ 86,512,435	$ 60,691,609	$ 207,822,858
2. Adjustments for Rx Rebates and COVID (Medical only)	7,862,659	3,460,497	(9,832,041)	(29,718,669)
3. Net incurred claims	$ 204,429,129	$ 89,972,933	$ 50,859,568	$ 178,104,189
4. Average Enrollment	18,106	47,025	18,106	47,025
5. Claim Cost Rate (3) / (4)	11,291	1,913	2,809	3,787
6. Trend to Fiscal 2023	1.161	1.107	1.183	1.183
7. Fiscal 2023 Incurred Cost Rate (5) x (6)	$ 13,108	$ 2,117	$ 3,322	$ 4,479
8. Adjustment Factor for 2022 Plan Changes	1.014	1.000	0.913	0.976
9. Adjusted Fiscal 2023 Incurred Cost Rate (7) x (8)	$ 13,290	$ 2,117	$ 3,034	$ 4,371
B. Fiscal 2022				
1. Incurred Claims	$ 197,733,173	$ 98,249,082	$ 64,076,270	$ 230,832,315
2. Adjustments for Rx Rebates	0	0	(12,879,330)	(31,162,363)
3. Net incurred claims	$ 197,733,173	$ 98,249,082	$ 51,196,940	$ 199,669,953
4. Average Enrollment	17,072	48,698	17,072	48,698
5. Claim Cost Rate (3) / (4)	11,582	2,018	2,999	4,100
6. Trend to Fiscal 2023	1.074	1.056	1.095	1.095
7. Fiscal 2023 Incurred Cost Rate (5) x (6)	$ 12,439	$ 2,131	$ 3,284	$ 4,490
8. Adjustment Factor for 2022 Plan Changes	1.007	1.000	0.957	0.988
9. Adjusted Fiscal 2023 Incurred Cost Rate (7) x (8)	$ 12,526	$ 2,131	$ 3,141	$ 4,436

	Medical		Prescription Drugs (Rx)	
	Pre-Medicare	**Medicare**	**Pre-Medicare**	**Medicare**
C. Adjusted Incurred Cost Rate by Fiscal Year				
1. Fiscal 2021 A.(9)	13,290	2,117	3,034	4,371
2. Fiscal 2022 B.(9)	12,526	2,131	3,141	4,436
D. Weighting by Fiscal Year				
1. Fiscal 2021	50%	50%	50%	50%
2. Fiscal 2022	50%	50%	50%	50%
E. Fiscal 2023 Incurred Cost Rate				
1. Rate at Average Age C x D	$ 12,908	$ 2,124	$ 3,088	$ 4,403
2. Average Aging Factor	0.822	1.279	0.832	1.127
3. Rate at Age 65 (1) / (2)	$ 15,706	$ 1,661	$ 3,712	$ 3,907
F. Development of Part A&B and Part B Only Cost from Pooled Rate Above				
1. Part A&B Average Enrollment		48,233		
2. Part B Only Average Enrollment		465		
3. Total Medicare Average Enrollment B(4)		48,698		
4. Cost ratio for those with Part B only to those with Parts A&B		3.300		
5. Factor to determine cost for those with Parts A&B (2) / (3) x (4) + (1) / (3) x 1.00		1.022		
6. Medicare per capita cost for all participants: E(3)		$ 1,661		
7. Cost for those eligible for Parts A&B: (6) / (5)		$ 1,625		
8. Cost for those eligible for Part B only: (7) x (4)		$ 5,363		

Following the development of total projected costs, a distribution of per capita claims cost was developed. This was accomplished by allocating total projected costs to the population census used in the valuation. The allocation was done separately for each of prescription drugs and medical costs for the Medicare eligible and pre-Medicare populations. The allocation weights were developed using participant counts by age and assumed morbidity and aging factors. Results were tested for reasonableness based on historical trend and external benchmarks for costs paid by Medicare.

