ALASKA RETIREMENT MANAGEMENT BOARD

SEPT
14-15, 2023

BOARD of TRUSTEES MEETING

Alaska Retirement Management Board

Board of Trustees Meeting

Thursday, September 14, 2023

Location:	Atwood Conference Center Rooms 102/104 550 W. 7th Ave., Anchorage, AK	**Teleconference:**	**Call in #:** 1-907-202-7104 **Code:** 921 231 717#

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 – June 15-16, 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
1. ARMB FY2025 Budget
   ***Action:** FY2025 Budget Proposal*

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. 9:55 AM Trustee Reports

A. Chair Report, *Bob Williams*

B. Committee Reports

1. Audit Committee, *Michael Williams, Chair*
2. DC Plan Committee, *Bob Williams, Chair*
3. Actuarial Committee, *Sandra Ryan, Chair*
   Action: *Board Acceptance of GRS Certification for FY22 NGNMRS and JRS Valuations*
   Action: *Board Acceptance of Buck Valuations for FY22 NGNMRS and JRS Valuations*
   Action: Resolution 2023-05 – FY25 PERS Contribution Rate
   Action: Resolution 2023-06 – FY25 PERS RMMI Contribution Rate
   Action: Resolution 2023-07 – FY25 PERS ODD Contribution Rate
   Action: Resolution 2023-08 – FY25 TRS Contribution Rate
   Action: Resolution 2023-09 – FY25 TRS RMMI Contribution Rate
   Action: Resolution 2023-10 – FY25 TRS ODD Contribution Rate
   Action: Resolution 2023-11 – FY25 NGNMRS Contribution Amount

4. Operations Committee, *Dennis Moen, Chair*
   Action: Resolution 2023-17 – Staff Compensation
   Action: RFP for General Consultant
   Action: RFP for Real Assets Consultant

5. Alaska Retiree Health Plan Advisory Board, *Lorne Bretz, ARMB Member*

BREAK @ 10:45 am (10 MINUTES)

IX. 10:55 AM Presentations

10:55 – 11:45 **A. Performance Measurement – 2nd Quarter**
Steve Center, Senior Vice President, Callan
Ivan "Butch" Cliff, Executive Vice President and Director of Research, Callan

11:45 – 12:30 **B. Risk Report**
Shane Carson, State Investment Officer, Treasury Division

LUNCH @ 12:30 pm (75 MINUTES)

1:45 – 2:30 **C. J.P. Morgan Strategic Property Fund**
Jason Curron, Co-Portfolio Manager, Strategic Property Fund
Sean Kane, Research, Real Estate Americas
Tom Klugherz, Investment Specialist, Real Estate Americas
Jeffrey Shields, Client Advisor, Public Pensions

2:30 – 3:15 **D. Sentinel Real Estate Separate Account**
George Tietjen, Managing Director, Portfolio Manager
Greg Macchia, Portfolio Associate

BREAK @ 3:15 pm (10 MINUTES)

3:25 – 4:00 **E. Timberland Investment Resources**
Tom Johnson, Managing Director, Client Relations & Corporate Development
Chris Mathis, Managing Partner, Chief Investment Officer
Hong Fu, Managing Director, Economic Research & Analysis

X. 4:00 PM Investment Advisory Council Perspectives
Ruth Traylor
Josh Rabuck
Dr. William Jennings

RECESS for the DAY @ 4:30 pm

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

Board of Trustees Meeting

Friday, September 15, 2023

Location:	Atwood Conference Center Rooms 102/104 Atwood Building 550 W. 7th Ave., Anchorage, AK	**Teleconference:**	**Call in #:** 1-907-202-7104 **Code:** 694 902 467#

XI. 9:00 AM Presentations continued.

9:00-9:40 **A. IFM**
Julio Garcia, Head of Infrastructure, North America
David Altshuler, Head of Global Client Solutions, North America

9:40-10:20 **B. UBS Farmland**
Jim McCandless, Managing Director, Co-CIO, Senior Portfolio Manager
Dan Murray, Executive Director. Co-CIO, CFO and Head of Asset Management
Thomas O'Shea, Head of Portfolio and Client Services Unit

BREAK @ 10:20 am (10 MINUTES)

10:30-11:15 **C. KKR Real Estate Partners America**
Justin Pattner, Partner, Head of Real Estate Equity, Americas
Lawrence Ou, Director, Client and Partner Group

11:15-12:00 **D. Fidelity Real Estate High Income Fund**
Bill Maclay, Portfolio Manager
Matthew Torchia, Portfolio Manager
Kristin Shofner, Senior Vice President, Business Development

LUNCH @ 12:00 pm (75 MINUTES)

1:15-2:00 **E. Real Assets Annual Plan**
Stephen Sikes, State Investment Officer, Treasury Division
Robyn Mesdag, State Investment Officer, Treasury Division

2:00 – 2:45 **F. Callan Real Assets Plan / Performance Review**
Jonathan Gould, Senior Vice President Real Assets Consulting
Avery Robinson, Senior Vice President Real Assets Consulting
Jay Kloepfer, Executive Vice President and Director, Capital Markets Research

BREAK @ 2:45 pm (5 MINUTES)

XII.	**2:50 PM**	**Real Assets Action Items – Plans & Guidelines** *Stephen Sikes, State Investment Officer, Treasury Division* ***Action:*** *Resolution 2023-12 Real Assets Annual Investment Plan* ***Action:*** *Resolution 2023-13 Real Estate Investment Guidelines* ***Action:*** *Resolution 2023-14 Farmland Investment Guidelines* ***Action:*** *Resolution 2023-15 Timberland Investment Guidelines* ***Action:*** *Resolution 2023-16 Infrastructure Investment Guidelines*
XIII.	**3:05 PM**	**Unfinished Business**
XIV.		**New Business**
XV.		**Other Matters to Properly Come Before the Board**
XVI.		**Public/Member Comments** *(Three Minute Limit. Callers may need to press *6 to unmute.)*
XVII.		**Investment Advisory Council Comments**
XVIII.		**Trustee Comments**
XIX.		**Future Agenda Items**
XX.	**3:15 PM**	**Adjournment**

NOTE: 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

June 15 -16, 2023
9:00 a.m.

Originating at:
Atwood Conference Center
550 West 7th Avenue, 1st Floor
Anchorage, Alaska 99501

Trustees Present:

Bob Williams, Chair
Sandra Ryan
Mike Williams
Adam Crum
Donald Krohn
Dennis Moen
Lorne Bretz

Department of Revenue Staff Present:

Zach Hanna, Chief Investment Officer
Scott Jones, Investment Operations, Performance & Analytics
Shane Carson, State Investment Officer
Emily Howard, State Investment Officer
Hunter Romberg, Senior Compliance Officer
Robyn Mesdag, State Investment Officer
Mark Moon, State Investment Officer
Rosa Sanchez, Assistant Compliance Officer
Grant Ficek, Business Analyst
Pamela Leary, Director, Treasury Division
Ryan Kauzlarich, Assistant Comptroller
Casey Colson, State Investment Officer
Cahal Morehouse, State Investment Officer
Chris Madsen, Administrative Operations Manager
Keith Moniz, Systems Programmer
Stephanie Pham, State Investment Officer
Robert Vicario, Administrative Assistant II
Alysia Jones, Board Liaison

Department of Law Staff Present:

Ben Hofmeister, Assistant Attorney General
Graham Vert
Maria Smilde

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
Kevin Worley, Chief Financial Officer
Mindy Voigt, Acting Chief Pension Officer
Roberto Aceveda, Education & Counseling Manager
Brandon Roomsburg, Retirement & Benefits Specialist

Department of Administration (DOA) Staff:

Dave Donley, Deputy Commissioner

Callan:
Ivan "Butch" Cliff, Executive Vice President, Director of Research
Steve Center, Senior Vice President
Jay Kloepfer, Executive Vice President and Director, Capital Market Research

Buck:
David Kershner, Principal, Consulting Actuary

GRS:
Paul Wood, Actuary, Senior Consultant & Team Leader
Bill Detweiler, Consultant

Guests/Presenters:
Pete Keliuotis, Executive Vice President, Alternatives Consulting, Callan
Keith Ashton, Partner, Portfolio Manager, Co-Head of Alternative Credit
Juliette Schainuck, Principal, Relationship Manager
David Walla, Vice President Alternative Credit
Doug Bratton, Founding Partner, CEO and Co-CIO
Keith Williams, Managing Partner and Co-CIO

Public Present:
Doug Woodby, 350Juneau
Randall Burns, RPEA President
Tom Klaameyer, NEA-Alaska
Robert Schroeder, 350Juneau
James Simard, 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 requirement was met for this meeting.

MS. JONES replied, yes, it had.

APPROVAL OF AGENDA
CHAIR BOB WILLIAMS moved to the agenda and stated that there was one alteration. After approval of the minutes, there would be an election of officer for vice chair, which was vacant. Other than that change, he asked for any other corrections or additions. Hearing none, the agenda was approved.

PUBLIC/MEMBER PARTICIPATION, COMMUNICATIONS, AND APPEARANCES
CHAIR BOB WILLIAMS then moved to the public member participation. He stated that he had the names of three people to testify and reminded them that they had three minutes. He recognized Bob Schroeder.

MR. SCHROEDER stated that he has lived in Juneau for 45 years. He was a retired anthropologist and had worked for the State and Federal Government in Rural Alaska. In earlier testimony he had argued that the ARM Board needed to undertake climate risk assessment of all of its holdings, which would be a sort of climate stress test. It would identify investments likely to be hurt or to benefit from anticipated climate change. He also supported divestment from certain investments in the fossil fuel segment of the economy that would lose value as the national and global economies transitioned. He talked about the climate situation continuing throughout the world and quoted findings from the United Nations' International Protocol on Climate Change Sixth Assessment Report. The progression of climate change will result in major social and economic changes which will affect ARM Board's investment policy. A surprising number of people, funds, schools, and municipalities have decided to divest fossil fuel investments, and he added that it is time for the ARM Board to seriously examine its investment direction. He thanked the Board for their service and stated that he would be happy to answer any questions.

CHAIR BOB WILLIAMS thanked Mr. Schroeder, and recognized Doug Woodby.

MR. WOODBY stated that he lives in Juneau, received a monthly pension from the State and is a member of 350Juneau. He continued that Alaska Representative Kevin McCabe introduced House Bill 174 titled: "An Act restricting fiduciary actions by a fiduciary of a state fund, the Alaska Retirement Management Board, and the Alaska Permanent Fund Corporation Board that have the purpose of furthering social, political, or ideological interests." That bill was referred to House Finance and was still sitting there. He added that if that bill is passed next year, it would restrict the ability to use all available information in your investment decisions. The bill states:

"If evidence indicates a commitment to eliminating, reducing, offsetting, or disclosing greenhouse gas emissions," and some other things. The bill's sponsors issued testimony stating that this meant the investment decisions would be made solely on the basis of financial duty, which would have a cooling effect on the ability to do their job. He talked about fulfilling their duty of loyalty and care to beneficiaries and the implication to the pension fund. He requested the pension fund managers to consider climate risk, among the other risks, and to do that for the sake of the fund.

CHAIR BOB WILLIAMS asked for any questions and thanked him for the comments, and recognized Jim Simard.

MR. SIMARD stated that he lives in Juneau. He is a librarian retired from the state of Alaska; is a board member of 350Juneau; and is a grandfather. He continued that he had spoken several times in the past about the investment risk posed by litigation against major oil producers. Dozens of American cities have brought lawsuits alleging that oil producers recklessly and knowingly caused harm to those cities through the production and the deceptive marketing of the products. He gave a few updates on those lawsuits. The children's lawsuit against the State of Montana, Held versus Montana, was brought by 16 young people. They maintain that the energy policies of the State of Montana, which prioritize fossil fuels, have denied their constitutional right to a healthy environment. He added that the two-week trial was being Zoomed live, and he recommended watching. He reminded the board that their fiduciary responsibility extended to all generations of Alaskans.

CHAIR BOB WILLIAMS thanked him and asked for anyone else online or in the room that would like to speak. Hearing none, he closed the public member participation, communications, and appearance section of the meeting, and then moved to approval of the minutes.

APPROVAL OF MINUTES

CHAIR BOB WILLIAMS asked for a motion to approve the minutes from March 16-17, 2023.

> **MOTION:** <u>A motion was made to approve the minutes of March 16-17, 2023. The motion was made by TRUSTEE KROHN; seconded by TRUSTEE RYAN.</u>
>
> *There being no objection, the MOTION was APPROVED.*

CHAIR BOB WILLIAMS stated that one of the differences from the last meeting was that Trustee Hippler took a different employment position that made it so that he could not serve as a public member. He read into the record a letter that was mailed to Mr. Hippler on June 9, 2023, noting great appreciation for his service. He stated the need to have an election of officer for vice chair.

ELECTION OF VICE CHAIR

CHAIR BOB WILLIAMS asked for a motion.

> **MOTION:** <u>TRUSTEE MOEN nominated Sandy Ryan for the position of vice chair.</u>

CHAIR BOB WILLIAMS asked Sandy Ryan if she was willing to accept that position.

TRUSTEE RYAN replied, yes.

The Motion was seconded by TRUSTEE KROHN.

After a roll-call vote, the MOTION was APPROVED. (Trustee Mike Williams, yes; Trustee Bretz, yes; Commissioner Crum, no response; Trustee Krohn, yes; Trustee Moen, yes; Commissioner Vrana, no response; Trustee Ryan, abstained; Chair Bob Williams, yes.)

STAFF REPORTS

ARM BOARD LIAISON

CHAIR BOB WILLIAMS moved into staff reports and recognized ARM Board Liaison Alysia Jones.

MS. JONES began with the first quarter disclosure memorandum and stated that there were no disclosure transactions that required additional review or discussion. The communications memorandum listed communications directed to or sent on behalf of the Board since the March 16-17, 2023, meeting. It also included a summary of public records requests. She talked about the 2024 proposed calendar and added that an action item would be brought forward by Chair Moen during the Operations Committee report. The last item was a timeline showing contract and review deadlines for FY23 through FY28, which had been updated since the March meeting to reflect actions that were taken at the last meeting.

FUND FINANCIAL PRESENTATION

CHAIR BOB WILLIAMS recognized Assistant Comptroller Ryan Kauzlarich and CFO Kevin Worley.

MR. KAUZLARICH summarized the PERS, TRS, JRS, SBS, and the DC assets as of the end of April 2023. Total assets were up 2.28 percent year-to-date. He also went through some updated figures as of June 13^{th}.

CFO WORLEY began with the total from Department of Revenue's report that Mr. Kauzlarich spoke about, and then provided the detail for contributions and expenditures for all of those funds. He continued that additional information requested by the Board related to participant-directed disbursements by plan was located on page 74. He added that was broken down by invested amounts, from 100 percent invested in employer contributions down to zero percent invested in contributions. Similar categories were also broken out by years for the defined benefit portions of PERS, TRS, and JRS.

CHAIR BOB WILLIAMS stated appreciation for the detail and context provided, and continued forward to Item C.

RETIREMENT AND BENEFITS DIVISION REPORT

DIRECTOR DESAI began with the Legislative update and highlighted HB22, SB11, SB35, and SB88. SB22 was specific to the fire fighters; SB11 was for both PERS and TRS with a similar design; SB35 was the companion bill for HB22. SB88 was introduced by Senator Giessel where all of those previous three bills were pulled together. SB88 offered DB tiers for the PERS and TRS system and closed the defined contribution retirement plan in the PERS and TRS system for new hires. This bill offered options to existing DCR members to choose within a specific window to elect under the DB plan, and for new hires, it would be a DB plan moving forward. He added that this bill was passed out from Senate, Labor, and Commerce and was heard and held in Senate Finance at the end of session. The belief is that it would continue through this year.

TRUSTEE RYAN understood that these bills, if compared to the current DB plan, show a difference in health care. She asked if it was known why.

DIRECTOR DESAI replied that all these bills appear to offer identical benefits to the current Tier 4 and Tier 3 DCR military health benefits. He stated that the Division did not design the bills. When these DB tiers were closed in 2006, the decision was made by the Legislators, and the new design that was put in place for DCR was also determined by the Legislators. The Division's role in this process was to support all the requirements and necessary data information and analysis.

CFO WORLEY stated that the next presentation was about consulting invoices by quarter. The detail was requested by the Board in comparison for the prior fiscal year to the current fiscal year, and for the impacts on each of the systems. He continued that the detail was broken down by September, December, and March of 2023, as well as a nine-month summary. He continued that the next item was the quarterly statistics for the quarter ending March 31, 2023. At Chair Williams' request, a segment was added in the middle of each of the quarterly statistics related to managed accounts; not just the total number of folks participating with the dollar amount reflected.

BEARS PROJECT UPDATE

DIRECTOR DESAI stated that the acronym BEARS stands for Benefits And Retirement System. Over the last 30-plus years, the Division of Retirement and Benefits operated successfully with the decentralized management of many of its core business processes. However, DRB continually creates many challenges, internal and external, with manual work processes and data exchanges. He continued that, generally, employers are responsible for maintaining an employee's record and correctly reporting related data to DRB. Incorrect employee reporting has been a long issue with the legacy systems to smartly identify and have a good process. An example was a member who applied for retirement based on the incorrect hire date that had been originally confirmed by the employer showed an additional service for which the member was not eligible. Upon further review, the employer confirmed and corrected the hire date, and he was still eligible for the retirement benefits. He talked about the impacts of the errors. He added that they were still continuing to look into it, and they do believe that they will find a solution. He talked about the new system and, when it goes live, a lot of manual data, paper files, would be converted into the data. The new system was designed based on the rules and the statutes. They were working very hard to fix every piece of data so that the information going into the new system accurately.

TREASURY DIVISION REPORT

DIRECTOR LEARY thanked Director Desai for his heartfelt comments and added that what they did was really important for the people of Alaska. She stated appreciation for the Board's support, as well. She continued that she had two comments. First, the fiscal year '24 budget bill, HB39, was transmitted to the Governor and was on his desk as of June 13. She added that he had 20 days for signatures, and that they were awaiting the final budget. The Legislature passed their budget; the ARM Board budgets were intact, with a hope to see that continue. She stated that the second item was the annual picnic and softball game on June 2 with the Alaska Permanent Fund Corporation, Treasury versus APFC. "The Green Machine," Treasury's team name, smashed it 18 to 2. She added that the commissioner and deputy commissioner also worked with the softball team to make that happen.

CIO REPORT

CIO HANNA stated that recent economic news had been largely positive; CPI continued coming down, and the Fed elected for taking a break from raising rates. The market reaction was pretty positive, and most of the rebound occurred in this calendar year. He added that they were completing their transition to a more focused Board meeting format, with an asset class or two taking center stage for each meeting. The hope is to take a deeper dive into each asset class on a recurring basis, with the focus of this meeting being the multi-asset portfolio. Portfolio Manager Shane Carson would go through the growing private debt investment portion, and tomorrow would cover tactical asset allocation strategies. He continued that a manager review meeting was held with requested information and disclosures from all of the managers, in addition to the ongoing monitoring. He continued through the watch list changes that were made. He stated that they had four managers on the watch list currently; one for personnel turnover, and three for performance. The first manager was Fidelity Real Estate High Income, and their performance had improved. They actually qualify for being taken off the watch list. We left them on and recommend continuing to do so with further discussion in September. Baillie Gifford was also on the watch list for performance reasons and had been on it for about a year. Their performance had improved, and they were about 50 basis points from being off the watch list. The recommendation was to have them stay on the watch list with no further action at this point. He recommended that two managers be removed from the watch list. First was Brandes International; they were placed on the watch list in March of last year for performance, which had improved dramatically. They qualify for watch list removal. He stated that BlackRock Real Estate had a key portfolio manager depart, and it had already been over a year. Staff has met with the remaining team and portfolio managers, and they are happy with how things are going. He requested a motion to remove both Brandes International and BlackRock Real Estate Fund from the ARM Board manager watch list.

CHAIR BOB WILLIAMS entertained a motion.

> **MOTION:** <u>A motion to remove both Brandes International and BlackRock Real Estate Fund from the ARM Board manager watch list was made by TRUSTEE BRETZ; seconded by TRUSTEE MIKE WILLIAMS.</u>
>
> *After the roll-call vote, the MOTION was APPROVED. (Trustee Ryan, yes; Trustee Krohn, yes; Trustee Moen, yes; Commissioner Crum, no response; Commissioner Vrana, no response; Trustee Mike Williams, yes; Chair Bob Williams, yes.)*

CIO HANNA stated that the items in area three were places where he exercised CIO delegation for contracting. Item A is $50 million private equity to New Mountain VII. New Mountain is a middle market private equity firm focused on defensive growth businesses. They have been a very good investment for the Board. Item B is a $50 million private equity commitment to

Genstar IX. They are a successful private equity firm focused on middle market investments and financial services, software, industrials, and health care. Item C is a $100 million investment with Comvest Credit Partners. This was a second hire from the private debt search. The Board delegated authority to the staff to hire two managers. Shane Carson will discuss this in more detail later today. Item D is a $200 million commitment with Crestline Blue Glacier Fund 2. It was a continuation of a series of successful opportunist investments by Crestline for the Board, which would also be discussed later by Mr. Carson. Items E and F are the execution of contract renewals for Callan's consulting and real estate consulting contracts, as directed by the Board at the last meeting. He also reported, in terms of Board action, being in advanced stages of contracting with the three new equity managers recommended for hire at the March meeting: Acadian, First Eagle, and Eagle. He stated that Item 4 continued with the summary of the portfolio rebalancing that took place between February and April this year. The rebalancing activity focused on risk management. Also conducted were three internal rebalancing transactions over this period to equalize the relative allocations across the 14 plans managed for the ARM Board. He noted that it was IAC Member Dr. Jerry Mitchell's very last meeting, and he looked forward to his later comments.

CHAIR BOB WILLIAMS moved to Item F, legal report, and recognized Assistant Attorney General, ARM Board Counsel, Ben Hofmeister.

LEGAL REPORT

MR. HOFMEISTER stated that he did not have a legal report for this meeting.

STATUTORY INVESTMENT POWERS AND DUTIES

MR. HOFMEISTER continued that he would be using the analogy of Star Wars Jedis because they are selfless, and an order designed to help other people. In talking about the trustees, that is also what they do. He added that while talking about statutory powers and investment authorities, they would really be discussing fiduciary responsibility, primarily under state law. The duties and powers of a fiduciary are very important, and it is required under state law for the trustees to have this presentation. He noted that 37.10.210 is the starting point for anything in terms of the ARM Board. He went through the definition of "fiduciary" and then to "fiduciary duty." He continued that the ARM Board's fiduciary duty is to serve as the trustee of the assets of the State's retirement plans and the retiree health care trusts. He went through all in greater detail, explaining as he went along. He noted that the ARM Board's powers and duties as to investments are pretty clear: The prudent investor rule and the fiduciary duty applies to all funds that are managed by the Board. There is not an ideal prudent behavior for all situations, and it depends on the purposes of each invested fund. Diversification is something that the trustees will constantly try to evaluate. He continued that they had an enormous fiduciary responsibility with a significant toolkit set out in the statutes, to be used as powers and duties. He suggested refining structure and governance, and always looking at what would make a better organization and what those outcomes would mean for the beneficiaries. The Board should continue reviewing policies; maintaining compliance; complying with reporting requirements as required by state law; attend meetings and ask questions; and realize the people that have a wealth of information to share will help in terms of complying with the Board's fiduciary responsibility.

CHAIR BOB WILLIAMS thanked Mr. Hofmeister for his presentation and called a break.

(Break.)

TRUSTEE REPORTS

CHAIR REPORT

CHAIR BOB WILLIAMS called the meeting back to order and continued with the Chair report. He noted that there were a lot of different meetings in preparation for the committee meetings. He thanked staff and everyone that helped to make the preparation for this meeting come together. He gave his deep gratitude to the IAC members, and also shared appreciation for Trustee Hippler's service. He recognized the Audit Committee Chair.

COMMITTEE REPORTS

AUDIT COMMITTEE

CHAIR MIKE WILLIAMS reported that the Audit Committee of the Alaska Retirement Management Board met and went through the normal review of the annual audit process with KPMG. The audit will begin later this summer or early fall. He talked about the results of Ernst & Young's audit of statements regarding State Street's custodial accounts managed for the ARM Board. There were no material findings, and the report stated that State Street's controls represented fairly all material aspects to the control systems and then the control objectives. It was a good report on the controls for the custodial arrangement with State Street. The Division of Retirement and Benefits and Treasury reported on continuing staffing challenges. They are working to address them and will continue to fill vacancies and making sure that the mission and objectives of the plan are being met. The Division of Retirement and Benefits talked about the status of employer audits and delinquencies, and they are working closely with those participant plans to become current.

DEFINED CONTRIBUTION COMMITTEE REPORT

CHAIR BOB WILLIAMS thanked ARM Board liaison Alysia Jones for putting everything together and stated that there was a Treasury update which included two action items. The chief pension officer report looked at a recordkeeping fee reduction for members beginning July 1st. He continued that Kevin Worley put together a beautiful PERS and TRS Social Security report, which gave a thorough review of where it all was. Larry Davis gave an update on the Metcalfe conversion and explained that a couple hundred people filled out the online survey. There was also an update from Empower, and then we went into an extended Executive Session. He thanked Assistant Attorney General, ARM Board Counsel Ben Hofmeister, for this help with the process. He then moved to the two action items from the committee to the Board. JP Morgan decided to close the JP Morgan 2015 Smart Spend, and it made sense to close the 2015 and the 2020.

> **MOTION:** <u>The DC Committee recommends the Alaska Retirement Management Board direct staff to discontinue the JP Morgan Smart Retirement Blend 2015 and the JP Morgan Smart Retirement Blend 2020 in the Alaska Supplemental Annuity Plan, the Defined Contribution Retirement Plans and the Deferred Compensation Plan, and requests that the recordkeeper notify participants of the intent to remap them into an age-appropriate target date fund if they do not select a different option prior to the date the 2015 fund will be discontinued.</u>
>
> *After the roll-call vote, the MOTION was APPROVED. (Trustee Bretz, yes; Commissioner Crum, no response; Trustee Krohn, yes; Trustee Moen, yes; Trustee Ryan,*

yes; Commissioner Vrana, no response; Trustee Mike Williams, yes; Chair Bob Williams, yes.)

MOTION: The DC Committee is recommending 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.

After the roll-call vote, the MOTION was APPROVED. (Trustee Mike Williams, yes; Commissioner Vrana, no response; Trustee Ryan, yes; Trustee Moen, yes; Trustee Krohn, yes; Commissioner Crum, no response; Trustee Bretz, yes; Chair Bob Williams, yes.)

CHAIR BOB WILLIAMS concluded the DC Plan Committee report and recognized the Actuarial Committee Chair.

ACTUARIAL COMMITTEE REPORT

TRUSTEE RYAN reported that the Actuarial Committee had a wonderful meeting. Presentations from Buck and GRS were informative and reassured that the information is being handled correctly. Mr. Worley talked about the continued issues with the National Guard, getting accurate numbers, and how he had tried to get those in line. They also went over some of the accounts that appeared to be delinquent in payments She continued that there were a couple of action items coming from the committee. The first one is the FY2022 certification of actuarial reviews.

MOTION: The Alaska Retirement Management Board accept and review the certification of the Fiscal Year 2022 Actuary Report from GRS.

After the roll-call vote, the MOTION was APPROVED. (Trustee Krohn, yes; Trustee Moen, yes; Commissioner Vrana, no response; Trustee Mike Williams, yes; Trustee Bretz, yes; Commissioner Crum, no response; Trustee Ryan, yes; Chair Bob Williams, yes.)

MOTION: The Alaska Retirement Management Board accepts the actuarial evaluation report prepared by Buck for the public employees, teachers, public employees defined contribution for occupational death and disability and retired medical benefits, and teachers defined contribution for occupational death and disability and retiree medical benefits retirement system as of June 30, 2022.

After the roll-call vote, the MOTION was APPROVED. (Trustee Moan, yes; Trustee Krohn, yes; Commissioner Crum, no response; Trustee Bretz, yes; Trustee Ryan, yes; Trustee Mike Williams, yes; Commissioner Vrana, no response; Chair Bob Williams, yes.)

OPERATIONS COMMITEE

CHAIR BOB WILLIAMS stated that he chaired the Operations Committee because Trustee Moen because was unavailable due to weather related issues with his travel. He began with a status update on the recruitment process for the Investment Advisory Council member that would be replacing the unreplaceable Dr. Mitchell. The request for proposal process had been followed, and we will have an Executive Session tomorrow with the recommendation from the (Procurement Evaluation Committee) PEC Committee. He stated that Director Leary gave a budget update, and they had a staffing, recruitment, and retention conversation. Scott Jones gave an update on how things were moving along in the middle office. ARM Board Liaison Alysia Jones gave a review of travel policies. He moved to the action item for the 2024 meeting calendar. The changes were that the committee meetings would be on Tuesday, and Board meetings would be on Wednesday and Thursday. The other change was that the September meeting location would be in Fairbanks. The cost difference will be around $6,000.

> **MOTION:** The Operations Committee brought forward a motion that the Board adopt the 2024 recommended ARM Board calendar.

TRUSTEE BRETZ commented that he really favored the ARM Board meeting whenever possible to be on the road system, because it is good for the members.

> *After the roll-call vote, the MOTION was APPROVED. (Trustee Bretz, yes; Commissioner Crum, no response; Trustee Krohn, yes; Trustee Moen, yes; Trustee Ryan, yes; Commissioner Vrana, no response; Trustee Mike Williams, yes; Chair Bob Williams, yes.)*

TRUSTEE MOEN was curious about the issues with retention and asked what the typical tenure was for those folks, how often the turnover was.

DIRECTOR LEARY stated that she would be happy to do an analysis. The reality is that Treasury had been lucky to have a lot of longevity, with some turnover at various levels.

ALASKA RETIREE HEALTH PLAN ADVISORY BOARD

TRUSTEE BRETZ stated that it seemed like there were always things added to the health plan. The changes were deliberated and made with the retiree in mind. Right now, they were in a public comment period that would end tomorrow. He continued that the three things being discussed are: an update to the lifetime benefit maximum; addition of supplemental non-emergent surgery and travel benefits; and addition of virtual physical therapy and musculoskeletal care. He gave a brief update to the lifetime benefit maximum. He anticipated that all of the plan changes would be made.

RFS 2023-0400-0016 PROCUREMENT EVALUATION COMMITTEE

CHAIR BOB WILLIAMS stated that this report is about the Procurement Evaluation Committee for filling the IAC position. He felt very good about the process that they went through as an organization. He continued that there were five trustees on the committee who met multiple times, and they had a really strong response to the RFS. There was an advertisement in *Pensions & Investment*, which resulted in 17 applications. The candidate list was narrowed down, and they conducted interviews with finalists. There will be a recommendation brought forward at an Executive Session tomorrow. He called a break.

(Break.)

CHAIR BOB WILLIAMS called the meeting back to order and moved to the first quarter presentations with performance measurements. He recognized Steve Center and Butch Cliff.

PRESENTATIONS
PERFORMANCE MEASUREMENT – 1ST QUARTER

MR. CLIFF stated that Steve Center would not be attending. He reported that equity markets were up two quarters in a row, and the S&P 500 was up 7.5 percent for two quarters. Fixed income had also done well two quarters in a row as inflation began to ease and the Fed continued battling with inflation, which was coming down steadily. He went through some charts on the economy which was continuing slowly upward. There was a dramatic, quick change back to a growth market last quarter, primarily driven by the mega cap stocks. Small caps, unfortunately, lagged. He went through some of the highlights of growth internationally. He also talked about the uncertainty in interest rates and in equity valuations. It is very volatile, and everyone is worried about inflation and interest rates. He continued talking about private real estate and what was happening there, and then moved to private equity, which was much slower in revaluing their companies. Of all of the types of private equity, venture capital and growth equity have revalued downward quicker because they have more technology exposure. He stated that fundraising had been more challenging for private equity general partners because of the denominator effect. Fund sponsors were pulling back on some of their commitments. There were less distributions coming back from current private equity limited partnerships that usually turn around and recommit to new partnerships. He continued that general partners were not used to having a hard time fundraising. He went through the PERS DC plan quickly because there was not much to note there. He then moved to the flows and the changes in asset values and continued to Deferred Comp and asset allocation.

MR. CLIFF continued with his presentation, moving to large cap and small cap, and then discussed the profile of the domestic equity program. He completed his presentation and stated that the company had a big retirement. The head of Fund Sponsor Consulting, Millie Viquiera, one of his peers and associates in the New Jersey office, retired. They named Greg DeForrest, the head of the San Francisco office, as the new head of Fund Sponsor Consulting, a big promotion for him. He will be a great addition to the team.

DR. MITCHELL gave a couple of observations on the EAFE performance. Japan was the critical out-performer, up about 28 percent this year, and about 25 percent of the index; that deserved attention.

CHAIR BOB WILLIAMS called lunch.

(Lunch break.)

CHAIR BOB WILLIAMS called the meeting back into session and introduced Mr. Shane Carson.

ARMB PRIVATE DEBT SEARCH PROCESS & CURRENT ENVIRONMENT

MR. CARSON stated that he oversees the multi-asset class. Within that asset class is a portfolio of private debt, which is valued at roughly about $850, $900 million. Presenting with him was Pete Keliuotis from Callan.

MR. KELIUOTIS stated that he was the head of Alternatives Consulting at Callan. Ashley Kahn and Gary Robertson were both in his team. He covers private equity, private credit, and hedge fund strategies and was there to talk about private credit.

MR. CARSON stated that the presentation was called the ARM Board Private Debt Search Process, and the current environment. In June of 2022, the Board had directed staff to engage Callan, Mr. Keliuotis, to conduct a search for private debt managers, and then delegated authority to staff to contract up to two of those managers for an amount of $100 million each, subject to successful due diligence and contract negotiations. Staff actually finished the second of the contract in that process in May of this year. He continued that the intent of this presentation was to provide the Board with some high-level insight into what happened during that search process. They began with a look at a timeline of events and walked through some of the key points. He and Mr. Keliuotis discussed what Callan did and their role, and then what staff did in this process. They then discussed the search process. He clarified, for the record, that the scoring process used by staff was an illustrative example and not the actual scoring process. A key point is that no firm, no man, no investment manager is perfect; no one gets perfect scores. There is no uniformity out there as far as investment managers go. He noted that the scoring process kind of forces a couple different things: One is that it forces staff to make a quantitative assessment of the managers. He added that the due diligence process does not stop when the contracts are signed; it is ongoing. They continually go through the information gathering and development as the process evolves.

MR. KELIUOTIS talked about the private credit environment and what Callan had seen among the ARM Board’s peers. He stated that the private credit environment changes from quarter to quarter and was a completely different world today than it was a year ago, given the interest rate environment.

MR. CARSON stated that he would present two private debt managers and both of them would walk through their spectrum investments.

DR. MITCHELL asked about bank lending regulation.

MR. KELIUOTIS replied that, like any other asset manager, there was regulation from the SEC in terms of the activities that the managers were following. The other thing that the Federal Reserve regulates is how much leverage is allowable in terms of loans. That also has a big impact on how much leverage is seen in the private credit market.

ARES – PATHFINDER CORE FUND

CHAIR BOB WILLIAMS stated that there was a presentation from Ares Pathfinder Core Fund, and recognized Shane Carson for the introductions.

MR. CARSON stated that Ares was the first of the mangers contracted with during this process. The contract was finished for the Pathfinder Core Fund in February. It is an evergreen fund, and the Board made a commitment of up to $100 million into this fund. He introduced Juliette Schainuck.

MS. SCHAINUCK thanked the entire Board, investment staff, and Callan for the time today. They were thrilled to be in Anchorage, and it was great to meet many of them in person for the first time. She thanked them all for their support and investment in the evergreen alternative credit strategy called Pathfinder Core, which focuses on asset-based lending. She stated that she is a relationship manager at the firm. Her role is to help investors and to evaluate all of the investment solutions across the Ares platform. She introduced her colleagues, Keith Ashton and David Walla. Keith Ashton is a partner at the firm and is the co-head of the alternative credit business at Ares. He joined the firm in 2011 from Indicus, a firm that Ares acquired, which he cofounded. He serves as the co-portfolio manager for Pathfinder Core and serves on the investment committee, based in New York City. She then introduced David Walla, the vice president on the investor relations team. He plays a critical role in fundraising, investor communications, all around the alternative credit strategies of Pathfinder Core. He joined the firm in 2014 and is also based in New York City. She stated that the plan was to do a quick overview of Ares, the firm, and then dive into the strategy, the team, what it invests in, and why it is a compelling market opportunity to invest in the strategy. She began with a brief background of the company.

MR. ASHTON stated that the team is made up of 62 investment professionals and is at least two times larger than their next largest competitor. Ares has made a very significant effort and investment in this platform in order to execute on the strategy like Pathfinder Core, which is anchored in diversification and relative value. In addition to being a large team, it is also a very experienced team. More than half of the team has been investing in these kinds of investments for the better part of 20 years. He could not overstate the benefit of having that much experience in these markets, and it is their biggest advantage. It is a special team of incredibly talented professionals. Every single investment made is ultimately an investment in a pool or portfolio of assets of credit that generate contractual cash flows, contractual yield. We do not do single-name investing at all. What we ultimately look for are portfolios in assets that demonstrate resiliency to stress. One of the ways we test that resiliency is in the way the investments are designed. Another core principle of the strategy is the idea of relative value. He continued that in every transaction there is the ability to withstand three times more losses in the underlying portfolio than were expected to be seen. The transactions can all handle worse-than-GFC stress.

MR. WALLA continued that the key principle of the strategy is the relative value lens of the approach they take. A good aspect is that the 62-person team has experience investing in each one of the sectors, except crypto. He continued that the sectors are constantly debated and discussed on a weekly basis with the team. One differentiator of the Pathfinder Core strategy is the relative value of the approach taken in that, and we can invest across a number of different sectors based on what is found interesting at a given time. A key component is that to focus on a number of different sectors takes a scaled team and a scaled capital base.

CHAIR BOB WILLIAMS stated appreciation for the experience and the candidness in the presentation, and for sharing the work they do on behalf of the Alaska Retirement Management Board. He also thanked them for the work they are doing to benefit the beneficiaries, members, and the Alaska state pension funds. He called a break.

(Break.)

CHAIR BOB WILLIAMS called the meeting back and moved to a presentation by Crestline Blue Glacier Fund, Crestline Direct Lending Funds, with an introduction by Shane Carson.

CRESTLINE – BLUE GLACIER FUND, CRESTLINE DIRECT LENDING FUNDS

MR. CARSON stated that the ARM Board has had a relationship with Crestline since 2004, and the more recent engagement is in the Blue Glacier funds. He talked about the different investment strategy terms like Class A, B, C, and D, and now E; different investment classes within the Blue Glacier funds. There was a recently negotiated contract where classes in the Blue Glacier Fund were stopped, and that are now going to an evergreen fund, which is Class E. Those will become a professional vehicle. The other strategy that the ARM Board is invested with is a separate set of close-ended funds called the Specialty Money Funds 1, 2, and 3. He noted an action item regarding this fund would be brought forward tomorrow for the Board to contemplate. He turned it over to Crestline to do the introductions.

MR. BRATTON stated that he is the founding partner and chief executive officer of Crestline. He introduced Keith Williams, the managing partner, and head of the credit division. He stated appreciation for the opportunity to present to the Board and began with a quick update on Crestline. He continued that, since 2012, they built out their credit strategies. The ARM Board is a core investor, and one of the first investors to combine the opportunistic strategy and their NAV living strategy. Now there are some other division plans in the country coming around to that strategy. He added that Crestline is a $16.7 billion the credit investment manager, with 180 global employees and five offices around the world. They have a one-team culture.

MR. WILLIAMS continued that when the presentation was put together, they began with updates on the portfolios and wove in a bit about the approach and why it is different. In their approach every credit manager talks about capital preservation. When a loan is made, how do we get the money back. He continued that they looked back at what worked and what did not, and it came down to three attributes that worked well. One, opportunities are current in contractual revenue, was noncontractual, but recurring; second is asset-backing, what is it worth; last is multiple kind of pools of value, multiple streams of cash flow. From the attributes, they went to the attachment points; how much cushion is there. The other one is security. He added that the three attributes had really distinct industries that were applied. They looked at things in software, data centers, and in recurring revenue payment processing, business services, multi-site. The teams were built over the years and have dedicated expertise in each of the industries. The other critical aspect is around situational capabilities. He then talked about opportunistic, which is a very flexible mandate where a lot of things could be done with the need for a lot of different skills. That is the basis of building the 50-person team.

CHAIR BOB WILLIAMS thanked them for their presentation.

INVESTMENT ADVISORY COUNCIL PERSPECTIVES

CHAIR BOB WILLIAMS thanked IAC members for taking the opportunities to share their wisdom and talk about some things to do to protect ourselves for insurance. He recognized IAC Member Ruth Traylor.

MS. TRAYLOR stated that what she would insure against lack of or inappropriate delegation. Under fiduciary laws, the trustee has a duty to personally perform the responsibilities of the trusteeship, except a prudent person might delegate those responsibilities. She continued that trustees really need to know what they do not know and should not be expected to directly adjust the fund's investments to perform actuarial calculations or know how to implement information technology systems. Trustees should delegate to prudent experts and also need to be monitoring those experts. It is a continual cycle: delegate, check, monitor. She noted that what she would insure against is a lack of inappropriate delegation.

DR. JENNINGS stated that he would insure against the danger of parochialism. An example would be avoiding a too-strong home bias in investing. Over the last ten years, the S&P had generated about twice the ending wealth of MSCI EAFE international investing. He continued that there are more concerns about China; international diversification is diversifying; but it also affords investment opportunity. Avoid the geographical parochialism. He stated that his second parochialism to caution against is also geographic, and that is the parochialism of expecting an every weekday return to the office in Juneau. Then, insuring against the parochialism of constituency-based thinking as trustees. So be broad-minded and insure against the danger of parochialism.

DR. MITCHELL stated that his insurance is to insure against the loss of experience and qualified staff. He added that he would elaborate on it, with the permission of the Board, tomorrow.

CHAIR BOB WILLIAMS thanked the IAC for sharing their wisdom and looked forward to the presentation tomorrow. He highlighted the experience and wisdom of the IAC members. He also stated that this is a cohesive group that cares about the best interest.

(Alaska Retirement Management Board of Trustees meeting recessed at 4:15 p.m.)

June 16, 2023

CALL TO ORDER

CHAIR BOB WILLIAMS called the Alaska Retirement Management Board meeting back in session and thanked those that made it last night to celebrate Dr. Jerry Mitchell. It was a great time. He gave a shout-out to Director Pam Leary and Board Liaison Alysia Jones for the phenomenal decorations. He thanked all for the preparation and celebration of a great, great man. He recognized Dr. Jerry Mitchell to share his pearls of wisdom on his last day at an ARM Board meeting.

DR. MITCHELL began by echoing Chair Bob Williams' words, last night was phenomenal. He was grateful to the Board and to staff and to the incomparable Alysia and Pam for making it a very special occasion for him. His gratitude knew no bounds. When he was asked to spend a few minutes talking about his experience, 60 years as an investment manager and 30 years with the Alaska Pension Fund, he thought he would try to create some sort of a unified theory of investing, much like Albert Einstein tried to do with physics when he was working toward a unified field theory. Einstein failed in creating a unified field theory, and Dr. Mitchell noted that he also failed in creating a unified investment theory. He continued that, instead, there would be a hodgepodge of comments and remembrances, some of which had been heard before. He began at the beginning. Thirty years ago, the Alaska State Pension Investment Board, ASPIB, was looking for an international manager, and Dr. Mitchell was working at Wellington Management Company in Boston. He was sent to Juneau to see if he could gain some assets. He met with Wilson Condon, the Commissioner of Revenue, who also became an Attorney General of the state. He was a distinguished lawyer; created oil and gas law for Alaska; and was a brilliant man. The two began talking about international investing, and the conversation turned from investing to rowing. He explained crew and the sport of rowing and stated that it was eight strong guys in a boat pulling with all their strength, and then there was one little guy, about 115 pounds, at the back of the boat who yells at them. “Row faster.” He was that guy for four years in college. He had that in common with Wilson, who coached crew at Stanford. He said that he got the business and began managing money for the State. To this day, he did not know whether he was selected because of his investment acumen and Wellington’s reputation, or because Wilson felt that if he could control eight guys in a boat, he could certainly control a board of the Alaska pension plan. He began reviewing his 30 years with the Fund. He stated that the long trajectory of the State’s pension funds over the past 30 years involved both change and continuity. Both are important. Change is vital to any organization. If there is not change, you do not evolve, and risk falling behind. If the change in the world is not recognized, everything dies. But continuity is also important for an organization to remain true to its mission; to remember its successes; remember the failures; and to benefit from both. There must be a link to its past. There is a need for institutional memory and continuity. He talked about the major changes at the ARM Board during his 30 years of involvement. Size was one of them. In 1993, the Fund had about $5 billion in assets, and today has about $39 billion. Size created challenges and opportunities. It also meant more resources, more recognition, and the ability to diversify and invest broadly. In addition to size, another major change had been an asset allocation. In 1993, domestic equity was 36 percent of the portfolio; today it is 27. Global ex-U.S. was 7 percent; it was now 18. Fixed income was 50; and today is 19. Real assets moved from 7 percent of the portfolio to 14. And private equity was zero and is now 14. Those were changes of real magnitude, major scope; very big changes. They implied additional complexity. He stated that the management of those assets had changed, as well. The Fund had moved broadly and substantially from active management to indexing; basically, away from active toward passive. It was exclusively outside managers when he joined, to internal managers where more money each year is managed by the staff. The ARM Board had nudged aside the classic 60/40 stock/bond mix and joined the endowment world. Those changes meant that the Board has more responsibilities today than it ever had in the past. There was more study, more to keep up with, with a superior staff and more confidence in them. He continued that life is more complicated, and the center of the Fund had moved, in terms of management control, from experts in Boston and New York and San Francisco to Juneau. He thought that the Board had coped very well with change. Change is important and so is continuity. The ARM Board enjoyed a high level of continuity over the past 30 years, and that continuity treated them well. There has and will always be Board and staff turnover, and both have been less than at other large funds. Continuity also allows for the ownership of an idea and the ability to live with it long-term. He added that the continuity of your consultant, Callan, which has been with you for all of his 30 years; and for all of that time with just three regular representatives: O’Leary, Erlendson, and Center. That means that your consultant knows your fund, your people, your governance, and your history. The consultant has seen it all, and that is worth a lot. They have done a great job and are of considerable value to the Fund. There has also been continuity on the IAC. That is important because it takes a while for an IAC member to understand the Board, the staff, and the Fund. Which is required of them as IAC members to help, and it takes time. He continued that another element of continuity is the collegiality of the Board. Inter-board antagonisms could ruin a fund more easily than an individual failed manager or an unfortunate asset class choice. He added that throughout his tenure, this Board has been collegial and civil, and that is a happy bit of continuity. In talking about change, he came up with five future themes that the Board and staff may be conscious of for the longer-term future. The first one he referenced was artificial intelligence, AI. He did not know much about it, but it seems that it may have the power to change the way the investment business works, and that will have consequences in the future.

The second future theme to be concerned about is activism. There has always been shareholder activism, but it seems to be political when activists approach large funds and suggest investments. They try to take over the corporations that the funds own. The third was the democratization of information. When he began investing, information was obtainable in a way that would now result in a jail term. Secrets came from people. The next theme was a bipolar world or a multi-polar world. That had implications not only for the investments made, but the investments that are allowed to be made. The next was antibusiness rhetoric. It is said that the business of America is business. Business has gotten a bad reputation among the younger generation. Business is not seen as a wealth-creating force. It is seen as something that hampers the individual and the individual's ability to express themselves. The next part of his talk was originally presented to the Permanent Fund and called "50 Years of Investing: Some Observations." Then it was given to the ARM Board and called "57 Years of Investing: Some Observations." Now it is up to 60 years and involves ten observations: No. 1, own the U.S. stock market; No. 2, remember that investment management is a business, and all investment managers are salesmen; No. 3, economic forecasting is notoriously inaccurate, and mainline indicators tell almost nothing about what the stock market will do; No. 4, market insights are temporary and self-correcting; No. 5, higher risk does not always equate to higher return, be careful how you measure risk; No. 6, few manager presentations ever show returns in the fourth, third, or even second quartiles, where, mathematically, 75 percent of all managers have to be; No. 7, have realistic return assumptions; No. 8., investment theories and models are useful, but don't always work in the real world; No. 9, doing nothing is sometimes better than doing something. Successful investors are those that change very little and do very little. They buy and hold and hold and hold. No. 10, the smartest person in the room is not always the best investor. There is a need to have a special talent for being a great investor, and being smart helps, but talent makes the difference. He moved to a few observations about the ARM Board. Simply, they are a great Board, and a great staff, with a great consultant, a great IAC, and they employ some great managers; all of which should result in superior performance and great governance. He stated that they should be proud of their accomplishments, and it has been an honor to have been associated with them.

(Applause.)

CHAIR BOB WILLIAMS thanked Dr. Mitchell for the words of wisdom and hoped, from what was said at the meal last night and today, that he realized the depth and appreciation of what he had accomplished and what he shared and what has been learned from him. He stated that he had a resolution and asked for a motion to approve it.

> **MOTION:** A motion was made to approve Resolution 2023-004, Alaska Retirement Management Board, related to the retirement and investment of Advisory Council member Dr. Jerrold Mitchell. "WHEREAS, the Alaska Retirement Management Board was established by law to serve as trustee of the assets in the State's retirement systems; and, WHEREAS, Dr. Jerrold Mitchell managed domestic and international equity portfolios for institutions and mutual funds for over 25 years at Wellington Management Company, served as Chief Investment Officer of the Massachusetts State Pension Fund and the Boston Foundation, a partner at Saltonstall & Company, and adjunct professor of finance at Brandeis University; and, WHEREAS, Dr. Mitchell has served as advisor to the Board and its predecessor the Alaska State Pension Investment Board since October 14, 1995; and, WHEREAS, Dr. Mitchell took his three-year appointment so seriously he

tried to add a zero to it; and, WHEREAS, Dr. Mitchell has imparted nearly 60 years of observations in the financial investment world with trustees, staff, consultants; and, WHEREAS, the ARM Board has been blessed with the decades of Dr. Mitchell's sage advice such as 'Economic forecasting is notoriously inaccurate' and 'remember, investment management is a business, and all investment managers are salespeople.' NOW, therefore, be it resolved that the Alaska Retirement Management Board, on behalf of trustees and staff, express their sincerest appreciation for Dr. Mitchell's years of dedicated service and invaluable contributions to the Board and the beneficiaries of Alaska's public pension systems and the state and local governments, bearing the obligations of the systems. Be it further resolved, the Board wishes Dr. Mitchell a joyful, fulfilling retirement. Dated at Anchorage, Alaska, this 16th day of June 2023." The motion was made by TRUSTEE MOEN; seconded by TRUSTEE RYAN.

After the roll-call vote, the MOTION was APPROVED. (Trustee Bretz, yes; Commissioner Crum, no response; Trustee Krohn, yes; Trustee Moen, yes; Trustee Ryan, yes; Commissioner Vrana, no response; Trustee Mike Williams, yes; Chair Bob Williams, yes.)

CHAIR BOB WILLIAMS stated on behalf of the Alaska Retirement Management Board, thank you very much to Dr. Jerry Mitchell.

DR. MITCHELL thanked all very much.

(Applause.)

MULTI-ASSET CLASS
CHAIR BOB WILLIAMS moved on with State Investment Officer Shane Carson, Multi-Asset Class.

MR. CARSON stated that he oversees the ARM Board's Multi-Asset asset class. He noted some of the highlights of the past year. The Board witnessed the biggest achievement in the asset class, and that was the private debt search, and the hiring of the two managers. The name of the asset class was changed from Opportunistic to Multi-Asset, and Alternative Fixed Income, (private debt) transitioned from the Fixed Income Asset class to the Multi-Asset. One of the contracts with Crestline was moved from to an evergreen fund. He stated that Multi-Asset provides an allocation for the more specialized investments and investment strategies and are not constrained at the asset class level. The asset class is currently targeted for a weight of 8 percent in the total ARM Board portfolio, with its benchmark to the MSCI ACWI. He went through alternatives and touched on alternative equity and the definition of target asset allocation. He moved to the current structure of Multi-Asset and talked about how it looked right now and how things were weighted. He took a few minutes and talked about the one manager in the alternative beta bucket, which was the Man Group. Performance for that strategy was expected to suffer significantly when equity markets rise and trend upward. It would shine in a market environment when equity was down or trending flat. He continued, explaining alternative fixed income. He talked about the considerations for the upcoming year and stated that he would evaluate the usage and structure of the tactical allocation strategies. He noted that there were two action memos for the Board. During the private debt search, he explained that Callan identified five very good managers, and we hired two of them. He stated that there were two potential additional managers in that search that he may bring back in front of the Board for a hire at some point later in the year.

CHAIR BOB WILLIAMS thanked Mr. Carson and moved to a presentation by the Man Group on Alternative Risk Premia and asked Mr. Carson for introductions.

MAN GROUP – MAN ALTERNATIVE RISK PREMIA

MR. CARSON stated that Man Group is the only investment manager in the alternative beta bucket. The strategy was funded in 2017. Focus is on capturing the risk premia with the expectation of positive reversed prior returns in the risk-managed portfolio. He introduced Trey Heiskell, managing director.

MR. HEISKELL stated that he represented Man Group, an investment management firm based in London. They run $145 billion in assets under management, and this particular strategy represents $6.6 billion. He introduced Richard Barclay, the lead portfolio manager for the Alternative Risk Premia Fund. He had the distinction of being a point owner for the strategy, having been there since Day One in 2015. The present objective is to make sure that they are very clear with regard to what they are trying to achieve in the strategy; how managing risk at the portfolio level is thought about, which is one of the biggest aspects of how the multi-asset portfolios are run; and specifically addressing performance concerns with regard to how things have been going. He asked Mr. Barclay to continue.

MR. BARCLAY stated that they are aiming to offer access to a diversifying return stream that is transparent, liquid, and cost-effective. The initial drivers when the portfolio was set up in 2015 were to create a return stream that was not dependent on equities and bonds; something that could generate returns when equities and bonds were not going up in value, and actually were going down. He defined liquidity as getting assets back from the portfolio very quickly. Only the most liquid instruments across asset classes are traded. Cost-effective pricing means that all was available to investors at one flat fee for everything. He then talked about transparency and compliance. He reiterated that the guiding principles of the portfolio were: Diversifying liquid, cost-effective, transparent, positive returns. He went through all in more detail and stated that the point was to emphasize the diversification within the portfolio. Both the macro strategies and the equity strategies have delivered positive returns for the portfolio and that has been true since inception in 2015, and since the start of this investment. He continued that the goal of this strategy is diversification and liquid diversification. Delivering liquid diversification uses well-understood systematic return sources and uses all of Man's capabilities to do that in the best way possible.

CHAIR BOB WILLIAMS thanked them and called a break.

(Break.)

CHAIR BOB WILLIAMS moved to the presentation by PineBridge Global Dynamic Asset Allocation. He asked Mr. Carson to do the introductions.

PINEBRIDGE – GLOBAL DYNAMIC ASSET ALLOCATION

MR. CARSON stated that PineBridge would present their Global Dynamic Asset Allocation strategy, which was spun up in 2018. This was the first of the two tactical allocation managers presenting. PineBridge was hired by the Board to invest wholly across liquid assets, to take advantage of market opportunities, and provide the ARM Board and staff with forecasting. He encouraged the trustees to ask questions about the performance and expectations in the market.

MR. FAGUE stated that he has been with the firm since 2014. He worked with institutional clients in the Western United States. He introduced Mike Kelly, who joined the firm in 1999, and launched this strategy in 2005. He built the process and the team. He gave a brief background of the firm, noting that they manage a little under $150 billion. They are based in New York, and manage money in public and private markets, and manage stocks and bonds, as well. They manage U.S., international, and emerging markets, and have dedicated teams in all of those areas. He continued that Mr. Kelly can go to each of those individual teams, get input, and build that into what is being done in the strategy itself. He talked about return objective and looked at a CPI+5 return. They are aligned based on what is being done from a total return standpoint. From a risk standpoint, they use a risk budget of a global 70/30; 70 percent global equities, 30 percent global bonds. That is not a static risk across a market cycle. The other big difference is the time horizon. They focus on two time horizons; one is the five-year time horizon at the beginning of the process; the other horizon uses nine to 18 months. He continued to performance and how the strategy is supposed to perform. Last year they significantly outperformed versus the risk budget with significantly less risk; about two-thirds of what the market did. The process is driven by fundamentals. He asked Mr. Kelly to continue.

MR. KELLY stated that they try to get the better, bigger things about right about a lot of things, and they don't stay too fundamentally wrong too long. He talked about the views of the cash flows of every asset class over the next five years and the likely capitalization rates. Liquidity is one of the two things that drives markets, cash flows, and liquidity. He continued that 2022 was terrible for every asset class because most of that had to be corrected all in one year.

CHAIR BOB WILLIAMS thanked them for their presentation and continued to the presentation by Fidelity Signals.

FIDELITY SIGNALS

MR. CARSON stated that the next presentation was from Fidelity talking about the Signals strategy. He continued that Fidelity is the second of the general tactical asset allocation management. He noted that there would be an action item, and the recommendation is that the Board direct staff to expand the investment universe that Fidelity invests in. They would be touching on that request during their presentation. He turned it over to Kristen Shofner for introductions.

MS. SHOFNER stated that it was great last night to celebrate Jerry, and they really appreciated all of the "Jerryisms." She continued that they were Fidelity representing the Signals portfolio. They are privately owned and stick pretty close together; and things do not change dramatically. She stated that she has had the pleasure of working with Alaska for 20-plus years. When she joined Fidelity ten years ago, she was lucky to find a way to work with the ARM Board again. Her role is to work with your staff, your Board and your consultant, and to make sure that all were properly resourced, and they had everything they needed from Fidelity. She continued that she was joined by Melissa Moesman who services the account. She also stated that she was joined by one of the four PMs that represent the Signals portfolio, Jordan Alexiev, who had never been to Alaska, but it was on his bucket list. She thought that he was the perfect PM for them. She continued that he is the most conscientious and client-oriented PM with which she has ever worked. It is nice to have a partner with the same client focus. He is very good at what he does, investments. She asked him to continue.

MR. ALEXIEV stated that he is part of a four-person team. His colleague, Ed Heilbron, has a son in Fairbanks and would be happy to visit there if this meeting is ever held there. There is also Ryan Mishina, one of the research analysts on the manager research side. Ryan was born and raised in Anchorage and would be happy to talk with the Board. On the portfolio side, in terms of how it is run, it has always been a team-managed approach. They try to harvest insights around asset location across Fidelity and put it in the portfolio in a structured way. He quickly went through performance where they are seeing positive numbers, and then continued to the approach. He moved to the investment process, explaining that the way they think about the world is in terms of different timeframes. There were three systematic signals focused on the business cycle, valuations, and momentum. They all operate over different timeframes. Valuations take years, sometimes decades, to correct; and the business cycles zig and zag anywhere from three to five to seven years. Momentum is a shorter-term signal which tries to take into account how things are different this time around. These signals were combined into a systematic portfolio. He moved to talking about markets and what was called the Fidelity Dot Plot. People are fascinated with what the Fed is doing and moving their incremental forecast. They try distilling all the insights about where different economies are in their business cycles into just one single dot. There were four cycles: early cycle when the economy is recovering from a recession; growth is picking up at a very fast pace; the mid cycle expansion is the longest part of the cycle where things moved in a positive direction, but the growth was starting to moderate; the late cycle is when they started dealing with inflation and were close to capacity, close to full employment, and then the Fed turns against them. He continued that it is not a recession yet, which is important in balancing when observing the signals. It is a more desynchronized global cycle. He talked about the major themes in positioning.

MS. SHOFNER thanked the Board again for having them and for the business. This is a huge account for the firm, and all eyes are on it. Fidelity seems like a large place, but in the institutional world it is a much smaller subset. She stated appreciation for the opportunity.

CHAIR BOB WILLIAMS thanked them for their presentation and related that the September 2024 ARM Board meeting would be in Fairbanks. He continued to the action memos and recognized Shane Carson.

INVESTMENT ACTIONS

MR. CARSON stated that the second action item listed on the agenda is regarding Fidelity. Since they were just heard from, he addressed that one first. He continued that part of the portfolio improvement process was staff asking managers continuously if there was a better way to do things. He noted that the addition of these funds will cause no change to the net-of-fee structure.

CHAIR BOB WILLIAMS asked for a motion.

> **MOTION:** The Board directs staff to make the necessary changes to the Fidelity Signaling investment guidelines and contract to add the underlying funds listed in Appendix A, which is in the action memo, to the ARM Board portfolio's investable

opportunity set. The motion was made by TRUSTEE BRETZ; seconded by TRUSTEE KROHN.

CIO HANNA stated that these were much higher expense options being added to the strategy. He thought that they had already kind of keyed in on this, but Fidelity did not mention it very directly. He continued that these are tools typically used in their full-blown strategy. This went in with a very cost-conscious approach, and they were re-adding tools that would generally cost quite a bit more. He thought that this was a really good value proposition.

CHAIR BOB WILLIAMS liked the same price, first-class upgrade. He asked for a roll-call vote.

After the roll-call vote, the MOTION was APPROVED. (Trustee Moen, yes; Trustee Ryan, yes; Commissioner Vrana, no response; Trustee Mike Williams, yes; Trustee Bretz, yes; Commissioner Crum, no response; Trustee Krohn, yes; Chair Bob Williams, yes.)

MR. CARSON talked about Crestline Investors and the performance of their direct specialty lending funds. The ARM Board had been invested with the SLFs. SLF-3 was approaching the end of its investment period. Crestline was now marketing what they are calling the Direct Lender IV, which was a renamed SLF. DLF IV would be seeking investors.

CHAIR BOB WILLIAMS asked for a motion.

MOTION: The Alaska Retirement Management Board directs staff to negotiate with the Crestline investors for a commitment of up to $100 million to Crestline Direct Lending Fund for LGP, subject to the size of the contract and fee negotiations. The motion was made by TRUSTEE RYAN; seconded by TRUSTEE KROHN.

After the roll-call vote, the MOTION was APPROVED. (Trustee Mike Williams, yes; Trustee Bretz, yes; Commissioner Crum, no response; Trustee Krohn, yes; Trustee Moen, yes; Commissioner Vrana, no response; Trustee Ryan, yes; Chair Bob Williams, yes.)

CHAIR BOB WILLIAMS called a lunch break.

(Lunch break.)

CHAIR BOB WILLIAMS stated that they were back in session and moved to the 2023 Asset Allocation strategy. He asked CIO Hanna for an introduction.

ARMB 2023 ASSET ALLOCATION STRATEGY

CIO HANNA stated that Jay Kloepfer was present to take the Board through a summary of Callan's CMA processes and the mixes that were worked on for the Board to consider.

MR. KLOEPFER congratulated Dr. Mitchell on his retirement and commented that Dr. Mitchell had been here the whole time he had been coming to Alaska, since 2007. He stated that he had presented the capital market expectations and spoke about where they would end up with the given target, which was where they now are. He gave a brief refresher and went through the biggest changes. He continued that cash was the other one that had a big change, which underlies several of the asset classes that they operate. He added that correlation is a key element of risk, and it is how asset classes interact with one another. The other element that got lost in some of the discussion was that the equity risk premium was narrowed a lot this year. He focused on the 20-year in going through the asset allocation process. He added that the duration in the cash flows suggested 20 years as a good proxy for the investing time horizon. He stated that it had been a changing composition over time and the current setup, with the primary focus in real estate with allocations to timber, farmlands, private infrastructure, and REITS. He moved on to the optimization model with a caveat that they held multi-asset, real assets, and private equity constant across all the portfolios. He explained how that changed the allocation to stocks and bonds. He moved to the second portfolio, which was for the military. He stated that it has less risk in the portfolio than what is in PERS and TRS.