Below are the results of this analysis:

Distribution of Per Capita Claims Cost by Age
for the Period July 1, 2022 through June 30, 2023

Age	Medical and Medicare Parts A & B	Medical and Medicare Part B Only	Prescription Drug	Medicare EGWP Subsidy
45	$ 9,585	$ 9,585	$ 2,382	$ 0
50	10,844	10,844	2,829	0
55	12,270	12,270	3,369	0
60	13,882	13,882	3,532	0
65	1,625	5,363	3,907	1,309
70	1,794	5,921	4,335	1,452
75	1,981	6,537	4,810	1,611
80	2,209	7,289	4,738	1,587

Section 4.3: Summary of Actuarial Assumptions

The demographic and economic assumptions used in the June 30, 2022 valuation are described below. Unless noted otherwise, these assumptions were adopted by the Board at the June 2022 meeting based on the experience study for the period July 1, 2017 to June 30, 2021.

Investment Return

7.25% per year, net of investment expenses.

Salary Scale

0% per year through FY24, and 3.00% per year thereafter.

Payroll Growth

2.75% per year (2.50% inflation + 0.25% productivity).

Total Inflation

Total inflation as measured by the Consumer Price Index for urban and clerical workers for Anchorage is assumed to increase 2.50% annually.

Compensation and Benefit Limit Increases

Compensation is limited to the IRC 401(a)(17) amount, which was $305,000 for 2022. This limit is assumed to increase 2.50% each year thereafter.

Benefits are limited to the IRC 415 amount, which was $245,000 for 2022. This limit is assumed to increase 2.50% each year thereafter.

Benefit Payment Increases

Benefits for retired members are assumed to increase 0% per year through FY24, and 3.00% per year thereafter.

Mortality (Pre-Commencement)

Mortality rates based on the 2017-2021 actual experience, to the extent the experience was statistically credible.

- Pension: Pub-2010 General Employee table, above-median, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 General Employee table, above-median, headcount-weighted, and projected with MP-2021 generational improvement.

Mortality (Post-Commencement)

Mortality rates based on the 2017-2021 actual experience, to the extent the experience was statistically credible.

Retiree mortality in accordance with the following tables:

- Pension: Pub-2010 General Retiree table, above-median, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 General Retiree table, above-median, headcount-weighted, and projected with MP-2021 generational improvement.

Beneficiary mortality in accordance with the following tables. These tables are applied only after the death of the original member.

- Pension: Pub-2010 Contingent Survivor table, above-median, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 Contingent Survivor table, above-median, headcount-weighted, and projected with MP-2021 generational improvement.

Turnover

Select and ultimate rates as shown in Table 1. Turnover rates cease once a member is eligible for retirement.

Disability

Incidence rates as shown in Table 2. Disability rates cease once a member is eligible for retirement.

Post-disability mortality in accordance with the following tables:

- Pension: Pub-2010 Non-Safety Disabled Retiree table, amount-weighted, and projected with MP-2021 generational improvement.
- Healthcare: Pub-2010 Non-Safety Disabled Retiree table, headcount-weighted, and projected with MP-2021 generational improvement.

Retirement

Retirement rates as shown in Table 3.

Deferred vested members are assumed to retire at age 60.

Spouse Age Difference

Males are assumed to be four years older than their wives. Females are assumed to be four years younger than their husbands.

Percent Married for Pension

90% of male members and 70% of female members are assumed to be married at termination from active service.

Dependent Spouse Medical Coverage Election

Applies to members who do not have double medical coverage. 80% of male members and 60% of female members are assumed to be married and cover a dependent spouse.

Dependent Children

- Pension: None.
- Healthcare: Benefits for dependent children have been valued only for members currently covering their dependent children. These benefits are only valued through the dependent children's age 23 (unless the child is disabled).

Imputed Data

Data changes from the prior year which are deemed to have an immaterial impact on liabilities and contribution rates are assumed to be correct in the current year's client data.

Non-vested terminations with appropriate refund dates are assumed to have received a full refund of contributions. Active members with missing salary and service are assumed to be terminated with status based on their vesting percentage.

Administrative Expenses

The Normal Cost as of June 30, 2022 was increased by the following amounts. These amounts are based on the average of actual administrative expenses during the last two fiscal years.

- Pension: $ 102,000
- Healthcare: $ 34,000

Contribution Refunds

0% of terminating members with vested benefits are assumed to have their contributions refunded. 100% of those with non-vested benefits are assumed to have their contributions refunded.

Early Retirement Factors

State of Alaska staff provided the early retirement factors, which reflect grandfathered factors.

Form of Payment

Married members are assumed to elect the 50% Joint and Survivor benefit option. Single members are assumed to elect the Modified Cash Refund Annuity.

Healthcare Participation

100% of system paid members and their spouses are assumed to elect healthcare benefits as soon as they are eligible.

Medicare Part B Only

We assume that 2% of actives hired before April 1, 1986 and current retirees who are not yet Medicare eligible will not be eligible for Medicare Part A.

Healthcare Per Capita Claims Cost

Sample claims cost rates adjusted to age 65 for FY23 medical and prescription drugs are shown below. The prescription drug costs reflect the plan change to require prior authorization for certain specialty medications. The pre-Medicare medical cost reflects the coverage of additional preventive benefits.

	Medical	Prescription Drugs
Pre-Medicare	$ 15,706	$ 3,712
Medicare Parts A & B	$ 1,625	$ 3,907
Medicare Part B Only	$ 5,363	$ 3,907
Medicare Part D – EGWP	N/A	$ 1,309

Members are assumed to attain Medicare eligibility at age 65. All costs are for the 2023 fiscal year (July 1, 2022 – June 30, 2023).

The EGWP subsidy is assumed to increase in future years by the trend rates shown on the following pages. No future legislative changes or other events are anticipated to impact the EGWP subsidy. If any legislative or other changes occur in the future that impact the EGWP subsidy (which could either increase or decrease the plan's Actuarial Accrued Liability), those changes will be evaluated and quantified when they occur.

Healthcare Morbidity

Morbidity rates (also called aging factors) are used to estimate utilization of healthcare benefits at each age to reflect the fact that healthcare utilization typically increases with age. Separate morbidity rates are used for medical and prescription drug benefits. These rates are based on the 2017-2021 actual experience.

Age	Medical	Prescription Drugs
0 - 44	2.0%	4.5%
45 - 54	2.5%	3.5%
55 - 64	2.5%	1.0%
65 - 74	2.0%	2.1%
75 - 84	2.2%	(0.3%)
85 - 94	0.5%	(2.5%)
95+	0.0%	0.0%

Healthcare Third Party Administrator Fees

$449 per person per year; assumed to increase at 4.50% per year.

Healthcare Cost Trend

The table below shows the rate used to project the cost from the shown fiscal year to the next fiscal year. For example, 7.00% is applied to the FY23 pre-Medicare medical claims costs to get the FY24 medical claims costs.

	Medical Pre-65	Medical Post-65	Prescription Drugs / EGWP
FY23	7.00%	5.50%	7.50%
FY24	6.70%	5.50%	7.20%
FY25	6.40%	5.40%	6.90%
FY26	6.20%	5.40%	6.65%
FY27	6.05%	5.35%	6.35%
FY28	5.85%	5.35%	6.10%
FY29	5.65%	5.30%	5.80%
FY30	5.45%	5.30%	5.55%
FY31-FY38	5.30%	5.30%	5.30%
FY39	5.25%	5.25%	5.25%
FY40	5.20%	5.20%	5.20%
FY41	5.10%	5.10%	5.10%
FY42	5.05%	5.05%	5.05%
FY43	4.95%	4.95%	4.95%
FY44	4.90%	4.90%	4.90%
FY45	4.80%	4.80%	4.80%
FY46	4.75%	4.75%	4.75%
FY47	4.70%	4.70%	4.70%
FY48	4.60%	4.60%	4.60%
FY49	4.55%	4.55%	4.55%
FY50+	4.50%	4.50%	4.50%

For the June 30, 2014 valuation and later, the updated Society of Actuaries' Healthcare Cost Trend Model is used to project medical and prescription drug costs. This model estimates trend amounts that are projected out for 80 years. The model has been populated with assumptions that are specific to the State of Alaska.

Changes in Assumptions Since the Prior Valuation

Effective for the June 30, 2022 valuation, the Board adopted the changes to the demographic and economic assumptions recommended by the actuary, based on the results of an experience study performed on the plan experience from July 1, 2017 to June 30, 2021. The changes in assumptions were adopted at the June 2022 Board meeting.

The healthcare per capita claims cost assumption is updated for each valuation as described in Section 4.2. The amounts included in the Normal Cost for administrative expenses were changed from $83,000 to $102,000 for pension, and from $24,000 to $34,000 for healthcare (based on the most recent two years of actual administrative expenses paid from plan assets).