CHAIR BOB WILLIAMS moved to the asset allocation discussion with action items, and recognized CIO Hanna.

ASSET ALLOCATION DISCUSSION & ACTION ITEMS

CIO HANNA stated that in thinking about asset allocation it is good to keep in mind the main objective, which was to guide the systems in such a way that the likelihood of paying all the benefits when they are due would be maximized. He continued that the benefits come from a combination of three sources of payments: There were current assets, $31 billion in total; contributions, forward contributions from the stated employers; and investment earnings. The ARM Board, through a collection of actions, directs the balance between earnings and contributions. Setting rate assumptions, asset allocation, and contribution rates will set the balance between what was expected in terms of forward earnings and what is expected from state employers in terms of forward contributions. He added that it is a dynamic that is very important to the plans and to the State. He continued that they were concluding the annual asset allocation process which was designed to balance the investment objectives with the risk tolerance. He stated that the staff recommendation was Mix 2. He thinks it is a reasonably moderate reduction in risk: Reduces equities by 200 basis points; increases fixed income by 100 basis points. He moved to the National Guard and Naval Militia plan, which is a small $44 million plan with relatively defined fixed benefits. It was overfunded by 160 percent as of 2022. The State is currently not contributing the normal cost, which is expected to continue until funding levels come down further. He noted that there were asset allocation resolutions for the Board's consideration.

CHAIR BOB WILLIAMS commented that one of the things discussed over and over and is one of the biggest decisions and most important things the Board does, is to set asset allocation. He asked to hear thoughts on the recommendations from the IAC members and Callan.

DR. JENNINGS stated that he thought they heard the answer to the things he was hoping to hear about. He envisioned CIO Hanna having six different levers and moving three of them in a direction that felt appropriate, reducing the risk. Then there were three that were stiffer and harder to move around; the ones that were less likely. He continued that, given the ease of moving two public equities and fixed income, he felt like the movement was in the direction that made the most sense.

MS. RYERSON stated that given the idea of looking at 20 years it would be good to move gradually and not make a huge jump all at once. She thought that just going part of the way there made sense.

CHAIR BOB WILLIAMS stated that for this meeting the most important thing was to express appropriate levels of gratitude for Dr. Mitchell's service. He hoped that bar was met.

DR. MITCHELL stated that he was happy to endorse the staff recommendation. He added that the movement was from 7.6 to 7.6, and 5.1 to 5.0. Anything right of the decimal did not count, and he thought it was the right direction.

MR. CLIFF agreed with the gradual, partial de-risking. There is the headroom to be able to do that after years of being forced to add risk. He did not see a reason to be more risky than the peers.

MR. KLOEPFER stated that during the period from 2014 through 2017 everyone was taking on too much risk. He thought that the relief given by a return to normal in the fixed income market was a gift that allowed a deeper breath, and this was the amount of risk to take.

CHAIR BOB WILLIAMS entertained a motion before the trustee discussion.

> **MOTION:** The Alaska Retirement Management Board adopt Resolution 2023-02 with Mix 2 and 2023-03 with Mix 2, approving the asset allocation for fiscal year 2024. The motion was made by TRUSTEE MOEN; seconded by TRUSTEE MIKE WILLIAMS.
>
> *After the roll-call vote, the MOTION was APPROVED. (Trustee Bretz, yes; Commissioner Crum, no response; Trustee Krohn, yes; Trustee Moen, yes; Trustee Ryan, yes; Commissioner Vrana, no response; Trustee Mike Williams, yes; Chair Bob Williams, yes.)*

CHAIR BOB WILLIAMS stated that next on the agenda was an Executive Session and asked for a motion.

> **MOTION:** A motion to go into Executive Session under Alaska Statute 36.30.2030 was made. Proposals are open for public inspection after the notice of intent to award a contract is issued under AS 36.30.365. Because proposals are confidential by law, this motion was to go into Executive Session per AS 44.62.310(c)(3) to discuss responses to the RFP investment advisory council member and evaluation committee's recommendation. ARM Board legal Counsel Ben Hofmeister and Board Liaison Alysia Jones are asked to join the trustees in Executive Session. The motion was made by TRUSTEE KROHN; seconded by TRUSTEE RYAN.
>
> *There being no objection, the MOTION was APPROVED.*

(Executive Session from 2:36 p.m. until 2:42 p.m.)

CHAIR BOB WILLIAMS stated that they were out of Executive Session, and as the chair of the PEC Committee, he brought a recommendation forward.

MOTION: <u>The recommendation is that the Alaska Retirement Management Board appoint Joshua Rabuck to a three-year term on the Investment Advisory Council, commencing after the acceptance of the position by contract, and based on the terms and conditions set forth in RFS 2023-0400-0016.</u>

After the roll-call vote, the MOTION was APPROVED. (Trustee Moen, yes; Trustee Krohn, yes; Commissioner Crum, yes; Trustee Ryan, yes; Trustee Bretz, yes; Commissioner Vrana, no response; Trustee Mike Williams, yes; Chair Bob Williams, yes.)

CHAIR BOB WILLIAMS moved forward with the agenda and asked for any unfinished business or new business that needed to come before the Board. He asked if there were any other matters to properly come before the Board. This was the second time in the meeting for public comments and appearances, and he asked for anyone online or in the room who would like to speak. Hearing none, he closed that portion of public/member comments. He moved to the comments from the IAC members.

MS. RYERSON stated that what Dr. Mitchell said about history got her thinking that she did not have 60 years of investment history. When talking about delegation yesterday, you all need to know that you have an amazing setup. In the '80s, when the Colorado Fire and Police was first set up, her Board had almost nobody with delegation authority, even to the point of an investment manager wanting to make a trade. They had to call staff, and staff had to get Board approval to buy or sell anything. It took two years to get legislation through to do the Prudent Man Act so that the Board did not have to approve every single trade. The ability to front-run something like that would be just amazing. Having a capable staff that you trust that you can delegate to, that gives great follow-up -- the process here is great. The only other thing she had to say was a wish for more time on the IAC with Dr. Mitchell. She was there for 3.5 years, with the first two being remote. It had been 1.5 years of interaction, and there is so much that everyone could and did learn from him. She was glad that he was there now.

DR. JENNINGS linked to one particular slide out of all that were seen; from someone that teaches at a military academy, that Roman phalanx or cohort, the advantage of fighting in a phalanx or cohort versus fighting individually would make its way into his class. The stories of individual combat fit in the imagination a bit better or firmer. David and Goliath stick in the memory. The investment analogy was that you may enjoy hearing from an eloquent manager/dualist or hearing colorful stories, but it was wiser to look at the larger battles and campaigns which is what was just done. Focus on asset allocation mixes or focus on asset class reviews, and it was safer to focus on the formations rather than the analytics. He continued that a lot was said about Jerry and his retirement. One thing that the committee that just made the selection would know was that each of the three seats have very specific requirements or specifications, and Dr. Mitchell's been a money manager for that seat. He was also a professor and had also been a public fund CIO. The new IAC member just named will have big, big shoes to fill. One thing that is in almost every military citation, which he hoped the minutes would precisely reflect:
Dr. Jennings praised Dr. Mitchell's singularly distinctive contributions.

DR. MITCHELL thanked him and reiterated what a pleasure and honor it had been for him to work with this group, the present group, the past Board members, and staff members over the years. Just top-ranked in every way. So, thank you.

CHAIR BOB WILLIAMS moved to trustee comments.

TRUSTEE RYAN stated that she did not think she would ever quite get out of her head the image of Jerry sitting at the front of the boat yelling at men to row faster. Now she would remember this forever and whenever thinking of Dr. Mitchell. She thanked her fellow trustees for having faith in her, knowing that she was going to retire and possibly get some rest, and for helping her see that was not possible; and allowing her to move on as vice chair.

CHAIR BOB WILLIAMS thanked Trustee Krohn. They both went to the same conference, listened to the same presentations, and he took more actions. He bought the book and knew the top three things to improve his health and addressed all three of them. He will probably live 15 years longer because he went to that Callan conference. He noted that he was going to make some additional improvements. It showed that being open to educational opportunities they could make a remarkable difference in the actions taken as a Board and in personal lives. He thanked Trustee Krohn for that example. He also thanked the cooperation of all the trustees. He also reiterated the high praises to Alysia and Pam. The decorations were phenomenal. When something is done with heart and love and gratitude, it shows through, and it is appreciated. One of Dr. Mitchell's pearls was valuing and appreciating the experiences of staff. He thanked CIO Hanna for all the work done in putting this together and all the communication. He also thanked Ben Hofmeister for his graciousness, listening, and for the good counsel and advice. The wisdom of the IAC is very valuable, and, to the remaining members, they will continue to be leaned on, listened to, and valued. Dr. Mitchell will always be welcome where any of the trustees live to come visit. We are deeply grateful for what he has done.

DR. MITCHELL thanked the Chair.

CHAIR BOB WILLIAMS asked for any future agenda items. He asked for any opposition to adjournment. He adjourned the meeting.

(Alaska Retirement Management Board Trustees meeting adjourned at 2:53 p.m.)

ALASKA RETIREMENT MANAGEMENT BOARD

STAFF REPORT

Disclosure – Communications – Calendar – Timeline
Update
September 13, 2023

The 2nd Quarter Disclosure Memorandum is included in the packet; no disclosure transactions require additional review or discussion.

The Communications Memorandum lists communications directed to and sent on behalf of the Board since the June 15-16, 2023, ARMB meeting, as well as a summary of public records requests received between June 1st and August 31, 2023.

The 2023 calendar and 2024 calendar, approved by the Board at the June meeting are also attached.

A copy of the timeline showing contract and review deadlines for FY2024 through FY2029 is included for reference.

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

To: ARMB Trustees
From: Alysia Jones
Date: August 21, 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.

2nd Quarter April 1, 2023 – June 30, 2023

Name	Position Title	Disclosure Type	Disclosure Date
Casey Colton	State Investment Officer	Equities	4/26/2023
Sandra Ryan	ARMB Trustee	Equities	5/26/2023
Donald Krohn	ARMB Trustee	Equities (w/ Options)	7/8/2023
Hunter Romberg	Senior Investment Compliance Officer	Equities/Fixed Income	7/10/2023
Benjamin Garrett	State Investment Officer	Equities	7/11/2023
Emily Howard	State Investment Officer	Fixed Income	7/18/2023
Sean Howard	State Investment Officer	Fixed Income	7/18/2023
Cahal Morehouse	State Investment Officer	Fixed Income	7/26/2023

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

To: ARMB Trustees
From: Alysia Jones
Date: August 31, 2023
Subject: Communications & Information Requests

Communications to Trustees
The following is a list of communications directed to the Board, that were received since the June 15-16, 2023 Board of Trustees meeting.

Name	Type	Date	Topic
Randall Burns, RPEA	Email	8/23/2023	Hack of file transfer software MOVEit

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

Public Records Requests
June 1 – August 31, 2023

Topics	# of Requests	Description
Investment Portfolio	5	Portfolio performance data, Investment pools, hedge funds/absolute return, real estate, and private debt, historical data
Proxy Voting	3	Policies, guidelines, and voting records
Procurement	3	Contract awards, commitments, expiration dates, and RFP evaluation process
Meeting Materials	3	Summary of board actions, meeting recordings

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*
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*
July 26 Wednesday	**Videoconference**	**Board of Trustees Special Meeting**
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	Videoconference	Audit Committee
October 12 Thursday	**Anchorage, AK**	**Board of Trustees Special Meeting**
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.

Updated: 7/15/2023

ALASKA RETIREMENT MANAGEMENT BOARD
2024 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 – 4th 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 - 1st Quarter* *Manager Presentations (Emphasis on Multi-Asset & Asset Allocation)*
September 17 Tuesday	Fairbanks, AK	Audit Committee Defined Contribution Plan Committee Actuarial Committee Operations Committee
September 18-19 Wednesday - Thursday	**Fairbanks, 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 (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 – 3rd 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*

Approved: 6/15/2023

ARMB Timeline of Contract and Review Deadlines FY2024 - FY2029

FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
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 Appointment *Seat 3 - Academic Advisor* March 2024 agenda Effective Date: 7/01/2024 (FY25)	**IAC Appointment** *Seat 1 - Trustee or manager of public fund or endowment* March 2025 agenda Effective Date: 7/01/2025 (FY26)	**IAC Appointment** *Seat 2 - Portfolio Manager* March 2025 agenda Effective Date: 7/01/2026 (FY27)	**IAC Appointment** *Seat 3 - Academic Advisor* March 2027 agenda Effective Date: 7/01/2027 (FY28)	**IAC Appointment** *Seat 1 - Trustee or manager of public fund or endowment* March 2028 agenda Effective Date: 7/01/2028 (FY29)	**IAC Appointment** *Seat 2 - Portfolio Manager* March 2029 agenda Effective Date: 7/01/2029 (FY30)
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 Measurement (General) Consultant Contract (TRSY)** *RFP - March 2029* Effective Date: 7/01/2029 (FY30)
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)	**Real Assets Consultant Contract (TRSY)** *RFP - March 2029* Effective Date: 7/01/2029 (FY30)
Asset Liability Study (TRSY) *Recommendation: Every 5 years*					**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)		**Review Actuary Contract (TRSY)** AS 37.10.220(a)(9) *RFP March 2029* Effective Date: 7/01/2029 (FY30)
	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) RFP March 2028 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: 7/31/2023

ALASKA RETIREMENT MANAGEMENT BOARD

STAFF REPORT

Fund Financials – Cash Flow Report
September 14, 2023

<u>Ryan Kauzlarich, Assistant State Comptroller, Department of Revenue</u>

As of July 2023 month-end, total plan assets were as follows: PERS - $23.8 billion, TRS - $11 billion, JRS - $286.6 million, NGNMRS - $44.8 million, SBS - $4.8 billion, DCP - $1.2 billion. Total non-participant-directed plans totaled $32.1 billion, and participant-directed plans totaled $9.1 billion. Total assets were $41.2 billion.

Year-to-date income was $752.4 million, and the plans experienced a net withdrawal of $3.5 million. Total assets were up 1.85% year-to-date.

Internally managed assets totaled $15.8 billion.

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

<u>Kevin Worley, Chief Financial Officer, Division of Retirement and Benefits</u>

Presented is the Division of Retirement and Benefits (DRB) Supplement to the Treasury Division's Financial Report as of July 31, 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 1-month ended July 31, 2023 (page 1) and for the month of July 2023 (page 2).

Also presented are participant-directed distributions by plan and by type for the 1-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 July 31, 2023

ALASKA RETIREMENT MANAGEMENT BOARD
Schedule of Investment Income and Changes in Invested Assets by Fund
Fiscal Year-to-Date through July 31, 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	$ 11,089,849,160	$ 189,938,880	$ (15,829,928)	$ 11,263,958,112	1.57%	1.71%
Retirement Health Care Trust	9,097,252,339	154,421,359	(38,910,617)	9,212,763,081	1.27%	1.70%
Total Defined Benefit Plans	20,187,101,499	344,360,239	(54,740,545)	20,476,721,193	1.43%	1.71%
Defined Contribution Plans:						
Participant Directed Retirement	2,134,651,591	58,433,085	5,477,549	2,198,562,225	2.99%	2.73%
Health Reimbursement Arrangement	791,635,221	13,433,569	3,839,985	808,908,775	2.18%	1.69%
Retiree Medical Plan	241,605,465	4,099,134	1,374,679	247,079,278	2.27%	1.69%
Defined Benefit Occupational Death and Disability:						
Public Employees	50,630,681	858,592	311,711	51,800,984	2.31%	1.69%
Police and Firefighters	20,838,106	353,811	99,963	21,291,880	2.18%	1.69%
Total Defined Contribution Plans	3,239,361,064	77,178,191	11,103,887	3,327,643,142	2.73%	2.38%
Total PERS	**23,426,462,563**	**421,538,430**	**(43,636,658)**	**23,804,364,335**	1.61%	1.80%
Teachers' Retirement System (TRS)						
Defined Benefit Plans:						
Retirement Trust	6,076,707,595	106,098,629	60,832,886	6,243,639,110	2.75%	1.74%
Retirement Health Care Trust	3,511,855,110	59,620,923	(12,649,875)	3,558,826,158	1.34%	1.70%
Total Defined Benefit Plans	9,588,562,705	165,719,552	48,183,011	9,802,465,268	2.23%	1.72%
Defined Contribution Plans:						
Participant Directed Retirement	882,746,917	24,797,609	1,738,558	909,283,084	3.01%	2.81%
Health Reimbursement Arrangement	230,674,640	3,904,970	1,742,916	236,322,526	2.45%	1.69%
Retiree Medical Plan	75,940,325	1,286,132	489,053	77,715,510	2.34%	1.69%
Defined Benefit Occupational Death and Disability	7,389,977	125,183	42,179	7,557,339	2.26%	1.69%
Total Defined Contribution Plans	1,196,751,859	30,113,894	4,012,706	1,230,878,459	2.85%	2.51%
Total TRS	**10,785,314,564**	**195,833,446**	**52,195,717**	**11,033,343,727**	2.30%	1.81%
Judicial Retirement System (JRS)						
Defined Benefit Plan Retirement Trust	237,075,641	4,119,055	1,721,700	242,916,396	2.46%	1.73%
Defined Benefit Retirement Health Care Trust	43,003,660	730,634	(63,506)	43,670,788	1.55%	1.70%
Total JRS	**280,079,301**	**4,849,689**	**1,658,194**	**286,587,184**	2.32%	1.73%
National Guard/Naval Militia Retirement System (MRS)						
Defined Benefit Plan Retirement Trust	44,502,762	398,276	(142,017)	44,759,021	0.58%	0.90%
Other Participant Directed Plans						
Supplemental Annuity Plan	4,751,924,750	102,584,106	(11,770,019)	4,842,738,837	1.91%	2.16%
Deferred Compensation Plan	1,127,805,803	27,200,915	(1,851,151)	1,153,155,567	2.25%	2.41%
Total All Funds	**40,416,089,743**	**752,404,862**	**(3,545,934)**	**41,164,948,671**		
Total Non-Participant Directed	31,518,960,682	539,389,147	2,859,129	32,061,208,958	1.72%	1.71%
Total Participant Directed	8,897,129,061	213,015,715	(6,405,063)	9,103,739,713	2.32%	2.40%
Total All Funds	**$ 40,416,089,743**	**$ 752,404,862**	**$ (3,545,934)**	**$ 41,164,948,671**	**1.85%**	**1.86%**

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 July 31, 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	$ 11,089,849,160	$ 189,938,880	$ (15,829,928)	$ 11,263,958,112	1.57%	1.71%
Retirement Health Care Trust	9,097,252,339	154,421,359	(38,910,617)	9,212,763,081	1.27%	1.70%
Total Defined Benefit Plans	20,187,101,499	344,360,239	(54,740,545)	20,476,721,193	1.43%	1.71%
Defined Contribution Plans:						
Participant Directed Retirement	2,134,651,591	58,433,085	5,477,549	2,198,562,225	2.99%	2.73%
Health Reimbursement Arrangement	791,635,221	13,433,569	3,839,985	808,908,775	2.18%	1.69%
Retiree Medical Plan	241,605,465	4,099,134	1,374,679	247,079,278	2.27%	1.69%
Defined Benefit Occupational Death and Disability:						
Public Employees	50,630,681	858,592	311,711	51,800,984	2.31%	1.69%
Police and Firefighters	20,838,106	353,811	99,963	21,291,880	2.18%	1.69%
Total Defined Contribution Plans	3,239,361,064	77,178,191	11,103,887	3,327,643,142	2.73%	2.38%
Total PERS	**23,426,462,563**	**421,538,430**	**(43,636,658)**	**23,804,364,335**	1.61%	1.80%
Teachers' Retirement System (TRS)						
Defined Benefit Plans:						
Retirement Trust	6,076,707,595	106,098,629	60,832,886	6,243,639,110	2.75%	1.74%
Retirement Health Care Trust	3,511,855,110	59,620,923	(12,649,875)	3,558,826,158	1.34%	1.70%
Total Defined Benefit Plans	9,588,562,705	165,719,552	48,183,011	9,802,465,268	2.23%	1.72%
Defined Contribution Plans:						
Participant Directed Retirement	882,746,917	24,797,609	1,738,558	909,283,084	3.01%	2.81%
Health Reimbursement Arrangement	230,674,640	3,904,970	1,742,916	236,322,526	2.45%	1.69%
Retiree Medical Plan	75,940,325	1,286,132	489,053	77,715,510	2.34%	1.69%
Defined Benefit Occupational Death and Disability	7,389,977	125,183	42,179	7,557,339	2.26%	1.69%
Total Defined Contribution Plans	1,196,751,859	30,113,894	4,012,706	1,230,878,459	2.85%	2.51%
Total TRS	**10,785,314,564**	**195,833,446**	**52,195,717**	**11,033,343,727**	2.30%	1.81%
Judicial Retirement System (JRS)						
Defined Benefit Plan Retirement Trust	237,075,641	4,119,055	1,721,700	242,916,396	2.46%	1.73%
Defined Benefit Retirement Health Care Trust	43,003,660	730,634	(63,506)	43,670,788	1.55%	1.70%
Total JRS	**280,079,301**	**4,849,689**	**1,658,194**	**286,587,184**	2.32%	1.73%
National Guard/Naval Militia Retirement System (MRS)						
Defined Benefit Plan Retirement Trust	44,502,762	398,276	(142,017)	44,759,021	0.58%	0.90%
Other Participant Directed Plans						
Supplemental Annuity Plan	4,751,924,750	102,584,106	(11,770,019)	4,842,738,837	1.91%	2.16%
Deferred Compensation Plan	1,127,805,803	27,200,915	(1,851,151)	1,153,155,567	2.25%	2.41%
Total All Funds	**40,416,089,743**	**752,404,862**	**(3,545,934)**	**41,164,948,671**		
Total Non-Participant Directed	31,518,960,682	539,389,147	2,859,129	32,061,208,958	1.72%	1.71%
Total Participant Directed	8,897,129,061	213,015,715	(6,405,063)	9,103,739,713	2.32%	2.40%
Total All Funds	**$ 40,416,089,743**	**$ 752,404,862**	**$ (3,545,934)**	**$ 41,164,948,671**	**1.85%**	**1.86%**

Notes:

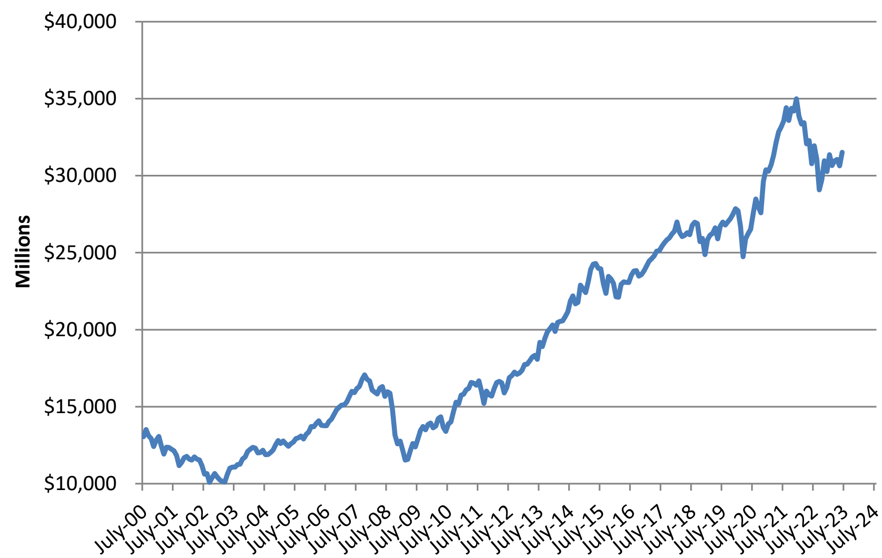
(1) Includes interest, dividends, securities lending, expenses, realized and unrealized gains/losses

(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

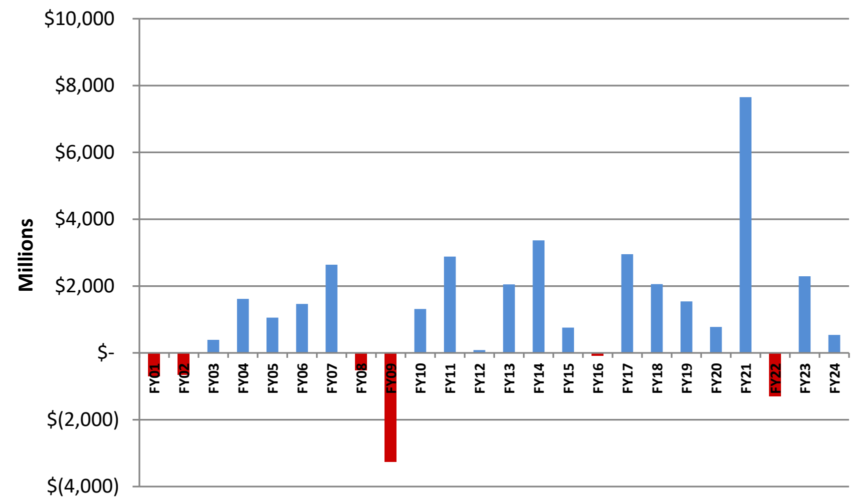
Total Non Participant Directed Assets

As of July 31, 2023

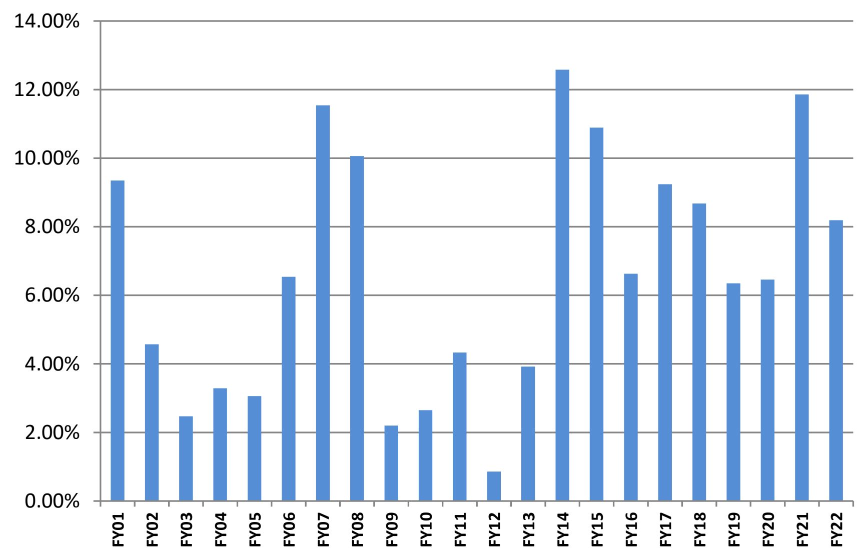
Total Assets History



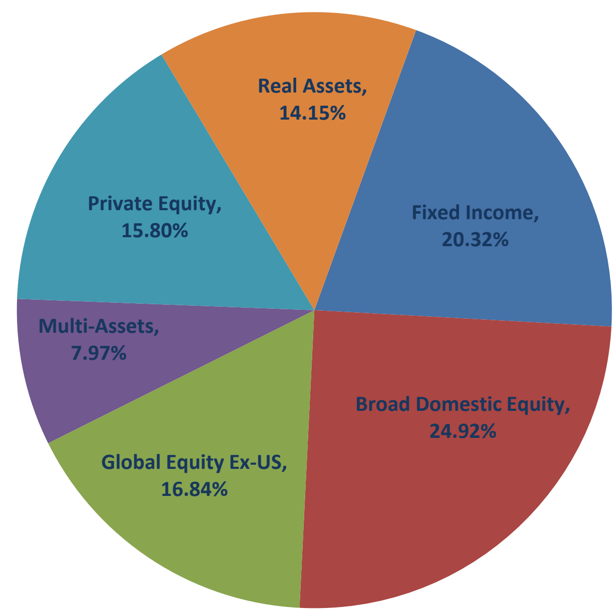
Income by Fiscal Year



5-year Annualized Returns as of Fiscal Year End

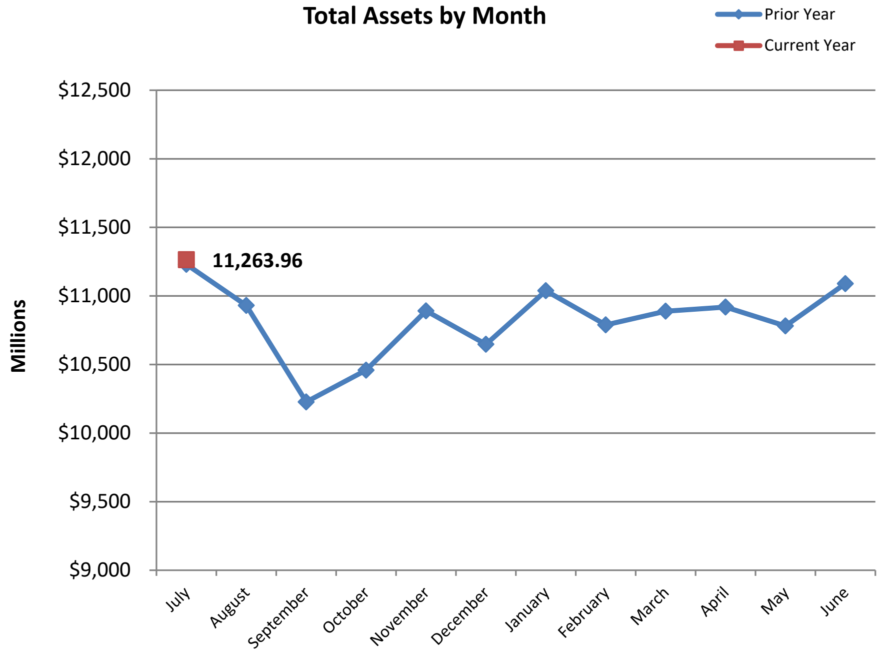


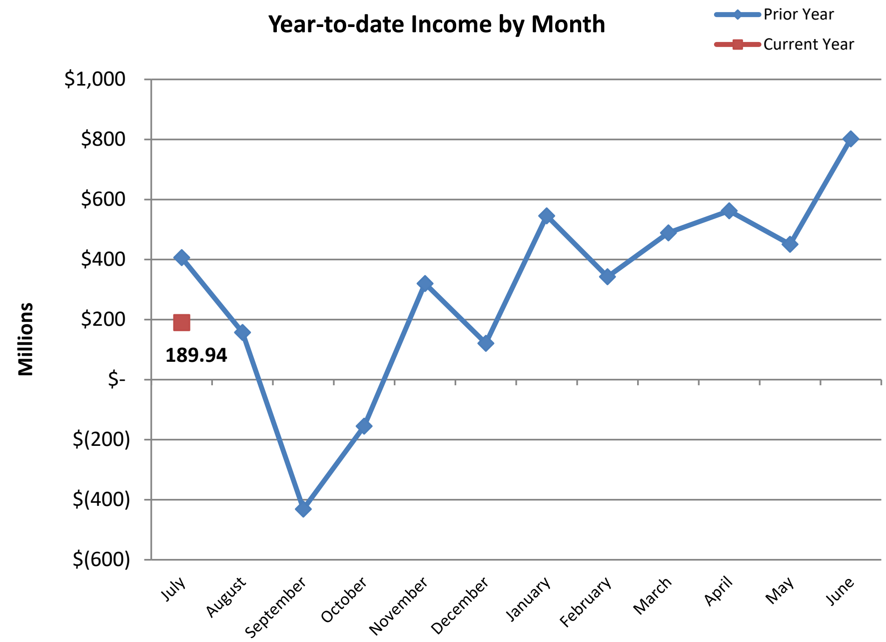
Actual Asset Allocation

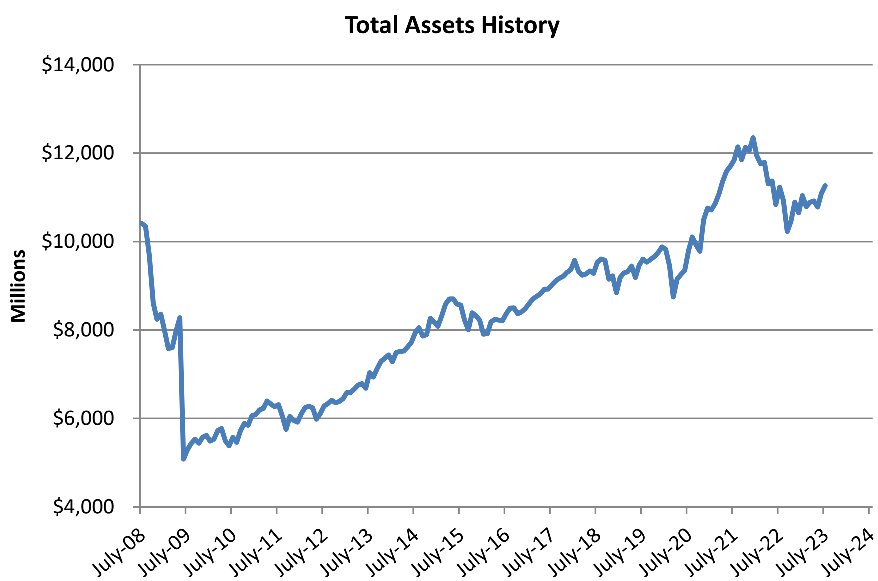


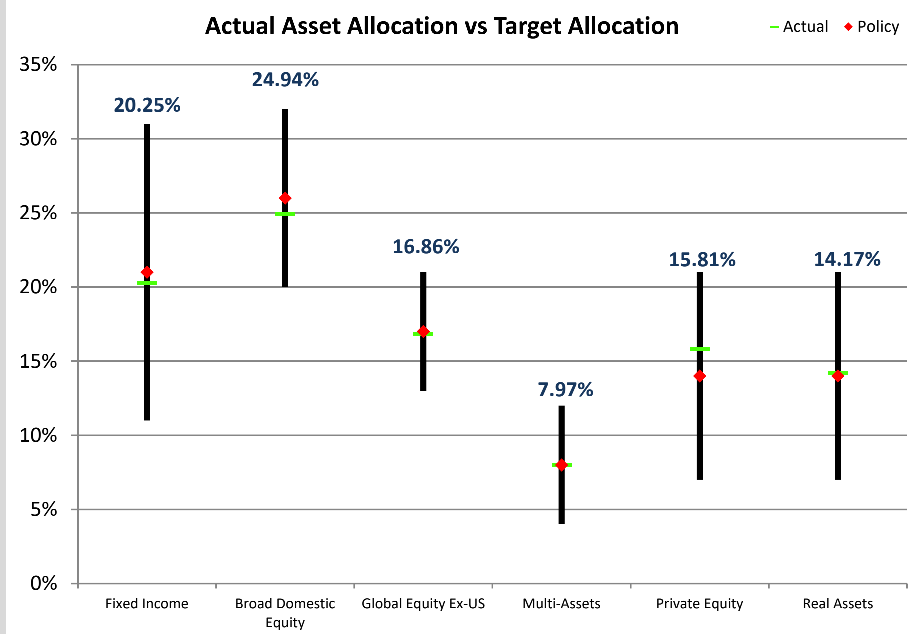
Public Employees' Retirement Pension Trust Fund

Fiscal Year-to-Date through July 31, 2023



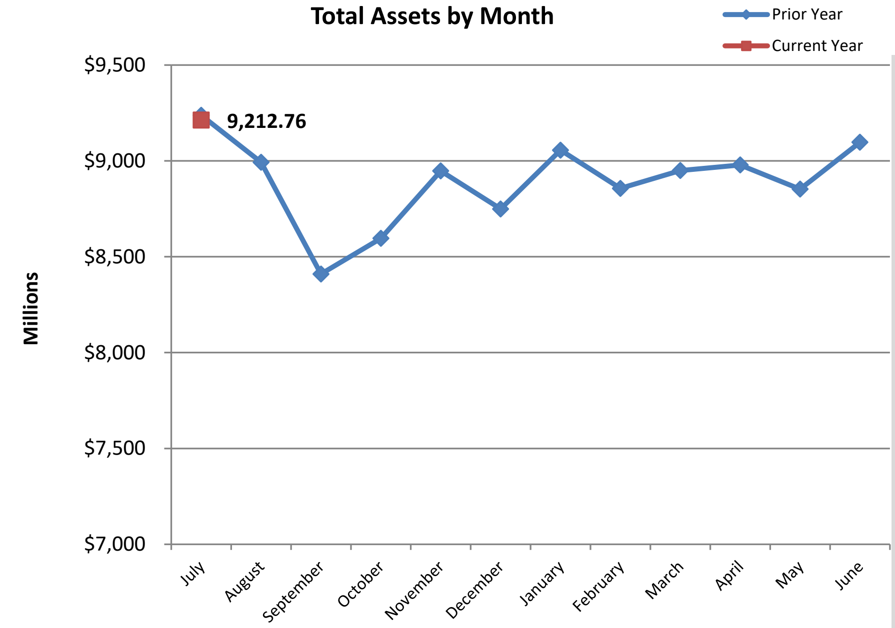


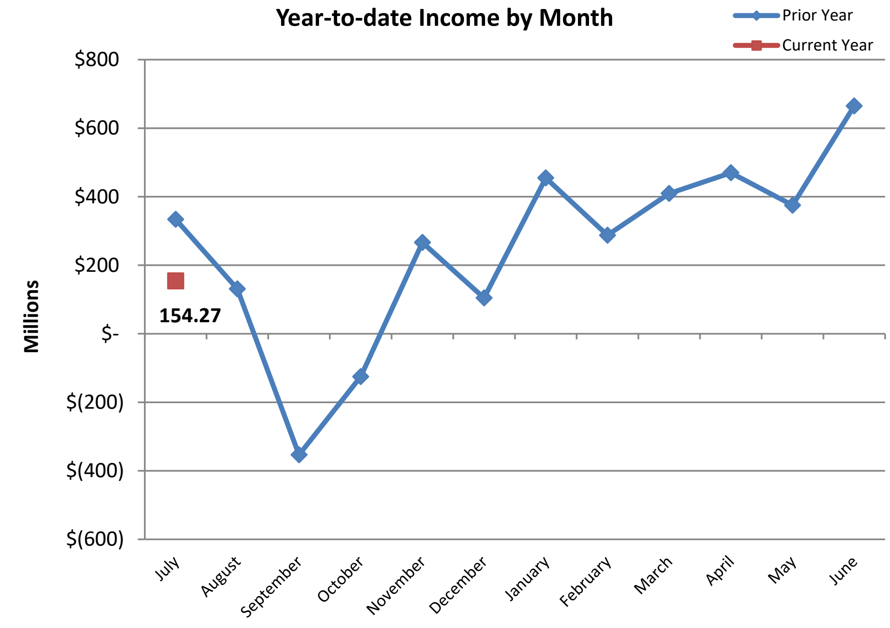


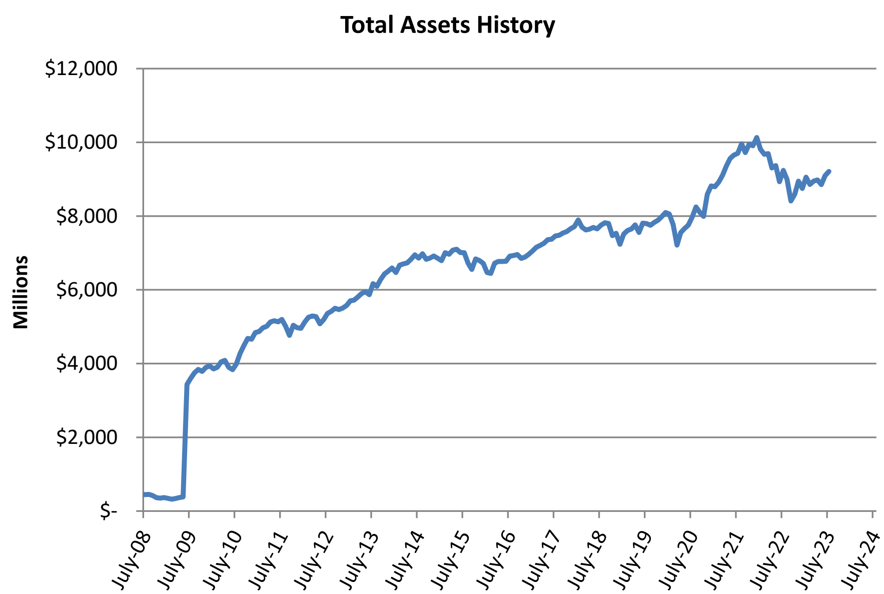


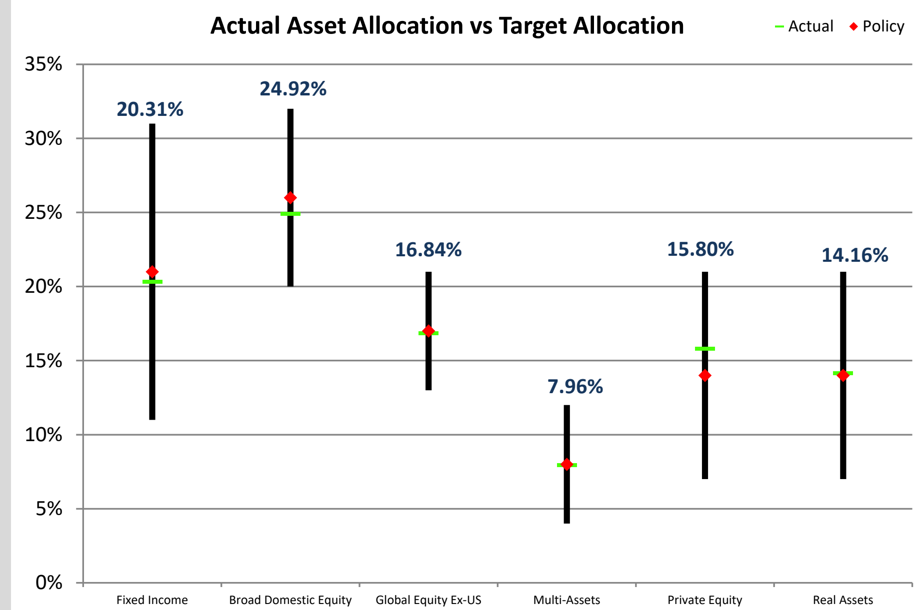
Public Employees' Retirement Health Care Trust Fund

Fiscal Year-to-Date through July 31, 2023



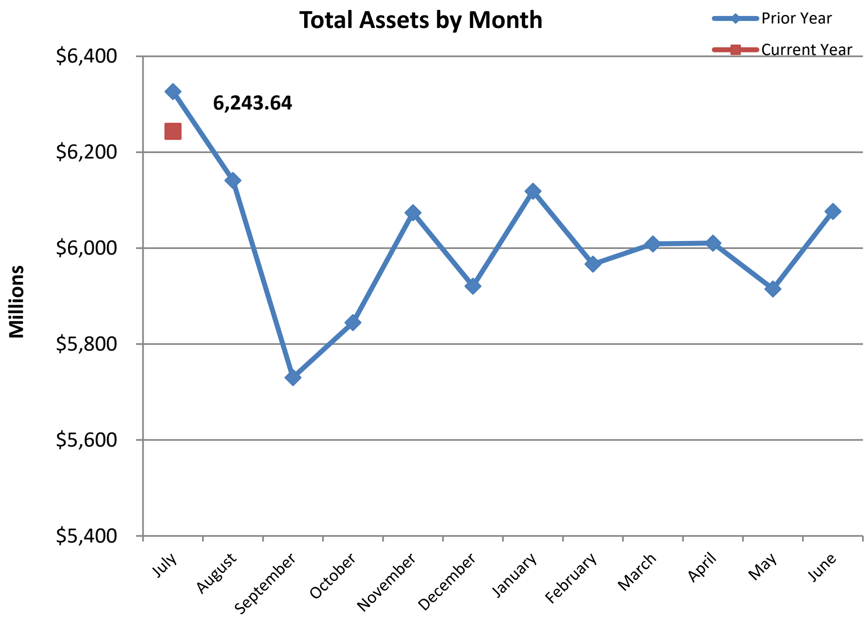


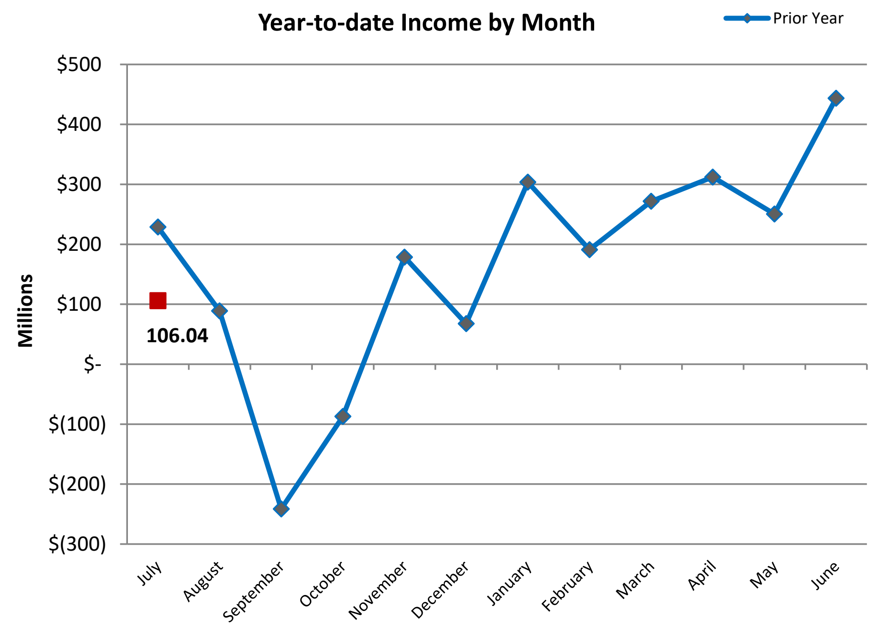


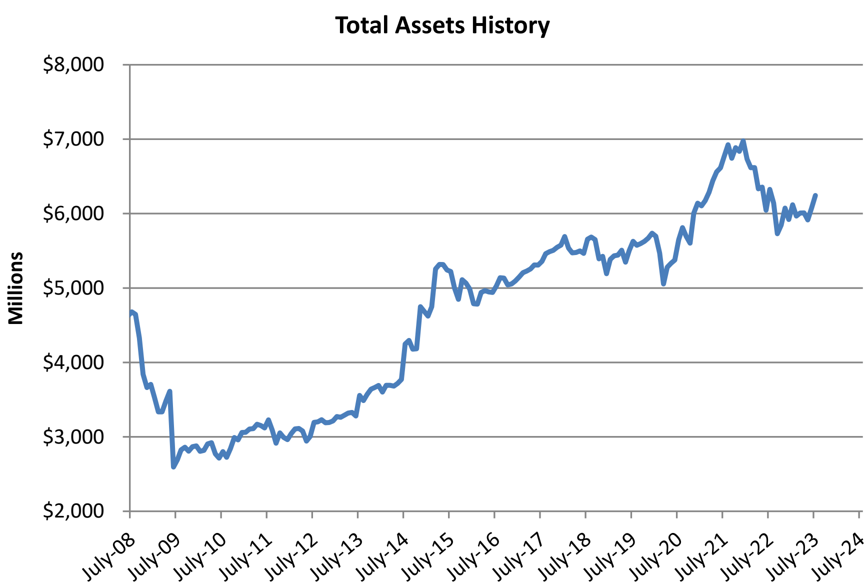


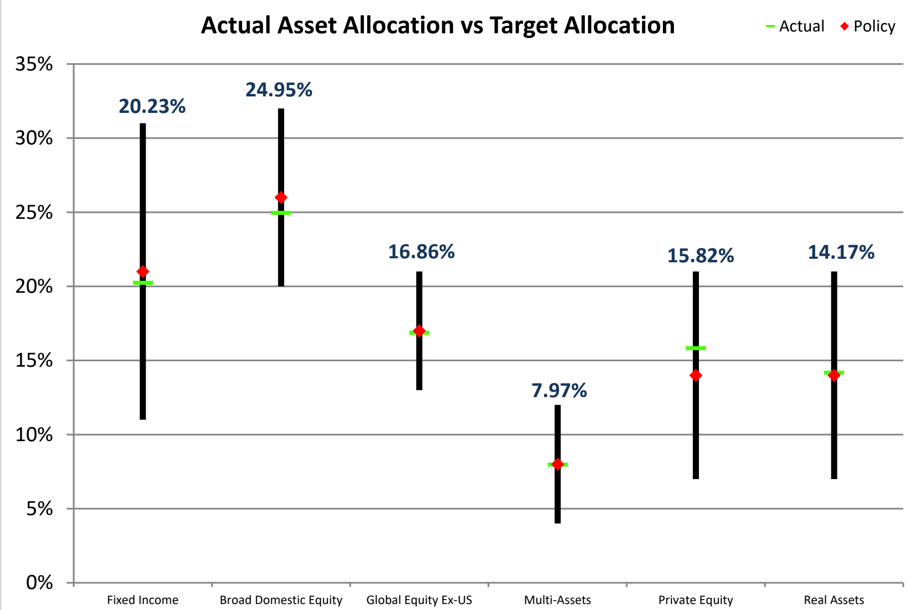
Teachers' Retirement Pension Trust Fund

Fiscal Year-to-Date through July 31, 2023



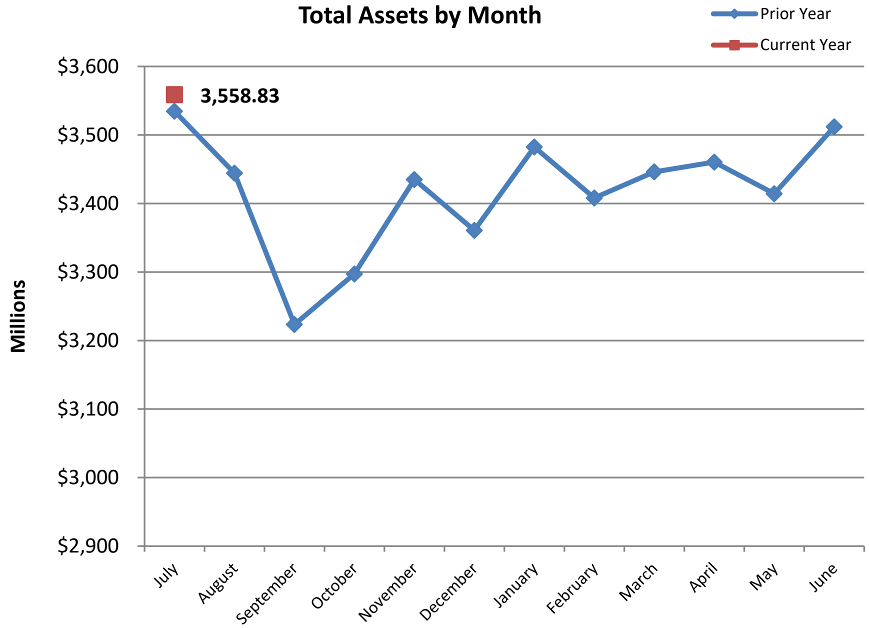


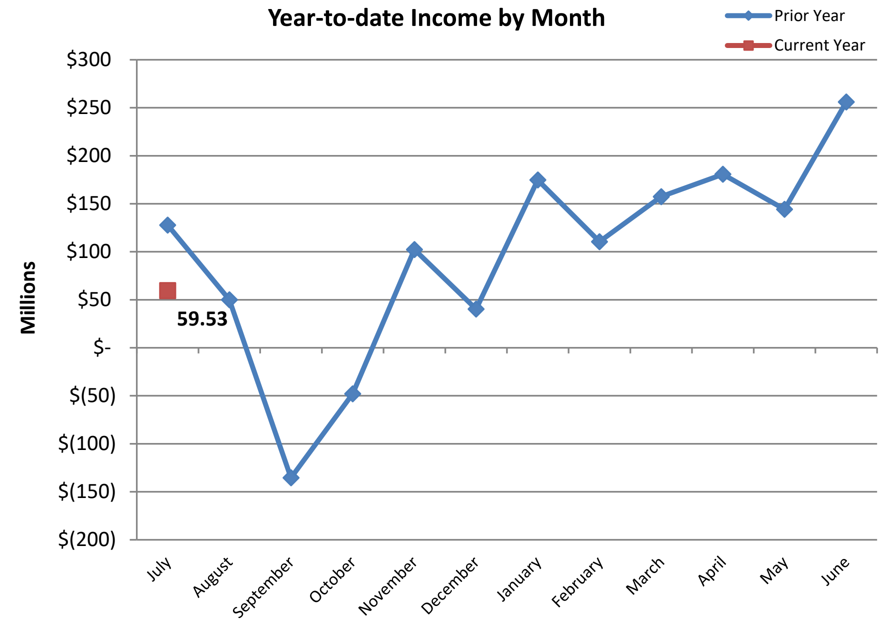


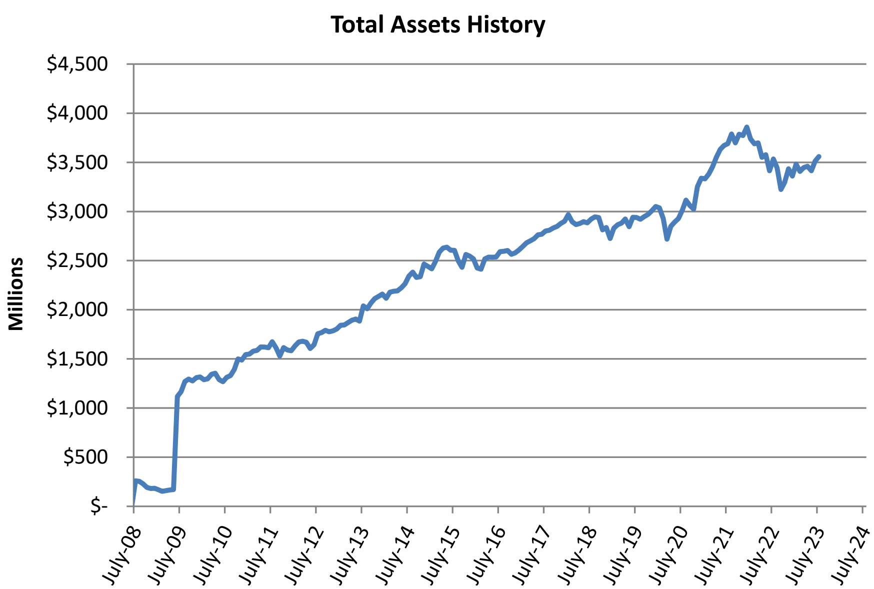


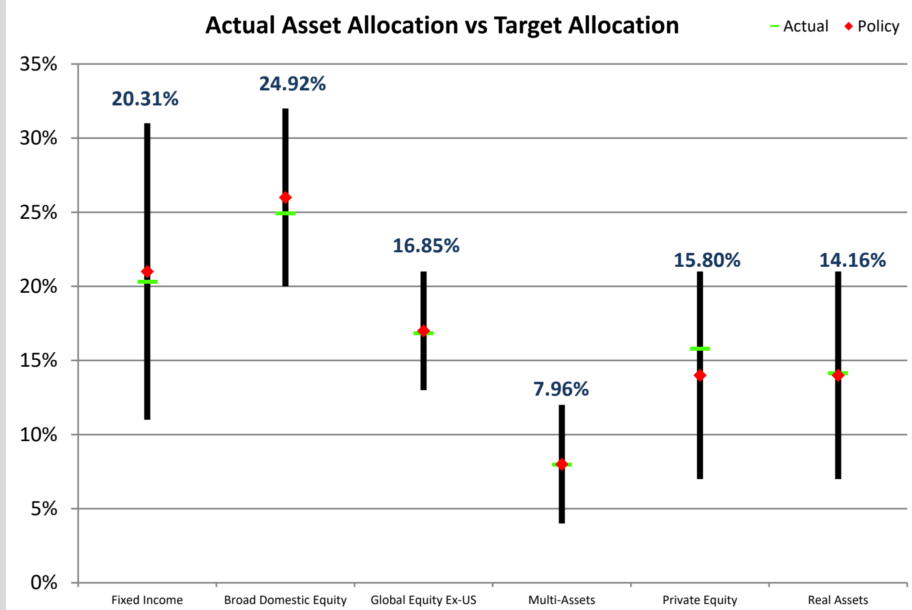
Teachers' Retirement Health Care Trust Fund