Table 1: Turnover Rates

Years of Service	Rate
< 1	3%
1	3%
2	3%
3	3%
4	3%
5	3%
6	3%
7	3%
8	3%
9	3%
10+	1%

Table 2: Disability Rates

Age	Rate	Age	Rate
20	0.017%	40	0.029%
21	0.017%	41	0.030%
22	0.018%	42	0.032%
23	0.018%	43	0.034%
24	0.018%	44	0.037%
25	0.019%	45	0.041%
26	0.019%	46	0.044%
27	0.019%	47	0.048%
28	0.020%	48	0.052%
29	0.020%	49	0.056%
30	0.021%	50	0.060%
31	0.021%	51	0.065%
32	0.022%	52	0.072%
33	0.022%	53	0.080%
34	0.023%	54	0.089%
35	0.024%	55	0.100%
36	0.025%	56	0.115%
37	0.026%	57	0.134%
38	0.027%	58	0.153%
39	0.028%	59	0.180%
		60+	0.000%

Table 3: Retirement Rates

Age	Rate
< 59	3%
59	10%
60	20%
61	20%
62	10%
63	10%
64	10%
65	20%
66	20%
67	10%
68	10%
69	10%
70+	100%

Section 5: Assessment of Risks (ASOP 51 Disclosures)

Funding future retirement benefits prior to when those benefits become due involves assumptions regarding future economic and demographic experience. These assumptions are applied to calculate actuarial liabilities, current contribution requirements, and the funded status of the plan. However, to the extent future experience deviates from the assumptions used, variations will occur in these calculated values. These variations create risk to the plan. Understanding the risks to the funding of the plan is important.

Actuarial Standard of Practice No. 51 (ASOP 51)[1] requires certain disclosures of potential risks to the plan and provides useful information for intended users of actuarial reports that determine plan contributions or evaluate the adequacy of specified contribution levels to support benefit provisions.

Under ASOP 51, risk is defined as the potential of actual future measurements deviating from expected future measurements resulting from actual future experience deviating from actuarially assumed experience.

It is important to note that not all risk is negative, but all risk should be understood and accepted based on knowledge, judgement, and educated decisions. Future measurements may deviate in ways that produce positive or negative financial impacts to the plan.

In the actuary's professional judgment, the following risks may reasonably be anticipated to significantly affect the pension plan's future financial condition and contribution requirements.

- Investment Risk – potential that the investment return will be different than the 7.25% expected in the actuarial valuation
- Contribution Risk – potential that the contribution actually made will be different than the actuarially determined contribution
- Long-Term Return on Investment Risk – potential that changes in long-term capital market assumptions or the plan's asset allocation will create the need to update the long-term return on investment assumption
- Longevity Risk – potential that participants live longer than expected compared to the valuation mortality assumptions
- Salary Increase Risk – potential that future salaries will be different than expected in the actuarial valuation
- Inflation Risk – potential that the consumer price index (CPI) for urban wage earners and clerical workers for Anchorage is different than the 2.5% assumed in the valuation
- Other Demographic Risk – potential that other demographic experience will be different than expected

The following information is provided to comply with ASOP 51 and furnish beneficial information on potential risks to the plan. **This list is not all-inclusive**; it is an attempt to identify the more significant risks and how those risks might affect the results shown in this report.

Note that ASOP 51 does not require the actuary to evaluate the ability or willingness of the plan sponsor to make contributions to the plan when due, or to assess the likelihood or consequences of potential future changes in law. In addition, this valuation report is not intended to provide investment advice or to provide guidance on the management or reduction of risk.

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[1] ASOP 51 does not apply to the healthcare portion of the plan. Accordingly, all figures in this section relate to the pension portion.

Assessment of Risks

Investment Risk

Plan costs are very sensitive to the market return.

- Any return on assets lower than assumed will increase costs.
- The plan uses an actuarial value of assets that smooths gains and losses on market returns over a five-year period to help control some of the volatility in costs due to investment risk.
- Historical experience of actual returns is shown in Section 2.5 of this report. This historical experience illustrates how returns can vary over time.

Contribution Risk

There is a risk to the plan when the employer's and/or State's actual contribution amount and the actuarially determined contribution differ.