Fiscal Year-to-Date through July 31, 2023



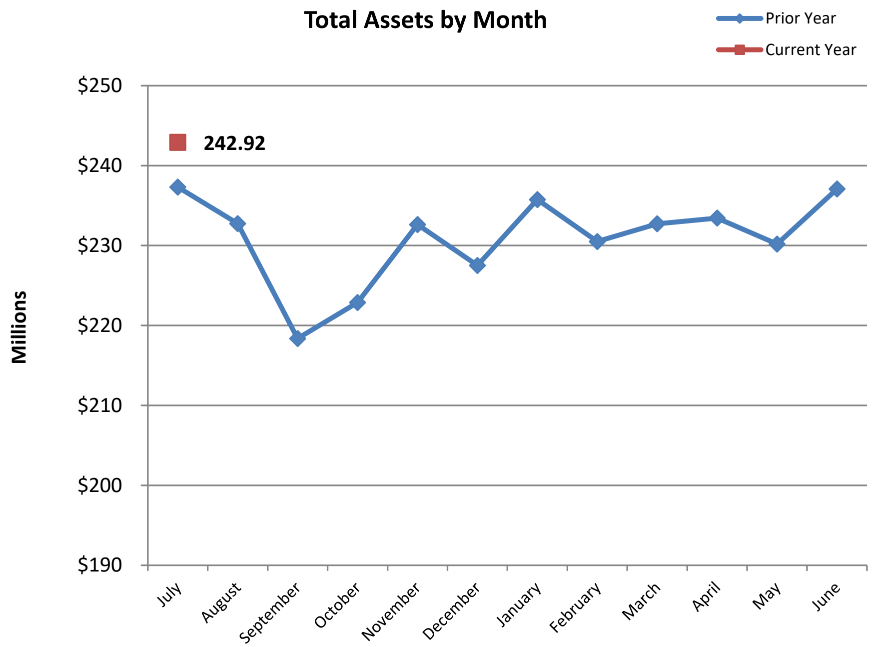


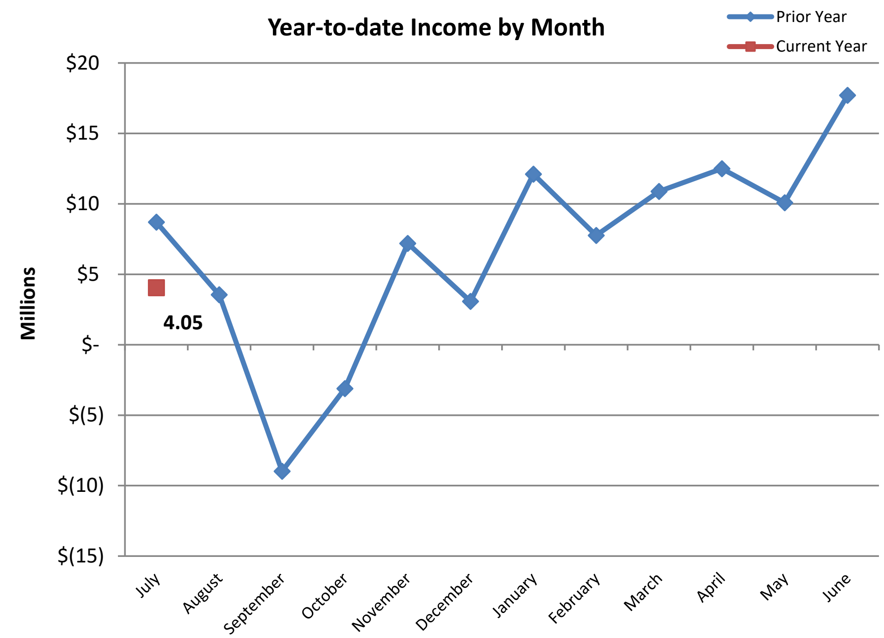


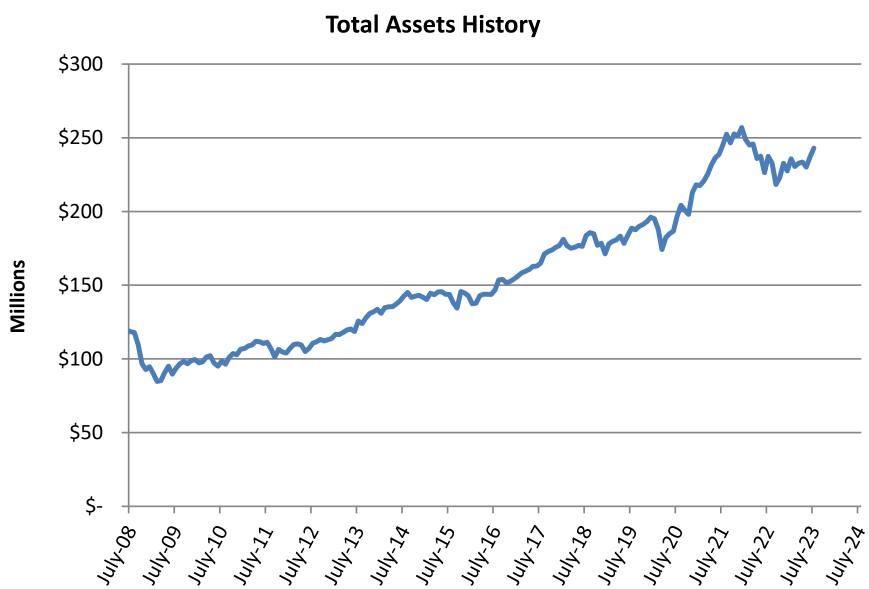


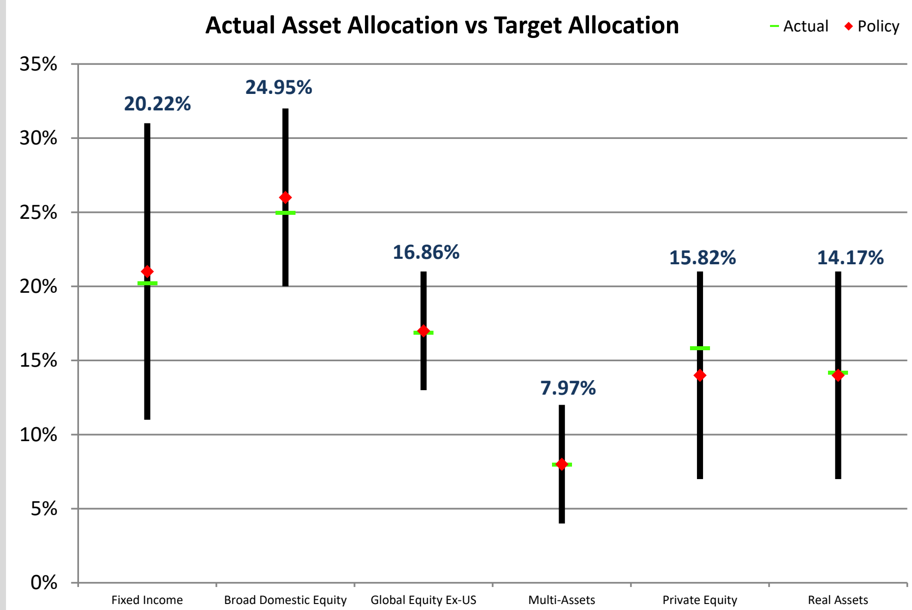
Judicial Retirement Pension Trust Fund

Fiscal Year-to-Date through July 31, 2023



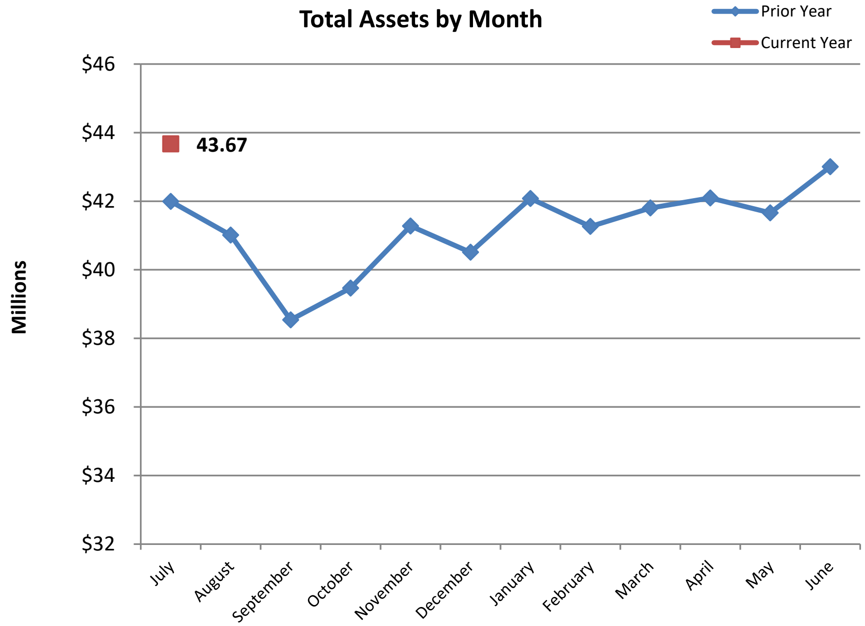


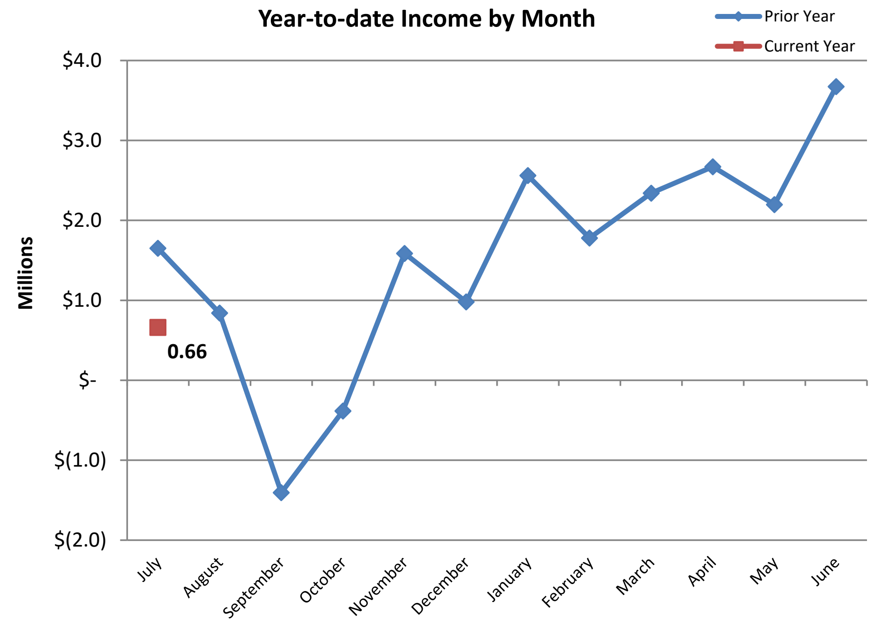


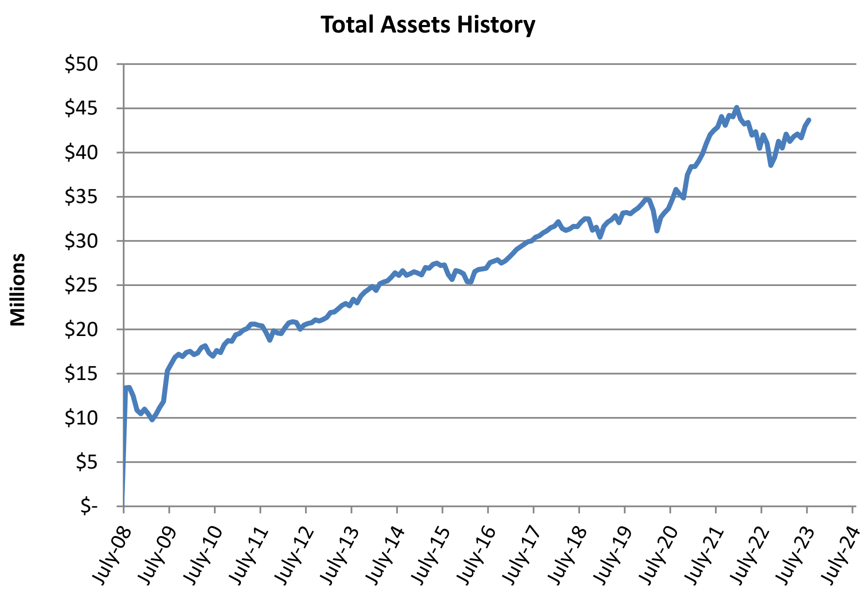


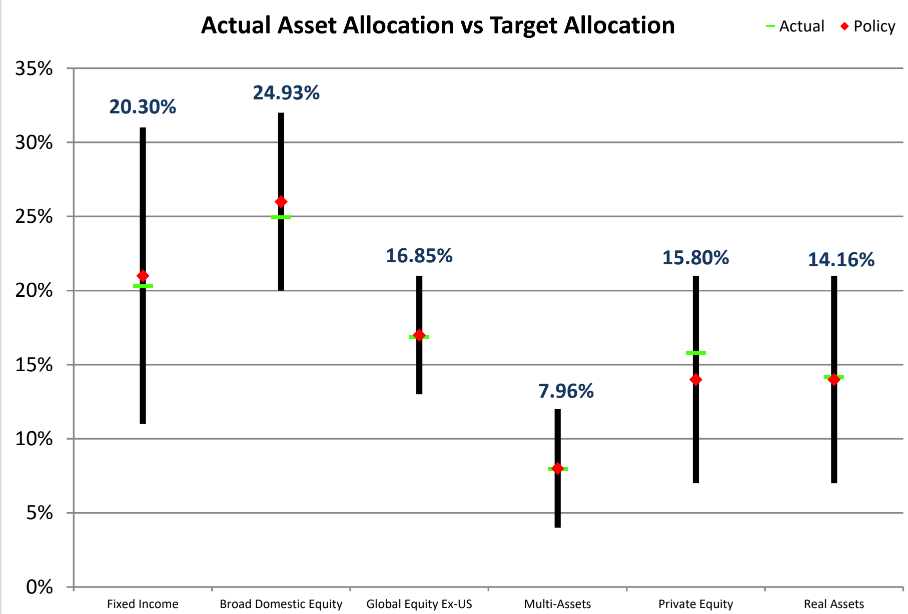
Judicial Retirement Health Care Trust Fund

Fiscal Year-to-Date through July 31, 2023



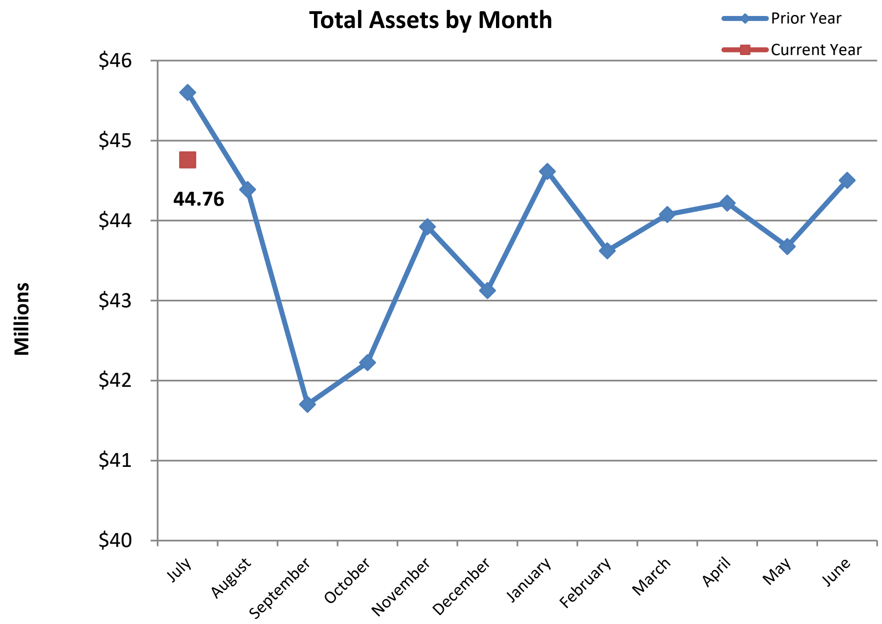


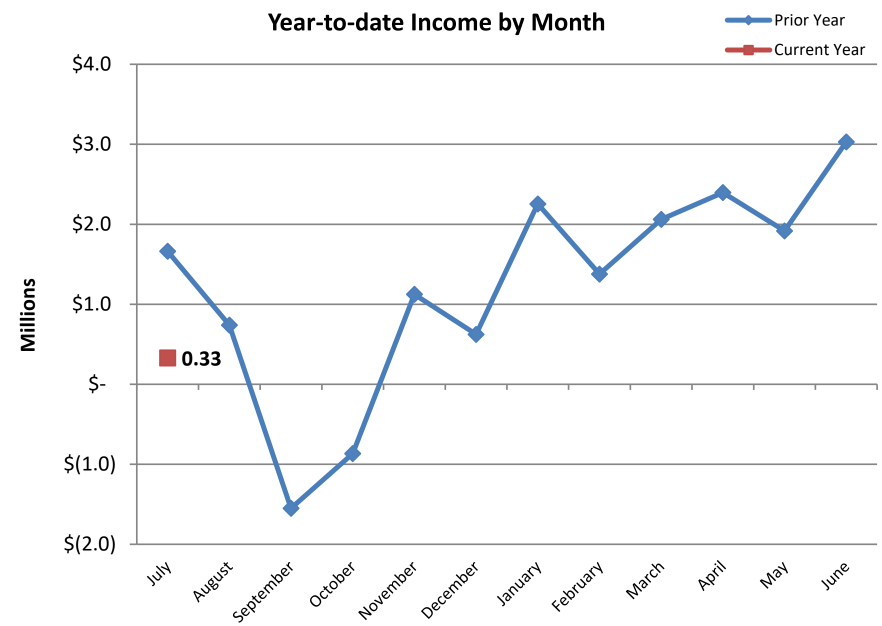


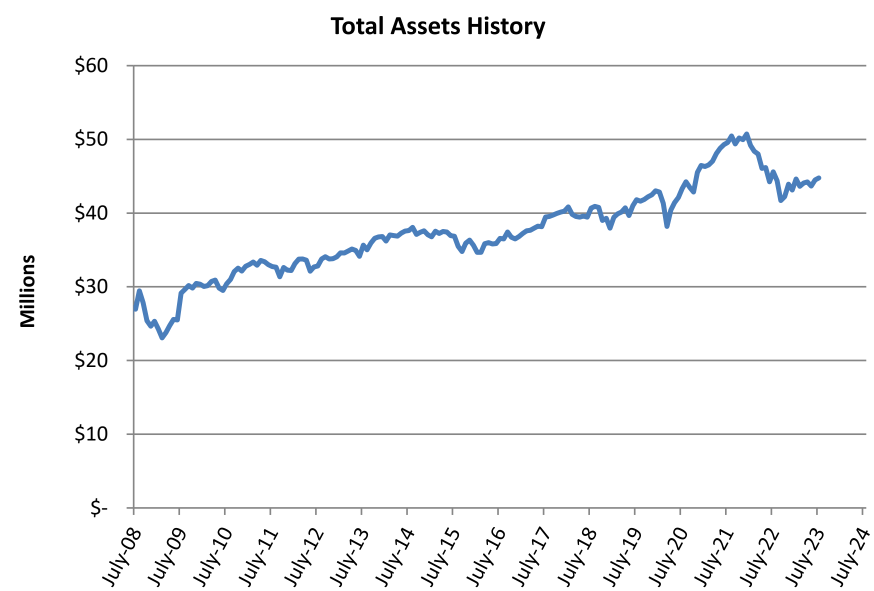


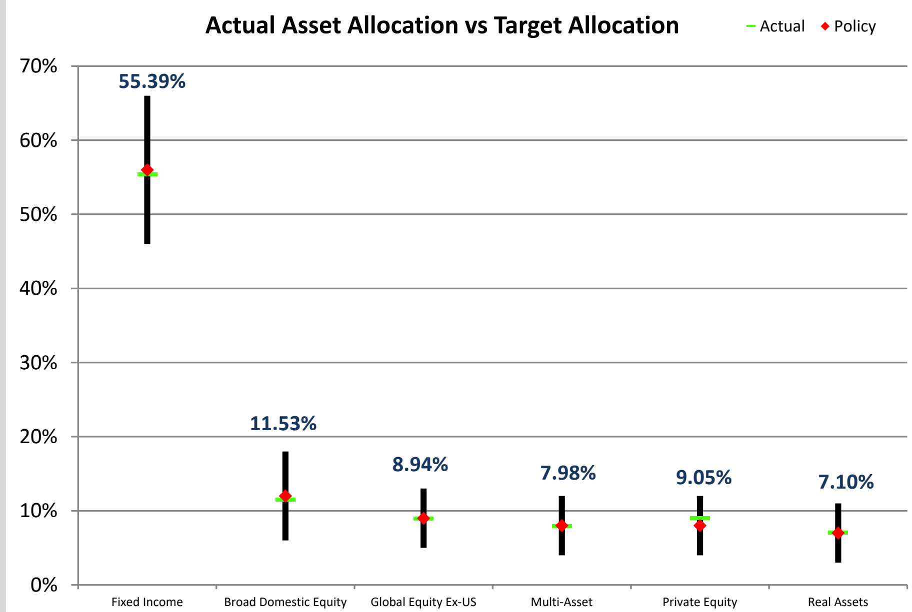
Military Retirement Trust Fund

Fiscal Year-to-Date through July 31, 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 July 31, 2023

	Beginning Invested Assets	Investment Income	Net Contributions and (Withdrawals)	Ending Invested Assets	% increase (decrease)	% Change due to Investment Income
Fixed Income						
Cash Equivalents						
Short-Term Fixed Income Pool	$ 311,911,780	$ 1,558,922	$ 25,021,022	$ 338,491,724	8.52%	0.48%
Transition Fixed Income						
Fixed Income Transition Pool	400,000,000	-	(400,000,000)	-	-100.00%	-
Securities Lending						
Securities Lending Income Pool	149,515	48,146	(142,520)	55,141	-63.12%	61.52%
Opportunistic Fixed Income						
Fidelity Inst. Asset Mgmt. High Yield CMBS	196,751,443	1,100,881	-	197,852,324	0.56%	0.56%
Fidelity Institutional Asset Management	939,708,379	2,171,764	200,000,000	1,141,880,143	21.51%	0.21%
MacKay Shields, LLC	1,181,438	87,504	-	1,268,942	7.41%	7.41%
Total Opportunistic Fixed Income	1,137,641,260	3,360,149	200,000,000	1,341,001,409	17.88%	0.27%
ARMB Barclays Agg Bond Fund						
ARMB Barclays Agg Bond Fund	4,233,894,143	1,896,165	600,000,000	4,835,790,308	14.22%	0.04%
Total Fixed Income	**6,083,596,698**	**6,863,382**	**424,878,502**	**6,515,338,582**	**7.10%**	**0.11%**
Domestic Equities						
Small Cap Passively Managed						
ARMB S&P 600	647,136,991	35,820,431	-	682,957,422	5.54%	5.54%
Small Cap Actively Managed						
Transition Account	-	-	-	-	-	-
Total Small Cap	647,136,991	35,820,431	-	682,957,422	5.54%	5.54%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended July 31, 2023

	Beginning Invested Assets	Investment Income	Net Contributions and (Withdrawals)	Ending Invested Assets	% increase (decrease)	% Change due to Investment Income
Large Cap Passively Managed						
ARMB S&P 900	4,894,574,069	158,332,048	(110,000,000)	4,942,906,117	0.99%	3.27%
Large Cap Actively Managed						
ARMB Domestic Residual Assets	126,501	64,046	-	190,547	50.63%	50.63%
ARMB Large Cap Multi-Factor	1,162,849,175	31,624,180	-	1,194,473,355	2.72%	2.72%
ARMB Scientific Beta	1,126,971,194	40,810,102	102,656	1,167,883,952	3.63%	3.62%
Transition Account	-	-	-	-	-	-
Total Large Cap Actively Managed	2,289,946,870	72,498,328	102,656	2,362,547,854	3.17%	3.17%
Total Large Cap	7,184,520,939	230,830,376	(109,897,344)	7,305,453,971	1.68%	3.24%
Total Domestic Equity	**7,831,657,930**	**266,650,807**	**(109,897,344)**	**7,988,411,393**	**2.00%**	**3.43%**
Global Equities						
Large Cap						
Arrow Street Capital	575,111,005	27,036,131	-	602,147,136	4.70%	4.70%
Baillie Gifford Overseas Limited	473,639,502	19,676,666	-	493,316,168	4.15%	4.15%
Brandes Investment Partners	507,328,795	25,956,674	408,884	533,694,353	5.20%	5.11%
Cap Guardian Trust Co	498,339,363	17,720,771	-	516,060,134	3.56%	3.56%
Legal & General	853,491,226	31,909,730	142,346	885,543,302	3.76%	3.74%
ARMB Int'l Residual Assets	2,956,478	30,025	-	2,986,503	1.02%	1.02%
SSgA MSCI World Ex-US IMI Index Fund	1,545,803,933	45,634,410	(213,000,000)	1,378,438,343	-10.83%	3.17%
Total Large Cap	4,456,670,302	167,964,407	(212,448,770)	4,412,185,939	-1.00%	3.86%
Emerging Markets Equity						
MSCI Emerging Markets Index Fund	652,046,053	37,591,549	(47,000,000)	642,637,602	-1.44%	5.98%
Legal & General Sci-Beta Emerging Markets	322,781,148	21,811,472	78,589	344,671,209	6.78%	6.76%
Total Emerging Markets	974,827,201	59,403,021	(46,921,411)	987,308,811	1.28%	6.24%
Total Global Equities	**5,431,497,503**	**227,367,428**	**(259,370,181)**	**5,399,494,750**	**-0.59%**	**4.29%**

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended July 31, 2023

	Beginning Invested Assets	Investment Income	Net Contributions and (Withdrawals)	Ending Invested Assets	% increase (decrease)	% Change due to Investment Income
Multi-Asset						
Alternative Equity Strategy						
Alternative Equity Strategies Transition Account	-	-	-	-	-	-
McKinley Global Health Care	319,273,311	1,095,569	(38,624,531)	281,744,349	-11.75%	0.37%
Total Alternative Equity Strategy	319,273,311	1,095,569	(38,624,531)	281,744,349	-11.75%	0.37%
Alternative Fixed Income						
Crestline Investors, Inc.	715,385,159	3,118,670	(7,125,034)	711,378,795	-0.56%	0.44%
Prisma Capital Partners	44,688,213	(1,231,613)	-	43,456,600	-2.76%	-2.76%
Crestline Specialty Lending Fund II	37,338,687	-	(734,377)	36,604,310	-1.97%	-
Crestline Specialty Lending Fund III	66,824,543	-	-	66,824,543	-	-
Total Alternative Fixed Income	864,236,602	1,887,057	(7,859,411)	858,264,248	-0.69%	0.22%
Alternative Beta						
Man Group Alternative Risk Premia	290,032,823	7,180,300	-	297,213,123	2.48%	2.48%
Other Opportunities						
Schroders Insurance Linked Securities	(110)	1	110	1	-100.91%	-1.83%
Tactical Allocation Strategies						
Fidelity Signals	553,701,598	13,665,658	-	567,367,256	2.47%	2.47%
PineBridge	538,931,564	10,200,421	267,305	549,399,290	1.94%	1.89%
Total Tactical Allocation Strategies	1,092,633,162	23,866,079	267,305	1,116,766,546	2.21%	2.18%
Total Multi-Asset	**2,566,175,788**	**34,029,006**	**(46,216,527)**	**2,553,988,267**	**-0.47%**	**1.34%**

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended July 31, 2023

	Beginning Invested Assets	Investment Income	Net Contributions and (Withdrawals)	Ending Invested Assets	% increase (decrease)	% Change due to Investment Income
Private Equity						
Abbott Capital	1,957,135,069	2,315,892	2,308,053	1,961,759,014	0.24%	0.12%
Advent International GPE Fund VIII-B	30,699,895	-	-	30,699,895	-	-
Advent International GPE Fund IX	38,452,993	-	-	38,452,993	-	-
Advent International GPE Fund X	10,939,459	-	-	10,939,459	-	-
Battery Ventures XIV	4,588,538	-	-	4,588,538	-	-
Clearlake Capital Partners VI	45,121,408	-	-	45,121,408	-	-
Clearlake Capital Partners VII	25,162,288	1,450,399	3,104,947	29,717,634	18.10%	5.43%
Dyal Capital Partners III	47,029,312	-	-	47,029,312	-	-
Dyal Capital Partners IV	32,140,839	-	-	32,140,839	-	-
Genstar X	16,697,954	-	1,738,380	18,436,334	10.41%	-
Glendon Opportunities	9,020,182	-	-	9,020,182	-	-
Glendon Opportunities II	90,246,957	-	-	90,246,957	-	-
Glendon Opportunities III	4,007,663	-	1,991,155	5,998,818	49.68%	-
Insight XII	25,813,427	-	-	25,813,427	-	-
KKR Lending Partners II	6,484,352	-	-	6,484,352	-	-
Lexington Capital Partners VIII	29,714,419	43,112	(135,692)	29,621,839	-0.31%	0.15%
Lexington Partners VII	8,522,423	3,388	(98,376)	8,427,435	-1.11%	0.04%
Merit Capital Partners	3,941,365	-	-	3,941,365	-	-
NB SOF III	13,080,152	-	-	13,080,152	-	-
NB SOF IV	35,937,225	-	-	35,937,225	-	-
Neuberger Berman Secondary Opportunities Fund V	31,957,163	-	(314,274)	31,642,889	-0.98%	-
New Mountain Partners IV	8,572,710	-	(12,804)	8,559,906	-0.15%	-
New Mountain Partners V	63,738,364	-	-	63,738,364	-	-
New Mountain Partners VI	35,116,141	-	487,685	35,603,826	1.39%	-
NGP XI	37,359,854	-	(151,052)	37,208,802	-0.40%	-
NGP XII	30,387,425	-	601,793	30,989,218	1.98%	-
Onex Partnership III	4,264,929	-	(37,738)	4,227,191	-0.88%	-
Pathway Capital Management LLC	2,014,180,154	(6,121,534)	650,888	2,008,709,508	-0.27%	-0.30%
Resolute Fund III	9,661,515	-	-	9,661,515	-	-
Resolute Fund IV	83,098,503	-	-	83,098,503	-	-
Resolute Fund V	65,382,334	-	681,836	66,064,170	1.04%	-
Sentinel VII	-	-	1,167,062	1,167,062	-	-
Riverside Micro-Cap Fund VI	6,918,600	-	-	6,918,600	-	-
Summit Partners GE IX	60,432,668	-	-	60,432,668	-	-
Summit Partners GE X	35,503,581	-	-	35,503,581	-	-
Summit XI	12,665,994	-	-	12,665,994	-	-
Warburg Pincus Global Growth Fund	48,730,620	-	(2,620,000)	46,110,620	-5.38%	-
Warburg Pincus X	551,449	-	-	551,449	-	-
Warburg Pincus XI	12,802,342	-	-	12,802,342	-	-
Warburg Pincus XII	62,811,982	-	-	62,811,982	-	-
Total Private Equity	**5,058,872,248**	**(2,308,743)**	**9,361,863**	**5,065,925,368**	**0.14%**	**-0.05%**

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended July 31, 2023

	Beginning Invested Assets	Investment Income	Net Contributions and (Withdrawals)	Ending Invested Assets	% increase (decrease)	% Change due to Investment Income
Real Assets						
Farmland						
UBS Farmland Investors LLC	1,059,319,882	-	-	1,059,319,882	-	-
Timber						
Timberland Invt Resource LLC	398,836,176	-	(6,400,000)	392,436,176	-1.60%	-
Energy						
EIG Energy Fund XIV-A	3,586,274	(2,154)	-	3,584,120	-0.06%	-0.06%
EIG Energy Fund XV	6,156,817	(298,778)	(333,449)	5,524,590	-10.27%	-4.99%
EIG Energy Fund XVI	45,930,835	(1,356,320)	-	44,574,515	-2.95%	-2.95%
Total Energy	55,673,926	(1,657,252)	(333,449)	53,683,225	-3.58%	-2.99%
REIT						
REIT Transition Account	-	-	-	-	-	-
ARMB REIT	483,102,832	9,595,746	-	492,698,578	1.99%	1.99%
Total REIT	483,102,832	9,595,746	-	492,698,578	1.99%	1.99%
Infrastructure Private						
IFM Global Infrastructure Fund-Private	688,224,506	18,398,247	(6,183,754)	700,438,999	1.77%	2.69%
JP Morgan Infrastructure Fund-Private	156,408,204	-	-	156,408,204	-	-
Total Infrastructure Private	844,632,710	18,398,247	(6,183,754)	856,847,203	1.45%	2.19%

Alaska Retirement Management Board
All Non-Participant Directed Plans by Manager
Schedule of Investment Income and Changes in Invested Assets
For the Month Ended July 31, 2023

	Beginning Invested Assets	Investment Income	Net Contributions and (Withdrawals)	Ending Invested Assets	% increase (decrease)	% Change due to Investment Income
Real Estate						
Core Commingled Accounts						
BlackRock US Core Property Fund	398,595,655	(17,667,528)	(2,133,198)	378,794,929	-4.97%	-4.44%
JP Morgan	172,922,523	(445,644)	(992,313)	171,484,566	-0.83%	-0.26%
UBS Trumbull Property Fund	34,133,625	(1,436,302)	(767,075)	31,930,248	-6.46%	-4.26%
Total Core Commingled	605,651,803	(19,549,474)	(3,892,586)	582,209,743	-3.87%	-3.24%
Core Separate Accounts						
Sentinel Separate Account	289,150,452	-	-	289,150,452	-	-
UBS Realty	698,251,966	-	(1,207,260)	697,044,706	-0.17%	-
Total Core Separate	987,402,418	-	(1,207,260)	986,195,158	-0.12%	-
Non-Core Commingled Accounts						
Almanac Realty Securities V	44,053	-	-	44,053	-	-
Almanac Realty Securities VII	29,188,663	-	-	29,188,663	-	-
Almanac Realty Securities VIII	30,793,365	-	1,065,780	31,859,145	3.46%	-
Almanac Realty Securities IX	6,020,069	-	1,533,967	7,554,036	25.48%	-
Clarion Ventures 4	6,501,086	-	(479,882)	6,021,204	-7.38%	-
ING Clarion Development Ventures III	568,822	-	-	568,822	-	-
KKR Real Estate Partners Americas L.P.	3,400,465	-	-	3,400,465	-	-
KKR Real Estate Partners Americas II	7,563,810	-	-	7,563,810	-	-
KKR Real Estate Partners Americas III	26,504,421	-	-	26,504,421	-	-
Silverpeak Legacy Pension Partners II, L.P.	851,364	-	-	851,364	-	-
Silverpeak Legacy Pension Partners III, L.P.	1,104,650	-	-	1,104,650	-	-
Total Non-Core Commingled	112,540,768	-	2,119,865	114,660,633	1.88%	-
Total Real Estate	1,705,594,989	(19,549,474)	(2,979,981)	1,683,065,534	-1.32%	-1.15%
Total Real Assets	**4,547,160,515**	**6,787,267**	**(15,897,184)**	**4,538,050,598**	**-0.20%**	**0.15%**
Total Assets	**$ 31,518,960,682**	**$ 539,389,147**	**$ 2,859,129**	**$ 32,061,208,958**	**1.72%**	**1.71%**

ALASKA RETIREMENT MANAGEMENT BOARD

Reporting of Funds by Manager

Participant Directed Plans

Supplemental Annuity Plan
Schedule of Investment Income and Changes in Invested Assets
for the Month Ended
July 31, 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	$ 488,586,964	$ 945,512	$ (3,853,700)	$ (4,658,205)	$ 481,020,571	-1.55%	0.20%
Small Cap Stock Fund	200,855,728	9,422,034	(413,967)	501,605	210,365,400	4.73%	4.69%
Alaska Balanced Trust	1,041,489,113	13,285,158	(3,031,946)	(2,696,115)	1,049,046,210	0.73%	1.28%
Long Term Balanced Fund	748,135,322	15,989,317	(1,216,123)	(748,950)	762,159,566	1.87%	2.14%
AK Target Date 2010 Trust	8,763,639	120,034	(13,100)	(412,415)	8,458,158	-3.49%	1.40%
AK Target Date 2015 Trust	66,073,731	1,029,006	(694,422)	(646,380)	65,761,935	-0.47%	1.57%
AK Target Date 2020 Trust	76,484,231	1,380,052	(435,920)	547,139	77,975,502	1.95%	1.80%
AK Target Date 2025 Trust	106,890,376	2,294,276	(112,325)	78,421	109,150,748	2.11%	2.15%
AK Target Date 2030 Trust	102,810,114	2,502,811	279,118	277,000	105,869,043	2.98%	2.43%
AK Target Date 2035 Trust	106,094,866	2,869,699	275,746	(567,100)	108,673,211	2.43%	2.71%
AK Target Date 2040 Trust	99,468,273	2,925,756	247,322	207,313	102,848,664	3.40%	2.93%
AK Target Date 2045 Trust	123,159,935	3,855,238	638,670	(143,985)	127,509,858	3.53%	3.12%
AK Target Date 2050 Trust	138,304,919	4,448,373	542,359	146,076	143,441,727	3.71%	3.21%
AK Target Date 2055 Trust	148,661,502	4,799,172	1,019,583	(192,036)	154,288,221	3.78%	3.22%
AK Target Date 2060 Trust	17,095,040	564,311	562,547	50,417	18,272,315	6.89%	3.24%
AK Target Date 2065 Trust	9,164,668	297,255	468,552	(114,531)	9,815,944	7.11%	3.18%
Total Investments with T. Rowe Price	3,482,038,421	66,728,004	(5,737,606)	(8,371,746)	3,534,657,073		
JP Morgan							
JPMorgan SmartRetirement Blend 2015 R6	1,002,899	11,842	(450,257)	-	564,484	-43.71%	1.52%
JPMorgan SmartRetirement Blend 2020 R6	320,826	4,598	2,102	(655)	326,871	1.88%	1.43%
Total Investments with JP Morgan	1,323,725	16,440	(448,155)	(655)	891,355		
State Street Global Advisors							
Money Market	70,760,009	299,690	(1,623,376)	(547,342)	68,888,981	-2.64%	0.43%
S&P 500 Stock Index	546,822,214	17,573,270	(1,908,239)	4,218,285	566,705,530	3.64%	3.21%
Russell 3000 Index	138,027,963	4,965,407	(315,700)	1,165,506	143,843,176	4.21%	3.59%
World Equity Ex-US Index	86,692,746	3,304,033	(80,938)	528,567	90,444,408	4.33%	3.80%
Total Investments with SSgA	842,302,932	26,142,400	(3,928,253)	5,365,016	869,882,095		
BlackRock							
Passive U.S. Bond Index Fund	162,372,333	(125,423)	(1,212,971)	327,070	161,361,009	-0.62%	-0.08%
Strategic Completion Fund	66,412,080	1,968,273	(213,862)	(429,585)	67,736,906	1.99%	2.98%
Total Investments with BlackRock	228,784,413	1,842,850	(1,426,833)	(102,515)	229,097,915		
Brandes and Baillie Gifford							
AK International Equity Fund	96,403,503	4,352,499	(45,486)	1,411,419	102,121,935	5.93%	4.48%
Northern Trust							
Environmental, Social, and Governance Fund	101,071,756	3,501,916	(183,689)	1,698,481	106,088,464	4.96%	3.44%
Total All Funds	$ 4,751,924,750	$ 102,584,109	$ (11,770,022)	$ -	$ 4,842,738,837	1.91%	2.16%

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
July 31, 2023
$ (Thousands)

Invested Assets (at fair value)		**July**
Investments with T. Rowe Price		
Stable Value Fund	$	481,021
Small Cap Stock Fund		210,365
Alaska Balanced Trust		1,049,046
Long Term Balanced Fund		762,160
AK Target Date 2010 Trust		8,458
AK Target Date 2015 Trust		65,762
AK Target Date 2020 Trust		77,976
AK Target Date 2025 Trust		109,151
AK Target Date 2030 Trust		105,869
AK Target Date 2035 Trust		108,673
AK Target Date 2040 Trust		102,849
AK Target Date 2045 Trust		127,510
AK Target Date 2050 Trust		143,442
AK Target Date 2055 Trust		154,288
AK Target Date 2060 Trust		18,272
AK Target Date 2065 Trust		9,816
Investments with JP Morgan		
JPMorgan SmartRetirement Blend 2015 R6		564
JPMorgan SmartRetirement Blend 2020 R6		327
Investments with State Street Global Advisors		
Money Market		68,889
S&P 500 Stock Index		566,706
Russell 3000 Index		143,843
World Equity Ex-US Index		90,444
Investments with BlackRock		
Passive U.S. Bond Index Fund		161,361
Strategic Completion Fund		67,737
Investments with Brandes and Baillie Gifford		
AK International Equity Fund		102,122
Investments with Northern Trust		
Environmental, Social, and Governance Fund		106,088
Total Invested Assets	$	**4,842,739**
Change in Invested Assets		
Beginning Assets	$	4,751,925
Investment Earnings		102,584
Net Contributions (Withdrawals)		(11,770)
Ending Invested Assets	$	**4,842,739**

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
July 31, 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	$ 193,772,691	$ 376,085	$ (1,398,870)	$ (1,272,112)	$ 191,477,794	-1.18%	0.20%
Small Cap Stock Fund	111,936,446	5,250,601	(6,754)	(307,309)	116,872,984	4.41%	4.70%
Alaska Balanced Trust	43,897,535	560,492	4,832	29,925	44,492,784	1.36%	1.28%
Long Term Balanced Fund	93,846,580	2,014,277	(94,628)	659,140	96,425,369	2.75%	2.14%
AK Target Date 2010 Trust	2,431,649	33,883	(24,627)	18,393	2,459,298	1.14%	1.40%
AK Target Date 2015 Trust	8,320,750	129,915	(979)	34,968	8,484,654	1.97%	1.56%
AK Target Date 2020 Trust	20,574,580	366,400	(100,328)	(77,551)	20,763,101	0.92%	1.79%
AK Target Date 2025 Trust	28,641,687	603,503	47,183	(1,215,143)	28,077,230	-1.97%	2.15%
AK Target Date 2030 Trust	19,772,228	492,493	98,130	908,880	21,271,731	7.58%	2.43%
AK Target Date 2035 Trust	16,723,079	455,315	120,530	(27,729)	17,271,195	3.28%	2.72%
AK Target Date 2040 Trust	14,612,555	431,764	106,594	169,120	15,320,033	4.84%	2.93%
AK Target Date 2045 Trust	11,616,403	365,330	117,423	(24,118)	12,075,038	3.95%	3.13%
AK Target Date 2050 Trust	10,464,231	339,315	106,496	71,966	10,982,008	4.95%	3.22%
AK Target Date 2055 Trust	7,857,353	256,638	88,732	37,212	8,239,935	4.87%	3.24%
AK Target Date 2060 Trust	2,012,176	66,089	30,611	14,905	2,123,781	5.55%	3.25%
AK Target Date 2065 Trust	891,927	28,077	14,653	(27,403)	907,254	1.72%	3.17%
Total Investments with T. Rowe Price	587,371,870	11,770,177	(891,002)	(1,006,856)	597,244,189		
JP Morgan							
JPMorgan SmartRetirement Blend 2015 R6	105,520	1,411	52	(23,802)	83,181	-21.17%	1.51%
JPMorgan SmartRetirement Blend 2020 R6	110,049	1,646	2,677	50,000	164,372	49.36%	1.21%
Total Investments with JP Morgan	215,569	3,057	2,729	26,198	247,553		
State Street Global Advisors							
Money Market	21,740,196	92,110	(187,992)	(297,131)	21,347,183	-1.81%	0.43%
S&P 500 Stock Index	269,775,134	8,685,052	(176,431)	1,082,501	279,366,256	3.56%	3.21%
Russell 3000 Index	52,363,205	1,880,120	(694,785)	44,091	53,592,631	2.35%	3.61%
World Equity Ex-US Index	26,972,740	1,035,915	59,906	(57,608)	28,010,953	3.85%	3.84%
Total Investments with SSgA	370,851,275	11,693,197	(999,302)	771,853	382,317,023		
BlackRock							
Passive U.S. Bond Index Fund	68,793,852	(51,398)	(90,449)	(288,689)	68,363,316	-0.63%	-0.07%
Strategic Completion Fund	22,124,079	659,287	17,395	(31,708)	22,769,053	2.92%	2.98%
Total Investments with BlackRock	90,917,931	607,889	(73,054)	(320,397)	91,132,369		
Brandes and Baillie Gifford							
AK International Equity Fund	39,941,515	1,796,918	99,740	326,308	42,164,481	5.57%	4.48%
Northern Trust							
Environmental, Social, and Governance Fund	38,507,643	1,329,673	9,741	202,894	40,049,951	4.01%	3.44%
Total All Funds	$ 1,127,805,803	$ 27,200,911	$ (1,851,148)	$ -	$ 1,153,155,566	2.25%	2.41%

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
July 31, 2023
$ (Thousands)

Invested Assets (at fair value)		**July**
Investments with T. Rowe Price		
Stable Value Fund	$	191,478
Small Cap Stock Fund		116,873
Alaska Balanced Trust		44,493
Long Term Balanced Fund		96,425
AK Target Date 2010 Trust		2,459
AK Target Date 2015 Trust		8,485
AK Target Date 2020 Trust		20,763
AK Target Date 2025 Trust		28,077
AK Target Date 2030 Trust		21,272
AK Target Date 2035 Trust		17,271
AK Target Date 2040 Trust		15,320
AK Target Date 2045 Trust		12,075
AK Target Date 2050 Trust		10,982
AK Target Date 2055 Trust		8,240
AK Target Date 2060 Trust		2,124
AK Target Date 2065 Trust		907
Investments with JP Morgan		
JPMorgan SmartRetirement Blend 2015 R6		83
JPMorgan SmartRetirement Blend 2020 R6		164
Investments with State Street Global Advisors		
Money Market		21,347
S&P 500 Stock Index		279,366
Russell 3000 Index		53,593
World Equity Ex-US Index		28,011
Investments with BlackRock		
Passive U.S. Bond Index Fund		68,363
Strategic Completion Fund		22,769
Investments with Brandes and Baillie Gifford		
AK International Equity Fund		42,164
Investments with Northern Trust		
Environmental, Social, and Governance Fund		40,050
Total Invested Assets	**$**	**1,153,156**

Change in Invested Assets		
Beginning Assets	$	1,127,806
Investment Earnings		27,201
Net Contributions (Withdrawals)		(1,851)
Ending Invested Assets	**$**	**1,153,156**

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
July 31, 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	$ 130,167,035	$ 253,828	$ (501,005)	$ 336,057	$ 130,255,915	0.07%	0.20%
Small Cap Stock Fund	87,172,427	4,089,003	149,630	(61,855)	91,349,205	4.79%	4.69%
Alaska Balanced Trust	58,643,169	745,900	(186,805)	(118,934)	59,083,330	0.75%	1.28%
Long Term Balanced Fund	56,262,645	1,200,614	(158,483)	22,615	57,327,391	1.89%	2.14%
AK Target Date 2010 Trust	2,951,543	41,217	(58,282)	(32)	2,934,446	-0.58%	1.41%
AK Target Date 2015 Trust	10,647,888	166,292	(4,569)	-	10,809,611	1.52%	1.56%
AK Target Date 2020 Trust	38,034,651	677,719	(570,736)	137	38,141,771	0.28%	1.80%
AK Target Date 2025 Trust	84,532,362	1,820,153	330,570	(80,161)	86,602,924	2.45%	2.15%
AK Target Date 2030 Trust	101,877,292	2,476,215	433,152	(154,876)	104,631,783	2.70%	2.43%
AK Target Date 2035 Trust	132,649,047	3,587,278	539,521	(268,546)	136,507,300	2.91%	2.70%
AK Target Date 2040 Trust	154,315,497	4,534,911	456,231	(143,714)	159,162,925	3.14%	2.94%
AK Target Date 2045 Trust	208,705,775	6,537,058	1,120,241	(330,029)	216,033,045	3.51%	3.13%
AK Target Date 2050 Trust	252,051,541	8,095,238	1,100,020	(358,054)	260,888,745	3.51%	3.21%
AK Target Date 2055 Trust	278,818,806	9,012,701	1,761,803	(385,859)	289,207,451	3.73%	3.22%
AK Target Date 2060 Trust	25,985,249	861,756	944,799	(24,388)	27,767,416	6.86%	3.26%
AK Target Date 2065 Trust	15,689,821	523,117	655,798	18,027	16,886,763	7.63%	3.26%
Total Investments with T. Rowe Price	1,638,504,748	44,623,000	6,011,885	(1,549,612)	1,687,590,021		
JP Morgan							
JPMorgan SmartRetirement Blend 2015 R6	9,526	135	140	-	9,801	2.89%	1.41%
JPMorgan SmartRetirement Blend 2020 R6	58,367	960	811	37,437	97,575	67.17%	1.24%
Total Investments with JP Morgan	67,893	1,095	951	37,437	107,376		
State Street Global Advisors							
Money Market	21,707,179	93,213	24,611	(227,675)	21,597,328	-0.51%	0.43%
S&P 500 Stock Index	136,044,270	4,380,740	(46,935)	1,360,343	141,738,418	4.19%	3.20%
Russell 3000 Index	66,919,460	2,399,520	(299,482)	39,163	69,058,661	3.20%	3.59%
World Equity Ex-US Index	61,454,369	2,341,486	58,922	(2,510)	63,852,267	3.90%	3.81%
Total Investments with SSgA	286,125,278	9,214,959	(262,884)	1,169,321	296,246,674		
BlackRock							
Passive U.S. Bond Index Fund	86,472,069	(64,250)	(349,635)	473,057	86,531,241	0.07%	-0.07%
Strategic Completion Fund	36,647,948	1,090,180	(15,664)	238,936	37,961,400	3.58%	2.97%
Total Investments with BlackRock	123,120,017	1,025,930	(365,299)	711,993	124,492,641		
Brandes and Baillie Gifford							
AK International Equity Fund	55,569,105	2,493,985	74,030	(19,089)	58,118,031	4.59%	4.49%
Northern Trust							
Environmental, Social, and Governance Fund	31,264,550	1,074,116	18,866	(350,050)	32,007,482	2.38%	3.45%
Total All Funds	$ 2,134,651,591	$ 58,433,085	$ 5,477,549	$ -	$ 2,198,562,225	2.99%	2.73%

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
July 31, 2023
$ (Thousands)

Invested Assets (at fair value)		**July**
Investments with T. Rowe Price		
Stable Value Fund	$	130,256
Small Cap Stock Fund		91,349
Alaska Balanced Trust		59,083
Long Term Balanced Fund		57,327
AK Target Date 2010 Trust		2,934
AK Target Date 2015 Trust		10,810
AK Target Date 2020 Trust		38,142
AK Target Date 2025 Trust		86,603
AK Target Date 2030 Trust		104,632
AK Target Date 2035 Trust		136,507
AK Target Date 2040 Trust		159,163
AK Target Date 2045 Trust		216,033
AK Target Date 2050 Trust		260,889
AK Target Date 2055 Trust		289,207
AK Target Date 2060 Trust		27,767
AK Target Date 2065 Trust		16,887
Investments with JP Morgan		
JPMorgan SmartRetirement Blend 2015 R6		10
JPMorgan SmartRetirement Blend 2020 R6		98
State Street Global Advisors		
Money Market		21,597
S&P 500 Stock Index		141,738
Russell 3000 Index		69,059
World Equity Ex-US Index		63,852
Investments with BlackRock		
Passive U.S. Bond Index Fund		86,531
Strategic Completion Fund		37,961
Investments with Brandes and Baillie Gifford		
AK International Equity Fund		58,118
Investments with Northern Trust		
Environmental, Social, and Governance Fund		32,007
Total Invested Assets	$	**2,198,562**
Change in Invested Assets		
Beginning Assets	$	2,134,652
Investment Earnings		58,433
Net Contributions (Withdrawals)		5,478
Ending Invested Assets	$	**2,198,562**

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
July 31, 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	$ 48,687,941	$ 104,796	$ (617,398)	$ (469,340)	$ 47,705,999	-2.02%	0.22%
Small Cap Stock Fund	35,941,092	1,692,798	(2,005)	17,914	37,649,799	4.75%	4.71%
Alaska Balanced Trust	25,408,809	328,687	(46,357)	(75,758)	25,615,381	0.81%	1.30%
Long Term Balanced Fund	25,299,387	543,544	(40,509)	(129,185)	25,673,237	1.48%	2.16%
AK Target Date 2010 Trust	1,349,247	18,978	4,212	24,279	1,396,716	3.52%	1.39%
AK Target Date 2015 Trust	3,661,841	56,804	5,157	(11,965)	3,711,837	1.37%	1.55%
AK Target Date 2020 Trust	11,539,204	206,167	(190,393)	-	11,554,978	0.14%	1.80%
AK Target Date 2025 Trust	26,807,461	577,342	109,715	3,071	27,497,589	2.57%	2.15%
AK Target Date 2030 Trust	39,161,627	947,963	(132,256)	(152,190)	39,825,144	1.69%	2.43%
AK Target Date 2035 Trust	55,389,373	1,497,161	(3,920)	(250,938)	56,631,676	2.24%	2.71%
AK Target Date 2040 Trust	70,266,701	2,084,498	462,990	381,466	73,195,655	4.17%	2.95%
AK Target Date 2045 Trust	101,234,891	3,162,943	116,407	(205,694)	104,308,547	3.04%	3.13%
AK Target Date 2050 Trust	140,048,019	4,507,703	840,722	(162,174)	145,234,270	3.70%	3.21%
AK Target Date 2055 Trust	98,199,052	3,188,175	1,048,656	(34,251)	102,401,632	4.28%	3.23%
AK Target Date 2060 Trust	9,118,052	303,623	386,301	(49,231)	9,758,745	7.03%	3.27%
AK Target Date 2065 Trust	2,479,648	84,380	105,917	146,819	2,816,764	13.60%	3.24%
Total Investments with T. Rowe Price	694,592,345	19,305,562	2,047,239	(967,177)	714,977,969		
State Street Global Advisors							
Money Market	6,187,905	27,831	(174,079)	73,405	6,115,062	-1.18%	0.45%
S&P 500 Stock Index	44,677,714	1,448,767	81,828	490,381	46,698,690	4.52%	3.22%
Russell 3000 Index	26,881,073	965,705	(50,885)	52,504	27,848,397	3.60%	3.59%
World Equity Ex-US Index	28,086,914	1,076,293	(40,388)	44,264	29,167,083	3.85%	3.83%
Total Investments with SSgA	105,833,606	3,518,596	(183,524)	660,554	109,829,232		
BlackRock							
Passive U.S. Bond Index Fund	30,265,489	(14,772)	(89,532)	85,870	30,247,055	-0.06%	-0.05%
Strategic Completion Fund	15,535,964	464,318	(7,418)	(56,170)	15,936,694	2.58%	2.99%
Total Investments with BlackRock	45,801,453	449,546	(96,950)	29,700	46,183,749		
Brandes and Baillie Gifford							
AK International Equity Fund	24,255,597	1,098,043	(6,853.00)	236,095	25,582,882	5.47%	4.51%
Northern Trust							
Environmental, Social, and Governance Fund	12,263,916	425,862	(21,354.00)	40,828	12,709,252	3.63%	3.47%
Total All Funds	$ 882,746,917	$ 24,797,609	$ 1,738,558	$ -	$ 909,283,084	3.01%	2.81%

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
July 31, 2023
$ (Thousands)

Invested Assets (at fair value)		**July**
Investments with T. Rowe Price		
Stable Value Fund	$	47,706
Small Cap Stock Fund		37,650
Alaska Balanced Trust		25,615
Long Term Balanced Fund		25,673
AK Target Date 2010 Trust		1,397
AK Target Date 2015 Trust		3,712
AK Target Date 2020 Trust		11,555
AK Target Date 2025 Trust		27,498
AK Target Date 2030 Trust		39,825
AK Target Date 2035 Trust		56,632
AK Target Date 2040 Trust		73,196
AK Target Date 2045 Trust		104,309
AK Target Date 2050 Trust		145,234
AK Target Date 2055 Trust		102,402
AK Target Date 2060 Trust		9,759
AK Target Date 2065 Trust		2,817
Investments with State Street Global Advisors		
Money Market		6,115
S&P 500 Stock Index		46,699
Russell 3000 Index		27,848
World Equity Ex-US Index		29,167
Investments with BlackRock		
Passive U.S. Bond Index Fund		30,247
Strategic Completion Fund		15,937
Investments with Brandes and Baillie Gifford		
AK International Equity Fund		25,583
Investments with Northern Trust		
Environmental, Social, and Governance Fund		12,709
Total Invested Assets	$	**909,283**

Change in Invested Assets		
Beginning Assets	$	882,747
Investment Earnings		24,798
Net Contributions (Withdrawals)		1,739
Ending Invested Assets	$	**909,283**

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

ALASKA RETIREMENT MANAGEMENT BOARD

FINANCIAL REPORT
(Supplement to the Treasury Division Report)

As of July 31, 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 One Months Ending July 31, 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	$ 38,987,680	$ 37,942,000	$ 12,559	$ 76,942,239	$ (90,979,499)	$ (901,468)	$ (891,200)	$ (92,772,167)	$ (15,829,928)
Retirement Health Care Trust	1,181	-	6,405,905	6,407,086	(42,531,750)	-	(2,785,953)	(45,317,703)	(38,910,617)
Total Defined Benefit Plans	38,988,861	37,942,000	6,418,464	83,349,325	(133,511,249)	(901,468)	(3,677,153)	(138,089,870)	(54,740,545)
Defined Contribution Plans:									
Participant Directed Retirement	16,672,966	-	-	16,672,966	-	(9,041,108)	(2,154,309)	(11,195,417)	5,477,549
Health Reimbursement Arrangement [(a)]	3,969,235	-	-	3,969,235	(110,957)	-	(18,293)	(129,250)	3,839,985
Retiree Medical Plan [(a)]	1,489,481	-	7,270	1,496,751	(102,752)	-	(19,320)	(122,072)	1,374,679
Occupational Death and Disability: [(a)]									
All Others	329,482	-	-	329,482	(14,785)	-	(2,986)	(17,771)	311,711
Peace Officers and Firefighters	143,280	-	-	143,280	(42,121)	-	(1,196)	(43,317)	99,963
Total Defined Contribution Plans	22,604,444	-	7,270	22,611,714	(270,615)	(9,041,108)	(2,196,104)	(11,507,827)	11,103,887
Total PERS	**61,593,305**	**37,942,000**	**6,425,734**	**105,961,039**	**(133,781,864)**	**(9,942,576)**	**(5,873,257)**	**(149,597,697)**	**(43,636,658)**
Teachers' Retirement System (TRS)									
Defined Benefit Plans:									
Retirement Pension Trust	9,852,556	98,766,000	2,938	108,621,494	(47,230,721)	(154,781)	(403,106)	(47,788,608)	60,832,886
Retirement Health Care Trust	344	-	2,077,625	2,077,969	(13,725,257)	-	(1,002,587)	(14,727,844)	(12,649,875)
Total Defined Benefit Plans	9,852,900	98,766,000	2,080,563	110,699,463	(60,955,978)	(154,781)	(1,405,693)	(62,516,452)	48,183,011
Defined Contribution Plans:									
Participant Directed Retirement	8,043,634	-	-	8,043,634	-	(5,692,958)	(612,118)	(6,305,076)	1,738,558
Health Reimbursement Arrangement [(a)]	1,772,924	-	-	1,772,924	(24,815)	-	(5,193)	(30,008)	1,742,916
Retiree Medical Plan [(a)]	510,344	-	6,483	516,827	(21,073)	-	(6,701)	(27,774)	489,053
Occupational Death and Disability [(a)]	45,452	-	-	45,452	(2,301)	-	(972)	(3,273)	42,179
Total Defined Contribution Plans	10,372,354	-	6,483	10,378,837	(48,189)	(5,692,958)	(624,984)	(6,366,131)	4,012,706
Total TRS	**20,225,254**	**98,766,000**	**2,087,046**	**121,078,300**	**(61,004,167)**	**(5,847,739)**	**(2,030,677)**	**(68,882,583)**	**52,195,717**
Judicial Retirement System (JRS)									
Defined Benefit Plan Retirement Pension Trust	508,334	2,593,000	-	3,101,334	(1,369,787)	-	(9,847)	(1,379,634)	1,721,700
Defined Benefit Plan Retirement Health Care Trust	73,193	-	14,671	87,864	(142,195)	-	(9,175)	(151,370)	(63,506)
Total JRS	**581,527**	**2,593,000**	**14,671**	**3,189,198**	**(1,511,982)**	**-**	**(19,022)**	**(1,531,004)**	**1,658,194**
National Guard/Naval Militia Retirement System (NGNMRS)									
Defined Benefit Plan Retirement Pension Trust [(a)]	-	-	-	-	(122,380)	-	(19,637)	(142,017)	(142,017)
Other Participant Directed Plans									
Supplemental Annuity Plan (SBS)	14,540,585	-	-	14,540,585	-	(25,343,299)	(967,305)	(26,310,604)	(11,770,019)
Deferred Compensation Plan [(b)] (DCP)	4,101,550	-	-	4,101,550	-	(5,719,288)	(233,413)	(5,952,701)	(1,851,151)
Total All Funds	**101,042,221**	**139,301,000**	**8,527,451**	**248,870,672**	**(196,420,393)**	**(46,852,902)**	**(9,143,311)**	**(252,416,606)**	**(3,545,934)**
Total Non-Participant Directed	57,683,486	139,301,000	8,527,451	205,511,937	(196,420,393)	(1,056,249)	(5,176,166)	(202,652,808)	2,859,129
Total Participant Directed	43,358,735	-	-	43,358,735	-	(45,796,653)	(3,967,145)	(49,763,798)	(6,405,063)
Total All Funds	**$ 101,042,221**	**$ 139,301,000**	**$ 8,527,451**	**$ 248,870,672**	**$ (196,420,393)**	**$ (46,852,902)**	**$ (9,143,311)**	**$ (252,416,606)**	**$ (3,545,934)**

(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 July 31, 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 PensionsTrust	$ 38,987,680	$ 37,942,000	$ 12,559	$ 76,942,239	$ (90,979,499)	$ (901,468)	$ (891,200)	$ (92,772,167)	$ (15,829,928)
Retirement Health Care Trust	1,181	-	6,405,905	6,407,086	(42,531,750)	-	(2,785,953)	(45,317,703)	(38,910,617)
Total Defined Benefit Plans	38,988,861	37,942,000	6,418,464	83,349,325	(133,511,249)	(901,468)	(3,677,153)	(138,089,870)	(54,740,545)
Defined Contribution Plans:									
Participant Directed Retirement	16,672,966	-	-	16,672,966	-	(9,041,108)	(2,154,309)	(11,195,417)	5,477,549
Health Reimbursement Arrangement [a]	3,969,235	-	-	3,969,235	(110,957)	-	(18,293)	(129,250)	3,839,985
Retiree Medical Plan [a]	1,489,481	-	7,270	1,496,751	(102,752)	-	(19,320)	(122,072)	1,374,679
Occupational Death and Disability: [a]				$97.70					
All Others	329,482	-	-	329,482	(14,785)	-	(2,986)	(17,771)	311,711
Peace Officers and Firefighters	143,280	-	-	143,280	(42,121)	-	(1,196)	(43,317)	99,963
Total Defined Contribution Plans	22,604,444	-	7,270	22,611,812	(270,615)	(9,041,108)	(2,196,104)	(11,507,827)	11,103,887
Total PERS	**61,593,305**	**37,942,000**	**6,425,734**	**105,961,137**	**(133,781,864)**	**(9,942,576)**	**(5,873,257)**	**(149,597,697)**	**(43,636,658)**
Teachers' Retirement System (TRS)									
Defined Benefit Plans:									
Retirement PensionsTrust	9,852,556	98,766,000	2,938	108,621,494	(47,230,721)	(154,781)	(403,106)	(47,788,608)	60,832,886
Retirement Health Care Trust	344	-	2,077,625	2,077,969	(13,725,257)	-	(1,002,587)	(14,727,844)	(12,649,875)
Total Defined Benefit Plans	9,852,900	98,766,000	2,080,563	110,699,463	(60,955,978)	(154,781)	(1,405,693)	(62,516,452)	48,183,011
Defined Contribution Plans:									
Participant Directed Retirement	8,043,634	-	-	8,043,634	-	(5,692,958)	(612,118)	(6,305,076)	1,738,558
Health Reimbursement Arrangement [a]	1,772,924	-	-	1,772,924	(24,815)	-	(5,193)	(30,008)	1,742,916
Retiree Medical Plan [a]	510,344	-	6,483	516,827	(21,073)	-	(6,701)	(27,774)	489,053
Occupational Death and Disability [a]	45,452	-	-	45,452	(2,301)	-	(972)	(3,273)	42,179
Total Defined Contribution Plans	10,372,354	-	6,483	10,378,837	(48,189)	(5,692,958)	(624,984)	(6,366,131)	4,012,706
Total TRS	**20,225,254**	**98,766,000**	**2,087,046**	**121,078,300**	**(61,004,167)**	**(5,847,739)**	**(2,030,677)**	**(68,882,583)**	**52,195,717**
Judicial Retirement System (JRS)									
Defined Benefit Plan Retirement Pension Trust	508,334	2,593,000	-	3,101,334	(1,369,787)	-	(9,847)	(1,379,634)	1,721,700
Defined Benefit Plan Retirement Health Care Trust	73,193	-	14,671	87,864	(142,195)	-	(9,175)	(151,370)	(63,506)
Total JRS	**581,527**	**2,593,000**	**14,671**	**3,189,198**	**(1,511,982)**	**-**	**(19,022)**	**(1,531,004)**	**1,658,194**
National Guard/Naval Militia Retirement System (NGNMRS)									
Defined Benefit Plan Retirement Pension Trust [a]	-	-	-	-	(122,380)	-	(19,637)	(142,017)	(142,017)
Other Participant Directed Plans									
Supplemental Annuity Plan (SBS)	14,540,585	-	-	14,540,585	-	(25,343,299)	(967,305)	(26,310,604)	(11,770,019)
Deferred Compensation Plan [b] (DCP)	4,101,550	-	-	4,101,550	-	(5,719,288)	(233,413)	(5,952,701)	(1,851,151)
Total All Funds	**101,042,221**	**139,301,000**	**8,527,451**	**248,870,770**	**(196,420,393)**	**(46,852,902)**	**(9,143,311)**	**(252,416,606)**	**(3,545,934)**
Total Non-Participant Directed	57,683,486	139,301,000	8,527,451	205,511,937	(196,420,393)	(1,056,249)	(5,176,166)	(202,652,808)	2,859,129
Total Participant Directed	43,358,735	-	-	43,358,735	-	(45,796,653)	(3,967,145)	(49,763,798)	(6,405,063)
Total All Funds	**$ 101,042,221**	**$ 139,301,000**	**$ 8,527,451**	**$ 248,870,672**	**$ (196,420,393)**	**$ (46,852,902)**	**$ (9,143,311)**	**$ (252,416,606)**	**$ (3,545,934)**

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

Notes for the DRB Supplement to the Treasury Report

July 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 one months of Fiscal Year 2024, while page two shows only the month of July 2023.

Highlights – On page one, for the one months ending July 31, 2023:

- PERS DB Pension – Average employer and employee contributions of $39 million per month, benefit payments of approximately $91 million per month, refunds average $901 thousand, and administrative and investment expenditures of $891 thousand per month (DOR and DRB).
- PERS DB Healthcare – Average employer contributions of $1 thousand per month, and benefit payments of approximately $42.5 million per month. Other income of from OptumRx EGWP subsidies (most recently received in for), from OptumRx pharmacy rebates (most recently received in for), $6.4 million from OptumRx EGWP coverage gap discount program (CGDP) (most recently received in July for 1st Qtr 2023), from Aetna pharmacy rebates (most recently received in for), and average administrative and investment expenditures of $2.8 million per month (DOR and DRB).
- PERS DC Pension – Average employer and employee contributions of $16.7 million per month, participant disbursements average $9 million per month, and average administrative and investment expenditures of $2.2 million per month (DOR and DRB).
- PERS DCR Health – For HRA, RMP, and OD&D only, employer contributions average $5.9 million per month on behalf of participating employees, and benefit payments of approximately $271 thousand per month. Currently, 15 benefits are being paid from the Occupational Death & Disability plans, 180 retirees are participating in RMP, and 252 retirees are participating in HRA. Other income of from OptumRx EGWP subsidies (most recently received in for), from OptumRx pharmacy rebates (most recently received in for), $7.3 thousand from OptumRx EGWP coverage gap discount program (CGDP) (most recently received in July for 1st Qtr 2023), and administrative and investment expenditures were approximately $42 thousand per month (DOR and DRB).
- TRS DB Pension – Average employer and employee contributions of $9.9 million per month, benefit payments of approximately $47.2 million per month, refunds average $155 thousand, and average administrative and investment expenditures of $403 thousand per month (DOR and DRB).
- TRS DB Healthcare – For HRA, RMP, and OD&D only, average employer contributions of 344 per month, and benefit payments of approximately $13.7 million per month. Other income of from OptumRx EGWP subsidies (most recently received in for), from OptumRx pharmacy rebates (most recently received in for), $2.1 million from OptumRx EGWP coverage gap discount program (CGDP) (most recently received in July for 1st Qtr 2023), from Aetna pharmacy rebates (most recently received in for), and average administrative and investment expenditures of $1 million per month (DOR and DRB).

- TRS DC Pension – Average employer and employee contributions of $8 million per month, participant disbursements average $5.7 million per month, and average administrative and investment expenditures of $612 thousand per month (DOR and DRB).
- TRS DCR Health – Average employer contributions of $2.3 million per month, and benefit payments of approximately $48 thousand per month. Other income of from OptumRx EGWP subsidies (most recently received in for), from OptumRx pharmacy rebates (most recently received in for), $6.5 thousand from OptumRx EGWP coverage gap discount program (CGDP) (most recently received in July for 1st Qtr 2023), and average administrative and investment expenditures of $13 thousand per month (DOR and DRB).
- JRS Pension – Average employer and employee contributions of $508 thousand per month, benefit payments of approximately $1.4 million per month, and average administrative and investment expenditures of $10 thousand per month (DOR and DRB).
- JRS Healthcare – Average employer contributions of $73 thousand per month, and benefit payments of approximately $142 thousand per month. Other income of from OptumRx EGWP subsidies (most recently received in for), from OptumRx pharmacy rebates (most recently received in for), $14.5 thousand from EGWP coverage gap discount program (CGDP) (most recently received in July for 1st Qtr 2023), and average administrative and investment expenditures of $9 thousand per month (DOR and DRB).
- NGNMRS – A combination of lump-sum and monthly benefit payments of $122 thousand per month, and average administrative and investment expenditures of $20 thousand per month (DOR and DRB).
- SBS – Average employer and employee contributions and transfers in of $14.5 million per month. Participant disbursements average of $25.3 million per month, and average administrative and investment expenditures of $967 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 $5.7 million per month, and average administrative and investment expenditures of $233 thousand per month (DOR and DRB).

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

- PERS DB Pension - State of Alaska additional contributions of $37.9 million.
- PERS DB Healthcare - Other income of $6.4 million from OptumRx EGWP CGDP.
- PERS DCR Health - Other income of $7.3 thousand from OptumRx EGWP CGDP.
- TRS DB Pension - State of Alaska additional contributions of $98.8 million.
- TRS DB Healthcare - Other income of $2.1 million from OptumRx EGWP CGDP.
- JRS DB Pension - State of Alaska additional contributions of $2.6 million.
- JRS DB Healthcare - Other income of $14.5 thousand from OptumRx EGWP CGDP.
- All other funds - Nothing significant to report.

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

ALASKA RETIREMENT MANAGEMENT BOARD
SCHEDULE OF NON-INVESTMENT CHANGES BY FUND
(Supplement to the Treasury Division Report)
For the One Months Ending July 31, 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	$ 12,048		$ 5,000		$ 45,219	$ 14,624	$ 76,891	0.2%
Death Benefit	33,647		-		1,495,321	80,951	1,609,919	3.5%
Disability / Hardship	-		-		22,840	40,628	63,468	0.1%
Minimum Required Distribution	4,721		395		861,061	347,307	1,213,484	2.6%
Deminimus Acct Balance Distribution	-		-		-	-	-	0.0%
Qualified Domestic Relations Order	106,111		-		396,482	88,179	590,772	1.3%
Separation from Service / Retirement	8,311,103	a	4,565,089	a	22,486,617	4,895,072	40,257,881	87.9%
Purchase of Service Credit	352,409	a	612,512	a	35,759	-	1,000,680	2.2%
Transfer to a Qualifying Plan	-		-		-	-	-	0.0%
59-½ In-service Distribution	-		-		-	252,527	252,527	0.6%
Qualified Birth / Adoption Expense	-		-		-	-	-	0.0%
DCR to DB Conversion	221,069	a	509,962	a	-	-	731,031	1.6%
TOTAL	$ 9,041,108		$ 5,692,958		$ 25,343,299	$ 5,719,288	$ 45,796,653	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	$ 8,173,516	$ 5,345,950	$ 13,519,466	91.7%
75% Vested	195,231	95,970	291,201	2.0%
50% Vested	198,665	112,867	311,532	2.1%
25% Vested	262,574	83,728	346,302	2.4%
0% Vested	211,122	54,443	265,565	1.8%
TOTAL	$ 9,041,108	$ 5,692,958	$ 14,734,066	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	$ -	$ 98,633	$ 218,952	$ 317,585	$ -	$ 3,204	$ 3,204	$ -	$ 320,789.00
Mandatory Non-Vested	28,435	52,319	51,609	132,363	-	151,577	151,577	-	283,940
Geographic Differential	-	13,674	4,465	18,139	-	-	-	-	18,139
Voluntary Full	19,003	187,862	157,854	364,719	-	-	-	-	364,719
Indebtedness, Lagging & Partial	-	-	68,662	68,662	-	-	-	-	68,662
TOTAL	$ 47,438	$ 352,488	$ 501,542	$ 901,468	$ -	$ 154,781	$ 154,781	$ -	$ 1,056,249

ALASKA RETIREMENT MANAGEMENT BOARD

FINANCIAL REPORT
(Supplement to the Treasury Division Report)

As of June 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 Twelve Months Ending June 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	$ 517,705,352	$ 33,933,000	$ 162,042	$ 551,800,394	$ (1,017,453,690)	$ (9,950,506)	$ (6,226,070)	$ (1,033,630,266)	$ (481,829,872)
Retirement Health Care Trust	4,693,431	-	119,617,796	124,311,227	(548,923,962)	-	(20,150,479)	(569,074,441)	(444,763,214)
Total Defined Benefit Plans	522,398,783	33,933,000	119,779,838	676,111,621	(1,566,377,652)	(9,950,506)	(26,376,549)	(1,602,704,707)	(926,593,086)
Defined Contribution Plans:									
Participant Directed Retirement	222,734,451	-	-	222,734,451	-	(111,909,373)	(5,705,289)	(117,614,662)	105,119,789
Health Reimbursement Arrangement [(a)]	51,754,663	-	-	51,754,663	(847,163)	-	(252,959)	(1,100,122)	50,654,541
Retiree Medical Plan [(a)]	19,703,739	-	294,794	19,998,533	(1,360,667)	-	(180,101)	(1,540,768)	18,457,765
Occupational Death and Disability: [(a)]									
All Others	4,351,720	-	-	4,351,720	(167,157)	-	(40,193)	(207,350)	4,144,370
Peace Officers and Firefighters	1,810,137	-	-	1,810,137	(467,638)	-	(17,512)	(485,150)	1,324,987
Total Defined Contribution Plans	300,354,710	-	294,794	300,649,504	(2,842,625)	(111,909,373)	(6,196,054)	(120,948,052)	179,701,452
Total PERS	**822,753,493**	**33,933,000**	**120,074,632**	**976,761,125**	**(1,569,220,277)**	**(121,859,879)**	**(32,572,603)**	**(1,723,652,759)**	**(746,891,634)**
Teachers' Retirement System (TRS)									
Defined Benefit Plans:									
Retirement Pension Trust	78,813,974	91,029,000	28,830	169,871,804	(538,419,910)	(1,404,130)	(3,316,544)	(543,140,584)	(373,268,780)
Retirement Health Care Trust	2,822,838	-	38,884,436	41,707,274	(170,722,068)	-	(7,350,438)	(178,072,506)	(136,365,232)
Total Defined Benefit Plans	81,636,812	91,029,000	38,913,266	211,579,078	(709,141,978)	(1,404,130)	(10,666,982)	(721,213,090)	(509,634,012)
Defined Contribution Plans:									
Participant Directed Retirement	77,553,189	-	-	77,553,189	-	(33,132,170)	(2,120,676)	(35,252,846)	42,300,343
Health Reimbursement Arrangement [(a)]	15,249,245	-	-	15,249,245	(236,787)	-	(73,966)	(310,753)	14,938,492
Retiree Medical Plan [(a)]	4,624,273	-	50,969	4,675,242	(265,583)	-	(84,287)	(349,870)	4,325,372
Occupational Death and Disability [(a)]	411,219	-	-	411,219	(26,004)	-	(13,750)	(39,754)	371,465
Total Defined Contribution Plans	97,837,926	-	50,969	97,888,895	(528,374)	(33,132,170)	(2,292,679)	(35,953,223)	61,935,672
Total TRS	**179,474,738**	**91,029,000**	**38,964,235**	**309,467,973**	**(709,670,352)**	**(34,536,300)**	**(12,959,661)**	**(757,166,313)**	**(447,698,340)**
Judicial Retirement System (JRS)									
Defined Benefit Plan Retirement Pension Trust	7,924,957	3,225,000	-	11,149,957	(15,930,653)	(39,292)	(152,412)	(16,122,357)	(4,972,400)
Defined Benefit Plan Retirement Health Care Trust	912,128	-	399,378	1,311,506	(1,545,310)	-	(80,085)	(1,625,395)	(313,889)
Total JRS	**8,837,085**	**3,225,000**	**399,378**	**12,461,463**	**(17,475,963)**	**(39,292)**	**(232,497)**	**(17,747,752)**	**(5,286,289)**
National Guard/Naval Militia Retirement System (NGNMRS)									
Defined Benefit Plan Retirement Pension Trust [(a)]	-	-	-	-	(1,854,292)	-	(179,928)	(2,034,220)	(2,034,220)
Other Participant Directed Plans									
Supplemental Annuity Plan (SBS)	183,791,239	-	-	183,791,239	-	(263,505,005)	(8,484,519)	(271,989,524)	(88,198,285)
Deferred Compensation Plan [(b)] (DCP)	49,639,150	-	-	49,639,150	-	(83,245,934)	(2,114,146)	(85,360,080)	(35,720,930)
Total All Funds	**1,244,495,705**	**128,187,000**	**159,438,245**	**1,532,120,950**	**(2,298,220,884)**	**(503,186,410)**	**(56,543,354)**	**(2,857,950,648)**	**(1,325,829,698)**
Total Non-Participant Directed	710,777,676	128,187,000	159,438,245	998,402,921	(2,298,220,884)	(11,393,928)	(38,118,724)	(2,347,733,536)	(1,349,330,615)
Total Participant Directed	533,718,029	-	-	533,718,029	-	(491,792,482)	(18,424,630)	(510,217,112)	23,500,917
Total All Funds	**$ 1,244,495,705**	**$ 128,187,000**	**$ 159,438,245**	**$ 1,532,120,950**	**$ (2,298,220,884)**	**$ (503,186,410)**	**$ (56,543,354)**	**$ (2,857,950,648)**	**$ (1,325,829,698)**

(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 June 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	$ 45,331,888	$ -	$ 16,410	$ 45,348,298	$ (85,942,987)	$ (960,636)	$ (1,275,194)	$ (88,178,817)	$ (42,830,519)
Retirement Health Care Trust	1,130	-	2,409,757	2,410,887	(46,019,891)	-	(1,467,197)	(47,487,088)	(45,076,201)
Total Defined Benefit Plans	45,333,018	-	2,426,167	47,759,185	(131,962,878)	(960,636)	(2,742,391)	(135,665,905)	(87,906,720)
Defined Contribution Plans:									
Participant Directed Retirement	19,631,011	-	-	19,631,011	-	(9,768,251)	(199,211)	(9,967,462)	9,663,549
Health Reimbursement Arrangement [a]	4,776,470	-	-	4,776,470	(44,822)	-	(48,719)	(93,541)	4,682,929
Retiree Medical Plan [a]	1,741,593	-	9,625	1,751,218	(59,841)	-	(18,420)	(78,261)	1,672,957
Occupational Death and Disability: [a]									
All Others	391,165	-	-	391,165	(13,952)	-	(2,631)	(16,583)	374,582
Peace Officers and Firefighters	167,017	-	-	167,017	(40,340)	-	(2,637)	(42,977)	124,040
Total Defined Contribution Plans	26,707,256	-	9,625	26,716,881	(158,955)	(9,768,251)	(271,618)	(10,198,824)	16,518,057
Total PERS	**72,040,274**	**-**	**2,435,792**	**74,476,066**	**(132,121,833)**	**(10,728,887)**	**(3,014,009)**	**(145,864,729)**	**(71,388,663)**
Teachers' Retirement System (TRS)									
Defined Benefit Plans:									
Retirement Pension Trust	14,120,384	-	1,500	14,121,884	(44,566,280)	(20,275)	(608,193)	(45,194,748)	(31,072,864)
Retirement Health Care Trust	431	-	879,890	880,321	(14,494,306)	-	(539,748)	(15,034,054)	(14,153,733)
Total Defined Benefit Plans	14,120,815	-	881,390	15,002,205	(59,060,586)	(20,275)	(1,147,941)	(60,228,802)	(45,226,597)
Defined Contribution Plans:									
Participant Directed Retirement	13,591,990	-	-	13,591,990	-	(4,505,430)	(77,336)	(4,582,766)	9,009,224
Health Reimbursement Arrangement [a]	2,209,230	-	-	2,209,230	(14,595)	-	(14,864)	(29,459)	2,179,771
Retiree Medical Plan [a]	764,116	-	1,498	765,614	(6,968)	-	(5,654)	(12,622)	752,992
Occupational Death and Disability [a]	69,343	-	-	69,343	(2,171)	-	(944)	(3,115)	66,228
Total Defined Contribution Plans	16,634,679	-	1,498	16,636,177	(23,734)	(4,505,430)	(98,798)	(4,627,962)	12,008,215
Total TRS	**30,755,494**	**-**	**882,888**	**31,638,382**	**(59,084,320)**	**(4,525,705)**	**(1,246,739)**	**(64,856,764)**	**(33,218,382)**
Judicial Retirement System (JRS)									
Defined Benefit Plan Retirement Pension Trust	762,181	-	-	762,181	(1,369,115)	-	(20,943)	(1,390,058)	(627,877)
Defined Benefit Plan Retirement Health Care Trust	109,461	-	8,031	117,492	(132,139)	-	(6,307)	(138,446)	(20,954)
Total JRS	**871,642**	**-**	**8,031**	**879,673**	**(1,501,254)**	**-**	**(27,250)**	**(1,528,504)**	**(648,831)**
National Guard/Naval Militia Retirement System (NGNMRS)									
Defined Benefit Plan Retirement Pension Trust [a]	-	-	-	-	(135,838)	-	(41,112)	(176,950)	(176,950)
Other Participant Directed Plans									
Supplemental Annuity Plan (SBS)	21,116,750	-	-	21,116,750	-	(26,019,503)	(434,023)	(26,453,526)	(5,336,776)
Deferred Compensation Plan [b] (DCP)	4,119,428	-	-	4,119,428	-	(8,914,173)	(102,942)	(9,017,115)	(4,897,687)
Total All Funds	**128,903,588**	**-**	**3,326,711**	**132,230,299**	**(192,843,245)**	**(50,188,268)**	**-**	**(247,897,588)**	**(115,667,289)**
Total Non-Participant Directed	70,444,409	-	3,326,711	73,771,120	(192,843,245)	(980,911)	(4,052,563)	(197,876,719)	(124,105,599)
Total Participant Directed	58,459,179	-	-	58,459,179	-	(49,207,357)	(813,512)	(50,020,869)	8,438,310
Total All Funds	**$ 128,903,588**	**$ -**	**$ 3,326,711**	**$ 132,230,299**	**$ (192,843,245)**	**$ (50,188,268)**	**$ (4,866,075)**	**$ (247,897,588)**	**$ (115,667,289)**

(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 Twelve Months Ending June 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	$ 220,053	$ 27,106	$ 1,014,362	$ 270,757	$ 1,532,278	0.3%
Death Benefit	2,487,404	1,537,046	16,558,124	4,677,882	25,260,456	5.1%
Disability / Hardship	209,682	-	59,863	265,292	534,837	0.1%
Minimum Required Distribution	183,044	75,095	14,457,035	5,602,990	20,318,164	4.1%
Deminimus Acct Balance Distribution	-	-	-	6,096	6,096	0.0%
Qualified Domestic Relations Order	1,285,361	305,497	4,827,981	181,492	6,600,331	1.3%
Separation from Service / Retirement	85,848,693 a	24,910,222 a	222,925,539	68,323,903	402,008,357	81.8%
Purchase of Service Credit	12,976,671 a	3,319,512 a	3,662,101	157,252	20,115,536	4.1%
Transfer to a Qualifying Plan	-	-	-	5,000	5,000	0.0%
59-½ In-service Distribution	-	-	-	3,722,900	3,722,900	0.8%
Qualified Birth / Adoption Expense	-	-	-	32,370	32,370	0.0%
DCR to DB Conversion	8,698,465 a	2,957,692 a	-	-	11,656,157	2.4%
TOTAL	$ 111,909,373	$ 33,132,170	$ 263,505,005	$ 83,245,934	$ 491,792,482	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	$ 101,902,544	$ 29,492,356	$ 131,394,900	90.6%
75% Vested	1,850,167	1,175,021	3,025,188	2.1%
50% Vested	2,360,878	744,598	3,105,476	2.1%
25% Vested	2,025,245	866,496	2,891,741	2.0%
0% Vested	3,770,539	853,699	4,624,238	3.2%
TOTAL	$ 111,909,373	$ 33,132,170	$ 145,041,543	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	$ 30,830	$ 927,690	$ 1,912,035	$ 2,870,555	$ -	$ 180,115	$ 180,115	$ 39,292	$ 3,089,962.00
Mandatory Non-Vested	227,391	362,273	846,591	1,436,255	285,294	881,375	1,166,669	-	2,602,924
Geographic Differential	-	358,434	119,364	477,798	-	-	-	-	477,798
Voluntary Full	303,554	1,705,917	2,544,989	4,554,460	-	-	-	-	4,554,460
Indebtedness, Lagging & Partial	34,357	256,697	320,384	611,438	-	57,346	57,346	-	668,784
TOTAL	$ 596,132	$ 3,611,011	$ 5,743,363	$ 9,950,506	$ 285,294	$ 1,118,836	$ 1,404,130	$ 39,292	$ 11,393,928

Notes for the DRB Supplement to the Treasury Report

June 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 twelve months of Fiscal Year 2023, while page two shows only the month of June 2023.

Highlights – On page one, for the twelve months ending June 30, 2023:

- PERS DB Pension – Average employer and employee contributions of $43.1 million per month, benefit payments of approximately $84.8 million per month, refunds average $829 thousand, and administrative and investment expenditures of $519 thousand per month (DOR and DRB).
- PERS DB Healthcare – Average employer contributions of $391 thousand per month, and benefit payments of approximately $45.7 million per month. Other income of $28.5 million from OptumRx EGWP subsidies (most recently received in May for May 2023), $55.9 million from OptumRx pharmacy rebates (most recently received in May for 1st Qtr 2023), $32.7 million from OptumRx EGWP coverage gap discount program (CGDP) (most recently received in April for 4th Qtr 2022), $1.5 million from Aetna pharmacy rebates (most recently received in June for 4th 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 $18.6 million per month, participant disbursements average $9.3 million per month, and average administrative and investment expenditures of $475 thousand per month (DOR and DRB).
- PERS DCR Health – For HRA, RMP, and OD&D only, employer contributions average $6.5 million per month on behalf of participating employees, and benefit payments of approximately $237 thousand per month. Currently, 15 benefits are being paid from the Occupational Death & Disability plans, 175 retirees are participating in RMP, and 239 retirees are participating in HRA. Other income of $109 thousand from OptumRx EGWP subsidies (most recently received in May for May 2023), $112.5 thousand from OptumRx pharmacy rebates (most recently received in May for 1st Qtr 2023), $70.9 thousand from OptumRx EGWP coverage gap discount program (CGDP) (most recently received in April for 4th Qtr 2022), and administrative and investment expenditures were approximately $41 thousand per month (DOR and DRB).
- TRS DB Pension – Average employer and employee contributions of $6.6 million per month, benefit payments of approximately $44.9 million per month, refunds average $117 thousand, and average administrative and investment expenditures of $276 thousand per month (DOR and DRB).
- TRS DB Healthcare – For HRA, RMP, and OD&D only, average employer contributions of $257 thousand per month, and benefit payments of approximately $14.2 million per month. Other income of $10.0 million from OptumRx EGWP subsidies (most recently received in May for May 2023), $17.1 million from OptumRx pharmacy rebates (most recently received in May for 1st Qtr 2023), $10.7 million from OptumRx EGWP coverage gap discount program (CGDP) (most recently received in April for 4th Qtr 2022), $640 thousand from Aetna pharmacy rebates (most recently received in June for 4th Qtr 2022), and average administrative and investment expenditures of $613 thousand per month (DOR and DRB).

- TRS DC Pension – Average employer and employee contributions of $6.5 million per month, participant disbursements average $2.8 million per month, and average administrative and investment expenditures of $177 thousand per month (DOR and DRB).
- TRS DCR Health – Average employer contributions of $1.7 million per month, and benefit payments of approximately $44 thousand per month. Other income of $19.0 thousand from OptumRx EGWP subsidies (most recently received in May for May 2023), $18.5 thousand from OptumRx pharmacy rebates (most recently received in May for 1st Qtr 2023), $12.8 thousand from OptumRx EGWP coverage gap discount program (CGDP) (most recently received in April for 4th Qtr 2022), and average administrative and investment expenditures of $14 thousand per month (DOR and DRB).
- JRS Pension – Average employer and employee contributions of $720 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 $83 thousand per month, and benefit payments of approximately $129 thousand per month. Other income of $86.2 thousand from OptumRx EGWP subsidies (most recently received in May for May 2023), $179.3 thousand from OptumRx pharmacy rebates (most recently received in May for 1st Qtr 2023), $124 thousand from EGWP coverage gap discount program (CGDP) (most recently received in April for 4th 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 $155 thousand per month, and average administrative and investment expenditures of $15 thousand per month (DOR and DRB).
- SBS – Average employer and employee contributions and transfers in of $15.3 million per month. Participant disbursements average of $22 million per month, and average administrative and investment expenditures of $707 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 $6.9 million per month, and average administrative and investment expenditures of $176 thousand per month (DOR and DRB).

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

- PERS DB Healthcare - Other income of $2.4 million from OptumRx EGWP subsidies and Aetna Pharmacy rebates.
- PERS DCR Health - Other income of $9.7 thousand from OptumRx EGWP subsidies.
- TRS DB Healthcare - Other income of $771.5 thousand from OptumRx EGWP subsidies and Aetna Pharmacy rebates.
- JRS DB Healthcare - Other income of $7.9 thousand from OptumRx EGWP subsidies Aetna Pharmacy rebates.
- All other funds - Nothing significant to report.

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

ALASKA RETIREMENT MANAGEMENT BOARD
STAFF REPORT
Division of Retirement & Benefits Report
September 14, 2023

Summary of Monthly Billings – Buck, A Gallagher Company

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

Included on this schedule are the quarters ended September 30, 2022, December 31, 2022, March 31, 2023, and June 30, 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, A Gallagher Company	ACTION:	______
DATE:	September 14, 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 twelve months ended June 30, 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

For the Three Months Ended June 30, 2023

	PERS	TRS	JRS	NGNMRS	EPORS	TOTAL
Actuarial valuations	$ 18,284	14,633	1,830	1,828	-	$ 36,575
Change to valuation data request for DRB's new systems	3,085	1,229	-	-	-	4,314
FY24 final PERS/TRS contribution rates	1,125	1,125	-	-	-	2,250
AlaskaCare retiree plan cost study	765	310	-	-	-	1,075
Projections	2,325	2,325	-	-	-	4,650
Meeting materials	4,546	2,516	25	98	-	7,185
Voluntary savings plan	1,630	-	-	-	-	1,630
PERS termination studies - Metcalfe participants	1,960	1,234	-	-	-	3,194
TOTAL	$ 33,720	23,372	1,855	1,926	-	$ 60,873
For the Three Months Ended June 30, 2022	$ 60,711	33,986	1,888	2,093	726	$ 99,404

Summary through the Twelve Months Ended June 30, 2023

	PERS	TRS	JRS	NGNMRS	EPORS	TOTAL
Actuarial valuations	$ 143,399	114,308	14,565	14,560	4,368	$ 291,200
Change to valuation data request for DRB's new systems	4,905	1,954	-	-	-	6,859
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	9,072	9,078	-	-	-	18,150
AlaskaCare retiree plan cost study	22,939	9,311	-	-	-	32,250
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	18,150	18,150	-	-	-	36,300
Meeting materials	21,716	10,164	143	555	-	32,578
Senate Finance Committee – DB/DCR comparison	6,749	2,116	-	-	-	8,865
Voluntary savings plan	2,455	-	-	-	-	2,455
PERS termination studies - Metcalfe participants	1,960	1,234	-	-	-	3,194
ARMB trustees - new orientation slides	3,061	1,224	24	91	-	4,400
TOTAL	$ 304,096	223,773	20,815	21,337	4,368	$ 574,389
Summary through the Twelve Months Ended June 30, 2022	$ 389,911	258,421	26,983	22,433	5,820	$ 703,568

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	Retirement System Membership Activity as of June 30, 2023	ACTION:	
DATE:	September 14, 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 June 30, 2023.

ALASKA RETIREMENT MANAGEMENT BOARD

STAFF REPORT

Division of Retirement & Benefits Report
September 14, 2023

<u>Retirement System Membership Activity as of June 30, 2023</u>

Attached are the membership statistics for the quarter ending

- June 30, 2023

Active counts have changed in the following manner:

- PERS Tier 1-3 active members decreased from 8,871 to 8,557, or a decrease of 314.
- PERS DCR active members decreased from 26,343 to 26,261, or a decrease of 82.
- PERS active members had a net decrease of 396.

- TRS Tier 1-2 active members decreased from 3,114 to 2,897, or a decrease of 217.
- TRS DCR active members decreased from 6,906 to 6,416, or a decrease of 490.
- TRS active members had a net increase of 707.

Retiree counts have changed in the following manner:

- PERS retirees decreased from 37,356 to 37,206, or a decrease of 150 (all tiers).
- TRS retirees decreased from 13,613, to 13,537, or a decrease of 76 (all tiers).

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

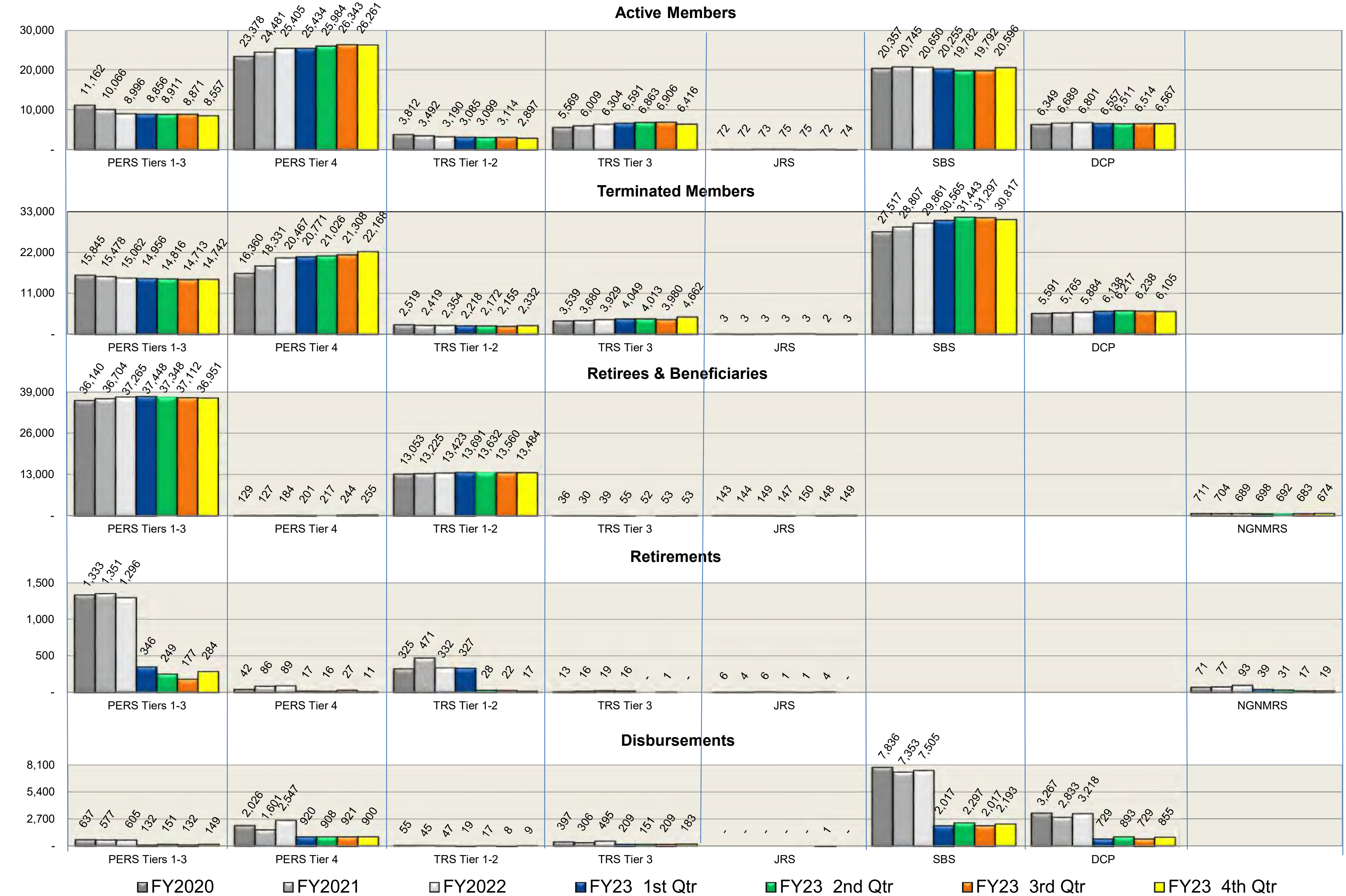
MEMBERSHIP STATISTICS AS OF JUNE 30, 2023

	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	464	1,756	6,337	8,557	26,261	34,818	95	2,802	2,897	6,416	9,313	74	n/a	20,596	6,567
Terminated Members															
Entitled to Future Benefits	234	1,395	3,152	4,781	2,773	7,554	24	749	773	1,247	2,020	2	n/a	30,817	6,105
Other Terminated Members	927	1,894	7,140	9,961	19,395	29,356	205	1,354	1,559	3,415	4,974	1	n/a	n/a	n/a
Total Terminated Members	1,161	3,289	10,292	14,742	22,168	36,910	229	2,103	2,332	4,662	6,994	3	n/a	30,817	6,105
Retirees & Beneficiaries	21,441	9,609	5,901	36,951	255	37,206	9,619	3,865	13,484	53	13,537	149	674	n/a	n/a
Managed Accounts	n/a	n/a	n/a	n/a	5,700	5,700	n/a	n/a	n/a	1,295	1,295	n/a	n/a	3,650	3,628
Managed account balance qtr end					$527,939,079					$206,590,014				$673,438,028	$183,554,001
Retirements - 4th QTR FY23	34	112	138	284	11	295	3	14	17	-	17	-	19	n/a	n/a
Full Disbursements - 4th QTR FY23	11	57	81	149	225	374	1	7	9	24	32	-	n/a	214	77
Partial Disbursements - 4th QTR FY23	n/a	n/a	n/a	n/a	675	675	n/a	n/a	n/a	159	159	n/a	n/a	1,979	778

Alaska Division of Retirement and Benefits

FY 2023 QUARTERLY REPORT OF MEMBERSHIP STATISTICS

Annual & Quarterly Trends as of June 30, 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
September 14, 2023

BEnefits And Retirement System (BEARS) IT Modernization

Project Background:

In FY19, the Division of Retirement and Benefits (DRB) began implementing a multi-year capital 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 will support all of our pension and health functions and will provide 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 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 June 2023 update on the BEARS project, the project continues to progress; however, the Project Management (PM) Team has identified several challenges to the project timeline. After much discussion, the PM Team has worked to create and put in place a plan to address those challenges, mitigate risks, and ensure that BEARS is fully functional upon implementation.

Challenges include:

- *Staffing Vacancies:* In much the same manner as DRB and other State divisions, Sagitec has experienced a high staffing vacancy rate. In particular, this has impacted their software development and testing team, which in turn impacts the rate at which they can complete work.
- *State of Alaska vs. Metcalfe Supreme Court Decision:* This decision has had a significant impact on the design and development of BEARS. While some of the additional programming to accommodate the Metcalfe decision isn't immediately critical, there are some changes that must be incorporated prior to BEARS implementation.
- *Scope Change Requests:* As a result of interim evaluation of the software and programming during the Pilot sessions, a number of key and critical programming changes have been identified. Some of these are significant and need to be accommodated prior to implementation, and some have been identified as important, but can be worked around in the short term.

Solutions identified:

- *Extend Implementation Timeline:* The PM Team has extended the implementation timeline by 6.5 months, with a new go-live date in November 2024. While Sagitec began addressing the staffing issue in January 2023, and is continuing to acquire personnel resources, bringing new staff up to speed takes time. This solution mitigates the risk of errors in programming development and testing, ensuring a much smoother implementation.
- *Project Phasing:* As software solutions are meant to be living, changing systems, DRB will be implementing a second phase of the project. In Phase 1 (the current contract), the PM Team has identified the most critical programming necessary as a result of the Metcalfe decision and scope change requests and has worked to incorporate those changes into BEARS prior to implementation. We propose that all other changes be accommodated in a secondary project (Phase 2) to be developed and implemented as an update to BEARS following successful implementation and stabilization. This also provides DRB users the opportunity to become familiar with the system and identify any updates or changes that would further improve our service to our members. Phase 2 would require an additional capital investment by the State.

Budget and Spending by Vendors (as of 8/26/2023):

Sagitec – Program design, development, and implementation

Total Auth	25,566,097
Spend-to-date	14,429,082
Balance Remaining	*11,137,015*

Linea – Program management

Original Auth	3,270,858
Amendment	896,328
Total Auth	4,167,186
Spend-to-date	3,345,552
Balance Remaining	*821,634*

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: FY2025 ARMB Budget Proposal ACTION: X

DATE: September 14, 2023 INFORMATION:

BACKGROUND:

The Alaska Retirement Management Board (ARMB) meets annually to review the actual expenditures in the immediately preceding fiscal year, the current projected fiscal year budget; and the proposed budget for the next fiscal year to be adopted by the Board. The ARMB budget is presented in the Alaska Budget System in two budget components: ARMB Operations and ARMB Custody and Management. For presentation purposes, the attached FY2025 Working Budget combines these into one schedule and provides greater detail for the board to better understand total expenses. FY2020 through FY2023 actuals are presented on the attachment, along with FY24 and FY2025 projected and proposed amounts. All costs are allocated to individual funds based on the federally approved cost allocation plan discussed in prior audit committees.

The Treasury Division's work is mission critical, and has resulted in excess returns, external cost savings, and error prevention. ARMB returns have been in the top-quartile of peer performance and have resulted in over $2 billion dollars of additional assets compared to the ARMB's benchmark in the last 10 years.

The last increase to the operating budget requested on behalf of the ARMB was granted in 2018 to add two investment officers to manage more funds internally. While total budgets have decreased by $14 million or 25% due to the reduction in external management fees, costs of operating internally have increased and additional authorization is needed to continue providing strong performance.

BUDGET STATUS:

Personal Services Costs

The ARMB purchases personal services from the Treasury division each year. Personal services are allocated based on the work that Treasury staff perform, and the relative size of the funds managed by the Treasury. FY2023 actual personal services were $6.3 million, as compared to the $6.9 million we projected last year and the $7.2 million allocated from the authorized FY2023 budget. The FY2025 proposed amount of $7.8 million represents an increase of $540,000 for expected personal service costs allocated to the ARMB, including salary increases awarded in past years and sufficient authorization to accommodate potential salary increases. State investment officers are exempt staff, and all increases must be specifically budgeted annually. There is no incentive pay.

Investment Management Fees

Total investment management fees decreased from $109 million to between $65 -$75 million since 2017 and now represent 23 basis points (.23%). Treasury continues to save over $30 million per year through fee negotiation, increasing internal investment management, and portfolio restructuring. The custody and management fee component for FY2023 continues to authorize up to $35 million for public investments. This is a reduced authorization from $50 million in FY2020 and $45 million in FY2021. Private investment fees are netted from investments by the manger and are not included in budget appropriations, although disclosed in presentations to the legislature for transparency. The FY2025 authorization are proposed to be the same as FY2023. A summary of actual management fees for FY2012-2023 is attached.

Other Budgeted Costs

Other costs reflected in the attached working budget are based on prior year amounts and expected changes that are currently known. As a result of inflation, there have been many cost increases, especially to existing investment data services and trading software. In addition, staff have identified new investment services that staff believe will provide additional information to assist in improving investment outcomes and earnings. The FY2025 proposed budget includes increases of $400,000 for expected investment service costs allocated to the ARMB and 80,000 in additional travel costs.

SUMMARY:

The Treasury Division's work has resulted in excess returns, external cost savings, and error prevention. The reduction in external management fees has resulted in incremental increases to internal operations costs that require adequate budget authority to continue to provide strong investment results.

RECOMMENDATION:

That the Alaska Retirement Management Board support an increase of $980,000 (less than 3% to its overall budget) by adopting the FY2025 Proposed Budget as attached, with the understanding that budget components will be subject to appropriation by OMB and the Legislature.

Attachments: ARMB Working FY25 Budget

ARMB Investment Management Fee Summary, FY13 to FY23

State of Alaska

FY25 ARMB Working Budget

		FY20 Actuals	FY21 Actuals	FY22 Actuals	FY23 Actuals	FY23 Authorized	FY24 Projected	FY25 Proposed	FY23 to FY25 difference
Personal Services	ARMB Personal Services	$5,978,893	$5,501,551	$5,649,759	$6,293,195	$7,174,100	$7,418,000	$7,714,720	$540,620
	Board	$46,529	$33,170	$38,380	$49,544	$86,200	$52,000	$52,000	($34,200)
		$6,025,421	**$5,534,722**	**$5,688,138**	**$6,342,739**	**$7,260,300**	**$7,470,000**	**$7,766,720**	**$506,420**
Travel	Travel Costs	$26,525	$14,697	$41,783	$106,252	$134,100	$214,500	$214,500	
		$26,525	**$14,697**	**$41,783**	**$106,252**	**$134,100**	**$214,500**	**$214,500**	**$80,400**
Management & Custody Fees	Custody Fees	$1,468,319	$1,502,242	$1,470,086	$1,419,850	$1,500,000	$1,500,000	$1,500,000	
	External Public Investment Fees	$23,653,586	$23,644,485	$26,472,584	$25,018,616	$32,650,000	$32,650,000	$32,650,000	
	Investment/Performance Consultant	$736,695	$695,250	$716,107	$847,731	$850,000	$850,000	$850,000	
	Unbudgeted Private Investment Fees	$46,015,033	$43,539,233	$45,382,426	$48,561,234	$50,000,000	$50,000,000	$50,000,000	
		$71,873,634	**$69,381,211**	**$74,041,203**	**$75,847,430**	**$85,000,000**	**$85,000,000**	**$85,000,000**	**$0**
Investment Information Systems	Bloomberg	$420,960	$455,537	$546,935	$593,626	$631,000	$600,000	$640,000	$9,000
	CreditSights / Fitch Solutions	$13,347	$14,805	$15,545	$17,311	$18,000	$18,000	$18,000	
	ISS Proxy Voting	$48,110	$48,110	$48,110	$49,113	$50,000	$50,000	$50,000	
	Moodys	$70,806	$82,203	$94,533	$114,403	$118,000	$118,000	$118,000	
	Other Investment Costs	$10,324	$5,194	$5,584	$4,650	$5,000	$250,000	$250,000	$245,000
	PITCHBOOK DATA INC	$0	$20,000	$22,500	$22,500	$25,000	$22,500	$22,500	($2,500)
	Risk Management Products	$59,619	$100,843	$102,815	$95,988	$100,000	$100,000	$100,000	
	SEDOL	$0	$0	$0	$49,352	$50,000	$50,000	$50,000	
	Standard and Poors Financial Services	$423,195	$403,778	$428,777	$469,076	$473,000	$470,000	$470,000	($3,000)
	SWIFT	$0	$3,405	$16,743	$6,586	$20,000	$10,000	$10,000	($10,000)
	TradeWeb	$17,084	$18,048	$17,664	$19,735	$20,600	$20,000	$20,000	($600)
	Yieldbook	$68,600	$73,890	$80,045	$87,508	$91,000	$88,000	$88,000	($3,000)
		$1,132,046	**$1,225,813**	**$1,379,252**	**$1,529,847**	**$1,601,600**	**$1,796,500**	**$1,836,500**	**$234,900**
Other Professional Services	Actuarial Services	$235,707	$205,450	$270,710	$182,414	$280,000	$275,000	$275,000	($5,000)
	DOA Finance (IRIS, ALDER, ADA, INS)	$37,214	$20,332	$14,498	$29,389	$40,000	$40,000	$40,000	
	DOA Human Resources	$22,905	$16,838	$15,840	$28,951	$30,000	$30,000	$30,000	
	DOR ASD Support Services	$110,923	$116,671	$124,132	$152,103	$150,000	$213,750	$213,750	$63,750
	Financial Audit	$192,000	$101,056	$110,000	$113,302	$115,000	$115,000	$115,000	
	International Tax Preparation	$6,000	$27,621	$32,894	$28,769	$25,000	$25,000	$25,000	
	Investment Advisory Council	$58,456	$78,846	$91,197	$109,270	$100,000	$100,000	$100,000	
	IT Support/Software	$172,368	$197,012	$117,308	$135,186	$155,000	$155,000	$155,000	
	Legal	$100,506	$55,770	$58,633	$65,132	$70,000	$70,000	$70,000	
	Other Professional Services	$936	$5,612	$937	$4,292	$6,000	$6,000	$6,000	
		$937,015	**$825,208**	**$836,148**	**$848,808**	**$971,000**	**$1,029,750**	**$1,029,750**	**$58,750**
Subscriptions and Training	Books and Educational Supplies	$1,877	$959	$1,958	$0	$2,000	$2,000	$2,000	
	Memberships	$6,698	$9,518	$9,583	$16,717	$17,000	$17,000	$17,000	
	News and Magazine Subscriptions	$8,529	$8,676	$4,941	$5,735	$7,000	$7,000	$7,000	
	Training and Conferences	$2,824	$2,008	$15,621	$28,879	$30,000	$30,000	$30,000	
		$19,927	**$21,161**	**$32,104**	**$51,331**	**$56,000**	**$56,000**	**$56,000**	**$0**
General Office Expenses	Building Related Expenses	$157,342	$148,619	$147,597	$337,959	$150,000	$200,000	$250,000	$100,000
	Business Supplies	$2,278	$1,497	$3,318	$3,136	$5,000	$5,000	$5,000	
	Equipment and Machinery	$27,242	$6,446	$9,400	$49,417	$30,000	$50,000	$30,000	
	Mail/Courier Services	$3,114	$1,609	$1,496	$2,320	$4,000	$4,000	$4,000	
	Public Notices	$1,683	$2,183	$1,695	$2,684	$4,000	$4,000	$4,000	
	Telecommunications	$37,666	$18,866	$14,806	$15,076	$16,000	$16,000	$16,000	
		$229,325	**$179,219**	**$178,312**	**$410,592**	**$209,000**	**$279,000**	**$309,000**	**$100,000**
Board Meeting Expenses	Board Meeting Expenses	$20,771	$43,082	$42,735	$37,903	$50,000	$50,000	$50,000	
		$20,771	**$43,082**	**$42,735**	**$37,903**	**$50,000**	**$50,000**	**$50,000**	
Total		**$80,264,664**	**$77,225,114**	**$82,239,677**	**$85,174,903**	**$95,282,000**	**$95,895,750**	**$96,262,470**	**$980,470**

ARMB Investment Management Fee Summary, FY13 to FY23

	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23
Broad Domestic Equity	$11,559,501	$13,243,266	$12,654,891	$11,730,056	$14,459,724	$12,319,726	$8,387,794	$1,163,922	$1,058,327	$976,863	$707,703
Global Equity Ex-US	$14,688,634	$17,142,130	$21,381,074	$20,815,819	$22,460,312	$23,094,420	$18,572,009	$10,402,732	$8,541,227	$9,492,443	$9,131,257
Alternative Equity/Opportunistic	$3,454,480	$1,512,333	$3,012,605	$2,055,605	$2,162,504	$9,094,818	$7,633,781	$7,733,434	$6,845,528	$7,706,581	$14,900,124
Private Equity	$6,653,443	$7,453,571	$7,793,757	$9,328,973	$11,765,183	$12,260,133	$14,350,011	$14,277,305	$15,460,744	$18,125,230	$20,730,429
Real Assets	$23,608,330	$24,670,853	$25,175,085	$27,820,023	$28,648,117	$29,761,682	$30,083,965	$24,764,107	$22,768,170	$22,565,457	$24,525,156
Absolute Return	$5,176,521	$5,985,676	$11,487,059	$23,558,243	$21,731,258	$18,287,912	$20,428,820	$0	$0	$0	$0
Fixed Income	$3,685,272	$4,143,522	$5,010,475	$5,928,825	$7,390,994	$0	$1,386	$11,327,119	$12,509,723	$12,988,437	$3,585,181
Investment Management Fees	$68,826,182	$74,151,352	$86,514,945	$101,237,544	$108,618,092	$104,818,690	$99,457,766	$69,668,619	$67,183,719	$71,855,010	$73,579,850
Year End Total Assets	$18,075,627,711	$21,171,071,086	$23,989,926,930	$23,068,284,972	$25,122,989,358	$26,161,838,719	$26,719,147,591	$26,517,235,705	$33,167,896,054	$30,774,127,526	$31,518,960,682
Total Fees as a % of Assets	0.38%	0.35%	0.36%	0.44%	0.43%	0.40%	0.37%	0.26%	0.20%	0.23%	0.23%

THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Revenue
ALASKA RETIREMENT MANAGEMENT BOARD
PO Box 110405
Juneau, Alaska 99811-0405
Main: 907.465.3749
Fax: 907.465.4397

Chief Investment Officer Report – September 2023

1. CIO Update

2. Watch List:
   a. Existing – Fidelity Real Estate High Income, performance, 12/21
   b. Existing – Baillie Gifford, performance, 9/22
   c. Recommended Removal – Fidelity Real Estate High Income

3. Material contract and investment actions:
   a. 07/17/23 Resolute Fund VI – $50 million private equity commitment
   b. 07/20/23 Acadian – International equity separate account contract
   c. 07/28/23 Crestline Direct Lending Fund IV - $100 million private credit commitment
   d. 08/31/23 JP Morgan - Notice of SmartRetirement contract termination and liquidation

4. Portfolio Transaction Update from May 2023 through August 2023

Individual Manager Transactions

May 2023 - August 2023

Asset Class	Total
Fixed Income	1,102,000,000
Broad Domestic Equity	(688,000,000)
Global Equity Ex-US	(375,000,000)
Real Assets	-
Multi-Asset	-
Private Equity	-
Net Buys	1,102,000,000
Net Sells	(1,102,000,000)

Manager	Total	Fund	Asset Class	Description
ARMB Aggregate Bond Fund	560,000,000	AY77	Fixed Income	Rebalancing
Short Term Fixed Income Pool	342,000,000	AY70	Fixed Income	Rebalancing
Fidelity Tactical Bond	200,000,000	AY1F	Fixed Income	Rebalancing
McKinley Global Health Care	(39,000,000)	AY5N	Multi-Asset	Rebalancing
SSGA MSCI Emerging Markets Index Fund	(47,000,000)	AYLB	Intl. Equity	Rebalancing
Brandes Investment Partners	(55,000,000)	AY65	Intl. Equity	Rebalancing
SSGA World ex-US IMI	(273,000,000)	AYL7	Intl. Equity	Rebalancing
ARMB S&P 900	(688,000,000)	AY4L	Dom. Equity	Rebalancing

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	Certification of Actuarial Review	ACTION:	X
DATE:	September 14, 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, a Gallagher Company (Buck), the board's primary actuary, has completed valuation reports of the following defined benefit plans as of June 30, 2022:

- Judicial Retirement System (JRS)
- National Guard and Naval Militia Retirement System (NGNMRS)

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:

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 JRS and NGNMRS	ACTION:	X
DATE:	September 14, 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, A Gallagher Company (Buck), the Department of Administration's and Plans' actuary, has completed and reviewed the following results and reports with the Board's Actuarial Committee on March 15, 2023, June 14, 2023 and September 13, 2023:

1) an actuarial valuation of the Judicial Retirement System (JRS) as of June 30, 2022
2) an actuarial valuation of the National Guard and Naval Militia Retirement System as of June 30, 2022

There are four 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) JRS salary increase and pension benefit increase assumptions were changed to 5% for FY 2023 and 3% thereafter;
3) Healthcare claim costs are updated annually and described in Section 4.2 of the JRS actuarial valuation report; and
4) The Normal Cost load for administrative expenses was updated based on the most recent two years of actual amounts paid from plan assets.

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

The actuarial committee met on September 13, 2023 and passed a motion recommending that the Board accept the JRS and NGNMRS June 30, 2022 actuarial valuation reports.

RECOMMENDATION:

That the Alaska Retirement Management Board accept the actuarial valuation reports prepared by Buck for the Judicial Retirement System (JRS) and National Guard and Naval Militia Retirement System (NGNMRS) as of June 30, 2022.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: History of PERS / TRS Employer Contribution Rates

ACTION: ________

DATE: September 14, 2023

INFORMATION: X

Below is a history of employer contribution rates adopted by the Alaska Retirement Management Board for Fiscal Years 2015 through 2024, as well as the proposed FY 2025 contribution rates:

ARM BOARD ADOPTED RATES													
	FY15 (a)	FY15 (b)	FY16	FY17	FY18	FY19 (c)	FY20	FY21	FY22	FY23	FY24	PROPOSED FY25 (1)	PROPOSED FY25 (2)	PROPOSED FY25 (3)
Public Employees' Retirement System (PERS)														
Total Employer Contribution Rate	44.03%	31.90%	27.19%	26.14%	25.01%	27.58%	28.62%	30.85%	30.11%	24.79%	25.10%	28.39%	26.45%	26.76%
- DB Employer Contribution Rate	39.85%	27.72%	22.58%	21.78%	20.38%	22.64%	23.18%	24.93%	24.01%	18.38%	18.47%	21.66%	19.72%	20.03%
- DCR Employer Contribution Rate	4.18%	4.18%	4.61%	4.36%	4.63%	4.94%	5.44%	5.92%	6.10%	6.41%	6.63%	6.73%	6.73%	6.73%
DCR - Retiree Medical Plan	1.66%	1.66%	1.68%	1.18%	1.03%	0.94%	1.32%	1.27%	1.07%	1.10%	1.01%	0.83%	0.83%	0.83%
DCR - OD&D - All Others	0.22%	0.22%	0.22%	0.17%	0.16%	0.26%	0.26%	0.31%	0.31%	0.30%	0.30%	0.24%	0.24%	0.24%
DCR - OD&D - P/F	1.06%	1.06%	1.05%	0.49%	0.43%	0.76%	0.72%	0.70%	0.68%	0.68%	0.68%	0.69%	0.69%	0.69%
Teachers' Retirement System (TRS)														
Total Employer Contribution Rate	70.75%	48.69%	29.27%	28.02%	26.78%	28.90%	30.47%	30.47%	31.85%	24.62%	25.52%	30.62%	28.52%	28.59%
- DB Employer Contribution Rate	66.31%	44.25%	24.48%	23.40%	21.75%	23.56%	24.62%	24.34%	25.49%	17.90%	18.49%	23.33%	21.23%	21.30%
- DCR Employer Contribution Rate	4.44%	4.44%	4.79%	4.62%	5.03%	5.34%	5.85%	6.13%	6.36%	6.72%	7.03%	7.29%	7.29%	7.29%
DCR - Retiree Medical Plan	2.04%	2.04%	2.04%	1.05%	0.91%	0.79%	1.09%	0.93%	0.83%	0.87%	0.82%	0.68%	0.68%	0.68%
DCR - OD&D	0.00%	0.00%	0.00%	0.00%	0.00%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%

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

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

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

(1) Proposed FY25 rates are based on Buck letter dated August 22, 2023 with liabilities rolled forward two years and assets rolled forward one year and smoothed. Portion of FY25 healthcare normal cost contributed to healthcare trust is 100%.

(2) Proposed FY25 rates are based on Buck letter dated August 22, 2023 with liabilities rolled forward two years and assets rolled forward one year and smoothed. Portion of FY25 healthcare normal cost contributed to healthcare trust is 0%.

(3) Proposed FY25 rates are based on Buck letter dated August 22, 2023 with liabilities rolled forward two years and assets rolled forward one year and smoothed. Portion of FY25 healthcare normal cost contributed to healthcare trust is 0% and unfunded liability is amortized with a single 25-year amortization period.

ARM BOARD ADOPTED RATES														
		FY15 (a)	FY15 (b)	FY16	FY17	FY18	FY19 (c)	FY20	FY21	FY22	FY23	FY24	PROPOSED FY25 (1)	PROPOSED FY25 (2)	PROPOSED FY25 (3)
Public Employees' Retirement System (PERS)														
	Total Employer Contribution Rate	44.03%	31.90%	27.19%	26.14%	25.01%	27.58%	28.62%	30.85%	30.11%	24.79%	25.10%	28.39%	26.45%	26.76%
	- DB Employer Contribution Rate	39.85%	27.72%	22.58%	21.78%	20.38%	22.64%	23.18%	24.93%	24.01%	18.38%	18.47%	21.66%	19.72%	20.03%
	- DCR Employer Contribution Rate	4.18%	4.18%	4.61%	4.36%	4.63%	4.94%	5.44%	5.92%	6.10%	6.41%	6.63%	6.73%	6.73%	6.73%
	DCR - Retiree Medical Plan	1.66%	1.66%	1.68%	1.18%	1.03%	0.94%	1.32%	1.27%	1.07%	1.10%	1.01%	0.83%	0.83%	0.83%
	DCR - OD&D - All Others	0.22%	0.22%	0.22%	0.17%	0.16%	0.26%	0.26%	0.31%	0.31%	0.30%	0.30%	0.24%	0.24%	0.24%
	DCR - OD&D - P/F	1.06%	1.06%	1.05%	0.49%	0.43%	0.76%	0.72%	0.70%	0.68%	0.68%	0.68%	0.69%	0.69%	0.69%
Teachers' Retirement System (TRS)														
	Total Employer Contribution Rate	70.75%	48.69%	29.27%	28.02%	26.78%	28.90%	30.47%	30.47%	31.85%	24.62%	25.52%	30.62%	28.52%	28.59%
	- DB Employer Contribution Rate	66.31%	44.25%	24.48%	23.40%	21.75%	23.56%	24.62%	24.34%	25.49%	17.90%	18.49%	23.33%	21.23%	21.30%
	- DCR Employer Contribution Rate	4.44%	4.44%	4.79%	4.62%	5.03%	5.34%	5.85%	6.13%	6.36%	6.72%	7.03%	7.29%	7.29%	7.29%
	DCR - Retiree Medical Plan	2.04%	2.04%	2.04%	1.05%	0.91%	0.79%	1.09%	0.93%	0.83%	0.87%	0.82%	0.68%	0.68%	0.68%
	DCR - OD&D	0.00%	0.00%	0.00%	0.00%	0.00%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%

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

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

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

(1) Proposed FY25 rates are based on Buck letter dated August 22, 2023 with liabilities rolled forward two years and assets rolled forward one year and smoothed. Portion of FY25 healthcare normal cost contributed to healthcare trust is 100%.

(2) Proposed FY25 rates are based on Buck letter dated August 22, 2023 with liabilities rolled forward two years and assets rolled forward one year and smoothed. Portion of FY25 healthcare normal cost contributed to healthcare trust is 0%.

(3) Proposed FY25 rates are based on Buck letter dated August 22, 2023 with liabilities rolled forward two years and assets rolled forward one year and smoothed. Portion of FY25 healthcare normal cost contributed to healthcare trust is 0% and unfunded liability is amortized with a single 25-year amortization period.

August 22, 2023

Mr. Ajay Desai
Director
Alaska Department of Administration
Division of Retirement & Benefits
PO Box 110203
Juneau, AK 99811-0203

Dear Ajay,

As requested, we have calculated the allocation between the pension and healthcare trusts of the FY25 Additional State Contributions for the State of Alaska Public Employees' Retirement System (PERS), Teachers' Retirement System (TRS), and Judicial Retirement System (JRS).

All results are based on the June 30, 2022 valuation reports, except the results for PERS and TRS reflect FY23 asset performance as shown in the preliminary June 30, 2023 asset statements that were provided to us on August 18.

Summary of Results

For PERS and TRS, the FY25 Additional State Contributions are allocated 100% to pension since the healthcare trusts are projected to be more than 100% funded at June 30, 2024. Similarly, we assumed the FY24 Additional State Contributions were made 100% to pension because the healthcare trusts were projected to be more than 100% funded at June 30, 2023.

Attached to this letter are three exhibits.

- Exhibit 1 – 100% of the FY25 healthcare Normal Cost is assumed to be deposited to the healthcare trust. The Unfunded Actuarial Accrued Liabilities for the pension and healthcare trusts are amortized using the current method of 25-year layered bases. This approach was adopted by the Alaska Retirement Management Board (ARMB) effective June 30, 2018.
- Exhibit 2 – 0% of the FY25 healthcare Normal Cost is assumed to be deposited to the healthcare trust. The Unfunded Actuarial Accrued Liabilities for the pension and healthcare trusts are amortized using the current method of 25-year layered bases. This approach was adopted by the Alaska Retirement Management Board (ARMB) effective June 30, 2018.
- Exhibit 3 – 0% of the FY25 healthcare Normal Cost is assumed to be deposited to the healthcare trust. The Unfunded Actuarial Accrued Liabilities for the pension and healthcare trusts are amortized using a single base. The 25-year period for the single base was established June 30, 2014. The remaining amortization period for this single base in FY25 is 15 years.

For Exhibits 2 and 3, the portion of the FY25 healthcare Normal Cost not contributed to the healthcare trust was added to the pension Past Service Cost in order to keep the total employer contribution rate at 22% (PERS non-State employers) and 12.56% (TRS).

For all three exhibits:

- Liabilities as of June 30, 2022 were rolled forward two years based on the June 30, 2022 valuation projections. For FY23, actual (pension) and expected (healthcare) benefit payments were used in the liability roll-forward. For FY24, expected benefit payments (pension and healthcare) were used in the liability roll-forward.
- Assets as of June 30, 2022 were rolled forward one year using actual FY23 investment return, contributions, subsidies, benefit payments, and administrative expenses based on the preliminary June 30, 2023 asset statements. Assets as of June 30, 2023 were rolled forward one year based on the expected FY24 investment return and cash flows from the June 30, 2022 valuation projections.
- Investment gains and losses are recognized over 5 years beginning June 30, 2014.
- All contribution rates are based on total payroll of Defined Benefit (DB) and Defined Contribution Retirement (DCR) combined.
- For PERS, contributions were allocated between non-State employers and the State as an employer per the provisions of SB 55. The payroll of the State's PERS employees was assumed to be 49.58% of total PERS payroll based on the June 30, 2022 valuation data.

For JRS, the allocation of the FY25 past service cost rate between pension and healthcare is shown below. The FY25 past service cost rate is based on the June 30, 2022 valuation, but not less than zero.

JRS			
	Projected Pay	FY25 Past Service Cost Rate	FY25 Past Service Contribution Amount
Pension	$ 14,035,000	17.17%	$ 2,410,000
Healthcare	$ 14,035,000	0.00%	$ 0
Total		17.17%	$ 2,410,000

Data, Provisions, Assumptions, and Methods

The data, plan provisions, actuarial assumptions, and methods used for the PERS, TRS, and JRS plan costs are described in the June 30, 2022 actuarial valuation reports (except the amortization method for Exhibit 3 was changed as noted above). These reports include detailed information related to the potential risks associated with funding of the plans (ASOP 51), our use of models (ASOP 56), and the assumption setting process (ASOP 27 and ASOP 35).

Preliminary June 30, 2023 asset statements for PERS and TRS were reflected as noted above.

Please call me at 602-803-6174 if you have any questions.

Sincerely,

David J. Kershner, FSA, EA, MAAA, FCA
Principal
Buck, A Gallagher Company

Attachments

cc: Mr. Kevin Worley, State of Alaska

Exhibit 1

State of Alaska
Allocation of Projected FY25 Employer and Additional State Contributions

Based on June 30, 2022 Valuations
with Liabilities Rolled Forward Two Years and
Assets Rolled Forward One Year and Smoothed

100% of FY25 Healthcare Normal Cost Contributed to Healthcare Trust
and Unfunded Liability Amortized with Layered Bases

	PERS					TRS	
	Non-State Employers		State as an Employer		All Employers		
Projected FY25 DB Payroll		$ 327,399,000		$ 321,945,000	$ 649,344,000		$ 248,321,000
Projected FY25 DCR Payroll		915,232,000		899,984,000	1,815,216,000		521,222,000
Projected FY25 Total Payroll		$ 1,242,631,000		$ 1,221,929,000	$ 2,464,560,000		$ 769,543,000
	Percent of Total Payroll	**Estimated Dollar Amount**	**Percent of Total Payroll**	**Estimated Dollar Amount**	**Estimated Dollar Amount**	**Percent of Total Payroll**	**Estimated Dollar Amount**
Employer Contributions							
DB Pension Plan							
1. Normal Cost	2.15%		2.15%			2.21%	
2. Past Service Cost	11.18%		17.57%			0.96%	
3. Total: (1) + (2)	13.33%	$ 165,643,000	19.72%	$ 240,964,000	$ 406,607,000	3.17%	$ 24,395,000
DB Healthcare Plan							
4. Normal Cost	1.94%		1.94%			2.10%	
5. Past Service Cost	0.00%		0.00%			0.00%	
6. Total: (4) + (5)	1.94%	24,107,000	1.94%	23,705,000	47,812,000	2.10%	16,160,000
7. DCR Plan	6.73%	83,629,000	6.73%	82,236,000	165,865,000	7.29%	56,100,000
8. Total: (3) + (6) + (7)	22.00%	$ 273,379,000	28.39%	$ 346,905,000	$ 620,284,000	12.56%	$ 96,655,000
Additional State Contributions to DB							
9. DB Pension Plan	6.39%	$ 79,404,000	0.00%	$ 0	$ 79,404,000	18.06%	$ 138,979,000
10. DB Healthcare Plan	0.00%	0	0.00%	0	0	0.00%	0
11. Total: (9) + (10)	6.39%	$ 79,404,000	0.00%	$ 0	$ 79,404,000	18.06%	$ 138,979,000
Total DB							
12. DB Pension Plan: (3) + (9)	19.72%	$ 245,047,000	19.72%	$ 240,964,000	$ 486,011,000	21.23%	$ 163,374,000
13. DB Healthcare Plan: (6) + (10)	1.94%	24,107,000	1.94%	23,705,000	47,812,000	2.10%	16,160,000
14. Total: (12) + (13)	21.66%	$ 269,154,000	21.66%	$ 264,669,000	$ 533,823,000	23.33%	$ 179,534,000
Total DB and DCR: (7) + (14)	28.39%	$ 352,783,000	28.39%	$ 346,905,000	$ 699,688,000	30.62%	$ 235,634,000

Notes:
1. Projected FY25 payroll is based on the June 30, 2022 valuation projections assuming 0% population growth.
2. Additional State Contributions for FY24 were assumed to be made 100% to pension.
3. All contribution rates are expressed as a percentage of total payroll of DB and DCR combined.
4. FY23 investment return, contributions, subsidies, benefit payments, and administrative expenses are based on preliminary June 30, 2023 asset statements provided by the State. FY24 investment return, contributions, subsidies, benefit payments, and administrative expenses are based on the June 30, 2022 valuation projections assuming 0% population growth. Investment gains and losses are recognized over 5 years beginning June 30, 2014.
5. For PERS under SB 55, payroll for the State's PERS employees was assumed to be 49.58% of total PERS payroll based on the June 30, 2022 valuation data.
6. Total contribution rates for pension and healthcare are not less than the Normal Cost rates.
7. Data, plan provisions, assumptions, and methods are as described in the June 30, 2022 actuarial valuation reports, except as noted above.