- If the actual contribution is lower than the actuarially determined contribution, the plan may not be sustainable in the long term.
- Any underpayment of the contribution will increase future contribution amounts to help pay off the additional Unfunded Actuarial Accrued Liability associated with the underpayment(s).
- As long as the Board consistently adopts the actuarially determined contributions, this risk is mitigated due to Alaska statutes requiring the State to contribute additional funds necessary to pay the total contributions adopted by the Board.

Long-Term Return on Investment Risk

Inherent in the long-term return on investment assumption is the expectation that the current rate will be used until the last benefit payment of the plan is made. There is a risk that sustained changes in economic conditions, changes in long-term future capital market assumptions, or changes to the plan's asset allocation will necessitate an update to the long-term return on investment assumption used.

- Under a lower long-term return on investment assumption, less investment return is available to pay plan benefits. This may lead to a need for increased employer contributions.
- The liabilities will be higher at a lower assumed rate of return because future benefits will have a lower discount rate applied when calculating the present value.
- A 1% decrease in the long-term return on investment assumption will increase actuarial accrued liability by approximately 10%.

Longevity Risk

Plan costs will be increased as participants are expected to live longer.

- Benefits are paid over a longer lifetime when life expectancy is expected to increase. The longer duration of payments leads to higher liabilities.
- Health care has been improving, which affects the life expectancy of participants. As health care improves, leading to longer life expectancies, costs to the plan could increase.
- The mortality assumption for the plan mitigates this risk by assuming future improvement in mortality. However, any improvement in future mortality greater than that expected by the current mortality assumption would lead to increased costs for the plan.
- The plan provides cost-of-living adjustments on retirement benefits (based on salary changes of sitting judges) that increase longevity risk because members who live longer than expected will incur more benefit payment increases than expected and therefore increase costs.

Salary Increase Risk

Plan costs will be increased if actual salary increases are larger than expected.

- Higher-than-expected salary increases will produce higher benefits.
- The higher benefits may be partially offset by increased employee contributions due to higher salaries.
- If future payroll grows at a rate different than assumed, contributions as a percentage of payroll will be affected.

Inflation Risk

Inflation risk may be associated with the interaction of inflation with other assumptions, but this is not significant as a standalone assumption, and therefore is considered as part of the associated assumption risk instead of being discussed here.

Other Demographic Risk

The plan is subject to risks associated with other demographic assumptions (e.g., retirement and termination). Differences between actual and expected experience for these assumptions tend to have less impact on the overall costs of the plan. The demographic assumptions used in the valuation are re-evaluated regularly as part of the four-year experience studies to ensure the assumptions are consistent with long-term expectations.

Historical Information

Monitoring certain information over time may help understand risks faced by the plan. Historical information is included throughout this report. Some examples are:

- Section 1.5 shows how the plan's funded status (comparison of actuarial accrued liabilities to actuarial value of assets) has changed over time.
- Section 2.5 shows the volatility of asset returns over time.
- Section 3 includes various historical information showing how member census data has changed over time.

Plan Maturity Measures

There are certain measures that may aid in understanding the significant risks to the plan.

Ratio of Retired Liability to Total Liability

As of June 30	2018	2020	2022
1. Retiree and Beneficiary Accrued Liability	$ 156,622,684	$ 164,454,193	$ 165,892,115
2. Total Accrued Liability	$ 226,559,580	$ 211,742,043	$ 211,705,094
3. Ratio, (1) ÷ (2)	69.1%	77.7%	78.4%

A high percentage of liability concentrated on participants in pay status indicates a mature plan (often a ratio above 60% - 65%). An increasing percentage may indicate a need for a less risky asset allocation, which may lead to a lower long-term return on asset assumption and increased costs. Higher percentages may also indicate greater investment risk as benefit payments may be greater than contributions creating an increased reliance on investment returns. This ratio should be monitored each year in the future.