BUCK
A Gallagher Company

Exhibit 2

State of Alaska
Allocation of Projected FY25 Employer and Additional State Contributions

Based on June 30, 2022 Valuations
with Liabilities Rolled Forward Two Years and
Assets Rolled Forward One Year and Smoothed

0% of FY25 Healthcare Normal Cost Contributed to Healthcare Trust
and Unfunded Liability Amortized with Layered Bases

	PERS					TRS	
	Non-State Employers		State as an Employer		All Employers		
Projected FY25 DB Payroll		$ 327,399,000		$ 321,945,000	$ 649,344,000		$ 248,321,000
Projected FY25 DCR Payroll		915,232,000		899,984,000	1,815,216,000		521,222,000
Projected FY25 Total Payroll		$ 1,242,631,000		$ 1,221,929,000	$ 2,464,560,000		$ 769,543,000
	Percent of Total Payroll	**Estimated Dollar Amount**	**Percent of Total Payroll**	**Estimated Dollar Amount**	**Estimated Dollar Amount**	**Percent of Total Payroll**	**Estimated Dollar Amount**
Employer Contributions							
DB Pension Plan							
1. Normal Cost	2.15%		2.15%			2.21%	
2. Past Service Cost	13.12%		17.57%			3.06%	
3. Total: (1) + (2)	15.27%	$ 189,750,000	19.72%	$ 240,964,000	$ 430,714,000	5.27%	$ 40,555,000
DB Healthcare Plan							
4. Normal Cost	0.00%		0.00%			0.00%	
5. Past Service Cost	0.00%		0.00%			0.00%	
6. Total: (4) + (5)	0.00%	0	0.00%	0	0	0.00%	0
7. DCR Plan	6.73%	83,629,000	6.73%	82,236,000	165,865,000	7.29%	56,100,000
8. Total: (3) + (6) + (7)	22.00%	$ 273,379,000	26.45%	$ 323,200,000	$ 596,579,000	12.56%	$ 96,655,000
Additional State Contributions to DB							
9. DB Pension Plan	4.45%	$ 55,297,000	0.00%	$ 0	$ 55,297,000	15.96%	$ 122,819,000
10. DB Healthcare Plan	0.00%	0	0.00%	0	0	0.00%	0
11. Total: (9) + (10)	4.45%	$ 55,297,000	0.00%	$ 0	$ 55,297,000	15.96%	$ 122,819,000
Total DB							
12. DB Pension Plan: (3) + (9)	19.72%	$ 245,047,000	19.72%	$ 240,964,000	$ 486,011,000	21.23%	$ 163,374,000
13. DB Healthcare Plan: (6) + (10)	0.00%	0	0.00%	0	0	0.00%	0
14. Total: (12) + (13)	19.72%	$ 245,047,000	19.72%	$ 240,964,000	$ 486,011,000	21.23%	$ 163,374,000
Total DB and DCR: (7) + (14)	26.45%	$ 328,676,000	26.45%	$ 323,200,000	$ 651,876,000	28.52%	$ 219,474,000

Notes:

1. Projected FY25 payroll is based on the June 30, 2022 valuation projections assuming 0% population growth.
2. Additional State Contributions for FY24 were assumed to be made 100% to pension.
3. All contribution rates are expressed as a percentage of total payroll of DB and DCR combined.
4. FY23 investment return, contributions, subsidies, benefit payments, and administrative expenses are based on preliminary June 30, 2023 asset statements provided by the State. FY24 investment return, contributions, subsidies, benefit payments, and administrative expenses are based on the June 30, 2022 valuation projections assuming 0% population growth. Investment gains and losses are recognized over 5 years beginning June 30, 2014.
5. For PERS under SB 55, payroll for the State's PERS employees was assumed to be 49.58% of total PERS payroll based on the June 30, 2022 valuation data.
6. Healthcare negative past service cost rates are allowed to reduce the total Healthcare rates to zero. The Pension past service cost rates are adjusted to keep the total employer contribution rates at 22% (PERS non-State employers) and 12.56% (TRS).
7. Data, plan provisions, assumptions, and methods are as described in the June 30, 2022 actuarial valuation reports, except as noted above.

Exhibit 3

State of Alaska
Allocation of Projected FY25 Employer and Additional State Contributions

Based on June 30, 2022 Valuations
with Liabilities Rolled Forward Two Years and
Assets Rolled Forward One Year and Smoothed

0% of FY25 Healthcare Normal Cost Contributed to Healthcare Trust
and Unfunded Liability Amortized with a Single Amortization Base

	PERS					TRS	
	Non-State Employers		State as an Employer		All Employers		
Projected FY25 DB Payroll		$ 327,399,000		$ 321,945,000	$ 649,344,000		$ 248,321,000
Projected FY25 DCR Payroll		915,232,000		899,984,000	1,815,216,000		521,222,000
Projected FY25 Total Payroll		$ 1,242,631,000		$ 1,221,929,000	$ 2,464,560,000		$ 769,543,000
	Percent of Total Payroll	**Estimated Dollar Amount**	**Percent of Total Payroll**	**Estimated Dollar Amount**	**Estimated Dollar Amount**	**Percent of Total Payroll**	**Estimated Dollar Amount**
Employer Contributions							
DB Pension Plan							
1. Normal Cost	2.15%		2.15%			2.21%	
2. Past Service Cost	13.12%		17.88%			3.06%	
3. Total: (1) + (2)	15.27%	$ 189,750,000	20.03%	$ 244,752,000	$ 434,502,000	5.27%	$ 40,555,000
DB Healthcare Plan							
4. Normal Cost	0.00%		0.00%			0.00%	
5. Past Service Cost	0.00%		0.00%			0.00%	
6. Total: (4) + (5)	0.00%	0	0.00%	0	0	0.00%	0
7. DCR Plan	6.73%	83,629,000	6.73%	82,236,000	165,865,000	7.29%	56,100,000
8. Total: (3) + (6) + (7)	22.00%	$ 273,379,000	26.76%	$ 326,988,000	$ 600,367,000	12.56%	$ 96,655,000
Additional State Contributions to DB							
9. DB Pension Plan	4.76%	$ 59,149,000	0.00%	$ 0	$ 59,149,000	16.03%	$ 123,358,000
10. DB Healthcare Plan	0.00%	0	0.00%	0	0	0.00%	0
11. Total: (9) + (10)	4.76%	$ 59,149,000	0.00%	$ 0	$ 59,149,000	16.03%	$ 123,358,000
Total DB							
12. DB Pension Plan: (3) + (9)	20.03%	$ 248,899,000	20.03%	$ 244,752,000	$ 493,651,000	21.30%	$ 163,913,000
13. DB Healthcare Plan: (6) + (10)	0.00%	0	0.00%	0	0	0.00%	0
14. Total: (12) + (13)	20.03%	$ 248,899,000	20.03%	$ 244,752,000	$ 493,651,000	21.30%	$ 163,913,000
Total DB and DCR: (7) + (14)	26.76%	$ 332,528,000	26.76%	$ 326,988,000	$ 659,516,000	28.59%	$ 220,013,000

Notes:
1. Projected FY25 payroll is based on the June 30, 2022 valuation projections assuming 0% population growth.
2. Additional State Contributions for FY24 were assumed to be made 100% to pension.
3. All contribution rates are expressed as a percentage of total payroll of DB and DCR combined.
4. FY23 investment return, contributions, subsidies, benefit payments, and administrative expenses are based on preliminary June 30, 2023 asset statements provided by the State. FY24 investment return, contributions, subsidies, benefit payments, and administrative expenses are based on the June 30, 2022 valuation projections assuming 0% population growth. Investment gains and losses are recognized over 5 years beginning June 30, 2014.
5. For PERS under SB 55, payroll for the State's PERS employees was assumed to be 49.58% of total PERS payroll based on the June 30, 2022 valuation data.
6. Healthcare negative past service cost rates are allowed to reduce the total Healthcare rates to zero. The Pension past service cost rates are adjusted to keep the total employer contribution rates at 22% (PERS non-State employers) and 12.56% (TRS).
7. The Unfunded Actuarial Accrued Liability is amortized using a single base. The remaining amortization period for this single base in FY25 is 15 years.
8. Data, plan provisions, assumptions, and methods are as described in the June 30, 2022 actuarial valuation reports, except as noted above.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	FY 25 PERS Employer Contribution Rate Tier I - III	ACTION:	X
DATE:	September 14, 2023	INFORMATION:	

BACKGROUND:

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

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

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

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

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

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

(i) The State as an employer shall contribute to the system every payroll period an amount sufficient to pay the actuarially determined employer normal cost, all contributions required under AS 39.30.370 and AS 39.35.750, and all past service cost for members at the contribution rate adopted by the board under AS 37.10.220 for the fiscal year for that payroll period.

and:

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

STATUS:

The Division of Retirement & Benefits' (Division) actuary, Buck, A Gallagher Company (Buck), has completed the allocation of projected FY 25 employer and additional state contributions as shown in their letter dated August 22, 2023 based on the June 30, 2022 valuation report, except the results for PERS reflect FY 23 asset performance as shown in the preliminary June 30, 2023 asset statements provided by the Division on August 15, 2023. The PERS June 30, 2022 valuation report has been reviewed by the Board's actuary, Gabriel, Roeder, Smith & Co. (GRS) and then certified and accepted by the Board.

The Actuarial Committee met September 13, 2023 and passed a motion recommending that the Board adopt Resolution 2023-05.

RECOMMENDATION:

That the Alaska Retirement Management Board set the Fiscal Year 2025 PERS actuarially determined contribution rate attributable to employers consistent with its fiduciary duty, as set out in the attached form of Resolution 2023-05.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2025 Employer Contribution Rate
For the Public Employees' Retirement System

Resolution 2023-05

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

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

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

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

WHEREAS, AS 39.35.255 establishes a statutory non-State employer contribution rate of 22.00 percent and the actuarially determined contribution rate for the State as an employer, and AS 39.35.280 requires additional state contribution to make up the difference between 22.00 percent for non-State employers and the actuarially determined contribution rate; and

WHEREAS, the Buck schedule dated August 22, 2023 determines that the actuarially determined contribution rate for pension benefits is 19.72 percent composed of the normal cost rate of 2.15 percent and past service rate of 17.57 percent; and

WHEREAS, the Buck schedule dated August 22, 2023 determines that the actuarially determined contribution rate for postemployment healthcare benefits is 1.94 percent composed of the normal cost rate of 1.94 percent and past service rate of negative 7.19 percent; and

WHEREAS, the Buck schedule dated August 22, 2023 presents the employer rate incorporating the total cost of the Defined Contribution Retirement Plan of 6.73 percent;

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, that the Fiscal Year 2025 actuarially determined contribution rate attributable to employers participating in the Public Employees' Retirement System is set at 28.39 percent, composed of the contribution rate for defined benefit pension of 19.72 percent, the contribution rate for postemployment healthcare of 1.94 percent, the contribution rate for defined contribution pension of 6.73 percent, and the Additional State Contribution for non-state employers per the attached Buck schedule dated August 22, 2023.

DATED at Anchorage, Alaska this 14th day of September, 2023.

____
Chair

ATTEST:

____
Secretary

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2025 Employer Contribution Rate
For the Public Employees' Retirement System

Resolution 2023-05

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

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

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

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

WHEREAS, AS 39.35.255 establishes a statutory non-State employer contribution rate of 22.00 percent and the actuarially determined contribution rate for the State as an employer, and AS 39.35.280 requires additional state contribution to make up the difference between 22.00 percent for non-State employers and the actuarially determined contribution rate; and

WHEREAS, the Buck schedule dated August 22, 2023 determines that the actuarially determined contribution rate for pension benefits is 19.72 percent composed of the normal cost rate of 2.15 percent and past service rate of 17.57 percent; and

WHEREAS, the Buck schedule dated August 22, 2023 determines that the actuarially determined contribution rate for postemployment healthcare benefits is 1.94 percent composed of the normal cost rate of 1.94 percent and past service rate of negative 7.19 percent; and

WHEREAS, due to the funded status of the postemployment healthcare trust, the Board has the authority under AS 37.10.220(a)(8) to adopt a rate that is appropriate, and the Board has determined that the appropriate contribution rate for the postemployment healthcare benefits is 0.00 percent; and

WHEREAS, the Buck schedule dated August 22, 2023 presents the employer rate incorporating the total cost of the Defined Contribution Retirement Plan of 6.73 percent;

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, that the Fiscal Year 2025 actuarially determined contribution rate attributable to employers participating in the Public Employees' Retirement System is set at 26.45 percent, composed of the contribution rate for defined benefit pension of 19.72 percent, the contribution rate for postemployment healthcare of 0.00 percent, and the contribution rate for defined contribution pension of 6.73 percent, and the Additional State Contribution for non-state employers per the attached Buck schedule dated August 22, 2023.

DATED at Anchorage, Alaska this 14th day of September, 2023.

____

Chair

ATTEST:

____

Secretary

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2025 Employer Contribution Rate
For the Public Employees' Retirement System

Resolution 2023-05

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

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

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

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

WHEREAS, AS 39.35.255 establishes a statutory non-State employer contribution rate of 22.00 percent and the actuarially determined contribution rate for the State as an employer, and AS 39.35.280 requires additional state contribution to make up the difference between 22.00 percent for non-State employers and the actuarially determined contribution rate; and

WHEREAS, the Buck schedule dated August 22, 2023 determines that the actuarially determined contribution rate for pension benefits is 20.03 percent composed of the normal cost rate of 2.15 percent and past service rate of 17.88 percent; and

WHEREAS, the Buck schedule dated August 22, 2023 determines that the actuarially determined contribution rate for postemployment healthcare benefits is 1.94 percent composed of the normal cost rate of 1.94 percent and past service rate of negative 9.13 percent; and

WHEREAS, due to the funded status of the postemployment healthcare trust, the Board has the authority under AS 37.10.220(a)(8) to adopt a rate that is appropriate, and the Board has determined that the appropriate contribution rate for the postemployment healthcare benefits is 0.00 percent; and

WHEREAS, the Buck schedule dated August 22, 2023 presents the employer rate incorporating the total cost of the Defined Contribution Retirement Plan of 6.73 percent;

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, that the Fiscal Year 2025 actuarially determined contribution rate attributable to employers participating in the Public Employees' Retirement System is set at 26.76 percent, composed of the contribution rate for defined benefit pension of 20.03 percent, the contribution rate for postemployment healthcare of 0.00 percent, and the contribution rate for defined contribution pension of 6.73 percent, and the Additional State Contribution for non-state employers per the attached Buck schedule dated August 22, 2023.

DATED at Anchorage, Alaska this 14th day of September, 2023.

____
Chair

ATTEST:

____
Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	FY 25 PERS Retiree Major Medical and Occupational Death & Disability	ACTION:	X
DATE:	September 14, 2023	INFORMATION:	

BACKGROUND:

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

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

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

STATUS:

The Division of Retirement & Benefits' actuary, Buck, A Gallagher Company (Buck), has completed the actuarial valuation of the PERS DCR Plan as of June 30, 2022. The valuation has been reviewed by the Board's actuary, Gabriel, Roeder, Smith & Co. (GRS) and then certified and accepted by the Board.

According to the PERS DCR Plan actuarial valuation report, and confirmed by GRS, the Fiscal Year 2025 actuarially determined contribution rates attributable to employers for the Retiree Major Medical Insurance should be 0.83 percent; for the peace officer/firefighter Occupational Death & Disability benefit should be 0.69 percent; and for "all other" Occupational Death & Disability benefit should be 0.24 percent.

The Actuarial Committee met September 13, 2023, and passed a motion recommending that the Board adopt Resolutions 2023-06 and 2023-07.

RECOMMENDATION:

That the Alaska Retirement Management Board set Fiscal Year 2025 PERS DCR Retiree Major Medical Insurance and Occupational Death & Disability Benefit rates as set out in the following resolutions:

1. Resolution 2023-06: Public Employees' Retirement System Defined Contribution Retirement Plan Retiree Major Medical Insurance Rate

2. Resolution 2023-07: Public Employees' Retirement System Defined Contribution Retirement Plan Occupational Death & Disability Benefit Rates

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2025 Employer Contribution Rate For
Public Employees' Defined Contribution Retirement Plan
Retiree Major Medical Insurance Rate

Resolution 2023-06

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

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

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

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

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

WHEREAS, the June 30, 2022 PERS Defined Contribution actuarial valuation report determines that the actuarially determined contribution rate for retiree major medical insurance is 0.83 percent composed of the normal cost rate of 0.83 percent and past service rate of negative 0.14 percent; and

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

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, the Fiscal Year 2025 employer contribution rate for the retiree major medical insurance for the Public Employees' Defined Contribution Retirement Plan is set at 0.83 percent.

DATED at Anchorage, Alaska this 14th day of September, 2023.

____
Chair

ATTEST:

____
Secretary

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2025 Employer Contribution Rate
For Public Employees' Defined Contribution Retirement Plan
Occupational Death & Disability Benefit Rates

Resolution 2023-07

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

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

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

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

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

WHEREAS, the June 30, 2022 PERS Defined Contribution actuarial valuation report determines that the actuarially determined contribution rate for peace officer / firefighter occupational death & disability is 0.69 percent composed of the normal cost rate of 0.69 percent and past service rate of negative 0.20 percent; and

WHEREAS, the June 30, 2022 PERS Defined Contribution actuarial valuation report determines that the actuarially determined contribution rate for all others occupational death & disability is 0.24 percent composed of the normal cost rate of 0.24 percent and past service rate of negative 0.22 percent; and

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

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, the Fiscal Year 2025 employer contribution rate for public employees' occupational death and disability benefit rate is set at 0.69 percent for peace officers / fire fighters, and at 0.24 percent for all other Public Employees' Defined Contribution Retirement Plan employees.

DATED at Anchorage, Alaska this 14th day of September, 2023.

____
Chair

ATTEST:

____
Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	FY 25 TRS Employer Contribution Rate Tier I - II	ACTION:	X
DATE:	September 14, 2023	INFORMATION:	

<u>BACKGROUND</u>:

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

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

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

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

and:

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

STATUS:

The Division of Retirement & Benefits' (Division) actuary, Buck, A Gallagher Company (Buck), has completed the allocation of projected FY 25 employer and additional state contributions as shown in their letter dated August 22, 2023 based on the June 30, 2022 valuation report, except the results for TRS reflect FY 23 asset performance as shown in the preliminary June 30, 2023 asset statements provided by the Division on August 15, 2023. The TRS June 30, 2022 valuation report has been reviewed by the Board's actuary, Gabriel, Roeder, Smith & Co. (GRS) and then certified and accepted by the Board.

The Actuarial Committee met September 13, 2023 and passed a motion recommending that the Board adopt Resolution 2023-08.

RECOMMENDATION:

That the Alaska Retirement Management Board set the Fiscal Year 2025 TRS actuarially determined contribution rate attributable to employers consistent with its fiduciary duty, as set out in the attached form of Resolution 2023-08.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2025 Employer Contribution Rate
For the Teachers' Retirement System

Resolution 2023-08

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

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

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

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

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

WHEREAS, the Buck schedule dated August 22, 2023 determines that the actuarially determined contribution rate for pension benefits is 21.23 percent composed of the normal cost rate of 2.21 percent and past service rate of 19.02 percent; and

WHEREAS, the Buck schedule dated August 22, 2023 determines that the actuarially determined contribution rate for postemployment healthcare benefits is 2.10 percent composed of the normal cost rate of 2.10 percent and past service rate of negative 10.26 percent; and

WHEREAS, the Buck schedule dated August 22, 2023 presents the employer rate incorporating the total cost of the Defined Contribution Retirement Plan of 7.29 percent;

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, that the Fiscal Year 2025 actuarially determined contribution rate attributable to employers participating in the Teachers' Retirement System is set at 30.62 percent, composed of the contribution rate for defined benefit pension of 21.23 percent, the contribution rate for postemployment healthcare of 2.10 percent, the contribution rate for defined contribution pension of 7.29 percent, and the Additional State Contribution per the attached Buck schedule dated August 22, 2023.

DATED at Anchorage, Alaska this 14th day of September, 2023.

____
Chair

ATTEST:

____
Secretary

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2025 Employer Contribution Rate
For the Teachers' Retirement System

Resolution 2023-08

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

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

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

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

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

WHEREAS, the Buck schedule dated August 22, 2023 determines that the actuarially determined contribution rate for pension benefits is 21.23 percent composed of the normal cost rate of 2.21 percent and past service rate of 19.02 percent; and

WHEREAS, the Buck schedule dated August 22, 2023 determines that the actuarially determined contribution rate for postemployment healthcare benefits is 2.10 percent composed of the normal cost rate of 2.10 percent and past service rate of negative 10.26 percent; and

WHEREAS, due to the funded status of the postemployment healthcare trust, the Board has the authority under AS 37.10.220(a)(8) to adopt a rate that is appropriate, and the Board has determined that the appropriate contribution rate for the postemployment healthcare benefits is 0.00 percent; and

WHEREAS, the Buck schedule dated August 22, 2023 presents the employer rate incorporating the total cost of the Defined Contribution Retirement Plan of 7.29 percent;

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, that the Fiscal Year 2025 actuarially determined contribution rate attributable to employers participating in the Teachers' Retirement System is set at 28.52 percent, composed of the contribution rate for defined benefit pension of 21.23 percent, the contribution rate for postemployment healthcare of 0.00 percent, the contribution rate for defined contribution pension of 7.29 percent, and the Additional State Contribution per the attached Buck schedule dated August 22, 2023.

DATED at Anchorage, Alaska this 14th day of September, 2023.

____
Chair

ATTEST:

____
Secretary

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2025 Employer Contribution Rate
For the Teachers' Retirement System

Resolution 2023-08

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

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

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

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

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

WHEREAS, the Buck schedule dated August 22, 2023 determines that the actuarially determined contribution rate for pension benefits is 21.30 percent composed of the normal cost rate of 2.21 percent and past service rate of 19.09 percent; and

WHEREAS, the Buck schedule dated August 22, 2023 determines that the actuarially determined contribution rate for postemployment healthcare benefits is 2.10 percent composed of the normal cost rate of 2.10 percent and past service rate of negative 12.82 percent; and

WHEREAS, due to the funded status of the postemployment healthcare trust, the Board has the authority under AS 37.10.220(a)(8) to adopt a rate that is appropriate, and the Board has determined that the appropriate contribution rate for the postemployment healthcare benefits is 0.00 percent; and

WHEREAS, the Buck schedule dated August 22, 2023 presents the employer rate incorporating the total cost of the Defined Contribution Retirement Plan of 7.29 percent;

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, that the Fiscal Year 2025 actuarially determined contribution rate attributable to employers participating in the Teachers' Retirement System is set at 28.59 percent, composed of the contribution rate for defined benefit pension of 21.30 percent, the contribution rate for postemployment healthcare of 0.00 percent, the contribution rate for defined contribution pension of 7.29 percent, and the Additional State Contribution per the attached Buck schedule dated August 22, 2023.

DATED at Anchorage, Alaska this 14th day of September, 2023.

____
Chair

ATTEST:

____
Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: FY 25 TRS Retiree Major Medical and Occupational Death & Disability

ACTION: X

DATE: September 14, 2023

INFORMATION:

BACKGROUND:

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

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

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

STATUS:

The Division of Retirement & Benefits' actuary, Buck, A Gallagher Company (Buck), has completed the actuarial valuation of the TRS DCR Plan as of June 30, 2022. The valuation has been reviewed by the Board's actuary, Gabriel, Roeder, Smith & Co. (GRS) and then certified and accepted by the Board.

According to the TRS DCR Plan actuarial valuation report, and confirmed by GRS, the Fiscal Year 2025 actuarially determined contribution rate attributable to employers for the Retiree Major Medical Insurance should be 0.68 percent and for the Occupational Death & Disability Benefit should be 0.08 percent.

The Actuarial Committee met September 13, 2023 and passed a motion recommending that the Board adopt Resolutions 2023-09 and 2023-10.

RECOMMENDATION:

That the Alaska Retirement Management Board set Fiscal Year 2025 TRS DCR Plan Retiree Major Medical Insurance and Occupational Death & Disability Benefit rates as set out in the following resolutions:

1. Resolution 2023-09: Teachers' Retirement System Defined Contribution Retirement Plan Retiree Major Medical Insurance Rate

2. Resolution 2023-10: Teachers' Retirement System Defined Contribution Retirement Plan Occupational Death & Disability Benefit Rate

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2025 Employer Contribution Rate
For Teachers' Defined Contribution Retirement Plan
Retiree Major Medical Insurance Rate

Resolution 2023-09

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

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

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

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

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

WHEREAS, the June 30, 2022 TRS Defined Contribution actuarial valuation report determines that the actuarially determined contribution rate for retiree major medical insurance is 0.68 percent composed of the normal cost rate of 0.68 percent and past service rate of negative 0.29 percent; and

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

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, the Fiscal Year 2025 employer contribution rate for the retiree major medical insurance for the Teachers' Defined Contribution Retirement Plan is set at 0.68 percent.

DATED at Anchorage, Alaska this 14th day of September, 2023.

____
Chair

ATTEST:

____
Secretary

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2025 Employer Contribution Rate For
Teachers' Defined Contribution Retirement Plan Occupational
Death & Disability Benefit Rate

Resolution 2023-10

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

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

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

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

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

WHEREAS, the June 30, 2022 TRS Defined Contribution actuarial valuation report determines that the actuarially determined contribution rate for occupational death & disability is 0.08 percent composed of the normal cost rate of 0.08 percent and past service rate of negative 0.11 percent; and

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

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, the Fiscal Year 2025 employer contribution rate for teachers' occupational death and disability benefit rate is set at 0.08 percent for all Teachers' Defined Contribution Retirement Plan employees.

DATED at Anchorage, Alaska this 14th day of September, 2023.

____
Chair

ATTEST:

____
Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	FY 25 Alaska National Guard and Naval Militia Contribution Amount	ACTION:	X
DATE:	September 14, 2023	INFORMATION:	

BACKGROUND:

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

STATUS:

The Division of Retirement & Benefits' (Division's) actuary, Buck, A Gallagher Company (Buck), has completed the actuarial valuation of the Alaska National Guard and Naval Militia Retirement System (NGNMRS) as of June 30, 2022. The actuarial valuation has been reviewed by the Alaska Retirement Management Board's (Board's) actuary, Gabriel, Roeder, Smith & Co. (GRS) and then certified and accepted by the Board.

According to the NGNMRS June 30, 2022 actuarial valuation report, and confirmed by GRS, the Fiscal Year 2025 actuarially determined contribution amount should be $0, consisting of the normal cost of $690,172, past service cost of negative $2,691,240, and administrative expense load of $331,000.

The Actuarial Committee met September 13, 2023 and passed a motion recommending that the Board adopt Resolution 2023-11 setting the FY 2025 NGNMRS contribution amount at $0.

RECOMMENDATION:

That the Alaska Retirement Management Board set the Fiscal Year 2025 NGNMRS annual contribution amount consistent with its fiduciary duty, as set out in the attached form of Resolution 2023-11.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to the Fiscal Year 2025 Contribution Amount
For the Alaska National Guard and Naval Militia Retirement System

Resolution 2023-11

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

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

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

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

WHEREAS, the June 30, 2022 Alaska National Guard and Naval Militia Retirement System actuarial valuation report determines that the actuarially determined contribution amount is $0, composed of the normal cost of $690,172, past service cost amortization of ($2,691,240) and administrative expense load of $331,000; and

WHEREAS, due to the funded status of the pension trust, the Board has the authority under AS 37.10.220(a)(8) to adopt an amount that is appropriate, and the Board has determined that the appropriate contribution amount for the pension benefits is $0; and

NOW THEREFORE, BE IT RESOLVED BY THE ALASKA RETIREMENT MANAGEMENT BOARD, that the Fiscal Year 2025 contribution amount for the State of Alaska, Department of Military and Veterans' Affairs to the Alaska National Guard and Naval Militia Retirement System is set at $0.

DATED at Anchorage, Alaska this 14th day of September, 2023.

____
Chair

ATTEST:

____
Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	FY 25 JRS Employer Contribution Rate	ACTION:	
DATE:	September 14, 2023	INFORMATION:	X

BACKGROUND:

AS 22.25.046 states in part that:

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

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

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

STATUS:

The Division of Retirement & Benefits' (Division's) actuary, Buck, has completed the actuarial valuation of the Alaska Judicial Retirement System (JRS) as of June 30, 2022. The actuarial valuation has been reviewed by the Alaska Retirement Management Board's (Board's) actuary, Gabriel, Roeder, Smith & Co. (GRS) and then certified and accepted by the Board.

According to page 4 of the JRS actuarial valuation as of June 30, 2022, the recommended Fiscal Year 2025 employer contribution rate is 59.24 percent based on the following table:

	Pension	Post-employment Health Care	Total
Normal Cost Rate	35.32%	6.75%	42.07%
Past Service Cost Rate	17.17%	-10.19%	17.17%
Total Employer Contribution Rate	52.49%	6.75%	59.24%

The Alaska Legislature has established operating budget language that explicitly addresses JRS past service costs separate from the normal costs. Normal costs as a percentage are charged to the Alaska Court System's operating budget and past service cost in dollars is funded separately in retirement section language like PERS and TRS.

The computed JRS Past Service Cost contribution amount is $2,410,000 as shown on page 2 of the Buck letter dated August 22, 2023. The contribution amount should be reflected in the operating budget language section and should be deposited in the JRS pension benefit trust during FY 2025.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: Treasury Exempt Compensation

ACTION: X

DATE: September 14-15, 2023

INFORMATION:

BACKGROUND:

The Alaska Retirement Management Board (ARMB) adopted standing resolution 2010-18 over 10 years ago in support of competitive professional/exempt staff compensation. Treasury made progress towards more competitive compensation, but lost ground more recently due to a challenging fiscal environment.

STATUS:

Professional staff compensation is a challenge since Treasury needs to attract and return skilled investment professionals in a public sector environment. However, Treasury's work is mission critical and provides direct benefits in the form of excess returns, external cost savings, and error prevention:

- ARMB returns over most longer time periods have been in the top-quartile of peer performance and have exceeded benchmarks materially net of all fees resulting in over $2 billion dollars of additional assets compared with investing passively in the ARMB's benchmark.
- Treasury continues to save over $30 million per year through increased internal/decreased external investment management, fee negotiation, and portfolio restructuring.
- Internal fixed income and equity management provided $93 million in excess returns to SOA and the ARMB in FY2023.
- Treasury also invests billions of dollars of cashflows annually with no material errors. Even small errors can be very costly.

Treasury participates in an investment compensation survey conducted annually by McLagan, a division of AON. This survey provides industry-standard compensation information and compares Treasury directly to 56 public pension fund peers. These peers are directly comparable since they are all public sector employers engaged in similar investment management activities.

Compared to these public fund peers, Treasury compensation is well below median, at the 31st percentile. Compared to investment professionals at the Alaska Permanent Corporation, Treasury compensation is even further behind.

Like many state agencies and other employers, Treasury faces a difficult recruiting and retention environment. However, Treasury has demonstrated that a high quality investment staff pays for itself quickly in direct cost savings and excess returns. Additionally, Treasury is likely to undergo a succession transition over the next 5-10 years and it is particularly important to support and retain the next generation of leaders.

Treasury needs on-going budgetary support to offer competitive compensation necessary to attract and retain the caliber of professionals needed to continue to manage complex funds with strong results.

RECOMMENDATION:

The Alaska Retirement Management Board adopt Resolution 2023-17 supporting competitive Treasury exempt staff compensation.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD

Relating to Staff Compensation

Resolution 2010-18

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

WHEREAS, pursuant to AS 37.10.260, the Department of Revenue provides staff to the Board; and

WHEREAS, pursuant to the policies and procedures of the Board in coordination with the Department of Revenue, the Board is acknowledged to have a participatory role in recommending compensation and appointment of professional level staff providing services to the Board; and

WHEREAS, the Board acknowledges application of the state personnel rules and other provisions that apply to employees of the State of Alaska, and the distinctions that exist between those appointed as classified employees; and

WHEREAS, the Board has appointed a salary review committee to assist the Department of Revenue with respect to the attraction and retention of employees; and

WHEREAS, the Board recognizes that fellow agencies of the Board such as the Alaska Permanent Fund Corporation have adopted compensation scales, salary ranges, and bonus payments in order to be more competitive with respect to the attraction and retention of its employees, and

WHEREAS, the Board is concerned that existing pay scales for professional staff assisting the Board be elevated to and kept competitive with comparable compensation packages offered by private entitles and the Alaska Permanent Fund Corporation. The Board believes that a lack of competitiveness with respect to the ability to attract or retain key employees would be to the detriment of the funds for which the Board is responsible.

NOW THEREFORE BE IT RESOLVED that the Alaska Retirement Management Board makes the following continuing recommendations to the Commissioner of Revenue:

1. That the pay scale for all professional staff of the Department of Revenue providing key services to the Alaska Retirement Management Board be elevated to and kept equitable with comparable salaries, including bonuses, at the Alaska Permanent Fund Corporation;

2. That pay scales based on the above be implemented to recognize the contributions of other staff positions serving the Board;

3. That the Board will work with the Commissioner of Revenue and State Legislature to ensure that funding is available to implement the foregoing pay scale;

4. That the Board continues to recommend that the Treasury Division Comptroller be made an exempt position at a more appropriate compensation level;

5. That the Commissioner of Revenue actively work with the appropriate state agencies to implement the foregoing.

BE IT FURTHER RESOLVED that this resolution updates and replaces Resolution 2009-26 relating to staff compensation, and the Alaska Retirement Management Board expresses its appreciation to the Commissioner of the Department of Revenue for recent progress with respect to these resolutions.

DATED at Fairbanks, Alaska this 23rd day of September, 2010.

Chair

ATTEST:

Gayle Harbo

Secretary

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to Staff Compensation

Resolution ~~2010-18~~2023-17

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

WHEREAS, pursuant to AS 37.10.260, the Department of Revenue provides staff to the Board; and

WHEREAS, pursuant to the policies and procedures of the Board in coordination with the Department of Revenue, the Board is acknowledged to have a participatory role in recommending compensation and appointment of professional level staff providing services to the Board; and

WHEREAS, the Board acknowledges application of the state personnel rules and other provisions that apply to employees of the State of Alaska, and the distinctions that exist between those appointed as classified employees; and

WHEREAS, the Board has appointed an ~~salary review~~ operations committee to assist the Department of Revenue with respect to the attraction and retention of employees and other matters; and

WHEREAS, the Board recognizes that fellow agencies of the Board such as the Alaska Permanent Fund Corporation have adopted compensation scales, salary ranges, and bonus payments in order to be more competitive with respect to the attraction and retention of its employees, and

WHEREAS, the Board is concerned that existing pay ~~scales~~ levels for ~~professional~~ exempt staff assisting the Board are not ~~be elevated to and kept~~ competitive with comparable compensation packages offered by ~~private entitles~~peers ~~and the Alaska Permanent Fund Corporation~~. The Board believes that a lack of competitiveness with respect to the ability to attract or retain key employees would be to the detriment of the funds for which the Board is responsible.

NOW THEREFORE BE IT RESOLVED that the Alaska Retirement Management Board makes the following continuing recommendations to the Commissioner of Revenue:

1. That the pay ~~scale~~ levels for all ~~professional~~ exempt staff of the Department of Revenue providing key services to the Alaska Retirement Management Board be elevated over time ~~to~~ and kept equitable with comparable salaries, including bonuses, at peer public funds;

~~1.~~2. That compensation policies and levels of the Alaska Permanent Fund Corporation also be taken into consideration when setting exempt staff compensation;

~~2. That pay scales based on the above be implemented to recognize the contributions of other staff positions serving the Board;~~

3. That the Board will work with the Commissioner of Revenue and State Legislature to ensure that funding is available to implement annual pay increases that make progress toward offering compensation competitive with peers~~the foregoing pay scale~~;

~~4. That the Board continues to recommend that the Treasury Division Comptroller be made an exempt position at a more appropriate compensation level;~~

~~5.~~4. That the Commissioner of Revenue actively work with the appropriate state agencies to implement the foregoing.

BE IT FURTHER RESOLVED that this resolution updates and replaces Resolution ~~2009~~2010-~~26~~ 18 relating to staff compensation, and the Alaska Retirement Management Board expresses its appreciation to the Commissioner of the Department of Revenue for recent progress with respect to these resolutions.

DATED at ~~Fairbanks~~Anchorage, Alaska this _____ day of September, ~~2010~~2023.

____

Chair

ATTEST:

____

Secretary

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to Staff Compensation

Resolution 2023-17

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

WHEREAS, pursuant to AS 37.10.260, the Department of Revenue provides staff to the Board; and

WHEREAS, pursuant to the policies and procedures of the Board in coordination with the Department of Revenue, the Board is acknowledged to have a participatory role in recommending compensation and appointment of professional level staff providing services to the Board; and

WHEREAS, the Board acknowledges application of the state personnel rules and other provisions that apply to employees of the State of Alaska, and the distinctions that exist between those appointed as classified employees; and

WHEREAS, the Board has appointed an operations committee to assist the Department of Revenue with respect to the attraction and retention of employees and other matters; and

WHEREAS, the Board recognizes that fellow agencies of the Board such as the Alaska Permanent Fund Corporation have adopted compensation scales, salary ranges, and bonus payments in order to be more competitive with respect to the attraction and retention of its employees, and

WHEREAS, the Board is concerned that existing pay levels for exempt staff assisting the Board are not competitive with comparable compensation packages offered by peers. The Board believes that a lack of competitiveness with respect to the ability to attract or retain key employees would be to the detriment of the funds for which the Board is responsible.

NOW THEREFORE BE IT RESOLVED that the Alaska Retirement Management Board makes the following continuing recommendations to the Commissioner of Revenue:

1. That the pay levels for all exempt staff of the Department of Revenue providing key services to the Alaska Retirement Management Board be elevated over time and kept equitable with comparable salaries, including bonuses, at peer public funds;
2. That compensation policies and levels of the Alaska Permanent Fund Corporation also be taken into consideration when setting exempt staff compensation;
3. That the Board will work with the Commissioner of Revenue and State Legislature to ensure that funding is available to implement annual pay increases that make progress toward offering compensation competitive with peers;
4. That the Commissioner of Revenue actively work with the appropriate state agencies to implement the foregoing.

BE IT FURTHER RESOLVED that this resolution updates and replaces Resolution 2010-18 relating to staff compensation, and the Alaska Retirement Management Board expresses its appreciation to the Commissioner of the Department of Revenue for recent progress with respect to these resolutions.

DATED at Anchorage, Alaska this _____ day of September, 2023.

____
Chair

ATTEST:

____
Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	General Consulting Contract	ACTION:	X
DATE:	September 14-15, 2023	INFORMATION:	

BACKGROUND:

The Alaska Retirement Management Board (ARMB) has a contract with Callan LLC (Callan) for general investment consulting services.

STATUS:

The current consulting contract with Callan is effective through June 30, 2024. No extension options remain on the current contract. Given the timeframe necessary for preparing and issuing a request for proposals (RFP), evaluating responses, and negotiating a contract with a successful respondent, staff is recommending starting the RFP process at this time.

RECOMMENDATION:

The Alaska Retirement Management Board direct staff to issue an RFP for a general consultant in a timeframe that will result in a general consultant contract being in place by July 1, 2024. The performance period of the contract will be for seven years in total – an initial period of three years followed by two optional two-year extensions.

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT: Real Assets Consulting Contract ACTION: X

DATE: September 14 -15, 2023 INFORMATION:

BACKGROUND:

The Alaska Retirement Management Board (ARMB) has a contract with Callan LLC (Callan) for real assets investment consulting services that is separate from the general consulting contract since it is a specialized asset class, and the universe of general consultants and real assets consultants differs.

STATUS:

The Real Assets consulting contract with Callan LLC expires June 30, 2024. No extension options remain on the current contract. Given the timeframe necessary for preparing and issuing a request for proposals (RFP), evaluating responses, and negotiating a contract with a successful respondent, staff is recommending starting the RFP process at this time.

RECOMMENDATION:

The Alaska Retirement Management Board direct staff to prepare and issue an RFP for a Real Assets consultant for the Board in a timeframe that will result in a Real Assets consultant contract being in place by July 1, 2024. The performance period of the contract will be for seven years in total – an initial period of three years followed by two optional two-year extensions.

Callan

September 14, 2023

ARMB Board Meeting

Preliminary Investment Performance
Periods Ended June 30, 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 Markets Rebound Sharply in 1Q and 2Q; Fixed Income Markets Down in 2Q

Stocks and bonds still have ground to make up after first three quarters of 2022

S&P 500 up 16.9% in first half of 2023.

- Loss through first three quarters of 2022 was 23.9%; rebound in the following three quarters reduced the loss to 2.9% since the start of 2022. Greater loss reduction in large cap (U.S. and global ex-U.S.) compared to emerging and small cap

Fixed income recovered as high inflation began to ease; speculation about interest rate cuts evaporated in 2Q

- Bloomberg Aggregate: up 3% in 1Q, but declined 0.8% in 2Q as Fed continued to raise rates
- CPI-U: +3% year-over year for 2Q, down from +6.5% for the year ended Dec. 2022

Inflation hit the highest rate (9%) in decades in June of 2022.

Economic data defied expectations of recession; GDP growth was revised up to 2.0% in 1Q, and hit 2.4% in 2Q

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

Returns for Periods ended 6/30/23

	Quarter	Last 3 Qtrs	1Q-3Q 2022	5 Years	10 Years	25 Years
U.S. Equity						
Russell 3000	8.39	24.51	-24.62	11.39	12.34	7.72
S&P 500	8.74	25.73	-23.87	12.31	12.86	7.61
Russell 2000	5.21	14.82	-25.10	4.21	8.26	7.26
Global ex-U.S. Equity						
MSCI World ex USA	3.03	29.30	-26.23	4.58	5.40	4.49
MSCI Emerging Markets	0.90	15.07	-27.16	0.93	2.95	--
MSCI ACWI ex USA Small Cap	2.05	21.06	-29.37	2.62	5.75	6.73
Fixed Income						
Bloomberg Aggregate	-0.84	4.00	-14.61	0.77	1.52	3.90
90-day T-Bill	1.17	3.12	0.61	1.55	0.98	1.89
Bloomberg Long Gov/Credit	-1.29	7.11	-28.94	0.66	2.86	5.33
Bloomberg Global Agg ex-US	-2.16	7.70	-23.88	-2.65	-0.90	2.62
Real Estate						
NCREIF Property	-1.81	-6.97	9.35	5.94	7.84	8.53
FTSE Nareit Equity	2.62	10.89	-28.13	4.55	6.42	8.32
Alternatives						
CS Hedge Fund Index	1.71	2.80	0.14	4.52	4.06	5.49
Cambridge Private Equity*	2.12	1.12	-1.84	15.98	15.04	13.83
Bloomberg Commodity	-2.56	-5.74	13.57	4.73	-0.99	2.04
Gold Spot Price	-2.86	15.39	-8.56	8.99	4.66	7.76
Inflation - CPI-U	1.08	2.80	6.46	3.90	2.71	2.54

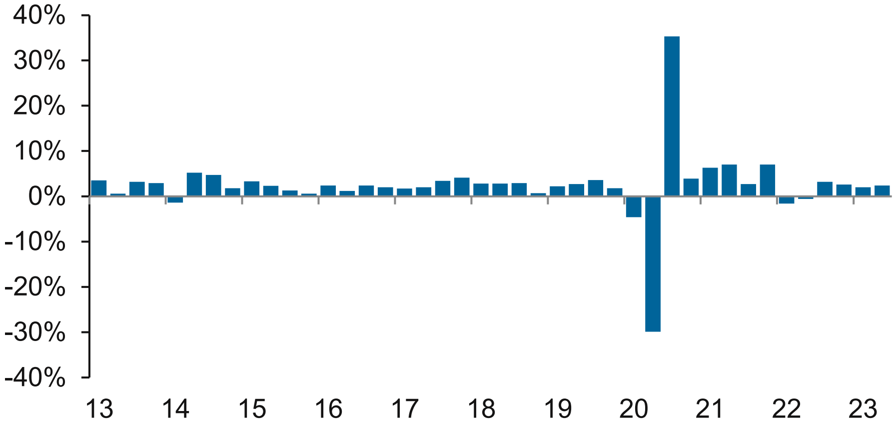
*Cambridge PE data as of 1Q23

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

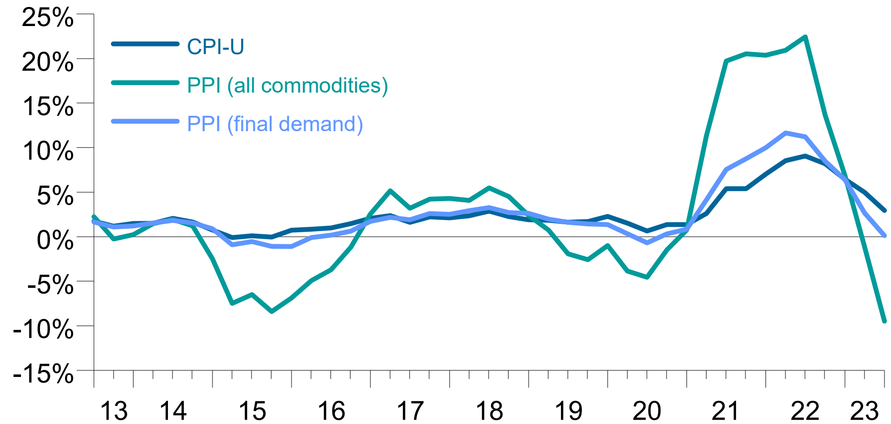
U.S. Economy—Summary

For periods ended 6/30/23

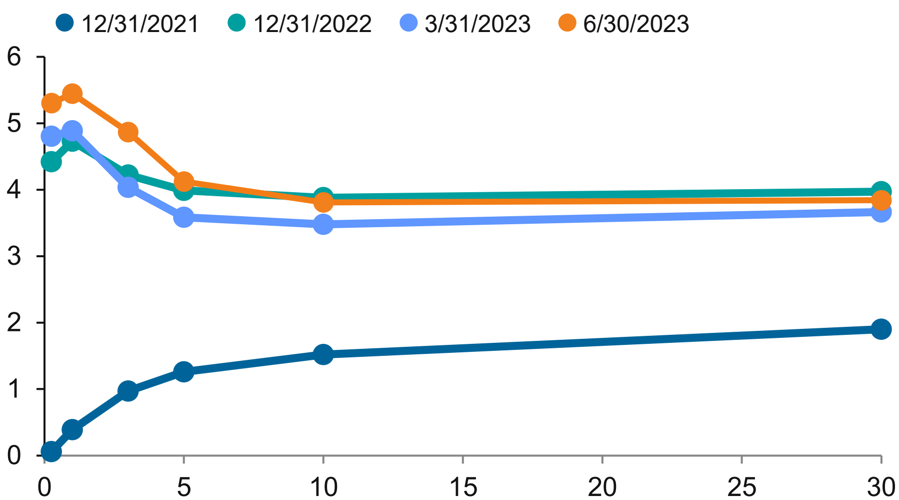
Quarterly Real GDP Growth



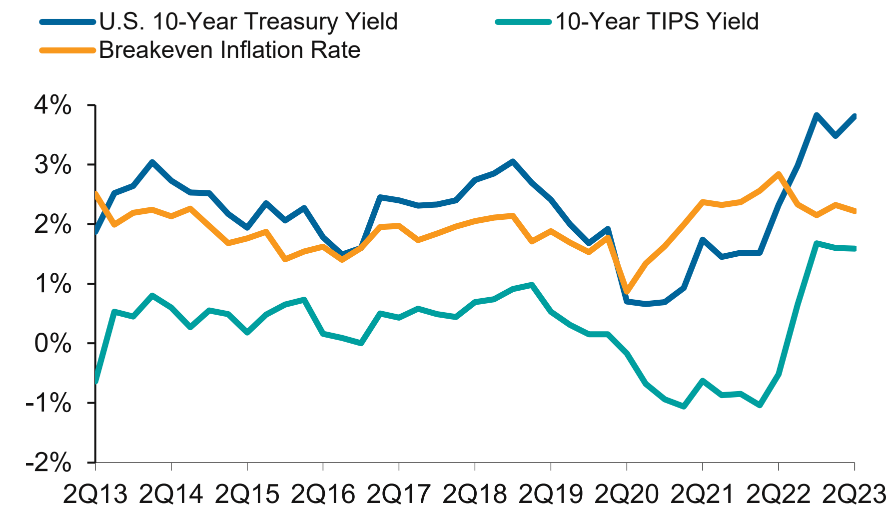
Inflation Year-Over-Year



U.S. Treasury Yield Curves



Historical 10-Year Yields Through 6/30/23

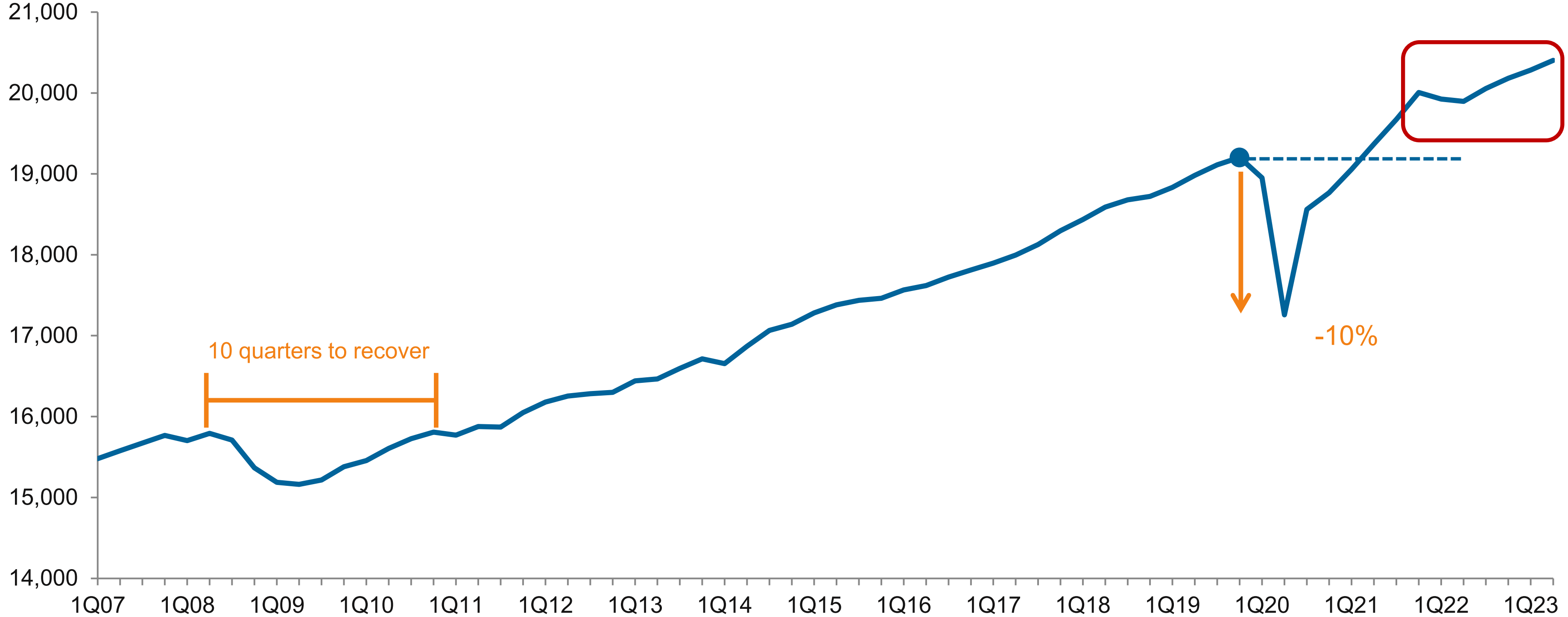


Sources: Bloomberg, Bureau of Labor Statistics, Callan

GDP Rose 2.4% in 2Q, Building on the 2% Gain in 1Q

Widespread expectations for a recession in 2023 were proven wrong

Seasonally Adjusted Real GDP in Billions of Dollars Through 6/30/23



GDP rose 2.0% and 2.4% in the first two quarters, after 2.1% growth in 2022.

- The GDP drop widely anticipated happened LAST year in 1Q and 2Q22, followed by gains of 3.2% in 3Q 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 in 2022, but has recently rebounded. Residential housing saw a sharp downturn, as mortgage rates doubled from the start of last year. But prices remain high due to strong demand and lack of supply.

Source: Federal Reserve Bank of St. Louis

Callan Periodic Table of Investment Returns – Trailing Year

Monthly Returns												Trailing Year
July 2022	**Aug 2022**	**Sept 2022**	**Oct 2022**	**Nov 2022**	**Dec 2022**	**Jan 2023**	**Feb 2023**	**Mar 2023**	**Apr 2023**	**May 2023**	**Jun 2023**	**12 Mos.**
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 **2.84%**	Large Cap Equity **0.43%**	Small Cap Equity **8.13%**	Large Cap Equity **19.59%**
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%**	Real Estate **1.89%**	High Yield **-0.92%**	Large Cap Equity **6.61%**	Dev ex-U.S. Equity **17.41%**
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%**	Large Cap Equity **1.56%**	Small Cap Equity **-0.92%**	Dev ex-U.S. Equity **4.75%**	Small Cap Equity **12.31%**
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%**	High Yield **1.00%**	U.S. Fixed Income **-1.09%**	Emerging Market Equity **3.80%**	High Yield **9.06%**
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%**	U.S. Fixed Income **0.61%**	Emerging Market Equity **-1.68%**	Real Estate **3.02%**	Emerging Market Equity **1.75%**
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 **0.29%**	Global ex-U.S. Fixed Income **-2.69%**	High Yield **1.67%**	U.S. Fixed Income **-0.94%**
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%**	Emerging Market Equity **-1.13%**	Dev ex-U.S. Equity **-4.36%**	Global ex-U.S. Fixed Income **0.26%**	Global ex-U.S. Fixed Income **-1.83%**
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%**	Small Cap Equity **-1.80%**	Real Estate **-4.48%**	U.S. Fixed Income **-0.36%**	Real Estate **-4.54%**

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

Callan Periodic Table of Investment Returns – Fiscal Year

Fiscal Year Returns – Ending June 30

06/2014	06/2015	06/2016	06/2017	06/2018	06/2019	06/2020	06/2021	06/2022	06/2023
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%	Large Cap Equity 19.59%
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%	Dev ex-U.S. Equity 17.41%
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%	Small Cap Equity 12.31%
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%	High Yield 9.06%
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 1.75%
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%	U.S. Fixed Income -0.94%
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%	Global ex-U.S. Fixed Income -1.83%
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 -4.54%

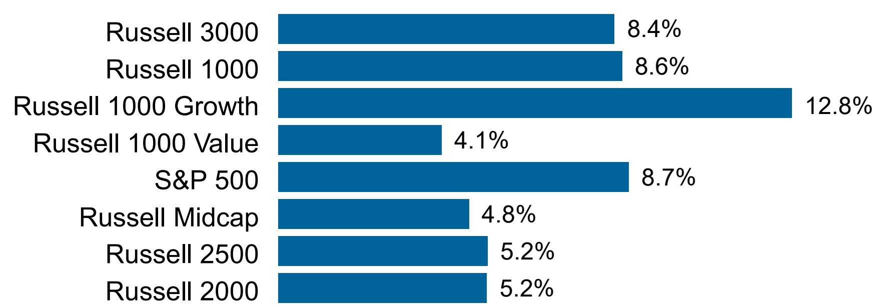
Sources: ● Bloomberg Aggregate ● Bloomberg Corp High Yield ● Bloomberg Global Aggregate ex US ● FTSE EPRA Nareit Developed ● MSCI Emerging Markets ● MSCI World ex USA ● Russell 2000 ● S&P 500

U.S. Equity Performance: 2Q23

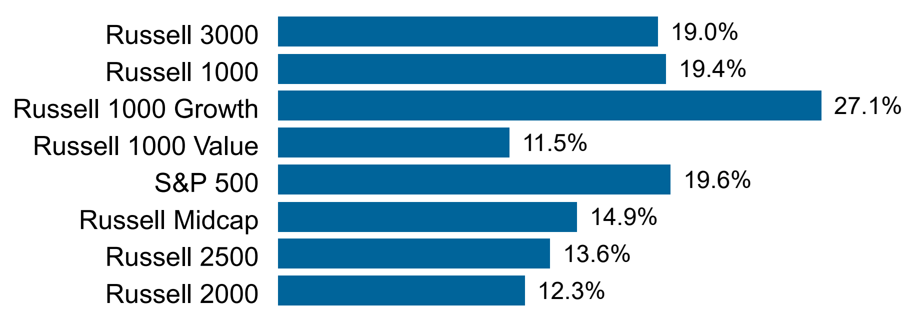
Large cap growth stocks lead broad indices higher; small cap indices continue to lag large caps

- The S&P 500 posted a second straight quarter of positive performance, gaining 8.7%; large cap growth led all styles, advancing 12.8%. All U.S. equity indices produced absolute positive returns; small value and low volatility produced the lowest 2Q returns.
- Nine of the 11 S&P 500 Index sectors produced a positive 2Q return. Information Technology (17.2%), Consumer Discretionary (14.6%), and Communication Services (13.1%) drove the overall index return; all other sectors underperformed the index.
- Similar to the first quarter, small caps (Russell 2000) underperformed large caps (Russell 1000) and growth outperformed value during the quarter, a reversal of trend from 2022. Financials (-1.1%) detracted returns for the Russell 2000 (5.2%) while Health Care was the only small cap sector to produce double digit returns (11.2%) within the small cap index.

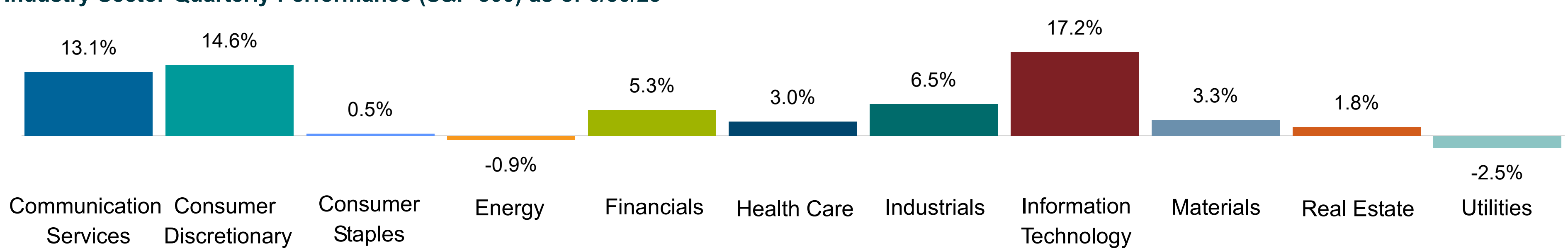
U.S. Equity: Quarter Ended 6/30/23



U.S. Equity: One-Year Returns Ended 6/30/23



Industry Sector Quarterly Performance (S&P 500) as of 6/30/23



Sources: FTSE Russell, S&P Dow Jones Indices

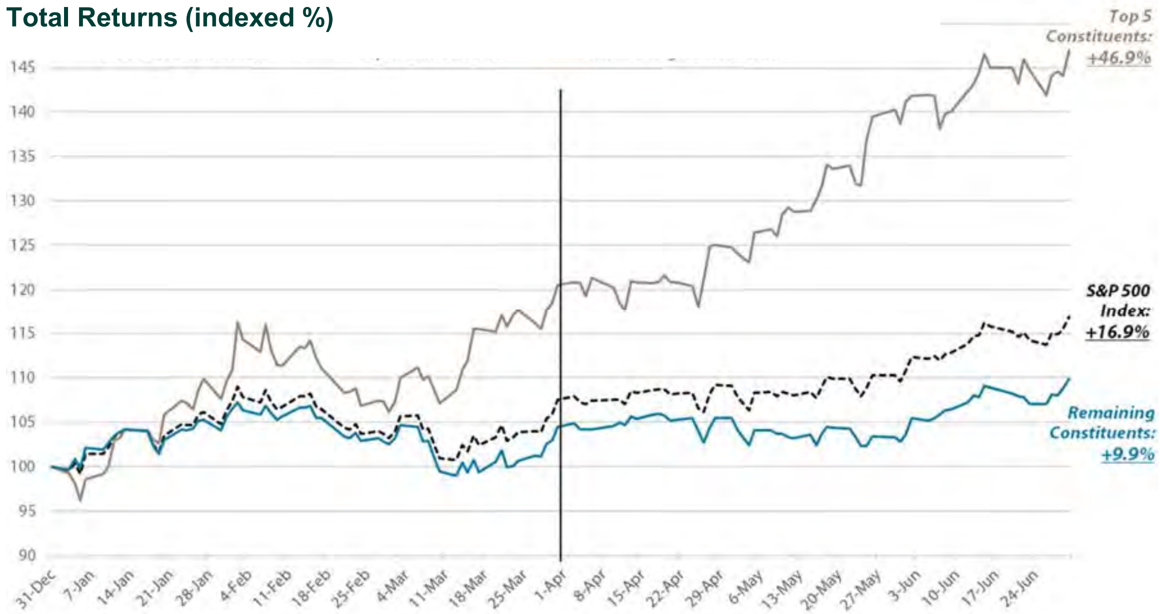
U.S. Equity Overview

Index concentration is a significant 2Q theme

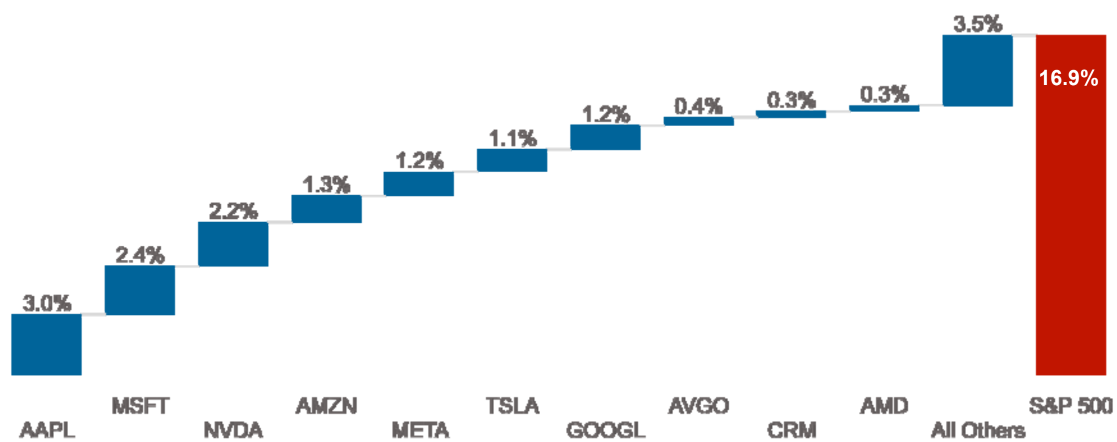
The top chart illustrates the top five S&P 500 Index contributors through 2Q.

- 10 stocks within the S&P 500 Index contributed 80% of the 16.9% return; average appreciation is 82% and an average forward price/earnings ratio of 36x. They account for 32% of the index's market capitalization.
- 2Q return for the S&P 500 Index was 8.7%; the equal weight S&P 500 Index returned 4%.
  - *The YTD return difference is nearly 10%; if this gap holds through year-end, it would be the largest since 1998.*

Total Returns (indexed %)



S&P 500 2023 YTD Return Contribution



Source: Dana Investments and FacSet

Global/Global ex-U.S. Equity Performance: 2Q23

Continued market rally

2Q23 continued global and global ex-U.S. equity markets positive performance from the prior quarter.

Technology stocks lead markets higher

- The second quarter of the year saw global markets led higher by mega cap technology stocks, in part due to increased optimism around artificial intelligence advancements.
- Market expectations of a recession decreased as inflation showed signs of abating while the Fed kept rates unchanged in June.
- Japan outperformed other regions in local currency as valuations continued to be attractive alongside the Bank of Japan's easy monetary policy.

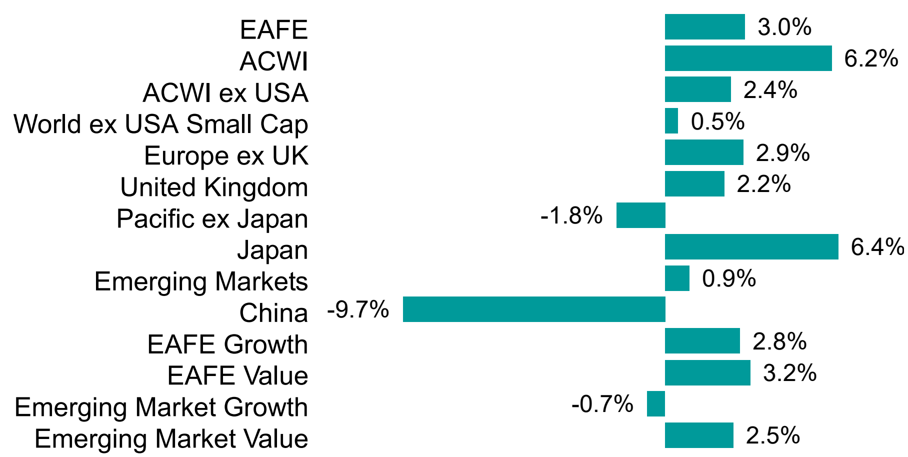
Developed vs. emerging markets

- Developed markets outperformed emerging markets as China weighed on EM indices.

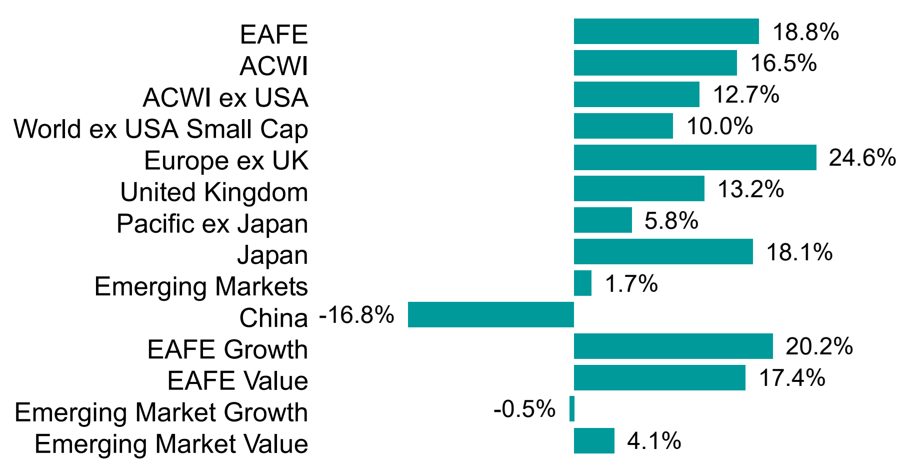
Growth vs. value

- Mega cap technology companies, which are primarily U.S.-based, led markets higher and resulted in large dispersions between U.S. growth and value indices. Outside of the U.S., growth and value index returns were relatively balanced.

Global Equity Returns: Quarter Ended 6/30/23



Global Equity Returns: One Year Ended 6/30/23



Source: MSCI

U.S. Fixed Income Performance: 2Q23

Bloomberg Aggregate down as rates rose, risk appetite and solid economic news spurred returns for spread sectors and lower quality

- Corporate excess return: +131 bps
- Mortgage excess return: +76 bps
- High yield corporates excess return: +279 bps
- AA excess returns: +84 bps
- BBB excess returns: +157 bps

U.S. Treasury yield curve inversion steepened to 106 bps from 58 bps on 3/31

- 2- year UST: 4.87%; 10-year UST: 3.81%

TIPS performed in line with nominal U.S. Treasuries

- Five-year breakeven spreads narrowed to 2.18% from 2.4% on 3/31; Fed and markets expect inflation to trend down over longer periods

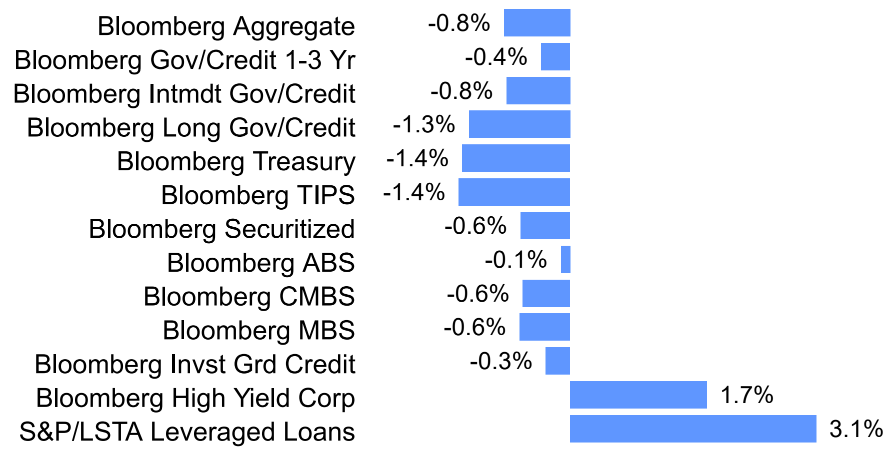
Fed Funds target raised to 5.00% - 5.25%

- Paused at June meeting but suggested that further hikes are likely
- Median expectation from Fed is 5.6% for year-end 2023
- Market expectations are similar at 5.4%; up sharply from expectations for cuts at the end of 1Q

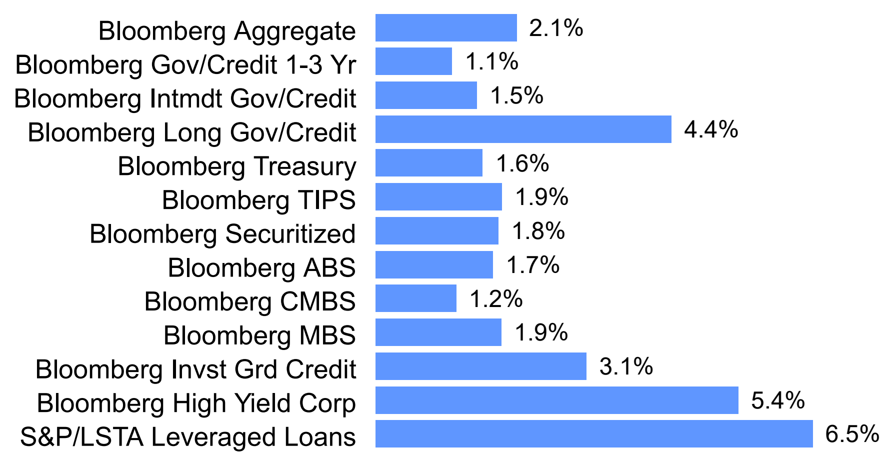
Valuations fair

- Credit spreads have not widened materially and are close to historical averages
- Demand has remained robust with muted issuance

U.S. Fixed Income Returns: Quarter Ended 6/30/23



U.S. Fixed Income Returns: Six Months Ended 6/30/23



Sources: Bloomberg, S&P Dow Jones Indices

U.S. Private Real Estate Performance: 2Q23

Income returns positive but appreciation returns negative once again

Valuations reflect higher interest rates

- 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	-2.9%	-10.7%	7.0%	5.6%	7.8%
Income	0.7%	2.5%	2.8%	3.0%	3.4%
Appreciation	-3.6%	-13.0%	4.2%	2.5%	4.3%
NCREIF Property Index	-2.0%	-6.6%	6.8%	5.9%	7.8%
Income	1.0%	4.0%	4.1%	4.2%	4.6%
Appreciation	-3.0%	-10.3%	2.6%	1.6%	3.1%

Returns are geometrically linked

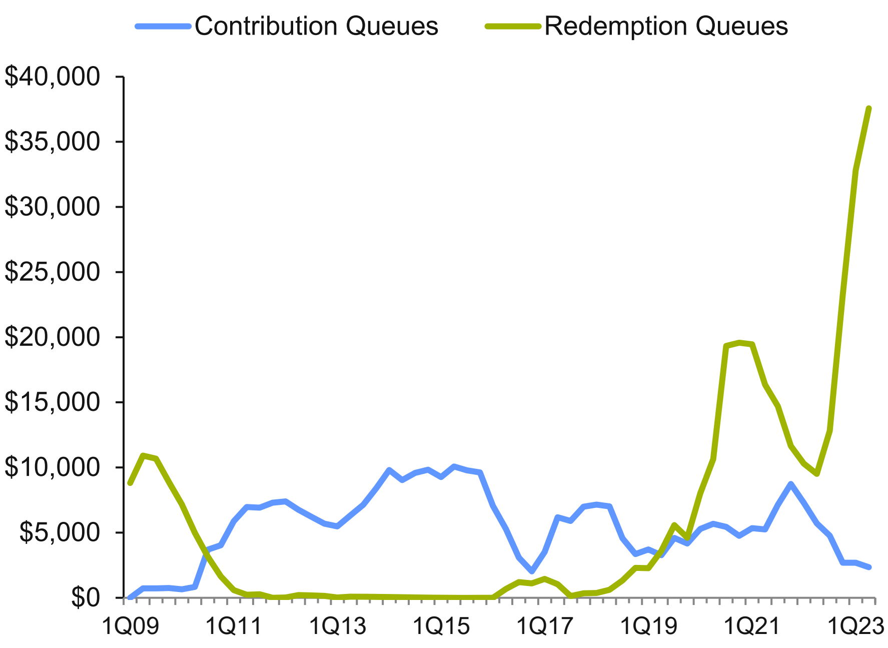
NCREIF Property Index Quarterly Returns by Region and Property Type

Source: NCREIF, ODCE return is net

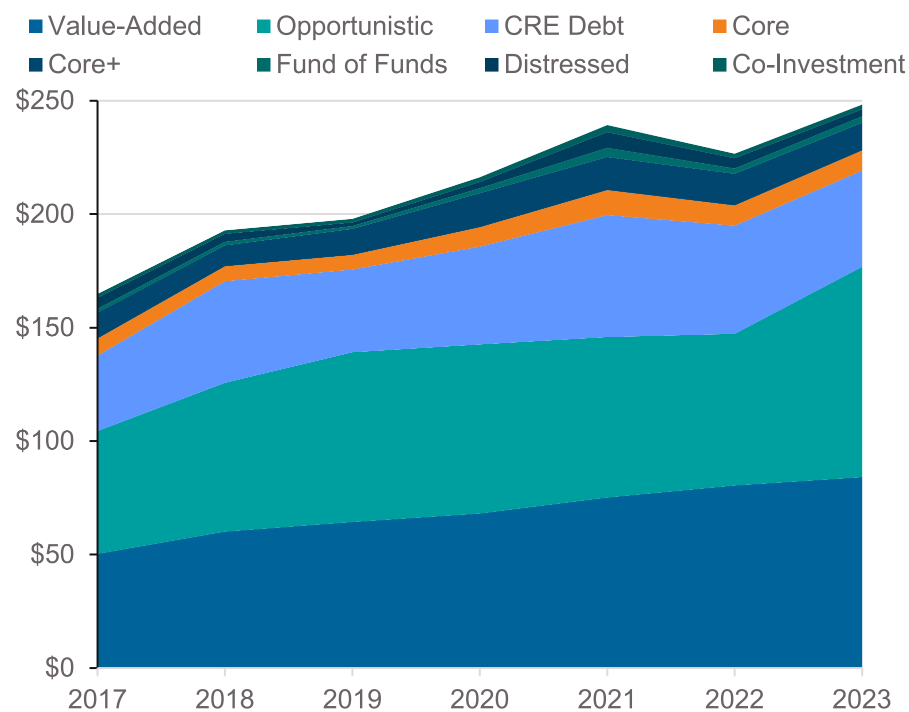
U.S. Private Real Estate Market Trends

Dry powder nears $250 billion

Core Fund Contribution/Redemption Queues ($mm)^



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

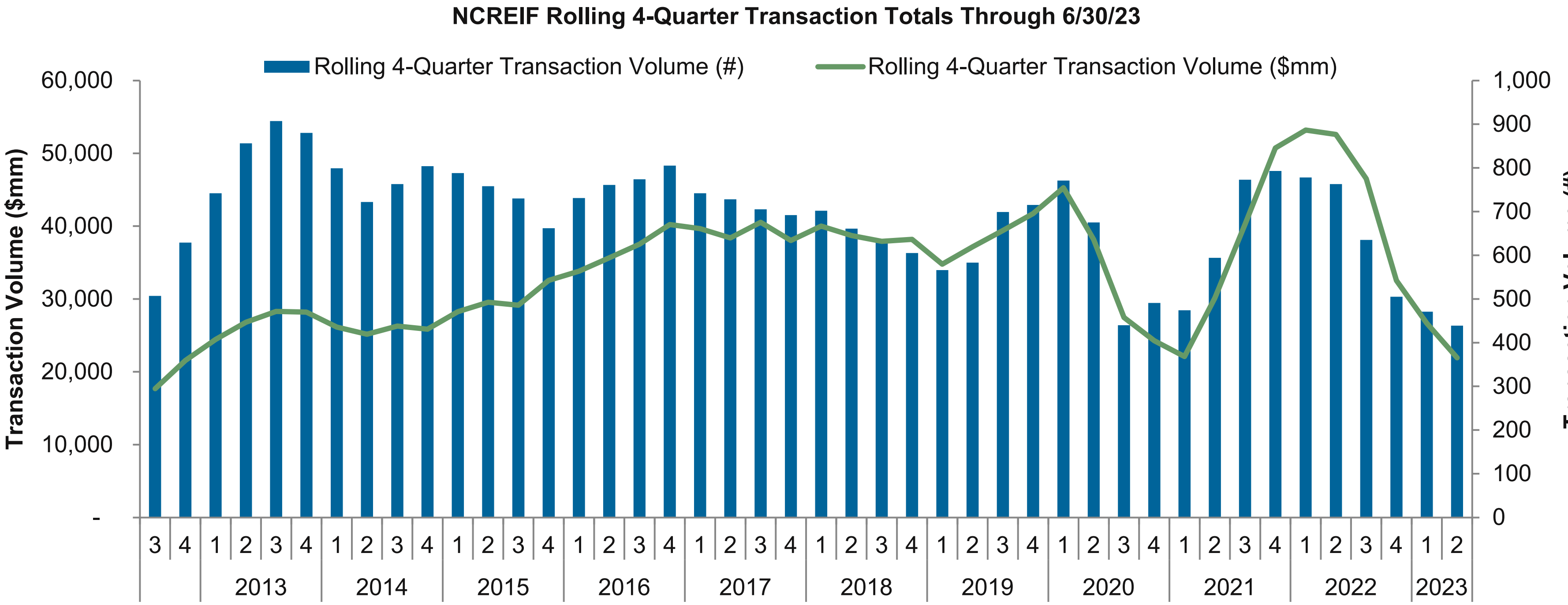


- Total of all ODCE redemption queues is $38 billion as of 1Q, average queue per fund of 13.7%. Below GFC high of roughly 18%.
- Outstanding redemption requests for most large ODCE funds are approximately 10% to 16% of net asset value. Additional redemption requests have slowed substantially. Expectation is for trend to continue driven by public markets recovery.
- For a large proportion of funds these redemptions are partial redemptions, due to portfolio rebalancing and liquidity needs. For a smaller underperforming subset, redemption requests are full redemptions indicative of manager termination.

Sources: AEW, NCREIF, Preqin
Queue data as of 1Q23, the latest available at time of publication

U.S. Private Real Estate Market Trends

Pricing and transaction volumes decline through 2Q23



- ▶ Transaction volume continues to decrease on a rolling four-quarter basis and is now below five-year averages.
- ▶ In 2Q23 transaction volume decreased on a quarter-over-quarter basis; transaction volume is significantly lower compared to 2Q22.
- ▶ 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.

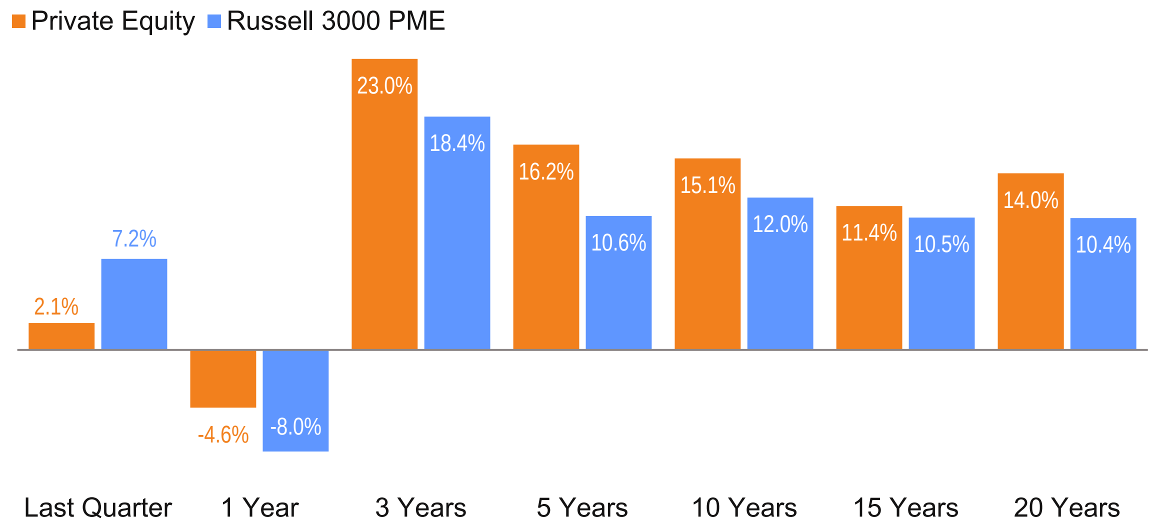
Source: NCREIF

Private Equity Performance

Smoothing effect across both down and up markets

- While private equity does not experience the same sharp declines as public equity during market downturns, it also does not rebound as quickly—as seen in 1Q23.
- Just as private equity was only down about a third as much as the public markets in 2022, it was up about a third as much in 1Q23.
- As has been the case for the past year, the tech-heavy venture capital and growth equity strategies continued to decline more than buyouts and other corporate finance strategies.
- 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.

Net IRRs as of 03/31/23



Net IRRs by Strategy as of 03/31/23

Strategy	Last Quarter	1 Year	3 Years	5 Years	10 Years	20 Years
Venture Capital	-0.7%	-16.4%	25.0%	20.4%	18.7%	13.2%
Growth Equity	1.3%	-9.3%	21.3%	16.5%	15.1%	12.7%
Buyouts	3.5%	0.7%	23.9%	16.0%	15.2%	10.8%
Mezzanine	3.5%	6.1%	14.9%	10.9%	11.1%	10.3%
Credit Opportunities	2.0%	4.0%	13.4%	7.3%	7.9%	9.2%
Control-Oriented Distressed	1.6%	2.6%	26.0%	13.9%	12.1%	10.7%
Total Private Equity	**2.1%**	**-4.6%**	**23.0%**	**16.2%**	**15.1%**	**14.0%**

Source: Refinitiv/Cambridge

Private Equity Overview

Fundraising remains steady

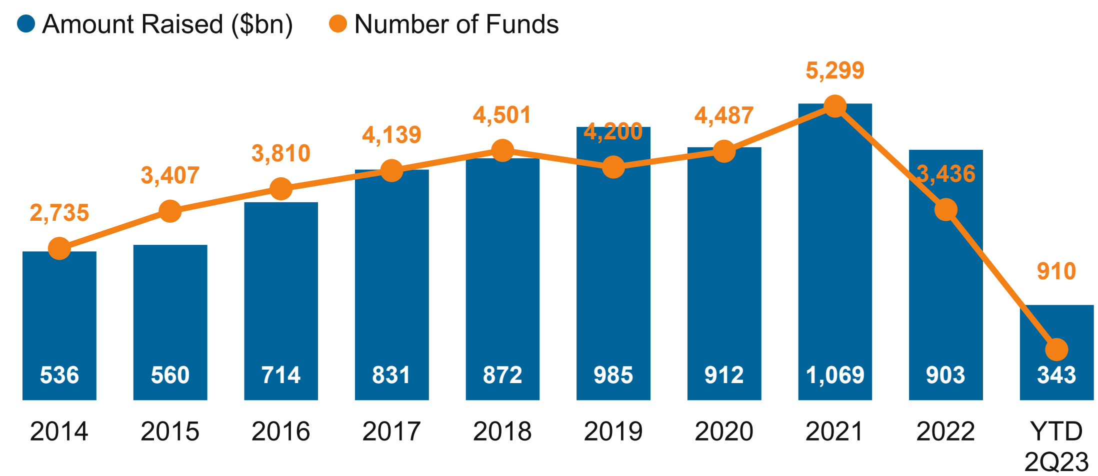
Fundraising varies by strategy type

- Fundraising continued to decline through 2022 and into 2023, after peaking in 2021.
- 1H23 saw a significant drop in venture capital fundraising (-62%) compared to 1H23, with buyout fundraising falling less sharply (-26%).
- Fundraising is concentrated in larger funds as LPs have been consolidating with high-conviction GPs.
- Fundraising timelines are extending due to so many funds in the market, slowing distributions, and constrained LP commitment budgets.

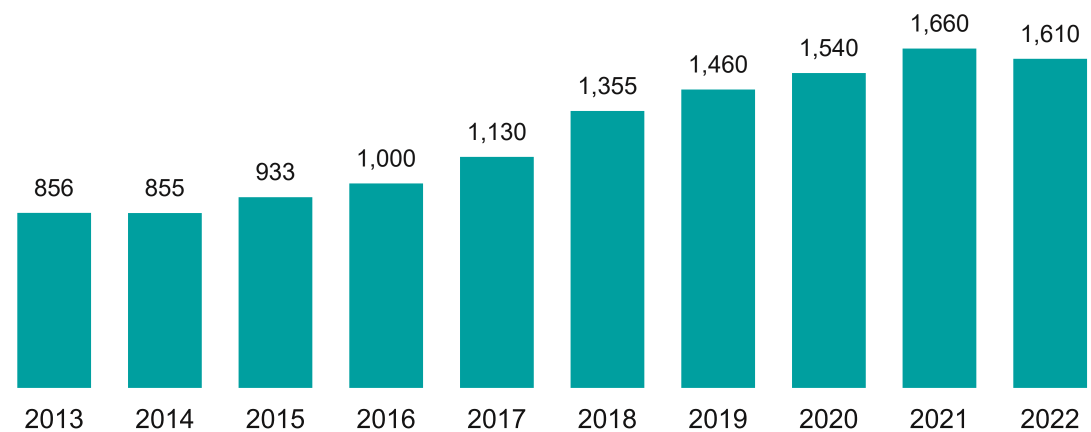
Dry powder levels off

- 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



2023 Dry Powder not yet available.

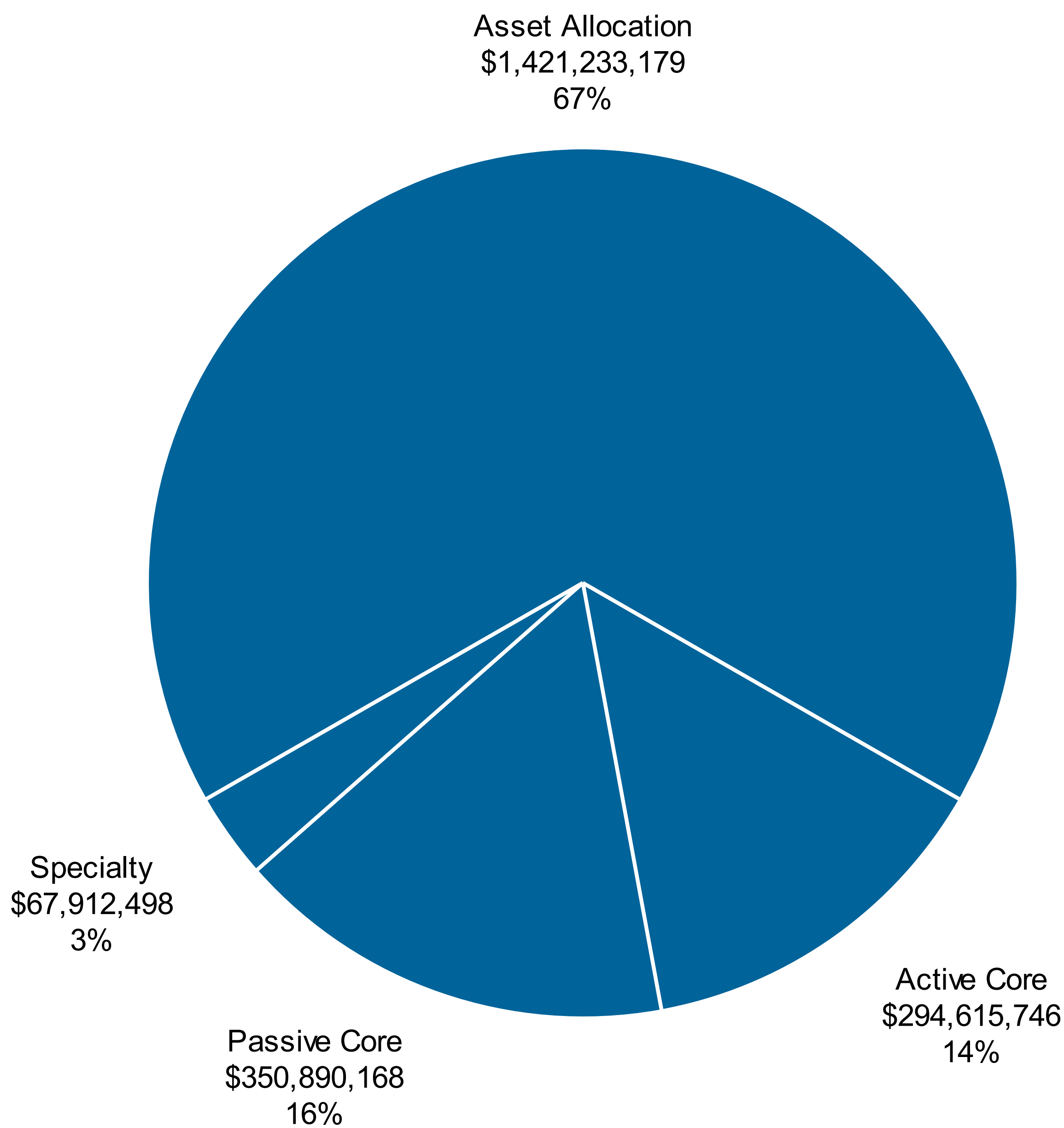
Source: PitchBook

Callan

Participant-Directed Plans

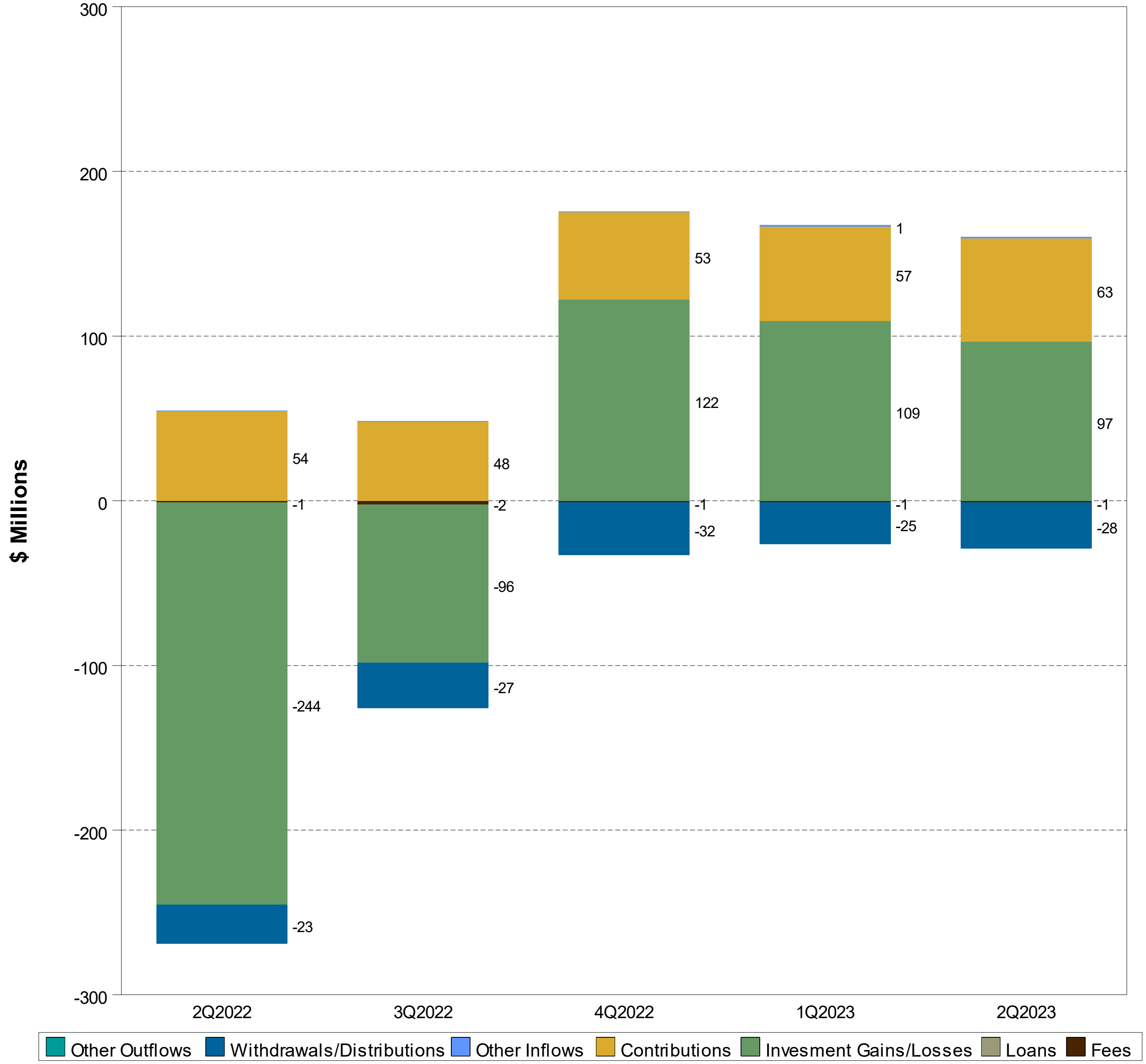
PERS DC Plan

June 30, 2023



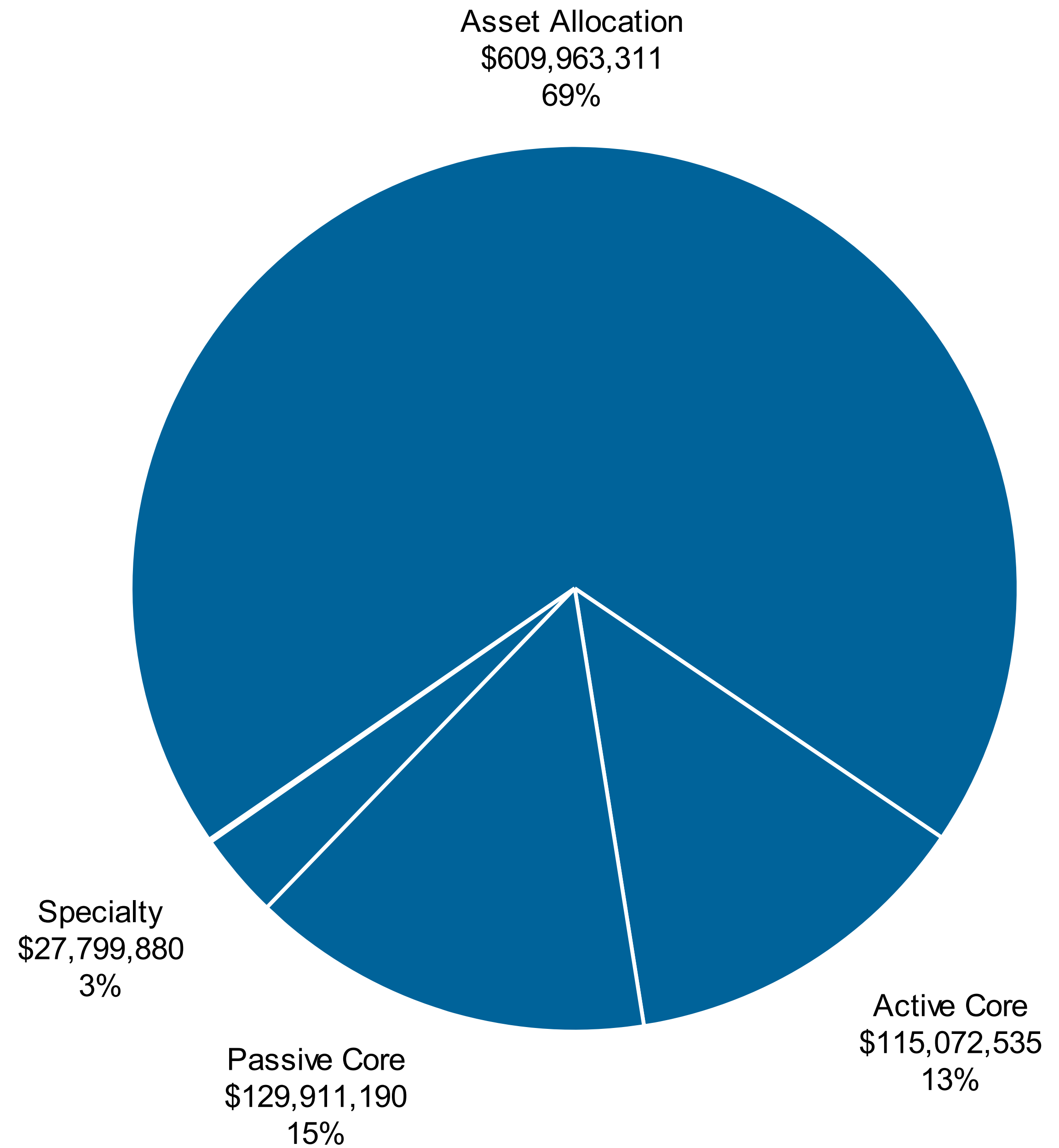
PERS DC Plan: Asset Changes

June 30, 2023



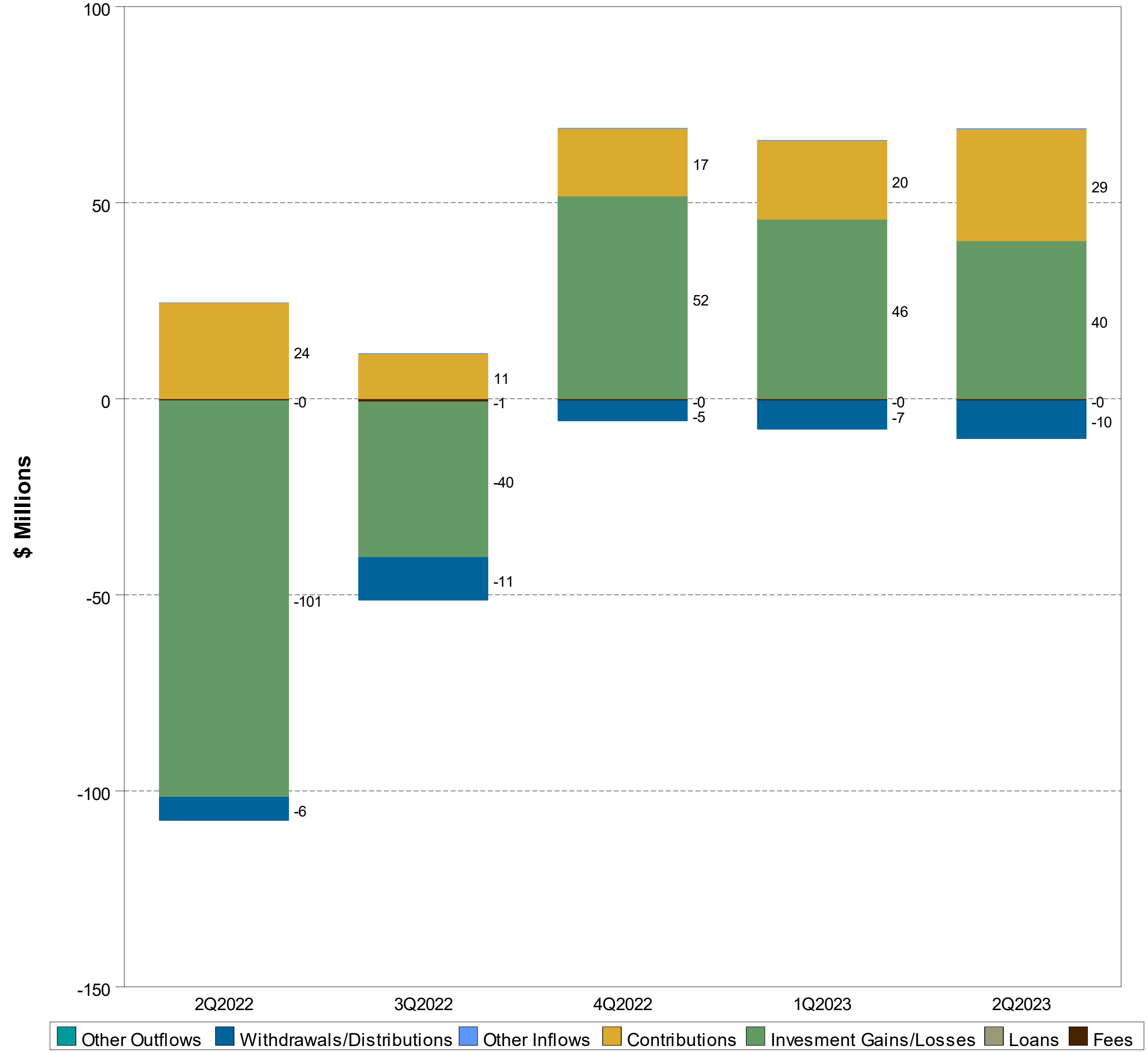
TRS DC Plan

June 30, 2023



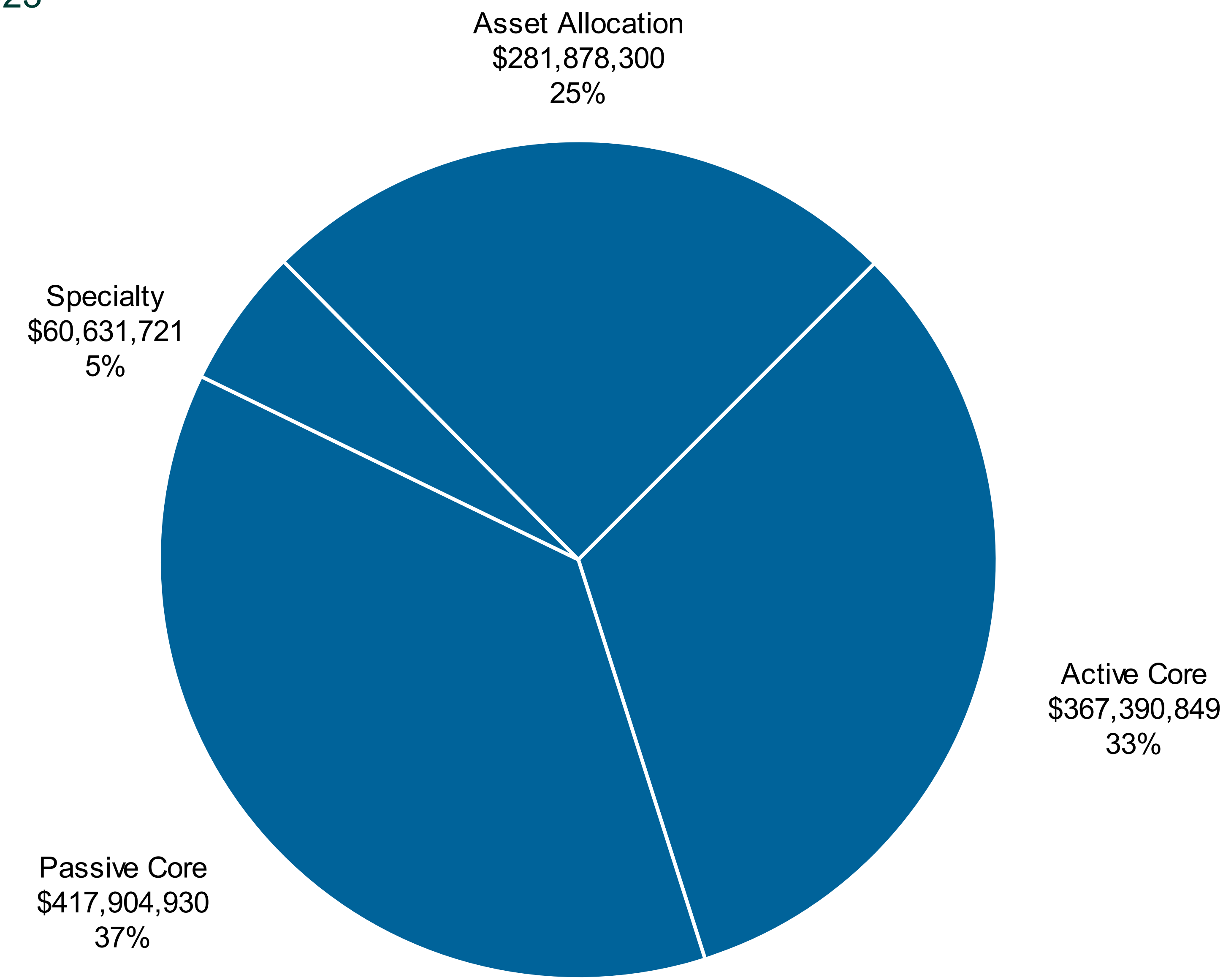
TRS DC Plan: Asset Changes

June 30, 2023



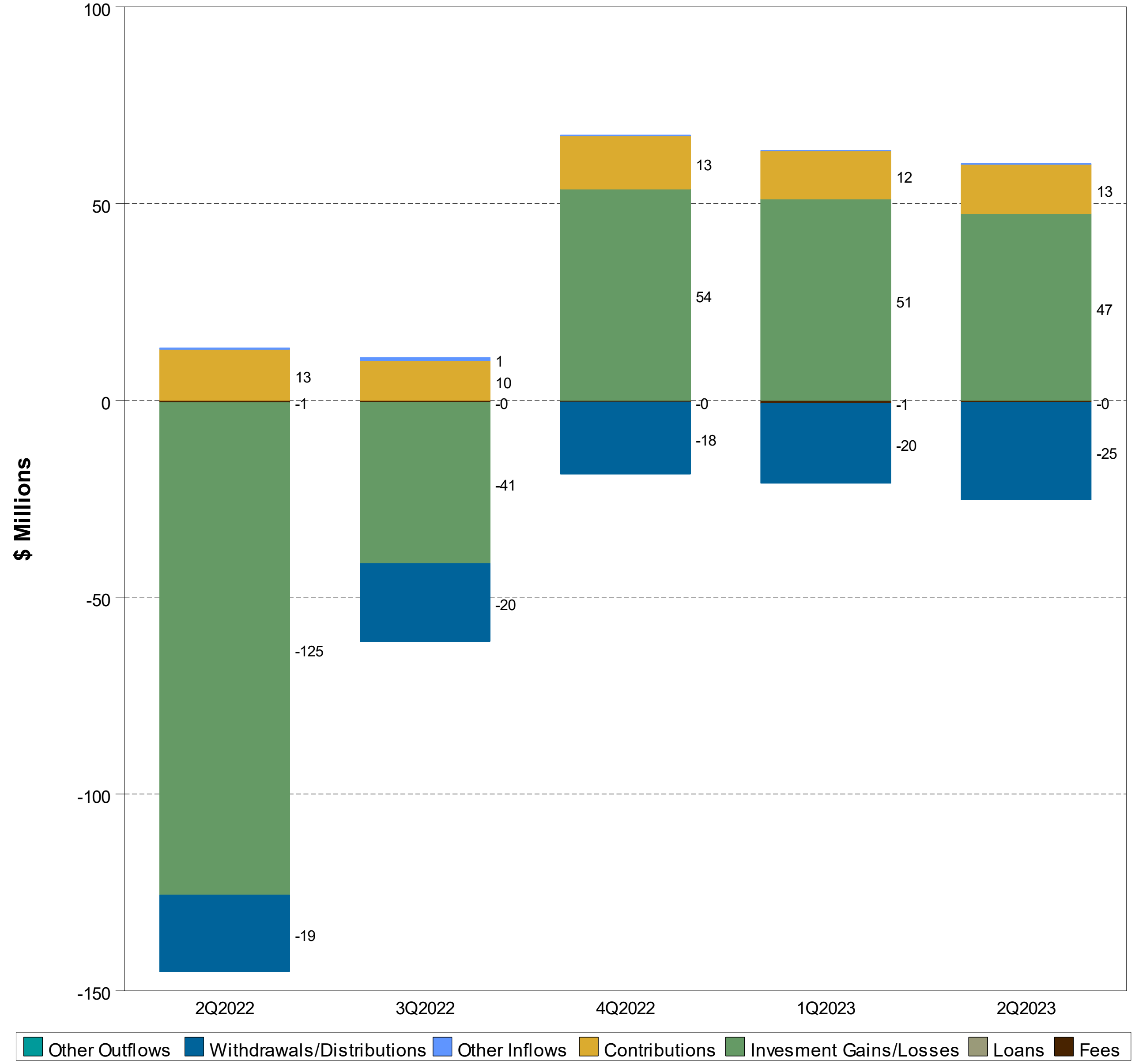
Deferred Comp Plan

June 30, 2023



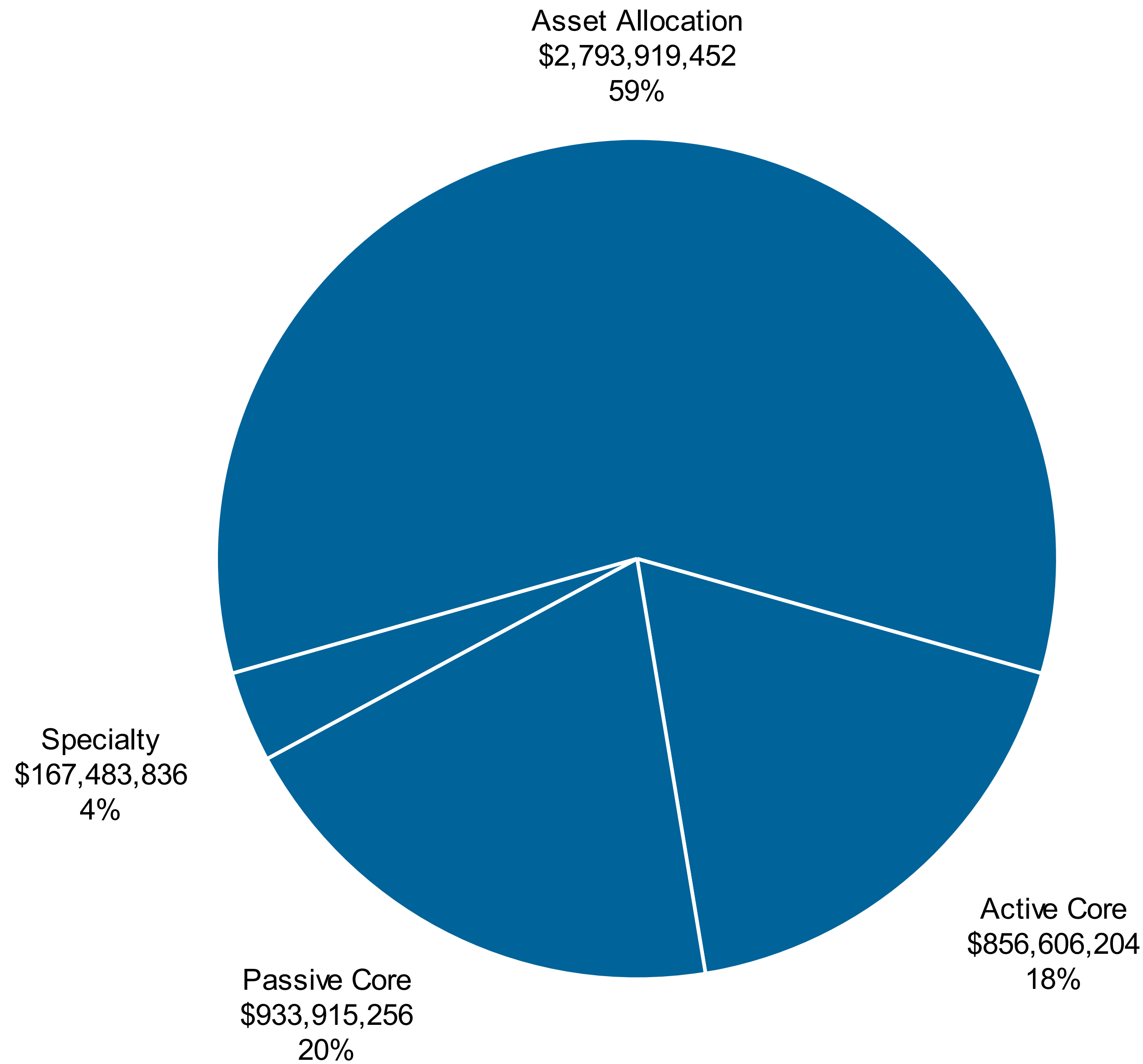
Deferred Comp Plan: Asset Changes

June 30, 2023



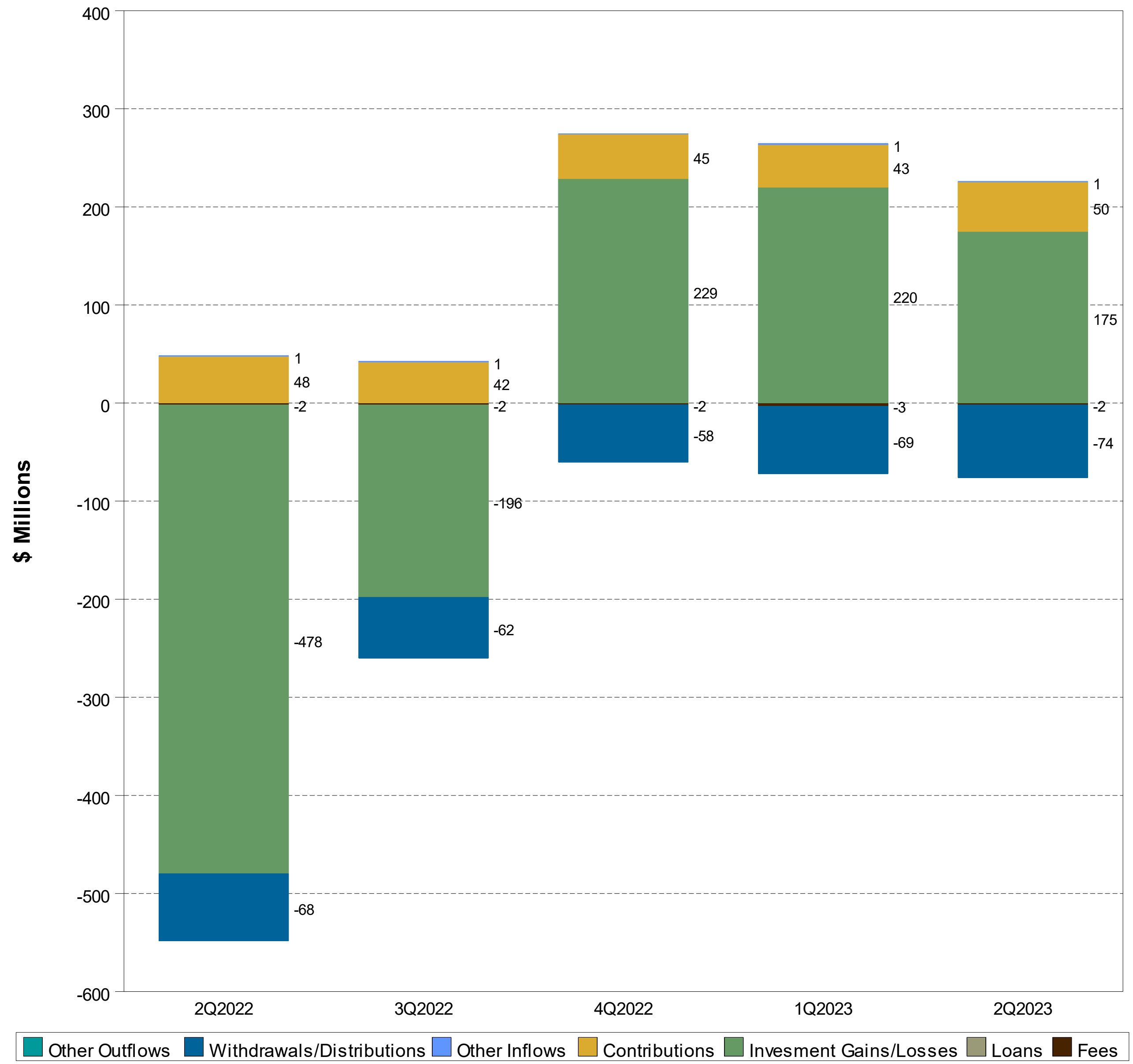
SBS Fund

June 30, 2023



SBS Fund: Asset Changes

June 30, 2023



Individual Account Option Performance: 06/30/23

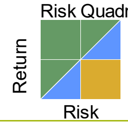
Balanced & Target Date Funds

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	**2.0** 14	**5.9** 22	**3.0** 23	**4.3** 9	**4.6** 14	**8.5** 64		**0.2** 2	**0.5** 100	**0.3** 3
CAI MA Tgt Alloc Cons MFs										
Passive Target	1.9 16	6.0 20	2.9 25	4.2 13	4.6 14	8.7 60				0.3 6
Alaska Long-Term Balanced	**3.8** 27	**10.1** 23	**6.5** 36	**6.3** 26	**7.1** 28	**13.1** 56		**0.0** 24	**0.5** 100	**0.4** 21
CAI MA Tgt Alloc Mod MFs										
Passive Target	3.6 30	10.4 21	6.4 37	6.3 26	7.2 27	13.4 52				0.4 24
Target 2010 Trust	**2.1** 19	**6.2** 23	**3.9** 20	**4.5** 22	**5.2** 22	**9.2** 72		**-0.1** 25	**0.4** 100	**0.3** 12
CAI Tgt Date 2010										
Custom Index	2.0 29	6.5 19	3.9 20	4.5 22	5.2 21	9.4 58				0.3 13
Target 2015 Trust	**2.5** 13	**7.1** 15	**4.8** 12	**5.1** 13	**6.0** 13	**10.3** 69		**0.1** 6	**0.5** 98	**0.3** 4
CAI Tgt Date 2015										
Custom Index	2.4 15	7.4 14	4.7 12	5.1 13	6.0 13	10.7 53				0.3 5
Target 2020 Trust	**3.1** 3	**8.5** 4	**5.9** 5	**5.8** 3	**6.9** 6	**12.1** 31		**0.1** 3	**0.5** 100	**0.4** 4
CAI Tgt Date 2020										
Custom Index	2.9 8	8.7 3	5.8 5	5.8 3	6.9 6	12.5 25				0.3 5
Target 2025 Trust	**3.8** 1	**10.3** 2	**7.1** 2	**6.6** 2	**7.8** 3	**14.0** 26		**0.2** 2	**0.5** 100	**0.4** 2
CAI Tgt Date 2025										
Custom Index	3.6 1	10.5 2	7.0 2	6.5 2	7.8 3	14.3 20				0.3 3
Target 2030 Trust	**4.4** 2	**11.7** 3	**8.2** 3	**7.2** 3	**8.5** 3	**15.6** 31		**0.1** 3	**0.5** 100	**0.4** 5
CAI Tgt Date 2030										
Custom Index	4.2 3	11.9 3	8.1 3	7.1 3	8.6 3	15.9 25				0.4 5
Target 2035 Trust	**5.0** 1	**13.1** 3	**9.2** 4	**7.7** 2	**9.2** 5	**16.9** 46		**0.2** 1	**0.5** 100	**0.4** 2
CAI Tgt Date 2035										
Custom Index	4.8 5	13.3 2	9.1 5	7.7 2	9.2 5	17.2 40				0.4 3
Target 2040 Trust	**5.4** 6	**14.2** 14	**10.0** 8	**8.2** 1	**9.7** 7	**18.1** 55		**0.2** 1	**0.5** 100	**0.4** 3
CAI Tgt Date 2040										
Custom Index	5.3 10	14.4 10	9.9 10	8.1 2	9.8 6	18.3 50				0.4 4
Target 2045 Trust	**5.8** 7	**15.1** 14	**10.8** 6	**8.5** 1	**10.1** 3	**18.9** 71		**0.2** 1	**0.5** 100	**0.4** 1
CAI Tgt Date 2045										
Custom Index	5.7 12	15.3 12	10.6 11	8.5 1	10.1 3	19.2 61				0.4 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: 06/30/23

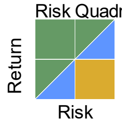
Balanced & Target Date Funds

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	**6.0** 9	**15.5** 19	**10.8** 9	**8.6** 2	**10.1** 4	**19.0** 76		**0.2** 1	**0.5** 100	**0.4** 3
CAI Tgt Date 2050										
Custom Index	5.9 15	15.7 17	10.6 18	8.5 3	10.1 4	19.3 69				0.4 3
Target 2055 Trust	**6.0** 12	**15.5** 23	**10.8** 13	**8.6** 2	**10.1** 4	**19.0** 83		**0.2** 1	**0.5** 100	**0.4** 2
CAI Tgt Date 2055										
Custom Index	5.9 26	15.7 21	10.6 25	8.5 3	10.1 4	19.3 79				0.4 2
Target 2060 Trust	**6.0** 15	**15.6** 27	**10.8** 21	**8.5** 3	**10.0** 12	**19.0** 77		**0.0** 3	**0.5** 100	**0.4** 4
CAI Tgt Date 2060										
Custom Index	5.9 26	15.7 21	10.6 23	8.5 4	10.1 7	19.3 75				0.4 4
Target 2065 Trust	**6.0** 19	**15.5** 35	**10.7** 31						**0.5** 100	
CAI Tgt Date 2065										
Custom Index	5.9 36	15.7 25	10.6 32							
JPMorgan SmartRetirementBlend 2015 R6	**1.9** 49	**6.6** 25								
Callan Target Date 2015										
JPMorgan:SR Income MF Idx	3.2 1	8.3 1	2.9 76	4.0 72	4.5 91	10.0 81				0.2 60
JPMorgan SmartRetirementBlend 2020 R6	**2.0** 56	**6.8** 50								
Callan Target Date 2020										
JPMorgan:SR 2020 MF Index	2.2 43	7.2 25	2.8 88	3.9 76	4.9 79	10.5 78				0.2 76

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

Passive Options: 06/30/23

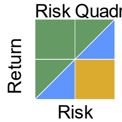
Passive Strategies

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)	**8.7** 11	**19.6** 1	**14.6** 7	**12.3** 10	**13.4** 9	**20.8** 41		**-1.0** 11	**0.0** 77	**0.5** 9
Callan S&P 500 Index MFs										
S&P 500 Index	8.7 10	19.6 1	14.6 2	12.3 5	13.4 2	20.8 33				0.5 1
SSgA Russell 3000 Index Fund (i)	**8.4** 51	**19.0** 50	**14.0** 40	**11.4** 41	**12.9** 49	**21.7** 54		**0.5** 9	**0.1** 100	**0.5** 34
CAI Mut Fd: Large Cap Broad Style (Net)										
Russell 3000 Index	8.4 51	19.0 51	13.9 41	11.4 43	12.9 49	21.8 54				0.5 35
SSgA World Equity ex-US Index Fund (i)	**2.6** 66	**13.2** 91	**7.5** 59	**3.8** 61	**6.5** 53	**21.2** 74		**0.3** 28	**0.9** 99	**0.1** 59
CAI MF: Non-U.S. Equity Style										
MSCI ACWI x U.S. Index (Net)	2.4 75	12.7 92	7.2 62	3.5 69	6.3 55	20.8 86				0.1 67
BlackRock Passive US Bd Index Fund (i)	**-0.8** 60	**-0.9** 69	**-4.0** 84						**0.2** 100	
Callan Core Bond MFs										
Blmbg Aggregate	-0.8 60	-0.9 69	-4.0 85	0.8 72	0.4 86	5.6 80				-0.1 85

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: 06/30/23

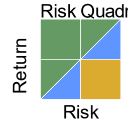
Active Equity, Stable Value, and Money Market

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	**-1.1** 73	**-4.3** 81	**5.3** 79						**0.2** 99	
Callan Real Assets MFs										
Strategic Completion Custom Index	-1.1 72	-4.3 81	5.5 78							
Northern Trust ESG Fund	**8.7** 49	**18.6** 51	**14.2** 36						**0.1** 100	
Callan Lg Cap Broad MF										
MSCI USA ESG	8.8 48	18.7 51	14.4 35	12.9 23	13.5 45	20.4 82				0.6 11
International Equity Fund	**2.4** 75	**18.3** 46	**7.4** 59	**3.8** 62	**5.9** 63	**24.1** 29		**0.1** 64	**5.3** 57	**0.1** 69
CAI Mut Fd: Non-U.S. Equity Style										
MSCI ACWI ex US Index	2.4 75	12.7 92	7.2 62	3.5 69	6.3 55	20.8 86				0.1 67
T. Rowe Price Small Cap	**5.1** 35	**10.9** 75	**9.6** 58	**7.9** 23	**11.2** 34	**25.6** 89		**0.6** 7	**5.8** 91	**0.2** 17
CAI Mut Fd: Sm Cap Broad Style										
Russell 2000 Index	5.2 33	12.3 69	10.8 53	4.2 80	8.8 73	28.6 62				0.1 78
T. Rowe Price Stable Value	**0.6** 52	**2.1** 28	**2.0** 6	**2.2** 1	**2.3** 1	**0.2** 76		**0.9** 6	**0.9** 6	**4.4** 6
Callan Stable Value CT										
FTSE 3 Mo T-Bill	1.3 1	3.7 1	1.3 78	1.6 75	1.4 83	0.8 1				0.0 77
SSgA Inst Treasury Money Market	**1.2** 35	**3.6** 37	**1.2** 39	**1.4** 18	**1.3** 14	**0.7** 28		**-2.6** 57	**0.0** 80	**-0.2** 18
Callan Money Market Funds										
FTSE 3 Mo T-Bill	1.3 6	3.7 14	1.3 6	1.6 3	1.4 3	0.8 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

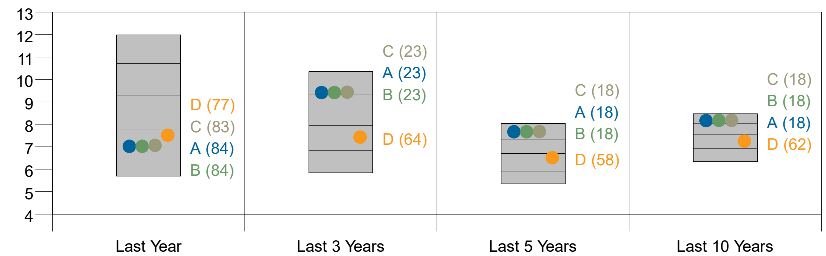
Sharpe Ratio:
- above median
- third quartile
- fourth quartile

Callan

Pension Plans

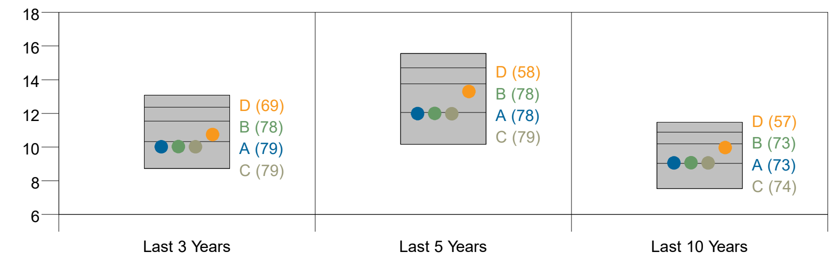
PERS, TRS, and JRS Performance Dashboard – June 30, 2023