Ratio of Cash Flow to Assets

During FYE June 30	2018	2020	2022
1. Contributions	$ 11,360,677	$ 11,965,820	$ 11,685,168
2. Benefit Payments	12,125,563	14,178,500	14,770,632
3. Cash Flow, (1) - (2)	$ (764,886)	$ (2,212,680)	$ (3,085,464)
4. Fair Value of Assets	$ 176,794,969	$ 189,844,025	$ 227,181,866
5. Ratio, (3) ÷ (4)	(0.4%)	(1.2%)	(1.4%)

When this cash flow ratio is negative, more cash is being paid out than deposited in the trust. Negative cash flow indicates the trust needs to rely on investment returns to cover benefit payments and / or may need to invest in more liquid assets to cover the benefit payments. More liquid assets may not generate the same returns as less liquid assets, which can increase the investment risk. Currently, the low magnitude of the ratio implies there may already be enough liquid assets to cover the benefit payments, less investment return is needed to cover the shortfall, or only a small portion of assets will need to be converted to cash. Therefore, the investment risk is likely not amplified at this time. This maturity measure should be monitored in the future.

Contribution Volatility

As of June 30	2018	2020	2022
1. Fair Value of Assets	$ 176,794,969	$ 189,844,025	$ 227,181,866
2. Payroll	$ 13,392,864	$ 13,157,172	$ 13,366,464
3. Asset to Payroll Ratio, (1) ÷ (2)	1,320.1%	1,442.9%	1,699.6%
4. Accrued Liability	$ 226,559,580	$ 211,742,043	$ 211,705,094
5. Liability to Payroll Ratio, (4) ÷ (2)	1,691.6%	1,609.3%	1,583.9%

Plans that have higher asset-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, a plan with an asset-to-payroll ratio of 10% may experience twice the contribution volatility due to investment return volatility than a plan with an asset-to-payroll ratio of 5%. Plans that have higher liability-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to changes in liability. For example, if an assumption change increases the liability of two plans by the same percent, the plan with a liability-to-payroll ratio of 10% may experience twice the contribution volatility than a plan with a liability-to-payroll ratio of 5%.

Glossary of Terms

Actuarial Accrued Liability

Total accumulated cost to fund pension or postemployment benefits arising from service in all prior years.

Actuarial Cost Method

Technique used to assign or allocate, in a systematic and consistent manner, the expected cost of a pension or postemployment plan for a group of plan members to the years of service that give rise to that cost.

Actuarial Present Value of Projected Benefits

Amount which, together with future interest, is expected to be sufficient to pay all future benefits.

Actuarial Valuation

Study of probable amounts of future pension or postemployment benefits and the necessary amount of contributions to fund those benefits.

Actuary

Person who performs mathematical calculations pertaining to pension and insurance benefits based on specific procedures and assumptions.

GASB 67 and 68

Governmental Accounting Standards Board Statement Number 67 amends Number 25 effective for the fiscal year beginning after June 15, 2013 and defines new financial reporting requirements for public pension plans.

Governmental Accounting Standards Board Statement Number 68 amends Number 27 effective for fiscal years beginning after June 15, 2014 and defines new accounting and financial reporting requirements for employers sponsoring public pension plans.

GASB 74 and 75

Governmental Accounting Standards Board Statement Number 74 amends Number 43 effective for the fiscal year beginning after June 15, 2016 and defines new financial reporting requirements for public postemployment benefit plans.

Governmental Accounting Standards Board Statement Number 75 amends Number 45 effective for fiscal years beginning after June 15, 2017 and defines new accounting and financial reporting requirements for employers sponsoring public postemployment benefit plans.

Normal Cost

That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual participant or the plan as a whole.

Unfunded Actuarial Accrued Liability (UAAL)

The portion of the actuarial accrued liability not offset by plan assets.

Vested Benefits

Benefits which are unconditionally guaranteed regardless of employment.

State of Alaska

Timeline for June 30, 2022 Valuations (PERS, TRS, PERS DCR, TRS DCR, JRS, NGNMRS)