Returns vs Callan Public Fund Sponsor Database



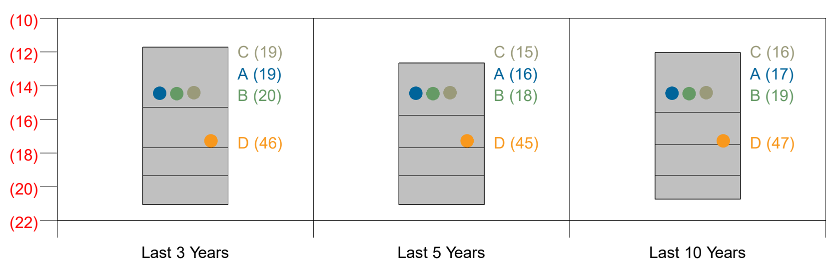
		Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		11.98	10.35	8.04	8.47
25th Percentile		10.71	9.31	7.35	8.05
Median		9.27	7.96	6.71	7.54
75th Percentile		7.76	6.85	5.88	6.93
90th Percentile		5.70	5.84	5.35	6.34
Member Count		211	209	209	196
Employees' Total Plan	A	7.03	9.42	7.68	8.17
Teachers' Total Plan	B	7.02	9.42	7.67	8.18
Judicial Total Plan	C	7.07	9.44	7.69	8.18
Policy Target	D	7.52	7.43	6.52	7.26

Standard Deviation vs Callan Public Fund Sponsor Database



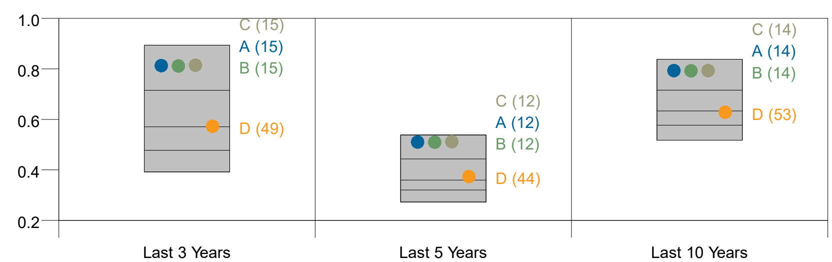
		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		13.09	15.56	11.48
25th Percentile		12.38	14.70	10.88
Median		11.55	13.76	10.19
75th Percentile		10.33	12.07	9.04
90th Percentile		8.73	10.17	7.53
Member Count		209	209	196
Employees' Total Plan	A	10.03	11.99	9.06
Teachers' Total Plan	B	10.04	12.00	9.07
Judicial Total Plan	C	10.02	11.99	9.06
Policy Target	D	10.75	13.30	9.98

Maximum Drawdown vs Callan Public Fund Sponsor Database



		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		(11.70)	(12.64)	(12.02)
25th Percentile		(15.27)	(15.76)	(15.58)
Median		(17.68)	(17.68)	(17.49)
75th Percentile		(19.34)	(19.34)	(19.33)
90th Percentile		(21.06)	(21.06)	(20.73)
Member Count		209	209	196
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)

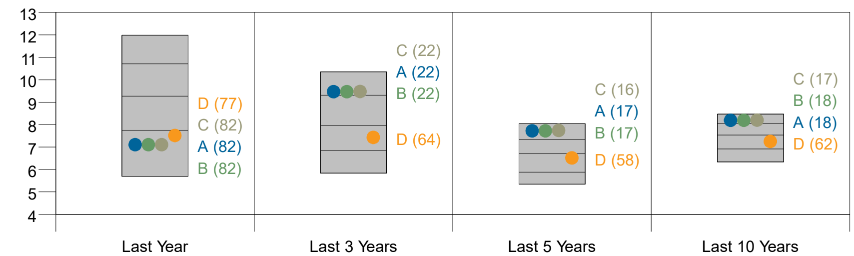
Sharpe Ratio vs Callan Public Fund Sponsor Database



		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		0.89	0.54	0.84
25th Percentile		0.72	0.44	0.72
Median		0.57	0.36	0.63
75th Percentile		0.48	0.32	0.58
90th Percentile		0.39	0.27	0.52
Member Count		209	209	196
Employees' Total Plan	A	0.81	0.51	0.79
Teachers' Total Plan	B	0.81	0.51	0.79
Judicial Total Plan	C	0.81	0.51	0.79
Policy Target	D	0.57	0.37	0.63

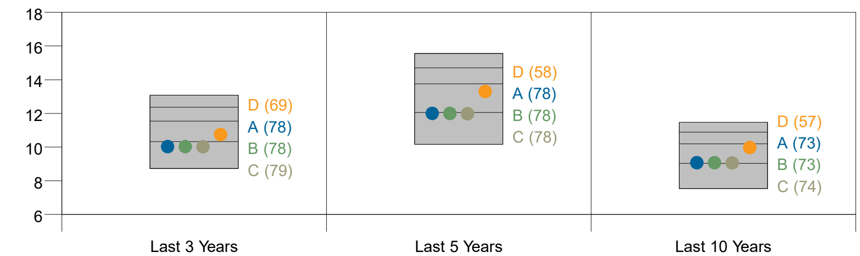
Health Care Plans Performance Dashboard – June 30, 2023

Returns vs Callan Public Fund Sponsor Database



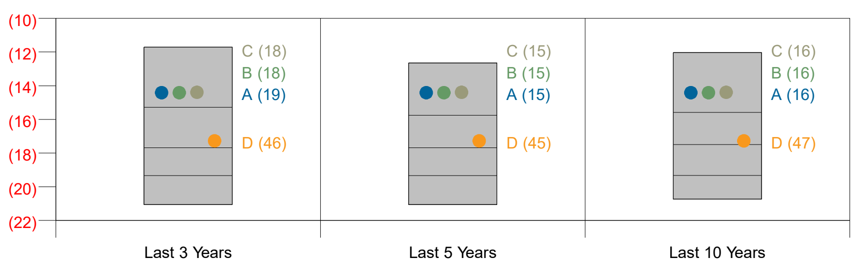
		Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		11.98	10.35	8.04	8.47
25th Percentile		10.71	9.31	7.35	8.05
Median		9.27	7.96	6.71	7.54
75th Percentile		7.76	6.85	5.88	6.93
90th Percentile		5.70	5.84	5.35	6.34
Member Count		211	209	209	196
PERS Health Plan	A	7.11	9.48	7.73	8.20
TRS Health Plan	B	7.11	9.47	7.73	8.20
JRS Health Plan	C	7.11	9.48	7.74	8.20
Policy Target	D	7.52	7.43	6.52	7.26

Standard Deviation vs Callan Public Fund Sponsor Database



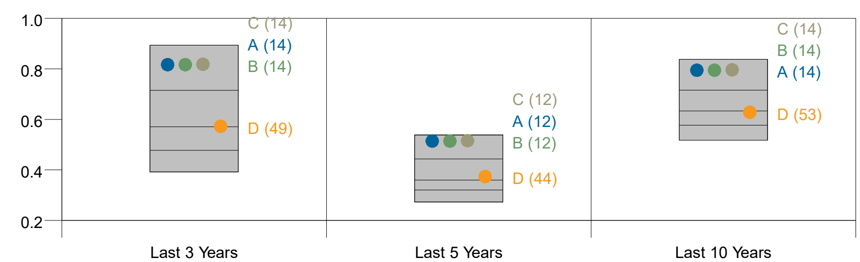
		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		13.09	15.56	11.48
25th Percentile		12.38	14.70	10.88
Median		11.55	13.76	10.19
75th Percentile		10.33	12.07	9.04
90th Percentile		8.73	10.17	7.53
Member Count		209	209	196
PERS Health Plan	A	10.03	12.01	9.07
TRS Health Plan	B	10.03	12.01	9.07
JRS Health Plan	C	10.02	11.99	9.06
Policy Target	D	10.75	13.30	9.98

Maximum Drawdown vs Callan Public Fund Sponsor Database



		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		(11.70)	(12.64)	(12.02)
25th Percentile		(15.27)	(15.76)	(15.58)
Median		(17.68)	(17.68)	(17.49)
75th Percentile		(19.34)	(19.34)	(19.33)
90th Percentile		(21.06)	(21.06)	(20.73)
Member Count		209	209	196
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)

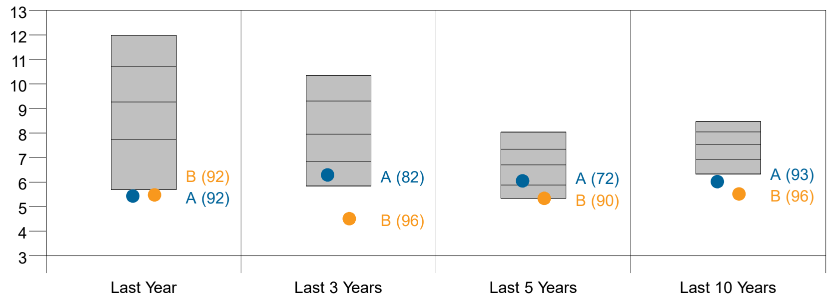
Sharpe Ratio vs Callan Public Fund Sponsor Database



		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		0.89	0.54	0.84
25th Percentile		0.72	0.44	0.72
Median		0.57	0.36	0.63
75th Percentile		0.48	0.32	0.58
90th Percentile		0.39	0.27	0.52
Member Count		209	209	196
PERS Health Plan	A	0.82	0.51	0.80
TRS Health Plan	B	0.82	0.51	0.80
JRS Health Plan	C	0.82	0.52	0.80
Policy Target	D	0.57	0.37	0.63

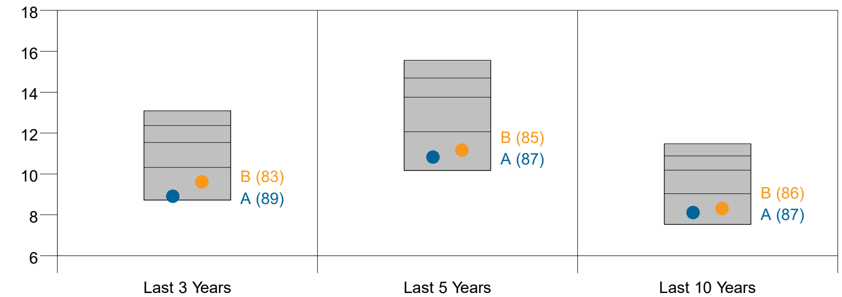
Military Plan Performance Dashboard – June 30, 2023

Returns vs Callan Public Fund Sponsor Database



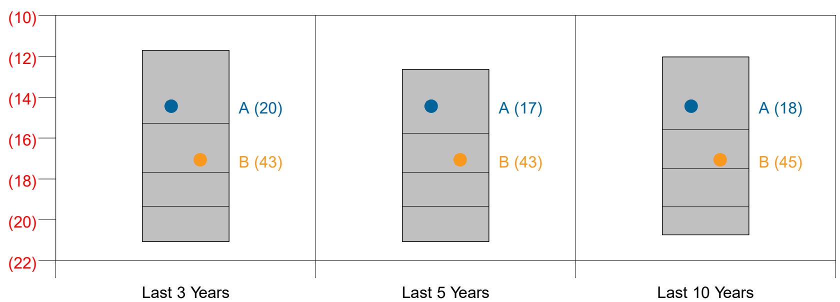
		Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		11.98	10.35	8.04	8.47
25th Percentile		10.71	9.31	7.35	8.05
Median		9.27	7.96	6.71	7.54
75th Percentile		7.76	6.85	5.88	6.93
90th Percentile		5.70	5.84	5.35	6.34
Member Count		211	209	209	196
Military Total Plan	● A	5.44	6.30	6.05	6.03
Military Policy Target	● B	5.49	4.52	5.35	5.52

Standard Deviation vs Callan Public Fund Sponsor Database



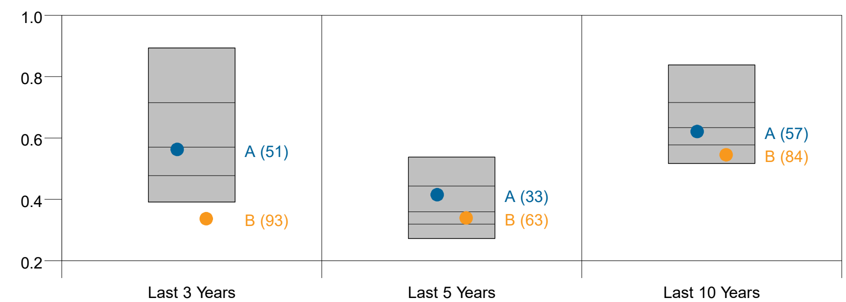
		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		13.09	15.56	11.48
25th Percentile		12.38	14.70	10.88
Median		11.55	13.76	10.19
75th Percentile		10.33	12.07	9.04
90th Percentile		8.73	10.17	7.53
Member Count		209	209	196
Military Total Plan	● A	8.92	10.83	8.11
Military Policy Target	● B	9.62	11.17	8.31

Maximum Drawdown vs Callan Public Fund Sponsor Database



		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		(11.70)	(12.64)	(12.02)
25th Percentile		(15.27)	(15.76)	(15.58)
Median		(17.68)	(17.68)	(17.49)
75th Percentile		(19.34)	(19.34)	(19.33)
90th Percentile		(21.06)	(21.06)	(20.73)
Member Count		209	209	196
Military Total Plan	● A	(14.44)	(14.44)	(14.44)
Military Policy Target	● B	(17.06)	(17.06)	(17.06)

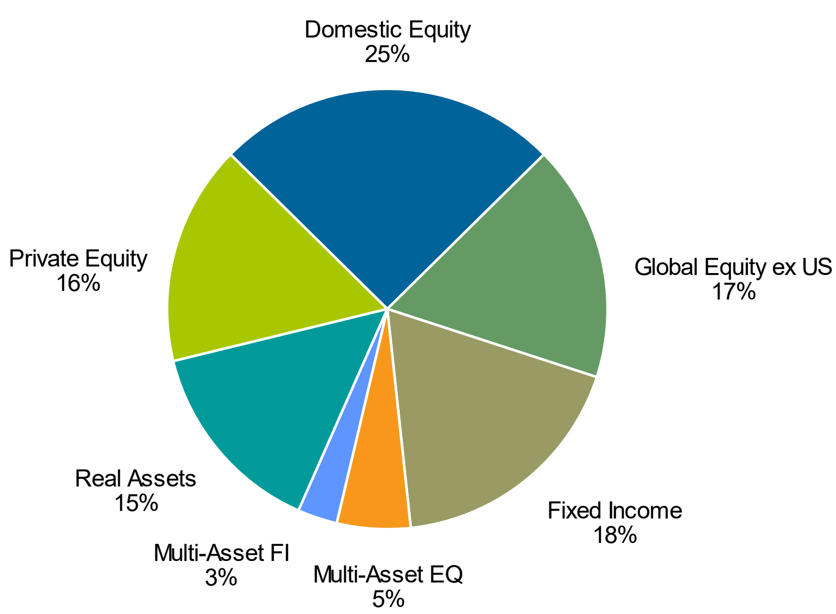
Sharpe Ratio vs Callan Public Fund Sponsor Database

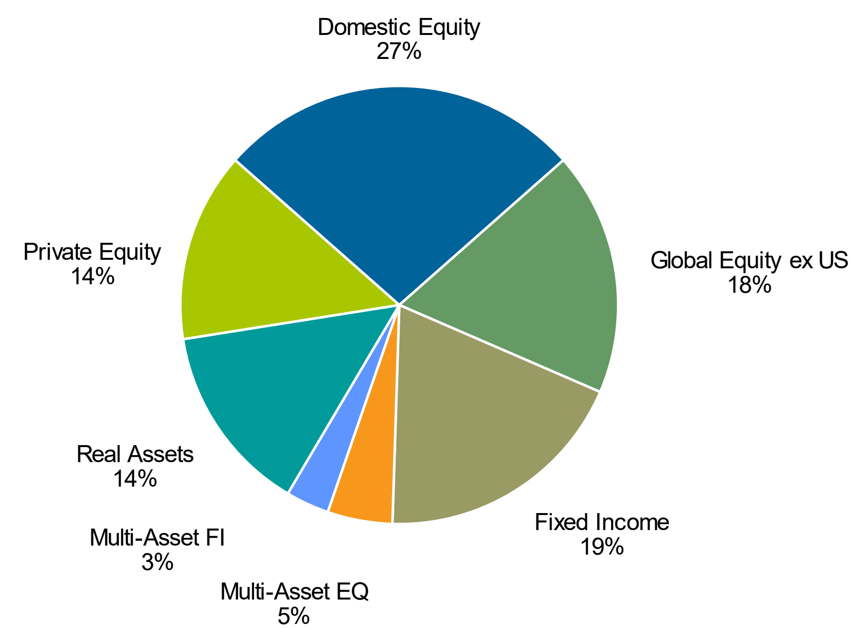


		Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile		0.89	0.54	0.84
25th Percentile		0.72	0.44	0.72
Median		0.57	0.36	0.63
75th Percentile		0.48	0.32	0.58
90th Percentile		0.39	0.27	0.52
Member Count		209	209	196
Military Total Plan	● A	0.56	0.42	0.62
Military Policy Target	● B	0.34	0.34	0.55

Asset Allocation – Public Employees' Retirement System

Quarter Ending June 30, 2023





Asset Class	$000s Actual	Weight Actual	Target	Percent Difference	$000s Difference
Domestic Equity	2,753,739	25.2%	27.0%	(1.8%)	(202,531)
Global Equity ex US	1,909,853	17.4%	18.0%	(0.6%)	(60,994)
Fixed Income	2,004,881	18.3%	19.0%	(0.7%)	(75,457)
Multi-Asset EQ	586,075	5.4%	4.8%	0.6%	60,516
Multi-Asset FI	315,903	2.9%	3.2%	(0.3%)	(34,470)
Real Assets	1,599,490	14.6%	14.0%	0.6%	66,609
Private Equity	1,779,209	16.2%	14.0%	2.2%	246,328
Total	10,949,150	100.0%	100.0%		

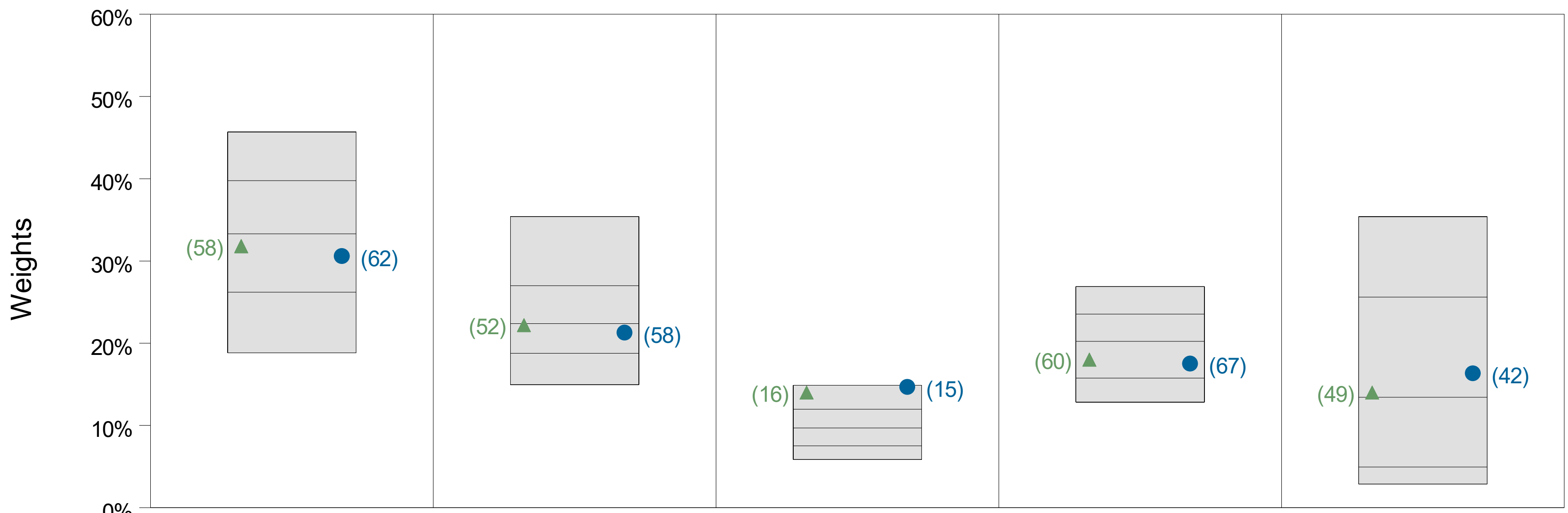
PERS is used as illustrative throughout the presentation.

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	45.69	35.40	14.88	26.88	35.38
25th Percentile	39.77	26.99	11.96	23.53	25.60
Median	33.30	22.38	9.70	20.23	13.43
75th Percentile	26.21	18.78	7.53	15.76	4.95
90th Percentile	18.84	14.95	5.86	12.84	2.87
Fund ●	30.50	21.20	14.61	17.44	16.25
Target ▲	31.80	22.20	14.00	18.00	14.00

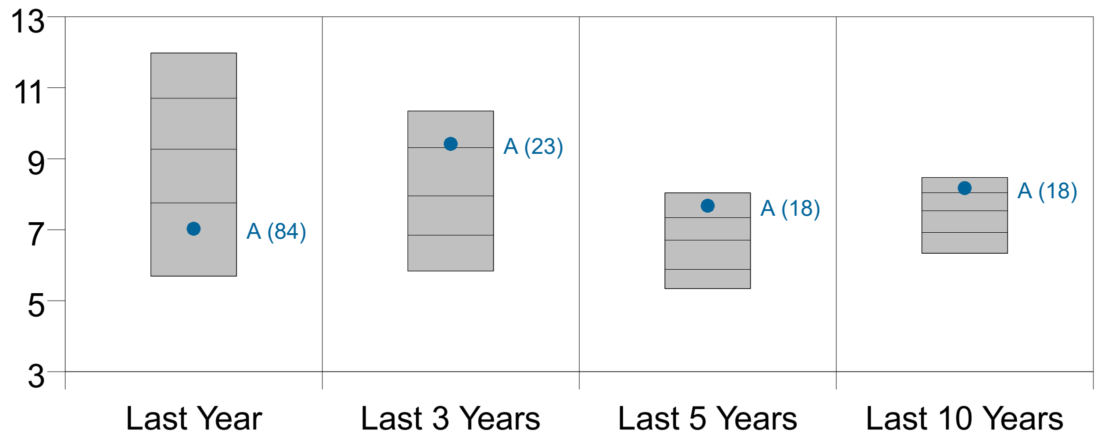
- Asset class allocations near targets after the asset allocation update and associated rebalancing.
- Weightings to real assets and alternatives are relatively high in comparison to other public funds.

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 June 30, 2023
Group: Callan Public Fund Sponsor Database



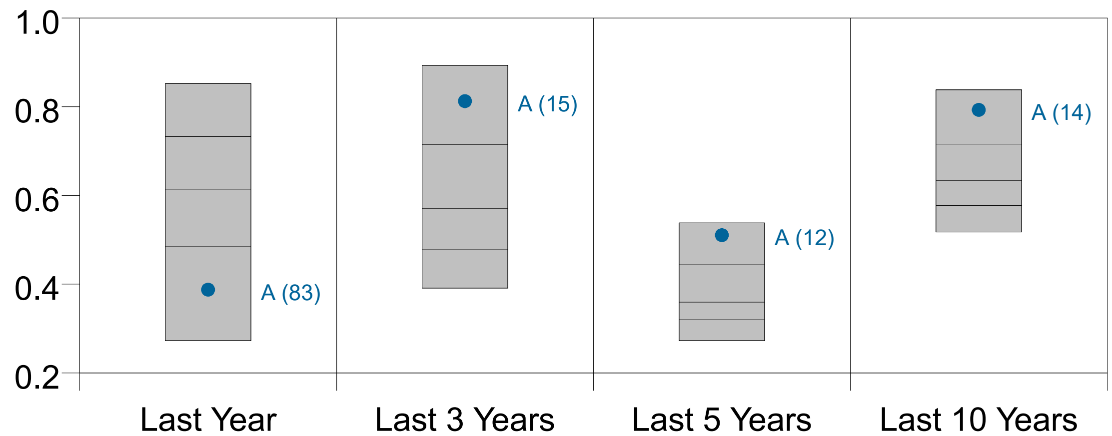
	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	11.98	10.35	8.04	8.47
25th Percentile	10.71	9.31	7.35	8.05
Median	9.27	7.96	6.71	7.54
75th Percentile	7.76	6.85	5.88	6.93
90th Percentile	5.70	5.84	5.35	6.34
Member Count	211	209	209	196
PERS - Total Fund ● A	7.03	9.42	7.68	8.17

- 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 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 June 30, 2023
Group: Callan Public Fund Sponsor Database



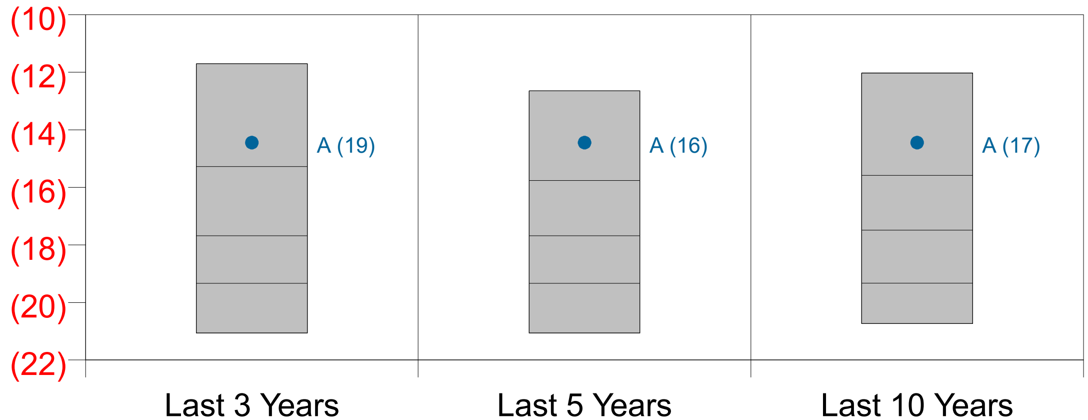
	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	0.85	0.89	0.54	0.84
25th Percentile	0.73	0.72	0.44	0.72
Median	0.61	0.57	0.36	0.63
75th Percentile	0.48	0.48	0.32	0.58
90th Percentile	0.27	0.39	0.27	0.52
Member Count	211	209	209	196
PERS - Total Fund ● A	0.39	0.81	0.51	0.79

- "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 June 30, 2023
Group: Callan Public Fund Sponsor Database



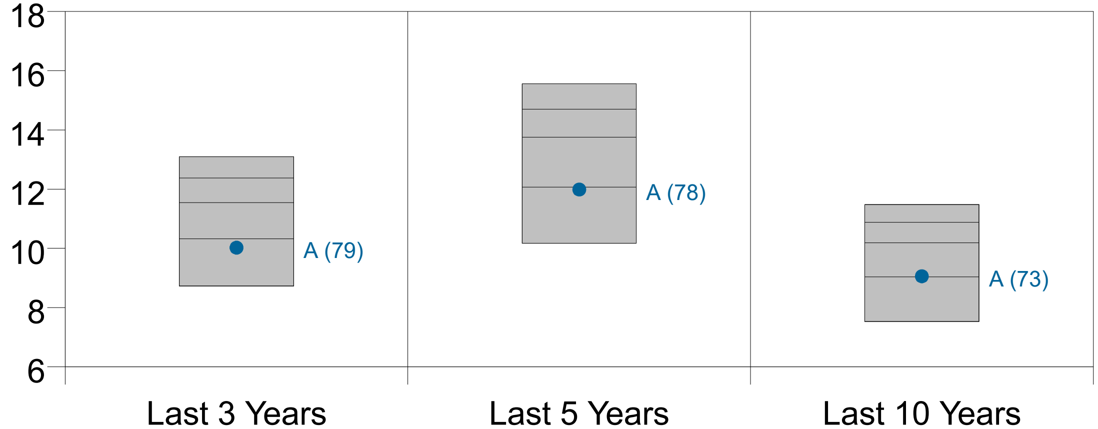
	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	(11.70)	(12.64)	(12.02)
25th Percentile	(15.27)	(15.76)	(15.58)
Median	(17.68)	(17.68)	(17.49)
75th Percentile	(19.34)	(19.34)	(19.33)
90th Percentile	(21.06)	(21.06)	(20.73)
Member Count	209	209	196
PERS - Total Fund ● A	(14.44)	(14.44)	(14.44)

- "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 June 30, 2023
Group: Callan Public Fund Sponsor Database



	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	13.09	15.56	11.48
25th Percentile	12.38	14.70	10.88
Median	11.55	13.76	10.19
75th Percentile	10.33	12.07	9.04
90th Percentile	8.73	10.17	7.53
Member Count	209	209	196
PERS - Total Fund ● A	10.03	11.99	9.06

- “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 – 2nd Quarter 2023 & Trailing Year

Relative Attribution Effects for Quarter ended June 30, 2023

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	25%	27%	7.26%	8.39%	(0.28%)	(0.09%)	(0.37%)
Fixed-Income	19%	19%	(0.36%)	(0.74%)	0.07%	0.02%	0.09%
Multi-Asset	8%	8%	0.89%	3.19%	(0.19%)	(0.00%)	(0.19%)
Real Assets	15%	14%	1.02%	0.29%	0.11%	(0.02%)	0.08%
Global Equity ex US	17%	18%	2.74%	2.38%	0.06%	0.01%	0.07%
Private Equity	16%	14%	2.88%	6.23%	(0.54%)	0.05%	(0.49%)
Total			**2.91% =**	**3.72% +**	**(0.77%) +**	**(0.04%)**	**(0.81%)**

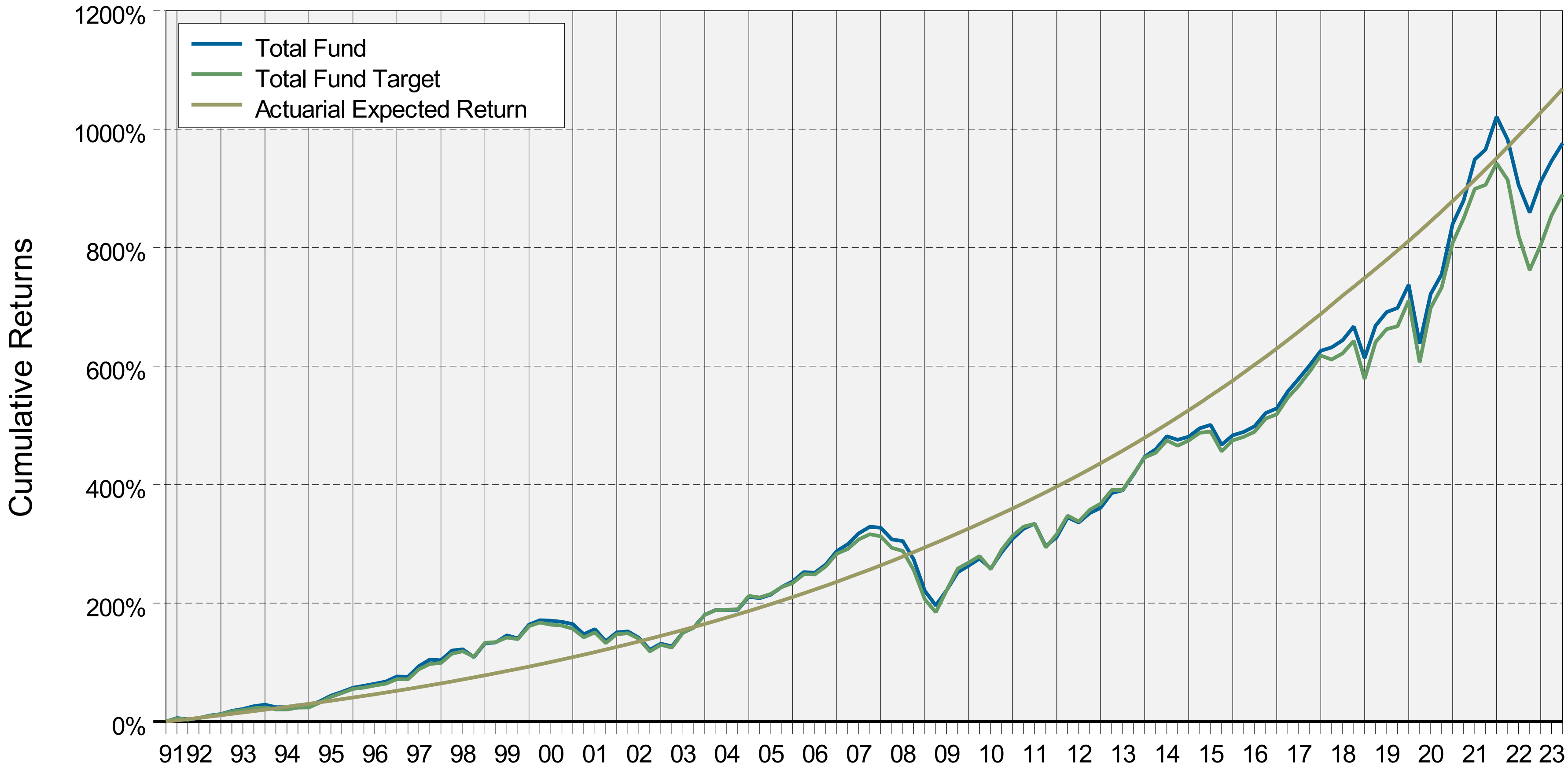
One Year Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	25%	27%	17.77%	18.95%	(0.28%)	(0.25%)	(0.53%)
Fixed-Income	19%	19%	0.48%	(0.71%)	0.25%	0.08%	0.33%
Multi-Asset	8%	8%	4.09%	9.14%	(0.45%)	(0.00%)	(0.45%)
Real Assets	15%	14%	2.37%	3.41%	(0.19%)	(0.09%)	(0.27%)
Global Equity ex US	17%	18%	15.14%	12.47%	0.44%	(0.10%)	0.34%
Private Equity	17%	14%	(3.29%)	(6.83%)	0.61%	(0.51%)	0.10%
Total			**7.03% =**	**7.53% +**	**0.37% +**	**(0.87%)**	**(0.50%)**

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 06/30/2023

Cumulative Returns Actual vs Target

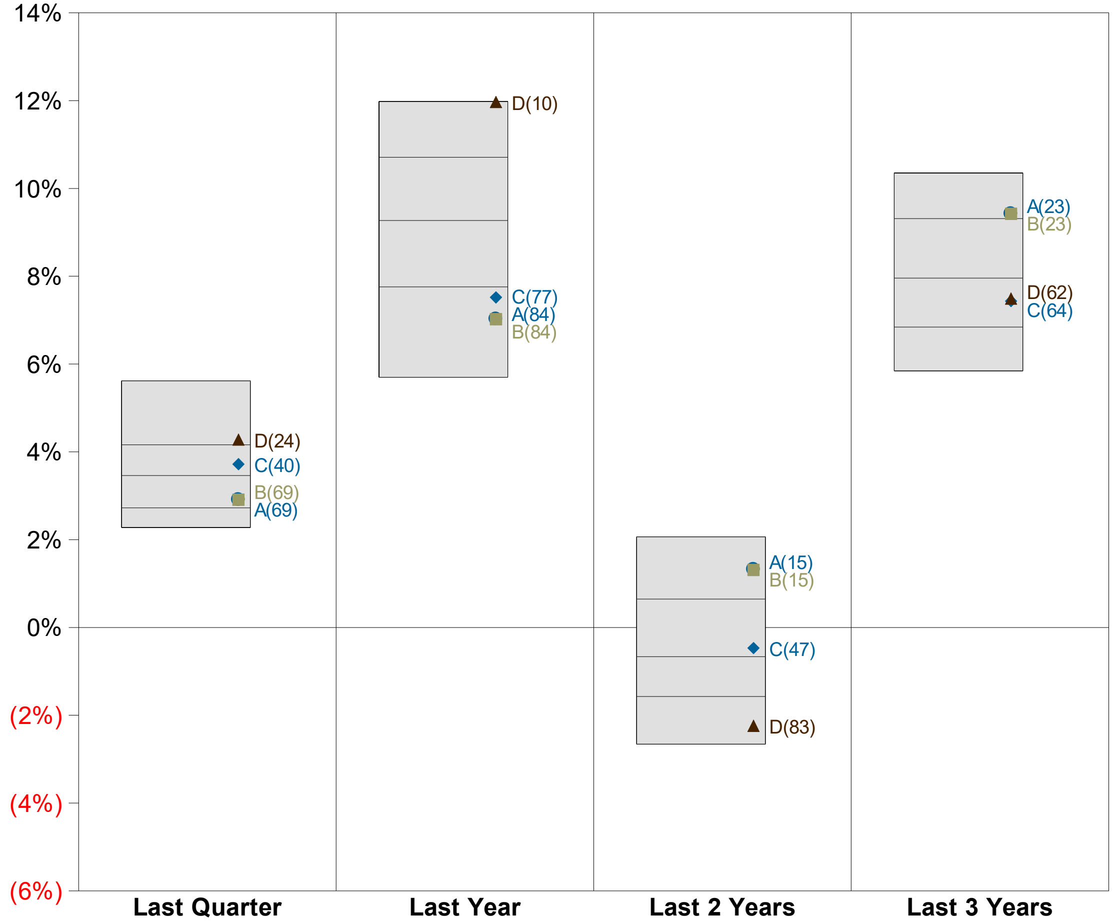


- Each Fund has two targets: the asset allocation policy return and the actuarial return.
- Total Fund returns continue to closely track the strategic allocation target.
- Market correction setbacks in 3Q15, 4Q18, 1Q20, and 2022 have hindered the Total Fund's progress toward closing the gap versus the 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-Present 7.25%

Annualized Total Fund Returns as of 06/30/23

Callan Public Fund Database



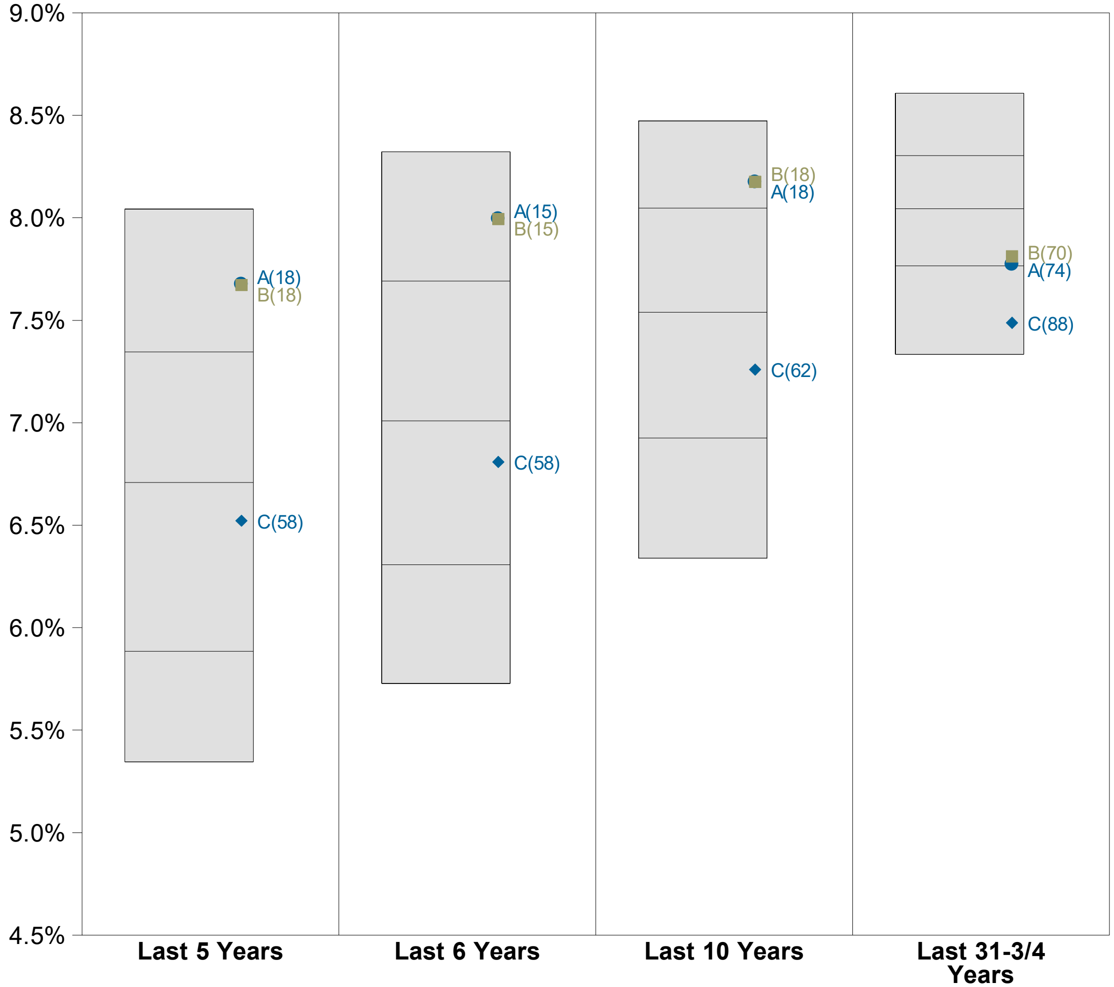
	Last Quarter	Last Year	Last 2 Years	Last 3 Years
10th Percentile	5.62	11.98	2.06	10.35
25th Percentile	4.16	10.71	0.65	9.31
Median	3.46	9.27	(0.66)	7.96
75th Percentile	2.73	7.76	(1.57)	6.85
90th Percentile	2.28	5.70	(2.66)	5.84
PERS Total Plan ● A	2.91	7.03	1.32	9.42
TRS Total Plan ■ B	2.91	7.02	1.31	9.42
Target Index ◆ C	3.72	7.52	(0.47)	7.43
Public Market Proxy ▲ D	4.28	11.97	(2.24)	7.49

- PERS and TRS have outperformed their target for the last 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 06/30/23

Callan Public Fund Database

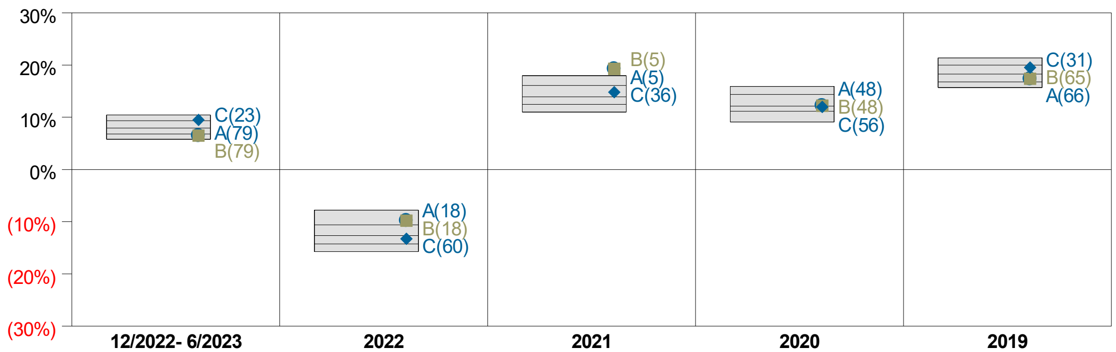


	Last 5 Years	Last 6 Years	Last 10 Years	Last 31-3/4 Years
10th Percentile	8.04	8.32	8.47	8.61
25th Percentile	7.35	7.69	8.05	8.30
Median	6.71	7.01	7.54	8.04
75th Percentile	5.88	6.31	6.93	7.77
90th Percentile	5.35	5.73	6.34	7.33
PERS Total Plan ● A	7.68	8.00	8.17	7.77
TRS Total Plan ■ B	7.67	7.99	8.18	7.81
Target Index ◆ C	6.52	6.81	7.26	7.49

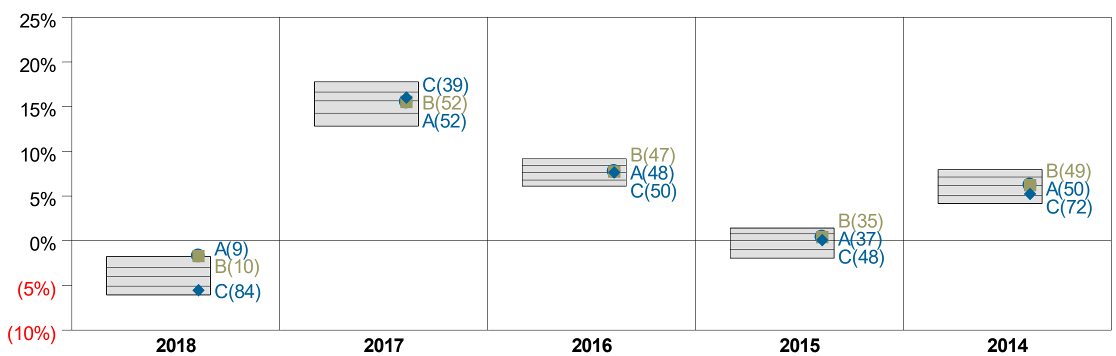
- Five-, six-, and ten-year performance is above target and median.
- 31-year and three quarter return for PERS beat the target by 28 basis points.

Calendar Period Total Fund Performance

Callan Public Fund Database



	12/2022- 6/2023	2022	2021	2020	2019
10th Percentile	10.43	(7.79)	17.97	15.91	21.39
25th Percentile	9.33	(10.61)	16.11	14.35	20.00
Median	7.92	(12.68)	13.92	12.13	18.27
75th Percentile	6.80	(14.24)	12.46	11.15	16.76
90th Percentile	5.75	(15.73)	11.00	9.09	15.69
PERS Total Plan ● A	6.48	(9.80)	19.27	12.23	17.34
TRS Total Plan ■ B	6.48	(9.83)	19.28	12.21	17.36
Target Index ◆ C	9.48	(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	7.64	0.02	6.19
75th Percentile	(5.07)	14.27	6.80	(0.94)	5.09
90th Percentile	(6.05)	12.83	6.11	(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 seven 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.

Pension Plan – Asset Class Performance

Total Domestic Equity through 06/30/23

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		8.46	19.53	15.26	11.58	12.36	12.79
25th Percentile		8.05	18.92	14.70	11.06	11.82	12.22
Median		7.69	18.39	14.07	10.67	11.37	11.94
75th Percentile		7.09	17.43	13.31	9.77	10.44	11.06
90th Percentile		6.28	14.94	12.16	8.95	9.82	10.17
Domestic Equity Pool	● A	7.26	17.77	14.04	10.53	11.30	11.76
Russell 1000 Index	■ B	8.58	19.36	14.09	11.92	12.35	12.64
Russell 3000 Index	▲	8.39	18.95	13.89	11.39	11.95	12.34

Domestic Equity Component Returns

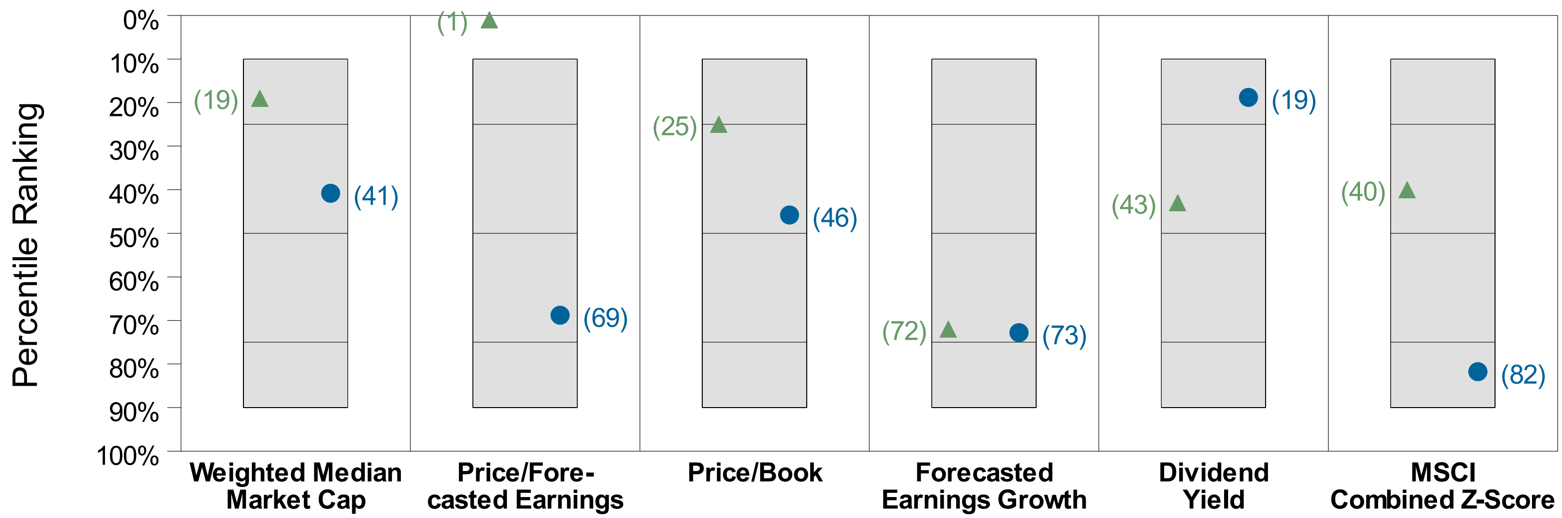
Returns for Periods Ended June 30, 2023

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Total Dom Equity Pool	7.26%	17.77%	14.04%	10.53%	11.76%
Russell 3000 Index	8.39%	18.95%	13.89%	11.39%	12.34%
Large Cap Managers	7.65%	18.54%	13.90%	11.11%	12.19%
Russell 1000 Index	8.58%	19.36%	14.09%	11.92%	12.64%
Small Cap Managers	3.43%	9.84%	15.02%	5.86%	9.46%
Russell 2000 Index	5.21%	12.31%	10.82%	4.21%	8.26%

- The large cap composite trailed its benchmark (the Russell 1000 Index) over all periods shown.
- The small cap composite underperformed its benchmark (the Russell 2000 Index) over the short-term (last quarter and year) and outperformed over the last 3-, 5-, and 10-year periods.

Domestic Equity Portfolio Characteristics

Portfolio Characteristics Percentile Rankings
Rankings Against Public Fund - Domestic Equity
as of June 30, 2023

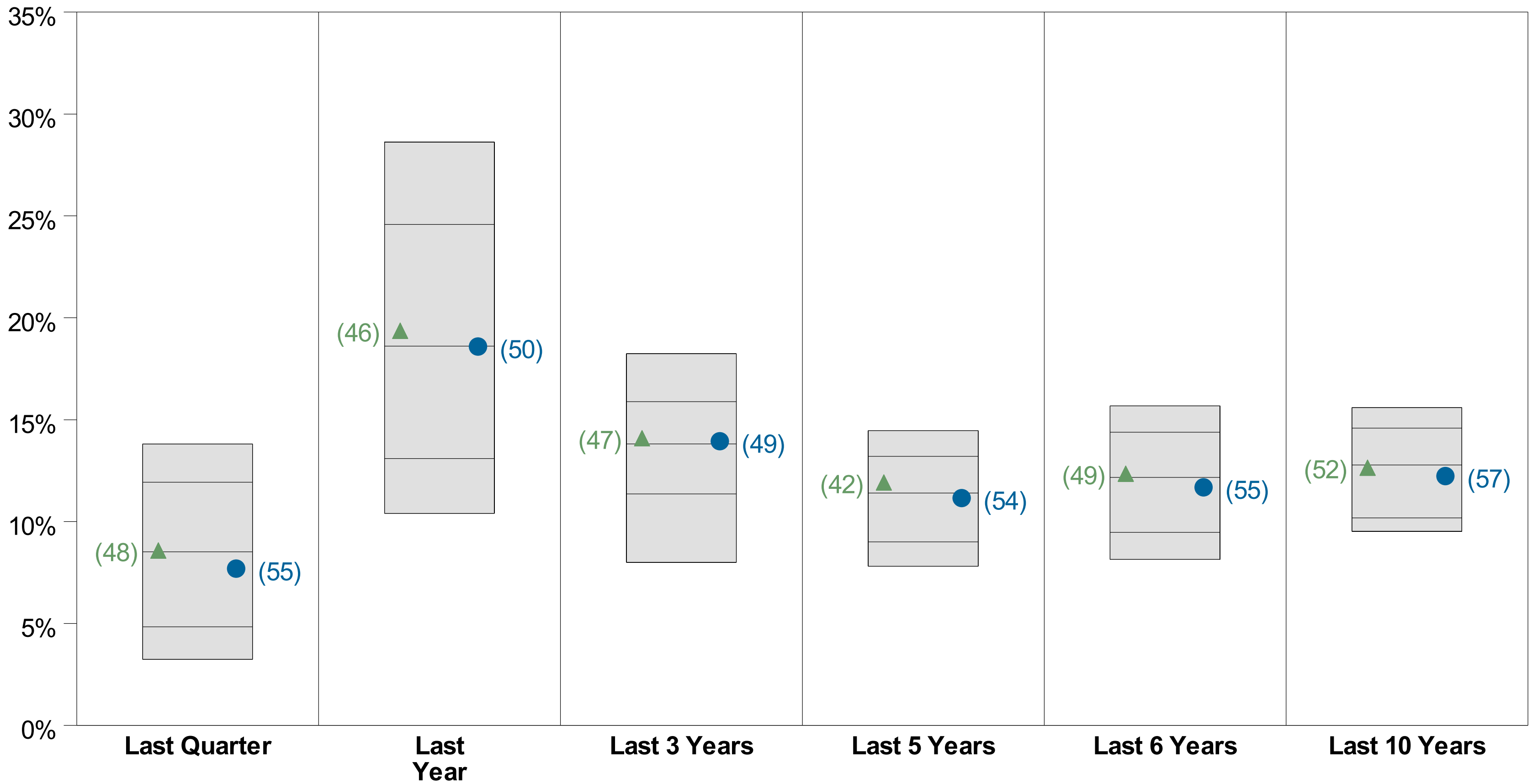


	Weighted Median Market Cap	Price/Fore-casted Earnings	Price/Book	Forecasted Earnings Growth	Dividend Yield	MSCI Combined Z-Score
10th Percentile	194.95	19.33	3.89	12.34	1.61	0.06
25th Percentile	113.52	19.19	3.55	11.87	1.55	0.01
Median	82.42	18.24	3.16	11.17	1.48	(0.02)
75th Percentile	49.04	17.51	2.85	10.32	1.40	(0.05)
90th Percentile	37.17	15.91	2.55	9.63	1.33	(0.20)
Domestic Equity Pool ●	90.56	17.94	3.20	10.42	1.56	(0.09)
Russell 3000 Index ▲	128.58	19.60	3.55	10.53	1.51	(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.

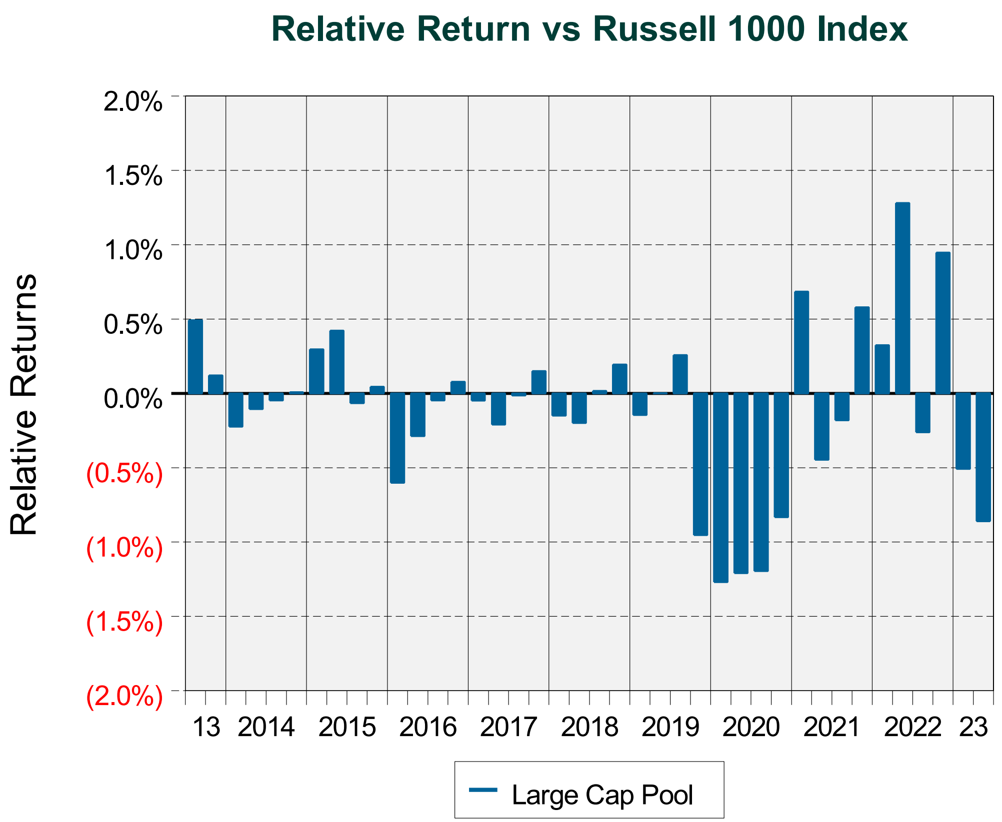
Large Cap Domestic Equity through 06/30/23

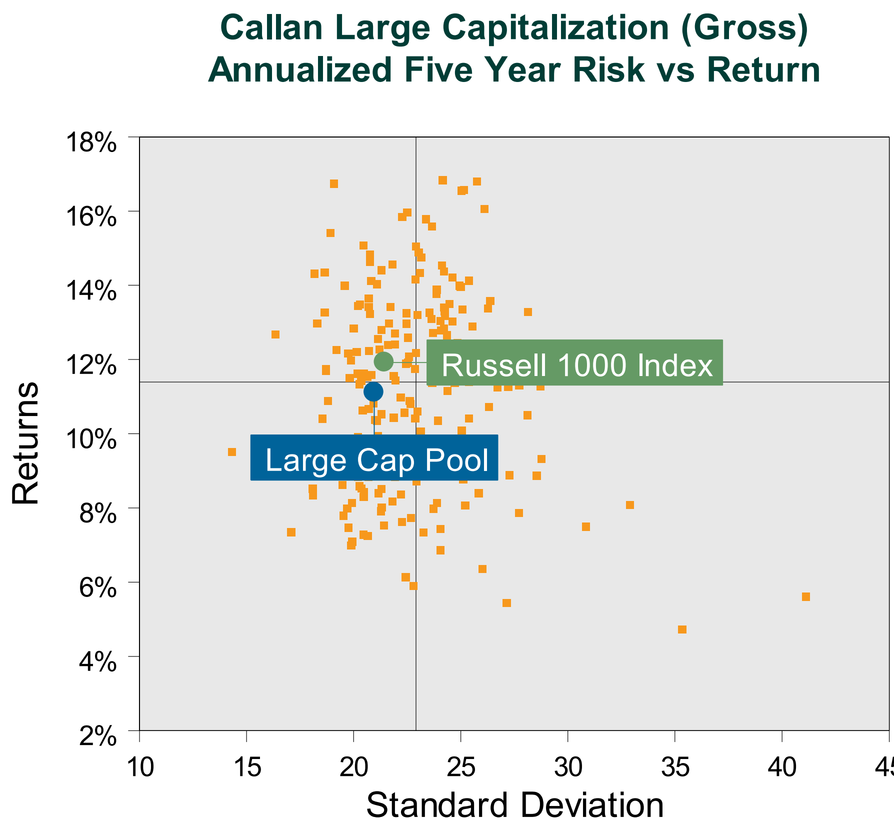
Performance vs Callan Large Capitalization (Gross)



	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	13.82	28.63	18.24	14.47	15.68	15.60
25th Percentile	11.94	24.58	15.89	13.20	14.38	14.59
Median	8.51	18.61	13.81	11.40	12.16	12.78
75th Percentile	4.84	13.09	11.36	9.00	9.47	10.18
90th Percentile	3.24	10.40	8.00	7.80	8.14	9.52
Large Cap Pool ●	7.65	18.54	13.90	11.11	11.64	12.19
Russell 1000 Index ▲	8.58	19.36	14.09	11.92	12.35	12.64

Large Cap Domestic Equity as of 06/30/23

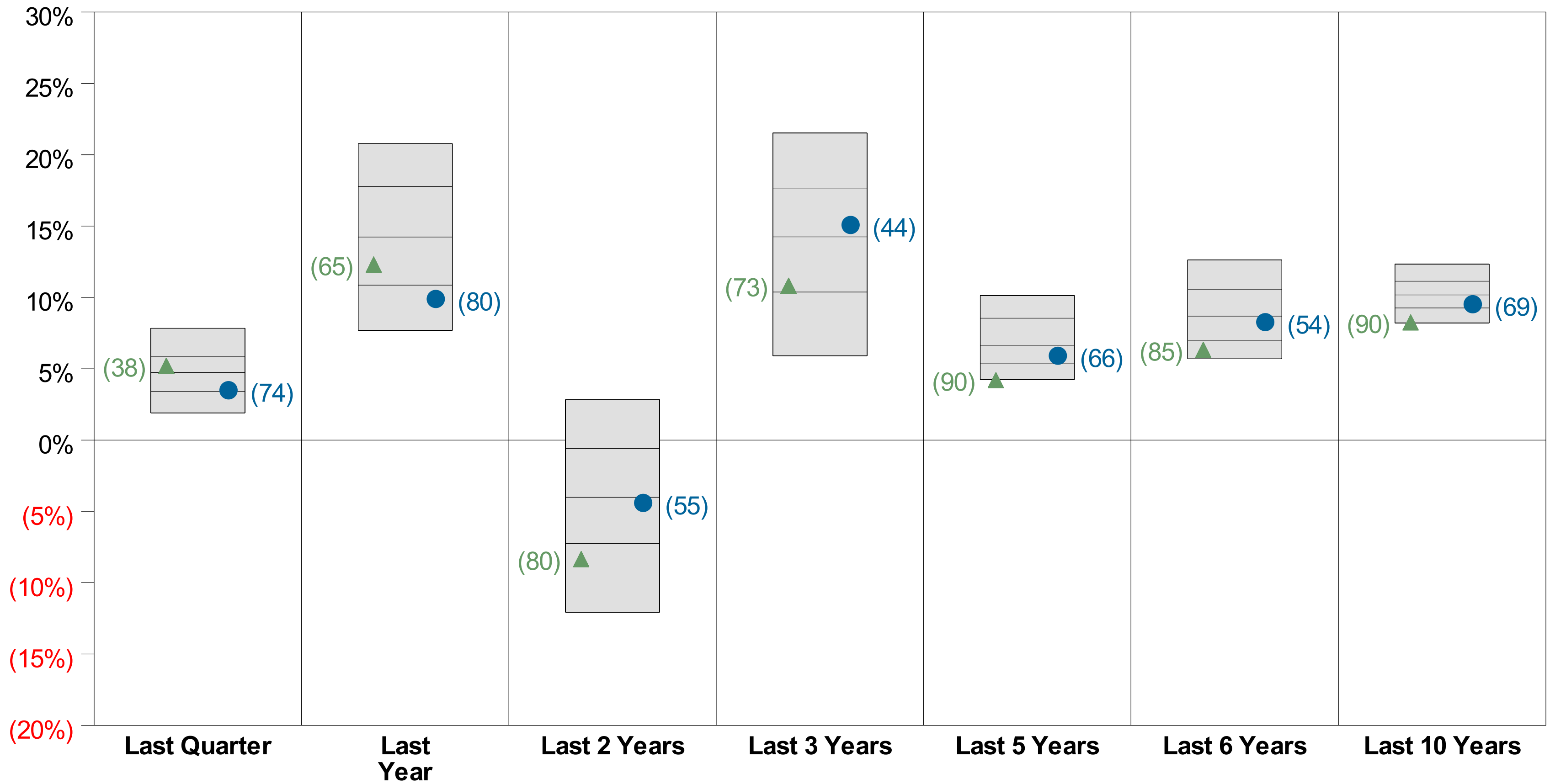




- Large Cap Domestic Equity returns underperformed the Russell 1000 index by 93bps in the second quarter of 2023.
- Long-term performance exhibits market-like returns with similar risk.
- Underperformance vs. the Russell 1000 Index in 4Q19 through 4Q20 was driven by Scientific Beta, which trailed the 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.