Item #	Task	Original Deadline	Revised Deadline	Date Completed	Team Responsible	Comments / Notes
1	Enrollment data request to Aetna	7/15/22		7/14/22	Buck	
2	Valuation data request to DRB	7/15/22		7/15/22	Buck	
3	Monthly audit discussion with GRS / Buck	7/20/22	7/22/22	7/22/22	GRS / Buck	
4	Monthly audit discussion with GRS / Buck	8/17/22	8/19/22	not needed	GRS / Buck	
5	Preliminary 6/30/22 assets to Buck	8/30/22		8/31/22	DRB	These will be used only for the adoption of FY24 contribution rates.
6	Valuation data to Buck	9/2/22		9/6/22	DRB	NGNMRS data received 4/5/23.
7	Send valuation data files received from DRB to GRS	9/6/22		9/6/22	Buck	
8	**Actuarial Committee Meeting - FY24 contribution rates (based on 6/30/21 valuations)**	9/14/22		9/14/22	All	**Anchorage**. Deadline for meeting materials is 8/26 (extended to 9/6 since assets not available until the end of August).
9	Audit data and sample lives request to Buck	9/16/22		9/17/22	GRS	
10	Monthly audit discussion with GRS / Buck	9/21/22			GRS / Buck	
11	Claims data request to Segal/DRB	9/23/22		9/6/22	Buck	Incurred claims through 6/30/22 that are paid through 8/31/22.
12	Data questions to DRB	9/23/22		9/27/22	Buck	PERS data questions sent on 9/26, TRS sent on 9/27.
13	Data answers to Buck	10/7/22		10/7/22	DRB	
14	Final 6/30/22 assets to Buck	10/14/22		10/21/22	DRB	
15	Monthly audit discussion with GRS / Buck	10/19/22	10/21/22	10/21/22	GRS / Buck	
16	Claims data to Buck	10/21/22		10/24/22	Segal / DRB	Incurred claims through 6/30/22 that are paid through 8/31/22.
17	6/30/22 valuation data and DRB data questions to GRS	10/28/22		11/7/22	Buck	PERS pension/PERS DCR sent on 10/28, TRS pension/TRS DCR sent on 11/4, PERS/TRS OPEB sent on 11/7. JRS sent on 4/18/23. NGNMRS sent on 5/30/23.
18	Sample life information to GRS	11/11/22		11/14/22	Buck	All except PERS pension active and OPEB DCR sample lives sent on 11/11. PERS pension active sent on 11/14. OPEB DCR sent on 11/18. JRS sent on 4/26/23. NGNMRS sent on 5/30/23.
19	Monthly audit discussion with GRS / Buck	11/16/22	11/18/22	11/18/22	GRS / Buck	
20	Preliminary valuation results and PVB's by individual to GRS	11/18/22		11/18/22	Buck	PERS DCR sent on 12/9. TRS DCR sent on 12/12. JRS sent on 4/18/23. NGNMRS sent on 5/30/23.
21	**Actuarial Committee Meeting - 6/30/22 valuation results (preliminary)**	11/30/22	11/30/22	11/30/22	All	**Anchorage**. Deadline for meeting materials is 11/14.
22	Monthly audit discussion with GRS / Buck	12/21/22	12/21/22	12/21/22	GRS / Buck	
23	Draft DCR valuation reports to GRS	1/6/23		1/6/23	Buck	
24	Monthly audit discussion with GRS / Buck	1/18/23	1/20/23	1/20/23	GRS / Buck	
25	Draft DB valuation reports to GRS	1/20/23		1/27/23	Buck	TRS sent on 1/20. PERS sent on 1/27. Revised PERS sent on 2/3 (projections were modified). JRS sent on 4/17. NGNMRS sent on 5/30.
26	Monthly audit discussion with GRS / Buck	2/15/23	2/17/23	2/17/23	GRS / Buck	
27	Draft actuarial review report to Buck	3/7/23		3/14/23	GRS	
28	Monthly audit discussion with GRS / Buck	3/15/23	3/7/23	not needed	GRS / Buck	
29	**Actuarial Committee Meeting - 6/30/22 valuation results (full), projections, sensitivity analysis, draft valuation reports**	3/15/23		3/15/23	All	**Juneau**. Deadline for meeting materials is 2/24.
30	Monthly audit discussion with GRS / Buck	4/19/23		not needed	GRS / Buck	
31	**ARMB Meeting - follow-up to March meeting (if needed)**	April 2023 - TBD		not needed	All	**Teleconference.**
32	Monthly audit discussion with GRS / Buck	5/17/23		not needed	GRS / Buck	
33	Monthly audit discussion with GRS / Buck	6/7/23			GRS / Buck	
34	**Actuarial Committee Meeting - final valuation reports**	6/14/23			All	**Anchorage**. Deadline for meeting materials is 5/26.

Note: All deadline and completion dates are specific to PERS and TRS.