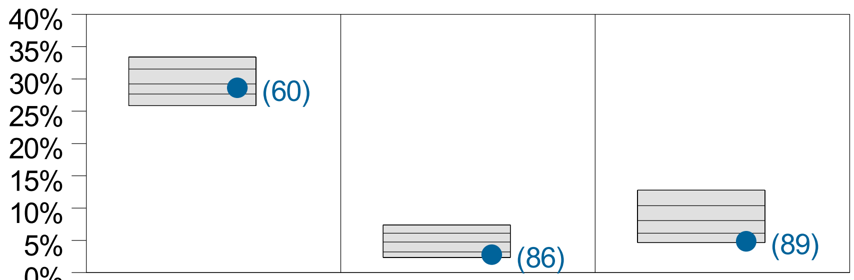
Small Cap Domestic Equity through 06/30/23

Performance vs Callan Small Capitalization (Gross)



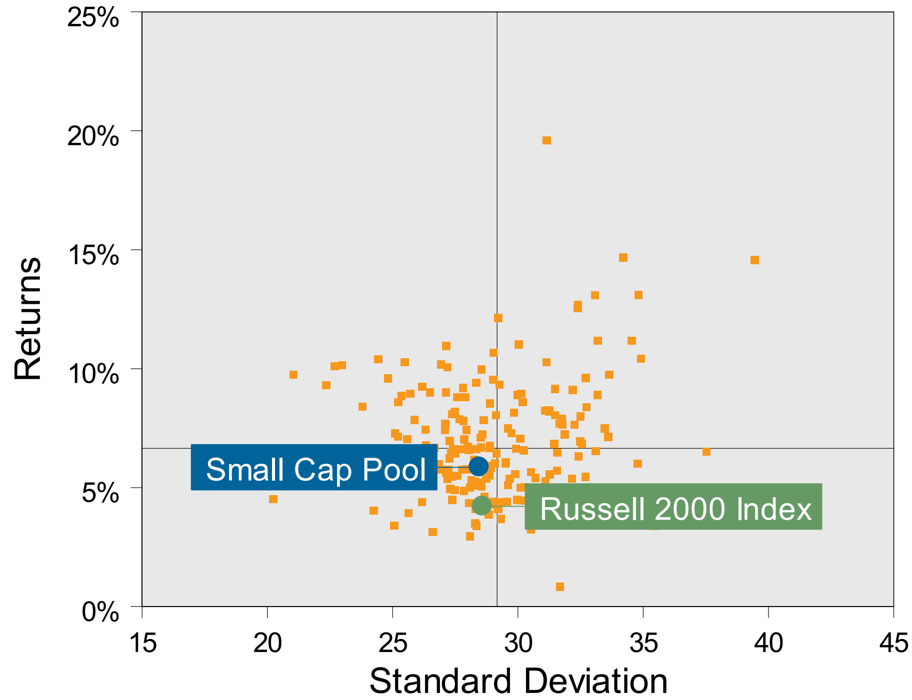
	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	7.83	20.79	2.84	21.53	10.14	12.63	12.34
25th Percentile	5.84	17.77	(0.58)	17.67	8.54	10.54	11.14
Median	4.73	14.23	(4.00)	14.24	6.65	8.69	10.17
75th Percentile	3.41	10.86	(7.25)	10.38	5.34	6.99	9.26
90th Percentile	1.91	7.69	(12.07)	5.91	4.23	5.70	8.20
Small Cap Pool ●	3.43	9.84	(4.46)	15.02	5.86	8.22	9.46
Russell 2000 Index ▲	5.21	12.31	(8.34)	10.82	4.21	6.32	8.26

Small Cap Domestic Equity through 06/30/23



	Standard Deviation	Downside Risk	Tracking Error
10th Percentile	33.39	7.41	12.76
25th Percentile	31.52	6.11	10.37
Median	29.22	4.75	8.05
75th Percentile	27.67	3.21	6.09
90th Percentile	25.86	2.36	4.66
Small Cap Equity Pool ●	28.47	2.66	4.72

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 period, the S&P Small Cap 600 Index has outperformed the Russell 2000 benchmark with similar risk.

Global Equity ex-US through 06/30/23

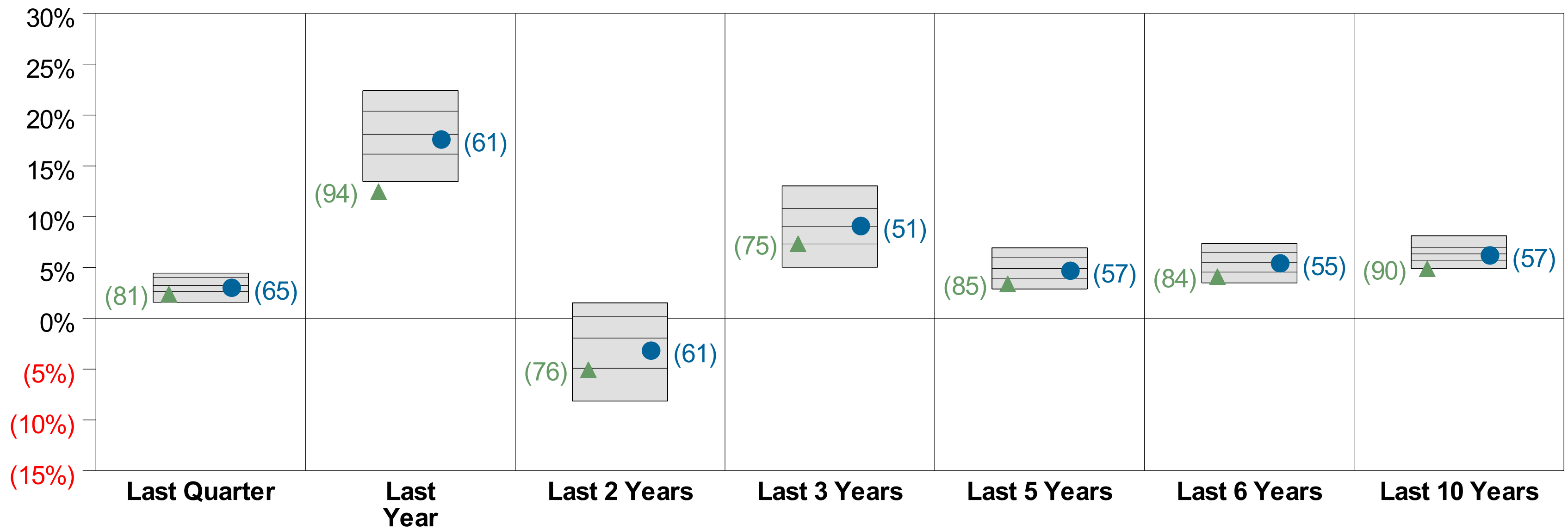
Performance vs Public Fund - International Equity (Gross)

	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	3.25	17.79	(1.58)	10.24	5.75	6.01	6.90
25th Percentile	3.01	16.04	(3.13)	9.31	4.98	5.46	6.32
Median	2.65	14.50	(4.57)	7.80	4.16	4.84	5.79
75th Percentile	2.16	12.42	(5.93)	6.47	3.76	4.43	5.38
90th Percentile	1.82	9.33	(7.28)	5.17	2.69	3.54	5.02
Global Equity ex-US ● A	2.74	15.11	(4.59)	8.03	4.04	4.67	5.54
MSCI EAFE Index ■ B	2.95	18.77	(1.17)	8.93	4.39	4.79	5.41
Int'l Equity Target ▲	2.38	12.47	(5.06)	7.33	3.38	4.10	4.73

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

International Equity ex Emerging Markets through 06/30/23

Performance vs Callan Non-US Equity (Gross)



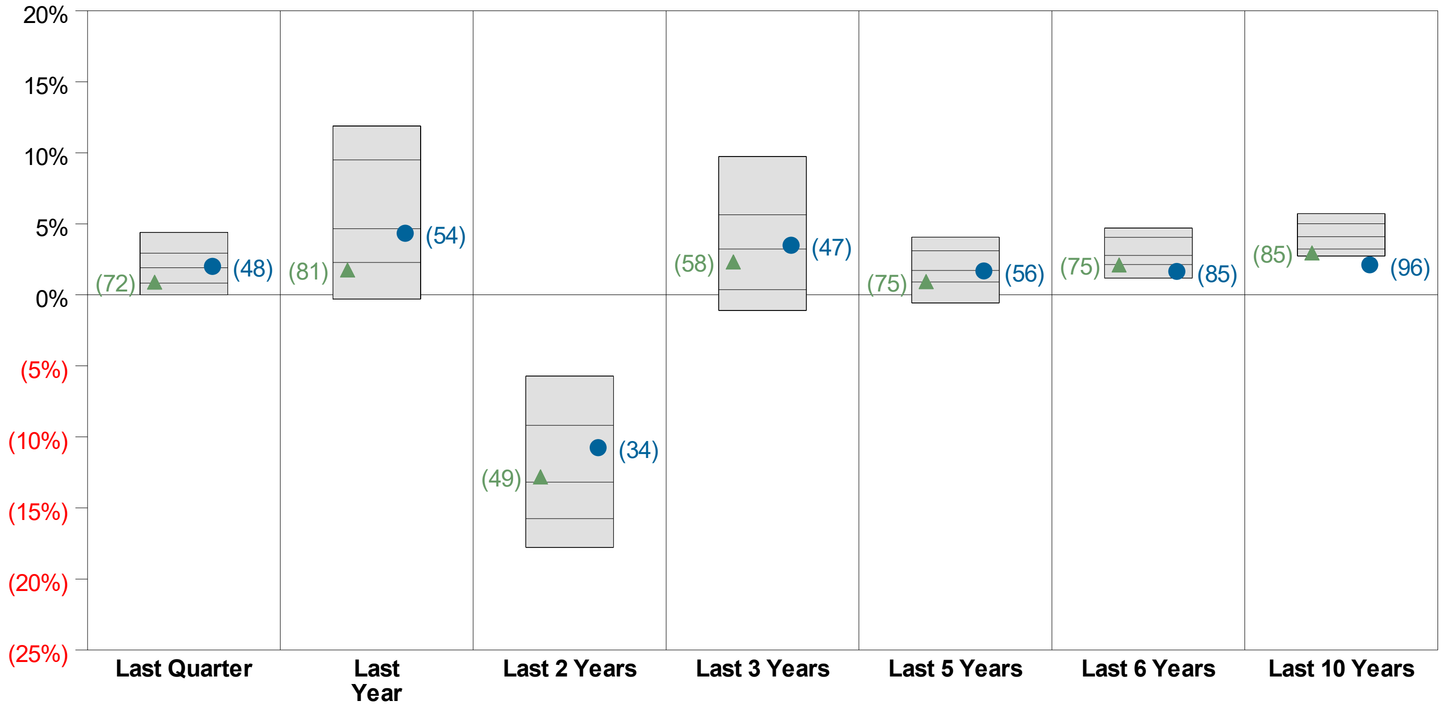
	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 6 Years	Last 10 Years
10th Percentile	4.45	22.40	1.51	13.03	6.93	7.39	8.11
25th Percentile	4.03	20.37	0.19	10.81	5.96	6.47	6.97
Median	3.21	18.10	(1.96)	9.01	4.90	5.47	6.35
75th Percentile	2.61	16.16	(4.92)	7.32	3.93	4.54	5.71
90th Percentile	1.57	13.46	(8.15)	5.02	2.89	3.48	4.91
Int'l Equity Pool (ex Emerging. Mkt) ●	2.90	17.50	(3.27)	8.99	4.59	5.32	6.11
MSCI ACWI xUS IMI ▲	2.38	12.47	(5.06)	7.33	3.38	4.10	4.88

International Equity ex Emerging Markets through 06/30/23

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Int'l Equity Pool (ex Emerging Market)	**2.90%**	**17.50%**	**8.99%**	**4.59%**	**6.11%**
Arrowstreet ACWI ex -US	4.46%	19.44%	14.22%	9.12%	-
Baillie Gifford ACWI ex US	0.88%	14.97%	1.60%	3.61%	-
Brandes Investment	4.89%	24.95%	15.77%	4.85%	6.43%
Capital Guardian	2.22%	18.11%	4.32%	4.99%	6.72%
L&G Sci Beta Dev ex US	2.38%	13.83%	9.19%	-	-
SSgA World ex US IMI	2.79%	16.47%	8.97%	-	-
MSCI EAFE Index	2.95%	18.77%	8.93%	4.39%	5.41%
MSCI ACWI ex-US IMI Index	2.38%	12.47%	7.33%	3.38%	4.88%

Emerging Markets through 06/30/23

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	4.40	11.88	(5.71)	9.73	4.06	4.70	5.72
25th Percentile	2.94	9.50	(9.18)	5.64	3.10	4.04	5.01
Median	1.91	4.66	(13.18)	3.22	1.72	2.77	4.09
75th Percentile	0.82	2.29	(15.75)	0.36	0.90	2.13	3.23
90th Percentile	0.00	(0.29)	(17.79)	(1.10)	(0.56)	1.18	2.74
Emerging Markets Pool ●	1.95	4.28	(10.81)	3.44	1.63	1.60	2.06
MSCI EM ▲	0.90	1.75	(12.81)	2.32	0.93	2.11	2.95

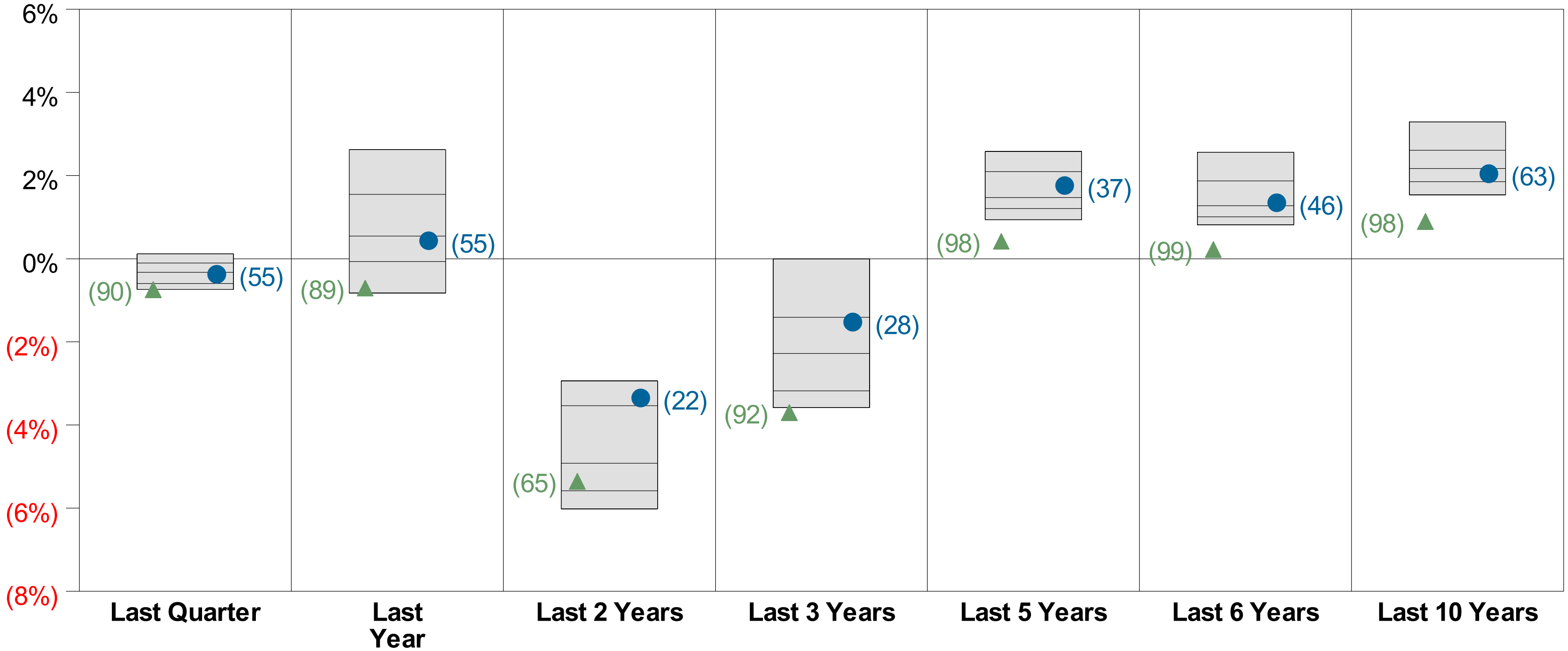
- The Emerging Markets Pool was restructured in 4Q 2019 to be a blend of passive and smart beta investments.
- The restructured Pool found its footing in 2021 and outperformed the benchmark by 2.00% over the last two years. For the most recent quarter, the Emerging Markets Pool surpassed its benchmark by 0.90% and ranks above median.

Emerging Markets Pool through 06/30/23

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Emerging Markets Pool	**1.95%**	**4.28%**	**3.44%**	**1.63%**	**2.06%**
SSgA Emerging Markets	0.79%	1.57%	2.21%	-	-
L&G SciBeta EM	4.39%	10.27%	6.20%	-	-
MSCI EM	0.90%	1.75%	2.32%	0.93%	2.95%

Total Fixed Income as of 06/30/23

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	0.12	2.62	(2.93)	(0.00)	2.58	2.56	3.29
25th Percentile	(0.10)	1.55	(3.54)	(1.41)	2.09	1.87	2.61
Median	(0.33)	0.54	(4.92)	(2.28)	1.47	1.27	2.17
75th Percentile	(0.59)	(0.07)	(5.58)	(3.18)	1.21	1.01	1.86
90th Percentile	(0.74)	(0.83)	(6.02)	(3.58)	0.94	0.82	1.54
Total Fixed Income Pool ●	(0.40)	0.41	(3.37)	(1.55)	1.74	1.32	2.02
Fixed Income Target ▲	(0.74)	(0.71)	(5.35)	(3.70)	0.42	0.22	0.90

- The Total Fixed Income Pool portfolio 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 06/30/23

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Fixed Income	**(0.40%)**	**0.41%**	**(1.55%)**	**1.74%**	**2.02%**
Fixed Income Target	(0.74%)	(0.71%)	(3.70%)	0.42%	0.90%
Blmbg Treasury Intmdt	(1.15%)	(1.02%)	(2.88%)	0.82%	0.93%
ARMB US Aggregate	(0.63%)	(0.19%)	(3.62%)	-	-
Opportunistic Fixed Income	**(0.03%)**	**2.04%**	**0.64%**	**2.01%**	**3.67%**
FIAM Tactical Bond	(0.07%)	3.45%	0.23%	3.09%	-
Blmbg Aggregate	(0.84%)	(0.94%)	(3.96%)	0.77%	1.52%
FIAM REHI	(0.01%)	(3.80%)	3.19%	1.09%	-
Blmbg:Universal CMBS xAaa	(1.05%)	(4.94%)	(1.01%)	0.62%	1.99%

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 06/30/23

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Multi-Asset (T)	**0.93%**	**4.30%**	**4.91%**	**4.59%**	**-**
Alternative Equity Strategies	**2.23%**	**0.89%**	**3.49%**	**6.20%**	**7.58%**
McKinley Healthcare Transformation	2.23%	0.89%	3.49%	-	-
MSCI ACWI	6.18%	16.53%	10.99%	8.10%	8.76%
Tactical Allocation Strategies	**2.06%**	**7.00%**	**6.01%**	**-**	**-**
PineBridge	0.54%	4.56%	5.91%	-	-
Pine Bridge Benchmark	3.86%	10.94%	5.49%	5.15%	5.66%
Fidelity Signals	3.58%	9.50%	6.13%	-	-
Fidelity Signals Benchmark	3.86%	10.94%	5.46%	5.48%	6.11%
Alternative Beta	**(1.49%)**	**5.37%**	**6.21%**	**0.69%**	**-**
Man Group Alternative Risk Premia	(1.49%)	5.37%	6.21%	2.22%	-
T-Bills + 5%	2.35%	8.59%	6.27%	6.55%	5.99%
Alternative Fixed Income	**(0.11%)**	**1.92%**	**8.33%**	**-**	**-**
Crestline (Blue Glacier)	0.12%	2.66%	7.82%	6.80%	7.74%
Prisma Capital (Polar Bear)	(7.94%)	(17.80%)	1.83%	0.36%	1.71%
Crestline Specialty Lndg Fd II	0.08%	4.15%	16.05%	10.62%	-
Crestline Specialty Lndg Fd III	3.33%	11.42%	-	-	-
HFRI Fund of Funds Idx	1.53%	3.69%	5.04%	3.32%	3.39%
T-Bills + 5%	2.35%	8.59%	6.27%	6.55%	5.99%

Real Assets through 06/30/23

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Real Assets	**0.95%**	**2.58%**	**8.84%**	**6.93%**	**6.97%**
Real Assets Target (1)	0.46%	5.26%	11.21%	7.37%	7.45%
Real Estate	(1.65%)	(7.59%)	8.21%	6.74%	8.70%
Real Estate Target (2)	(1.66%)	(6.28%)	6.88%	5.99%	7.85%
Private Real Estate	(2.44%)	(8.59%)	8.93%	7.52%	9.37%
NCREIF NFI-ODCE Val Wt Nt	(2.88%)	(10.73%)	7.04%	5.56%	7.77%
NCREIF Total Index	(1.98%)	(6.60%)	6.79%	5.90%	7.82%
ARMB REIT	1.19%	(4.32%)	6.10%	4.76%	6.77%
NAREIT Equity Index	1.20%	(4.39%)	6.12%	4.78%	6.81%
Total Farmland	0.61%	11.56%	9.66%	7.24%	6.76%
UBS Agrivest	0.61%	11.56%	9.80%	7.54%	7.22%
ARMB Farmland Target (3)	1.64%	11.36%	10.07%	7.85%	7.47%
Total Timber	0.32%	9.42%	8.49%	5.79%	5.48%
Timberland Investment Resources	0.32%	9.42%	8.25%	5.78%	5.46%
NCREIF Timberland Index	1.71%	11.13%	8.67%	5.80%	5.90%
Total Energy Funds	(1.64%)	(10.40%)	7.37%	(0.41%)	(2.77%)
CPI + 5%	2.33%	7.35%	11.05%	9.00%	7.68%
Total Infrastructure	2.63%	10.40%	12.41%	11.47%	-
JPM Infrastructure	2.21%	11.23%	9.37%	8.21%	-
IFM Infrastructure	2.72%	10.21%	13.12%	12.31%	-
CPI + 4%	2.09%	6.34%	10.05%	7.99%	6.68%
Global Infrastructure Idx	(0.12%)	4.17%	10.65%	5.31%	6.67%

(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.

(3) ARMB Custom Farmland Target is leased-only properties in the NCREIF Farmland Index reweighted to reflect 90% row crops and 10% permanent crops until 1/1/08 and 80% row crops and 20% permanent crops thereafter.

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

Private Equity as of 06/30/2023 (with one quarter lag)

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Private Eq Pool	2.88	(3.29)	22.53	19.05	18.03
Private Equity Target	6.23	(6.83)	9.65	5.96	8.38

Private Equity Target is 1/3 S&P 500, 1/3 Russell 2000, 1/3 MSCI EAFE (Net)

Callan Update

Published Research Highlights from 2Q23

2023 Private Credit Fees and Terms Study

The Critical Underlying Technology Behind Digital Assets: A Primer for Institutional Investors

Understanding the DNA of the U.S. Life Sciences Sector

Research Café: ESG Interview Series Session

Recent Blog Posts

Biodiversity: A Relatively New Theme for ESG-focused Investors

Kristin Bradbury

How Your Public DB Plan's Returns Compare

Public DB Plan Focus Group

How to Improve DC Plans with DEI

Jana Steele

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.

– September 26–28, 2023 – Virtual Session via Zoom

– November 1–2, 2023 – Atlanta, Georgia

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

Mark Your Calendar

2023 Regional Workshops

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:
The End of the Low-Yield Environment

August 9, 2023 – 9:30am (PT)

Callan Updates

Firm updates by the numbers, as of 6/30/23

Total Associates: ~200

Ownership
- 100% employees
- ~70% 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

Headquarters Office Move
- In August, Callan's headquarters office moved to One Bush Street in San Francisco

Milestones
- Celebrating our 50th anniversary

"Callan's reputation for providing exceptional, thoughtful guidance to clients for the past 50 years initially drew me to the organization…it's clear that quality people and a cohesive culture are essential to this enduring success. I'm excited about the opportunity to work in this collaborative environment to deliver the best outcomes for clients."

— Tony Lissuzzo, SVP, on joining Callan's Chicago Fund Sponsor Consulting this May

Important Disclosures

Information contained in this document may include confidential, trade secret and/or proprietary information of Callan and the client. It is incumbent upon the user to maintain such information in strict confidence. Neither this document nor any specific information contained herein is to be used other than by the intended recipient for its intended purpose.

The content of this document is particular to the client and should not be relied upon by any other individual or entity. There can be no assurance that the performance of any account or investment will be comparable to the performance information presented in this document.

Certain information herein has been compiled by Callan from a variety of sources believed to be reliable but for which Callan has not necessarily verified for accuracy or completeness. Information contained herein may not be current. Callan has no obligation to bring current the information contained herein.

This content of this document may consist of statements of opinion, which are made as of the date they are expressed and are not statements of fact. The opinions expressed herein may change based upon changes in economic, market, financial and political conditions and other factors. Callan has no obligation to bring current the opinions expressed herein.

The statements made herein may include forward-looking statement regarding future results. The forward-looking statements herein: (i) are best estimations consistent with the information available as of the date hereof and (ii) involve known and unknown risks and uncertainties. Actual results may vary, perhaps materially, from the future results projected in this document. Undue reliance should not be placed on forward-looking statements.

Callan disclaims any responsibility for reviewing the risks of individual securities or the compliance/non-compliance of individual security holdings with a client's investment policy guidelines.

This document should not be construed as legal or tax advice on any matter. You should consult with legal and tax advisers before applying any of this information to your particular situation.

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

This document is provided in connection with Callan's consulting services and should not be viewed as an advertisement of Callan, or of the strategies or products discussed or referenced herein.

The issues considered and risks highlighted herein are not comprehensive and other risks may exist that the user of this document may deem material regarding the enclosed information.

Any decision you make on the basis of this document is sole responsibility of the client, as the intended recipient, and it is incumbent upon you to make an independent determination of the suitability and consequences of such a decision.

Callan undertakes no obligation to update the information contained herein except as specifically requested by the client.

Past performance is no guarantee of future results.

THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Revenue
ALASKA RETIREMENT MANAGEMENT BOARD

ARMB Risk Reporting

September 2023

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

Risk and the Retirement Systems

What does risk mean to the ARMB?

- At the most comprehensive level, risk is anything that could impact the objectives of the retirement systems.
- The defined benefit systems' primary objective is to pay all benefits when they are due.
- Risk encompasses both assets and liabilities.
- Defined benefit systems are designed to be able to take risks – distributing market, longevity, and other risks across time and a broad pool of participants.
- Setting and monitoring investment risk is one of the primary roles of the ARMB.

Risk Monitoring Tool: truView

- The ARMB is using truView for portfolio risk analytics. truView is State Street Global Exchange's risk measurement platform.
- truView analytics are run semi-annually, at month-end in June and December.
- We use truView to help answer the following questions:
  - Is the portfolio risk positioned according to the ARMB's asset allocation?
  - What is the probability and magnitude of potential losses?
  - Is the ARMB taking more or less risk than the strategic benchmark by asset class?
  - Are specific investment mandates or managers adding to or reducing risk?
  - Does the ARMB have unexpected risk exposures or concentration?
  - How would the ARMB's current portfolio perform in historic market events or scenarios?

Volatility Decomposition

- Public equity contributed 56% to portfolio volatility.
- Public and private equity contributed 77% of total volatility.
- Broad Fixed Income contributed about 1.3% which is consistent with December's report.
- Portfolio volatility has increased from 14.3% in December to 14.6% in June. FY23 long-term forecast as provided by Callan, was 13.9% for ARMB's target asset allocation.

Volatility Decomposition 6/30/2023

	Market Value (Millions)	Allocation (%)	Volatility[1] (% per annum)	Volatility Contribution (% of Total Vol)
Broad Domestic Equity	7,829	24.8%	20.8%	34.5%
Global Equity Ex-US	5,351	17.0%	19.0%	21.5%
Real Assets	4,545	14.4%	17.4%	15.3%
Broad Fixed Income	6,215	19.7%	9.2%	1.3%
Private Equity	5,056	16.0%	19.3%	20.9%
Multi-Asset	2,536	8.0%	12.2%	6.6%
TOTAL	31,533	100.0%	14.6%	100.0%

Volatility Decomposition 12/31/2022

	Market Value (Millions)	Allocation (%)	Volatility[1] (% per annum)	Volatility Contribution (% of Total Vol)
Broad Domestic Equity	7,443	24.4%	20.1%	33.3%
Global Equity Ex-US	5,288	17.3%	18.4%	21.7%
Real Assets	4,555	14.9%	17.0%	15.8%
Broad Fixed Income	5,822	19.1%	8.1%	1.3%
Private Equity	4,982	16.3%	19.1%	21.4%
Multi-Asset	2,454	8.0%	11.9%	6.5%
TOTAL	30,543	100.0%	14.3%	100.0%

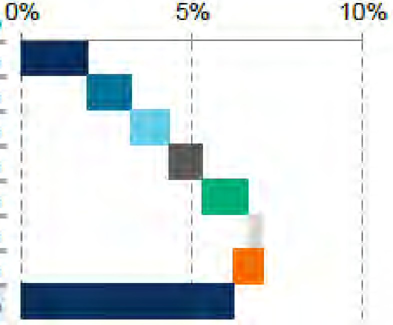
Volatility at the asset class level is calculated using parametric Value-at-Risk at 84th percentile, expressed as a percentage of the market value of each asset class.

Asset Class Risk and Diversification

- The monthly value-at-risk (VaR) is 6.2%.
- Broad Domestic Equity and Global Equity ex-US contributed 63% of VaR.
- VaR is little changed from December's report.
- The Diversification Benefit increased in June indicating lower correlation between asset class returns.
- The Conditional VaR remained close to December's report at 10.5% in June

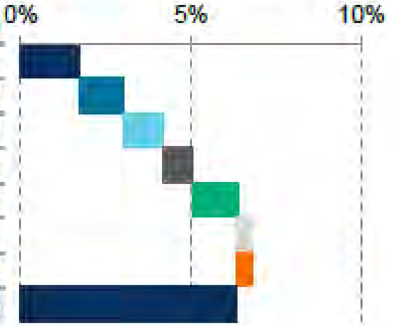
Asset Class Risk & Diversification 6/30/2023

	Allocation (%)	Value-at-Risk[1] Contribution (% of Total VaR)	Value-at-Risk[1] (% of Total MV)
Broad Domestic Equity	24.8%	43.3%	1.9%
Global Equity Ex-US	17.0%	19.5%	1.3%
Real Assets	14.4%	15.4%	1.1%
Broad Fixed Income	19.7%	-6.3%	1.0%
Private Equity	16.0%	21.9%	1.3%
Multi-Asset	8.0%	6.2%	0.5%
Diversification Benefit	-	-	-0.9%
TOTAL	**100.0%**	**100.0%**	**6.2%**



Asset Class Risk & Diversification 12/31/2022

	Allocation (%)	Value-at-Risk[1] Contribution (% of Total VaR)	Value-at-Risk[1] (% of Total MV)
Broad Domestic Equity	24.4%	42.1%	1.7%
Global Equity Ex-US	17.3%	19.6%	1.2%
Real Assets	14.9%	15.4%	1.2%
Broad Fixed Income	19.1%	-5.1%	0.9%
Private Equity	16.3%	21.8%	1.3%
Multi-Asset	8.0%	6.3%	0.4%
Diversification Benefit	-	-	-0.5%
TOTAL	**100.0%**	**100.0%**	**6.3%**



1. Value-at-Risk is calculated using historic Value-at-Risk at 95th percentile, 1 month horizon, expressed as a percentage of total plan assets.

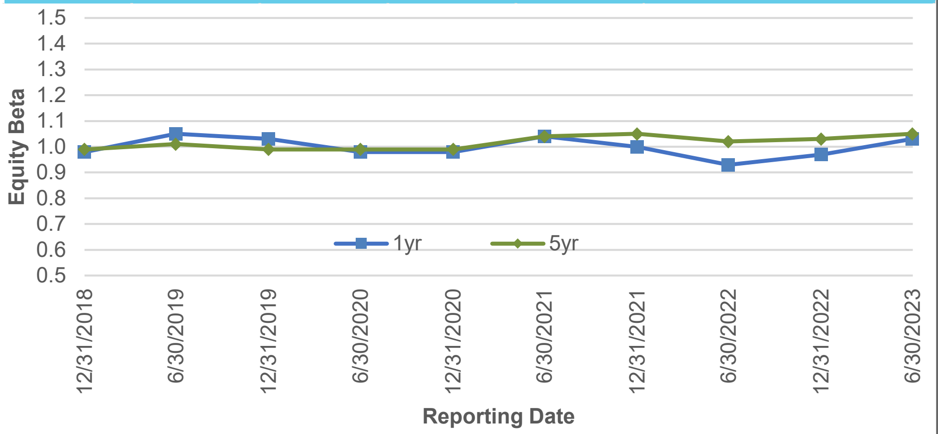
Equity Beta

- Equity betas are within expectations for 6/30/2023.
- ARMB's Domestic and Global ex-US equity portfolios should have betas close to their benchmarks.
- Betas increased in June's risk reporting for both 1-year and 5-year but remain within expectations.

Sub Asset Class Beta Analysis

Asset Class / [Benchmark]	Market Value (Millions)	Allocation (%)	Beta[1] 1Y to the Benchmark	Beta[1] 5Y to the Benchmark
Broad Domestic Equity / [Russell 3000]	**7,829**	**59.4%**	**1.03**	**1.03**
Large Cap Pool (AYQK)	7,182	54.5%	1.02	1.01
Small Cap Pool (AYQC)	646	4.9%	1.21	1.24
Global Equity Ex-Us / [MSCI ACWI Ex US IMI]	**5,351**	**40.6%**	**0.92**	**0.98**
Emerging Markets Pool (AYSC)	926	7.0%	0.77	0.91
IE Large Cap Pool (AYRC)	4,426	33.6%	0.95	1.00
TOTAL Equity / [MSCI ACWI]	**13,180**	**100.0%**	**1.03**	**1.05**

Sub Asset Class Beta Analysis - Trend



1. Beta is the regression coefficient generated by a linear regression of the percent return time series of position on an explanatory time series. This explanatory time series is often composed of the returns from a broader market index, the benchmarks of each of the equity asset classes.
Source for line chart: Proved by Staff

International Equity Country Exposure

- For Fiscal Year 2023, the target allocation to Global Equity Ex-US is 18% of the total ARMB portfolio.
- The Global Equity Ex-US asset class invests in a diversified market basket across more than 40 countries.
- In aggregate, asset class level active country weights exist due to active management and factor exposures but are generally not concentrated and track reasonably close to the benchmark.

Country	Global Ex-US Portfolio	Benchmark	Difference	Country	Global Ex-US Portfolio	Benchmark	Difference
Japan	15.8%	15.3%	0.5%	Denmark	2.0%	1.9%	0.1%
United Kingdom	10.2%	9.2%	1.0%	Italy	1.8%	1.5%	0.3%
China	7.7%	6.6%	1.1%	Spain	1.6%	1.6%	0.0%
France	7.2%	6.7%	0.5%	Singapore	1.0%	0.9%	0.1%
Switzerland	5.9%	6.3%	-0.4%	Mexico	1.0%	0.8%	0.2%
Germany	5.8%	5.2%	0.6%	Finland	0.7%	0.7%	0.0%
Canada	5.3%	7.4%	-2.1%	Belgium	0.7%	0.6%	0.1%
Netherlands	4.6%	3.4%	1.2%	Saudi Arabia	0.6%	1.2%	-0.6%
Taiwan	4.4%	4.6%	-0.2%	South Africa	0.6%	0.9%	-0.3%
India	3.7%	4.4%	-0.7%	Ireland	0.6%	0.8%	-0.2%
South Korea	3.0%	3.5%	-0.5%	Norway	0.6%	0.5%	0.1%
Australia	2.9%	4.8%	-1.9%	Israel	0.5%	0.6%	-0.1%
Sweden	2.3%	2.1%	0.2%	Indonesia	0.4%	0.6%	-0.2%
Hong Kong	2.1%	2.1%	0.0%	Thailand	0.3%	0.6%	-0.3%
Brazil	2.1%	1.5%	0.6%	Other	4.5%	3.6%	-0.5%

ARMB Global ex-US benchmark is MSCI ACWI ex-US IMI
Data as of 6/30/2023
Source: Custody and benchmark weights. Provided by Staff.

Equity Sector Exposure

- Similar to deviations in country weight, deviations in equity sector weights exist due to active management and factor exposures but are generally not concentrated and track reasonably close to benchmarks.

- The ARMB portfolios currently take no significant active sector risk versus benchmarks.

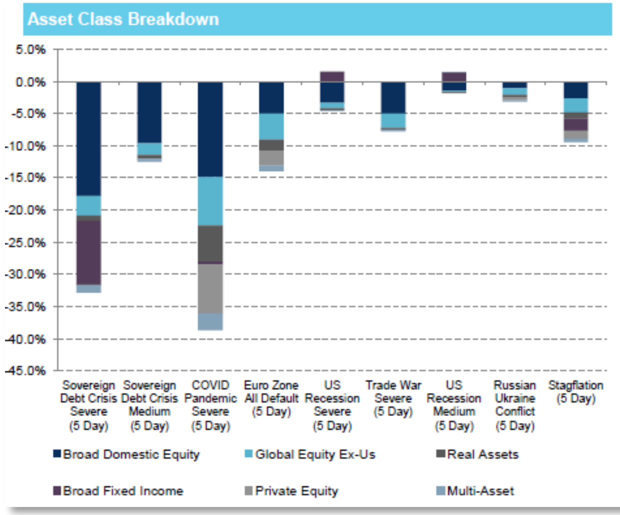
	Domestic		
Sector	Portfolio	Benchmark	Difference
Information Technology	25.4%	26.4%	-1.0%
Health Care	13.4%	13.5%	-0.1%
Financials	12.9%	13.0%	-0.1%
Industrials	10.8%	10.0%	0.8%
Consumer Discretionary	10.4%	10.9%	-0.5%
Communication Services	7.5%	7.8%	-0.3%
Consumer Staples	6.2%	6.1%	0.1%
Energy	4.3%	4.2%	0.1%
Real Estate	3.2%	2.9%	0.3%
Materials	3.1%	2.8%	0.3%
Utilities	2.6%	2.5%	0.1%

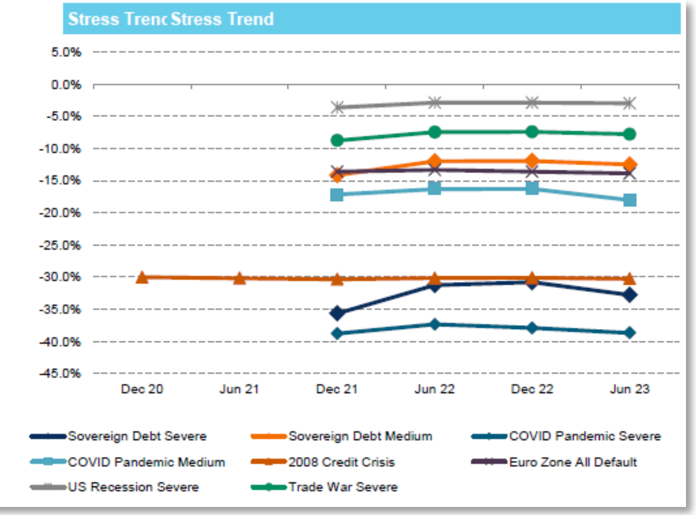
	Global Ex-US		
Sector	Portfolio	Benchmark	Difference
Financials	17.7%	19.3%	-1.6%
Industrials	13.7%	14.3%	-0.6%
Information Technology	13.4%	11.8%	1.6%
Consumer Discretionary	12.6%	12.1%	0.5%
Health Care	10.3%	9.2%	1.1%
Consumer Staples	9.0%	8.3%	0.7%
Materials	6.3%	8.4%	-2.1%
Energy	6.1%	5.2%	0.9%
Communication Services	5.6%	5.3%	0.3%
Real Estate	2.6%	2.9%	-0.3%
Utilities	2.5%	3.2%	-0.7%

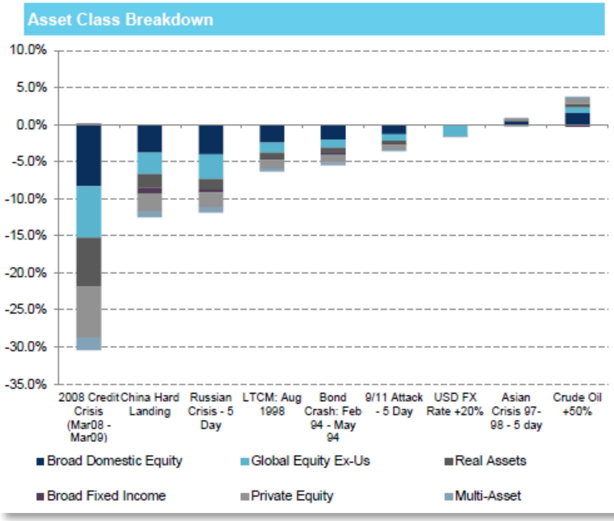
ARMB Domestic benchmark is the Russell 3000 Index
ARMB Global ex-US benchmark is MSCI ACWI ex-US IMI
Data as of 6/30/2023
Source: Custody and benchmark weights. Provided by Staff.

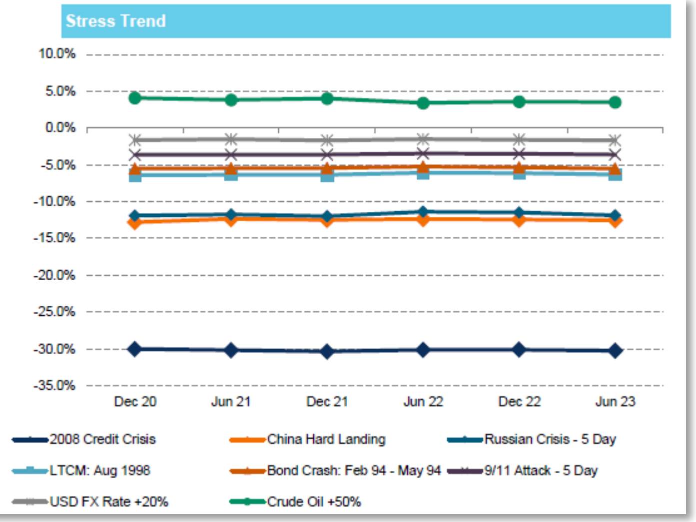
Stress Tests

- Stress tests reveal no significant change in expected outcomes.
- The stress tests over time are largely unchanged from December's report.
  - This consistency would likely indicate there are no sudden or unexpected exposures to assets that are extraordinarily sensitive to these scenarios.
- Reminder that this report is as of 6/30/2023, the Board reduced the public equity target asset allocation by 2% as of July 1, 2023, increasing Broad Fixed Income by 2%.









Potential Board Actions

What if a concern is identified?

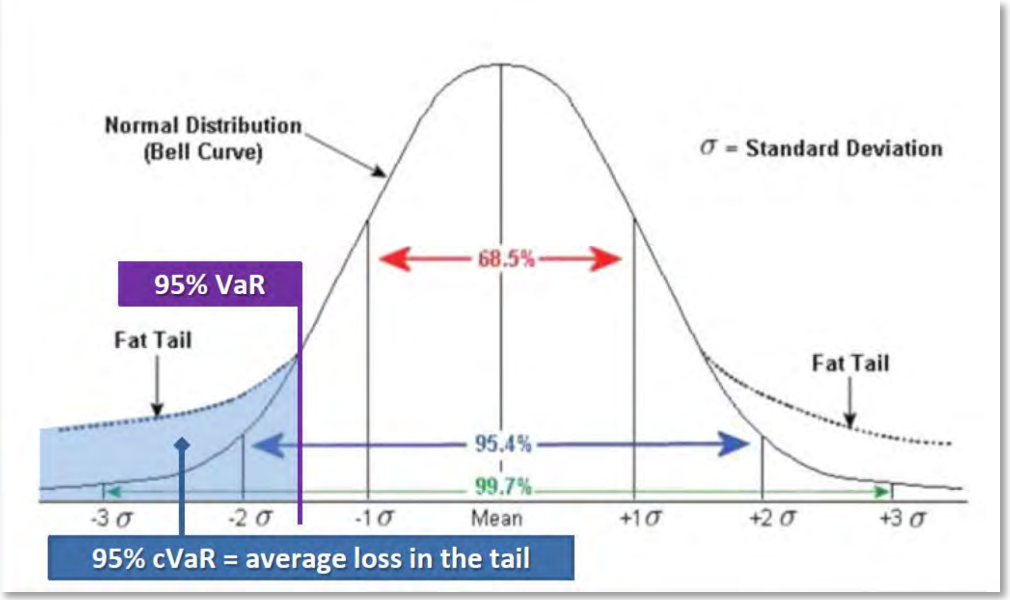
- Adjust the asset allocation targets to increase or decrease contribution to risk by a specific asset class.
  - Potentially reduce risk to entire portfolio and/or decrease the concentration of risk.
  - Employ tactical or strategic implementation.
- Request additional data, analysis, and perspective.
  - Staff
  - Consultants
  - IAC
  - Industry professionals
- Elect to monitor the situation.
  - Request periodic reporting and analysis from Staff.

Summary

- Risk measures are within expectations.
- Public equity allocation is the largest driver of portfolio volatility and value-at-risk as expected.
- ARMB invests in a diversified basket of international equity. In aggregate, the country weights do not significantly deviate from the asset class benchmark.
- Domestic and International equity sector weights also do not significantly deviate from benchmarks.
- truView models several historical and predictive scenarios.
  - ARMB's portfolio sensitivity to the stress tests has been little changed over time indicating there are no sudden or unexpected exposures to assets that are sensitive to the scenarios provided.

What is Value-at-Risk

- Value-at-risk (VaR)
  - A commonly used measure of potential loss.
  - VaR represents a return threshold over a given time horizon whereby worse outcomes are only expected with some small and specific probability.
  - VaR can be estimated parametrically using the mean and standard deviation, but this ignores fat tails (kurtosis, skewness).
  - VaR also can be estimated using historic market information, which includes past fat tails – this is the approach truView takes.
- Expected shortfall (conditional VaR or cVaR) is the average loss contained in the left tail.
- Why are VaR and cVaR important?
  - They quantify the risk of loss for the portfolio.
  - Differences between historical and parametric-based VaR calculations suggest impact of fat tails.



J.P. Morgan Asset Management Global Real Assets

Mandate: **JPMCB Strategic Property Fund – Open-End Commingled Real Estate Fund** **Hired: 1998**

Firm Information	Investment Approach	Total ARMB Mandate
J.P. Morgan Investment Management Inc. (JPMIM) is the primary U.S. investment advisory branch of J.P. Morgan Asset Management (JPMAM), which is the marketing name for the asset management businesses of JPMorgan Chase & Co. (JPMC), a publicly traded company, and its affiliates worldwide. JPMIM is wholly-owned by JPMorgan Asset Management Holdings Inc. which is a subsidiary of JPMC. JPMIM was incorporated in Delaware on February 7, 1984. J.P. Morgan Real Estate Americas employs over 220 professionals, serves 850+ institutional clients from six offices and is headquartered in New York, New York. As of 6/30/2023, J.P. Morgan Real Estate Americas total assets under management were $76 billion (GAV). **Key Executives:** **Kimberly Adams**, Portfolio Manager **Susan M. Kolasa**, Portfolio Manager **Jason Curran**, Portfolio Manager **Jeff Shields,** Executive Director, Client Advisor **Tom Klugherz,** Executive Director, Investment Specialist	J.P. Morgan Asset Management - Global Real Assets follows a disciplined investment process that focuses on adding value throughout the acquisition, ownership and disposition of an asset. Investment decisions are based upon a variety of factors, including, without limitation, a fulsome macro and micro research analysis and a quantitative financial analysis. Such factors suggest the performance viability of the proposed investment and its compatibility with a client's investment strategy and objectives. Prior to making an investment, J.P. Morgan requires the approval of an Investment Committee, whose review includes consideration of the following factors: cash flow and debt assumptions; return models; property history; location analysis; investment proposal; transaction structure (equity/debt); investment strengths and weaknesses; tenant analysis; replacement cost analysis; research assessment; comparable sales and lease analysis; and investment recommendation. Strategic Property Fund's research- and data-based portfolio construction process leverages the information advantage created by the fund's in-depth real estate expertise, market presence, on-the-ground teams, and the firm-wide research capabilities. Benchmark: NCREIF ODCE	**Assets Under Management:** 6/30/23: $172,476,878

Concerns: None

6/30/2023 Performance

	Last Quarter	1-Year	3-Years Annualized	6-Years Annualized	25.5-Years Annualized
Manager (Gross)	-1.56%	-10.35%	7.05%	6.08%	8.83%
Fee	0.21%	0.76%	0.88%	0.93%	0.93%
Manager (Net)	-1.77%	-11.11%	6.17%	5.15%	7.90%
Benchmark (Net)	-2.88%	-10.73%	7.04%	5.88%	7.46%

2Q 2023

Alaska Retirement Management Board

J.P. Morgan
Asset Management

Strategic Property Fund (SPF) | September 14, 2023

Jason Curran
Executive Director,
Portfolio Manager

Tom Klugherz,
Executive Director,
Investment Specialist

Jeff Shields
Executive Director,
Client Advisor

Sean Kane
Vice President
Research Analyst

Presenters

Jason Curran
Executive Director

Member of the portfolio management team for J.P. Morgan's U.S. core real estate strategy, Strategic Property Fund. A J.P. Morgan employee since 2010, Jason's responsibilities include managing all aspects of the portfolio's investments and strategy. Prior to joining the portfolio management team, he spent the past 10 years on the West Coast investment team as an acquisition officer and asset manager on commercial assets and developments, predominantly Southern California industrial and Bay Area office, across the risk-return spectrum and has $2.0 billion of acquisition experience. Jason graduated from the University of Kansas in 2010 with a B.S. in Finance.

Tom Klugherz
Executive Director

Executive Director, is an Investment Specialist at J.P. Morgan Asset Management –Real Estate Americas, based in San Francisco. Tom is responsible for capital raising and advising clients for the Real Estate Americas investment platform. Previously, Tom was a member of the Portfolio and Client services Unit for Real Estate US at UBS, a business which forms part of the Real Estate & Private Markets within UBS Asset Management. Tom has 31 years of experience working in various capacities as a fiduciary for some of the nation's largest pension plans and institutions. His prior experience includes acquisitions, asset management, portfolio management and day-to-day operations of several investment managers including GE Capital Investment Advisors and SSR Realty Advisors. During his career, Tom has been directly involved in sourcing, underwriting and managing more than USD 10 billion of institutional grade investments across the United States. Tom has worked directly with existing and prospective separate account and fund clients to analyze their portfolios and formulate investment strategies. He holds the FINRA Series 7, 63, 24 and 3 licenses.

Jeff Shields
Executive Director

Client Advisor at J.P. Morgan Asset Management advising institutional investors on strategic and tactical investment opportunities, challenges and solutions. He joined the firm in 2013 from Watershed Asset Management, a credit hedge fund manager, where he led the investor relations effort since 2009. Prior to joining Watershed, Jeff was a principal at Hall Capital Partners focusing on marketing the firm's co-mingled alternative investment funds to private and institutional investors. He joined Hall Capital Partners in 2005 from U.S Trust Company where he was a member of the endowment and foundation group and responsible for the administration and investments for planned gift management programs and multi-asset class mandates. Before joining U.S. Trust in 2000, Jeff worked in the community foundation field at the Council on Foundations, The San Francisco Foundation, and the Peninsula Community Foundation. He is currently a board member of the Dechomai Foundation which was founded in 2003 to assist charitable organizations to receive, manage, liquidate and grant proceeds from non-cash donations. Jeff graduated from the University of Maryland with a Bachelor of Arts degree.

Sean Kane
Vice President

Vice President of Research within J.P. Morgan's Real Estate Americas group. He currently has a focus on the Western and Central regions of the United States. He also contributes to the firm's broader inhouse view on the U.S. commercial property markets. Sean joined J.P. Morgan in 2022 and is a voting member of the Real Estate Americas Investment Committee. Sean has worked in commercial real estate research for 10 years. Prior to his current role, Sean led JLL's Southern California research team. He also previously led JLL's Seattle & Bellevue research team and JLL's U.S. Multifamily research efforts. Before joining JLL, Sean was a Senior Manager within the Analytics group at Real Capital Analytics. Sean graduated from Brown University in 2011 with a bachelor's degree in economics.

Investment review

Table of contents

J.P.Morgan ASSET MANAGEMENT

01

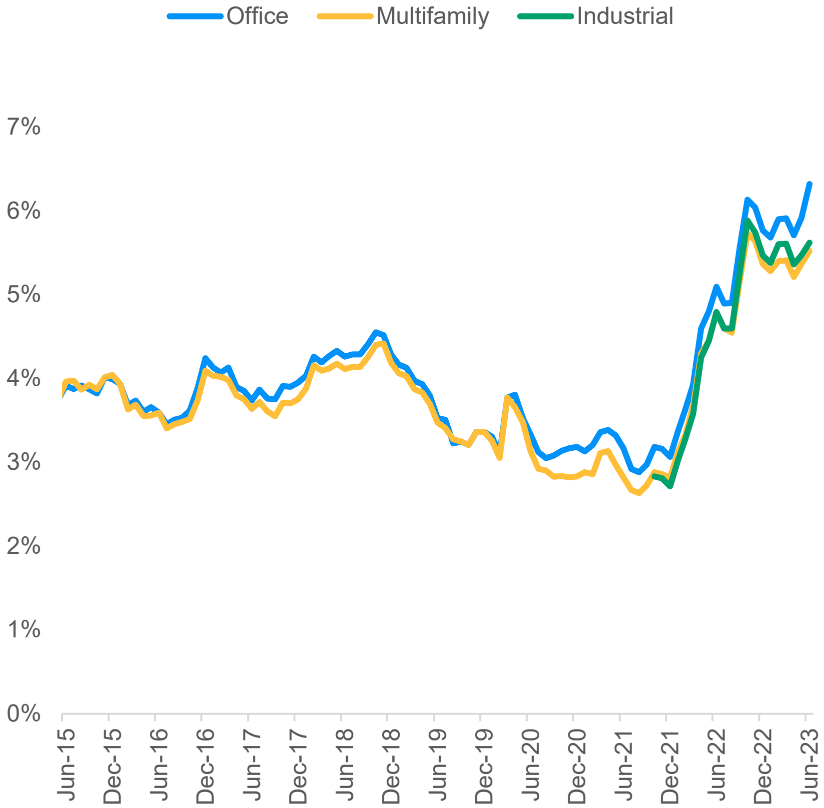
U.S. Real Estate Market Outlook

Capital Markets: Rising borrowing costs impacting transaction activity

Borrowing costs have risen along with interest rates. Office is the most challenging to source debt for

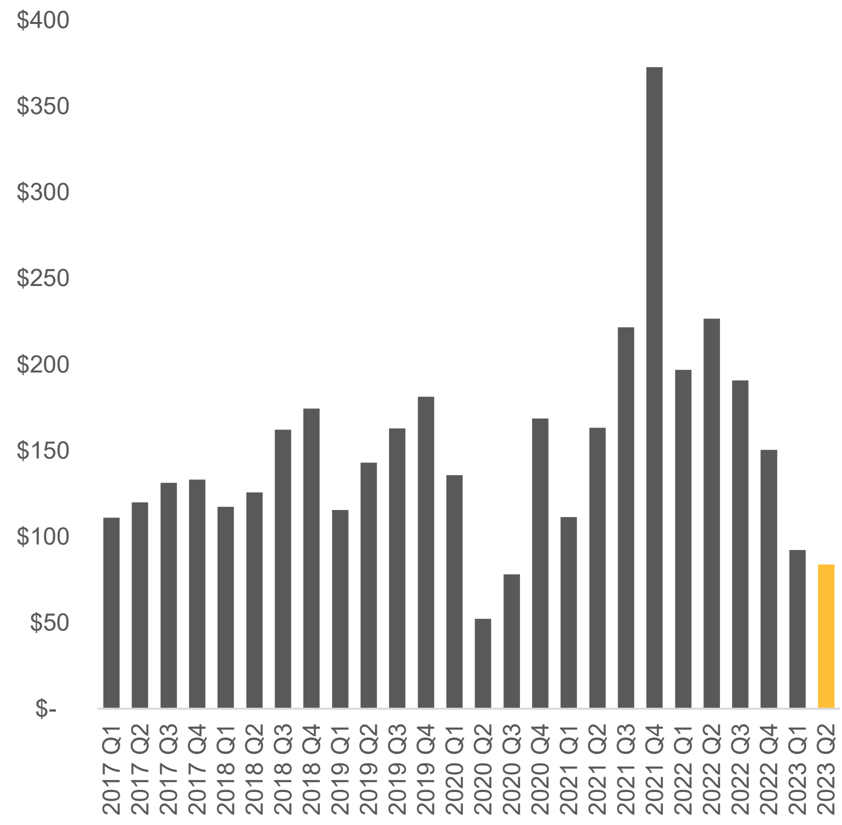
Transaction activity remained thin in the second quarter, down nearly -60% year-over-year

10-year 50% LTV coupon rates



Transaction volume

All property types



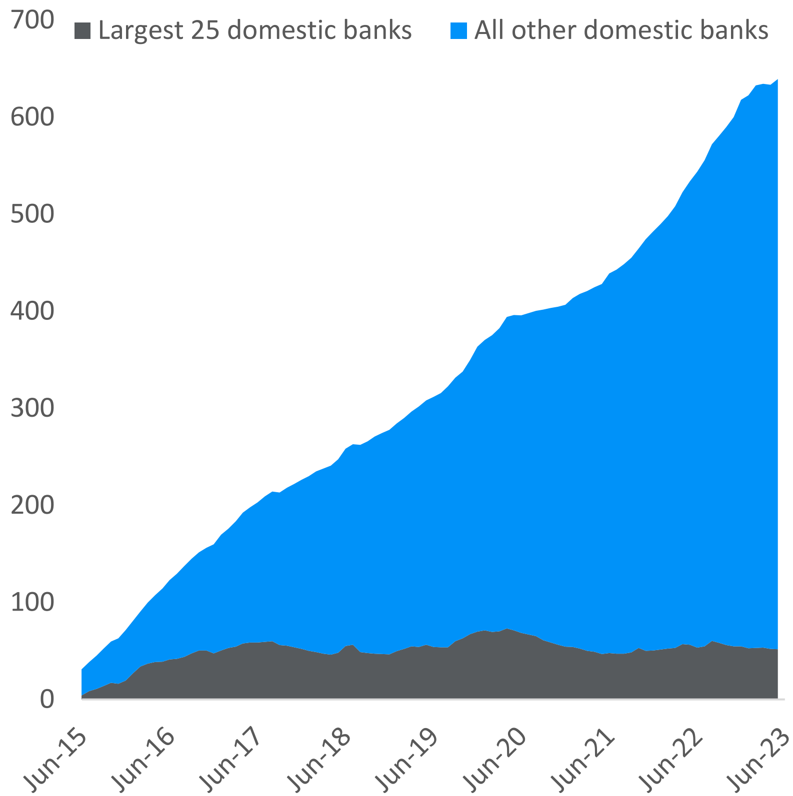
Source: Left - U.S. Board of Governors of the Federal Reserve System, Moody's Economy.com, JPMorgan as of Q2 2023; Right – Real Capital Analytics as of Q2 2023

Capital Markets: Regional bank squeeze restricting lending and creating a headwind for equity

Smaller and regional banks represent a large share of commercial real estate lending

Cumulative increase in bank CRE loan book (ex. multifamily)

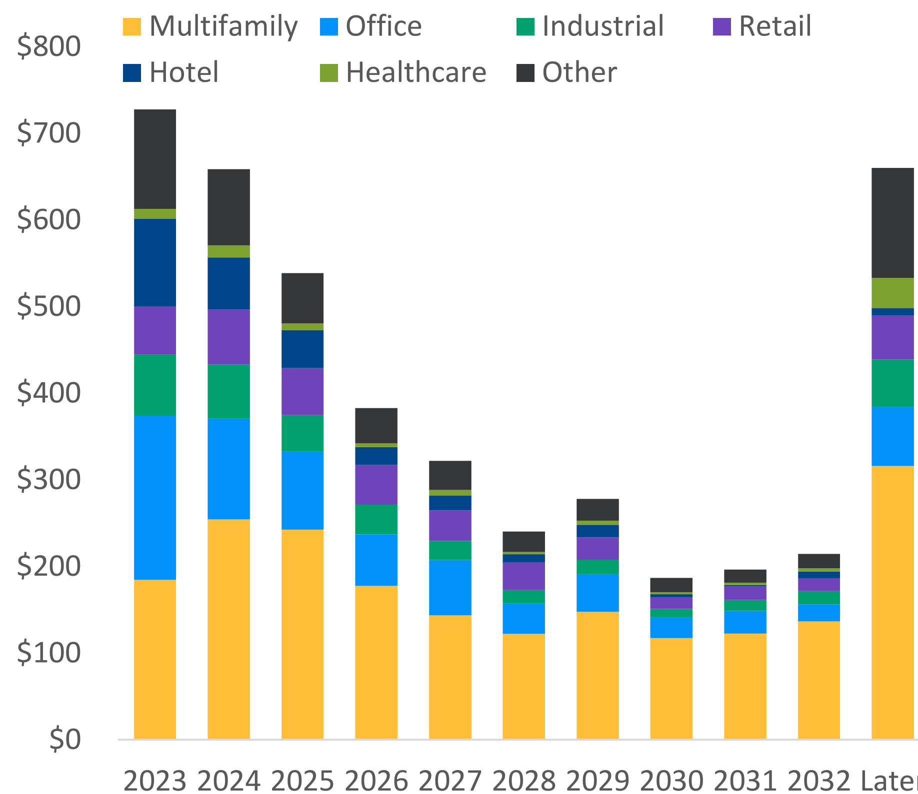
Billions of USD



A sizeable pool of loans maturing in 2023 & 2024 will put further pressure on lending markets

Loan maturities by sector

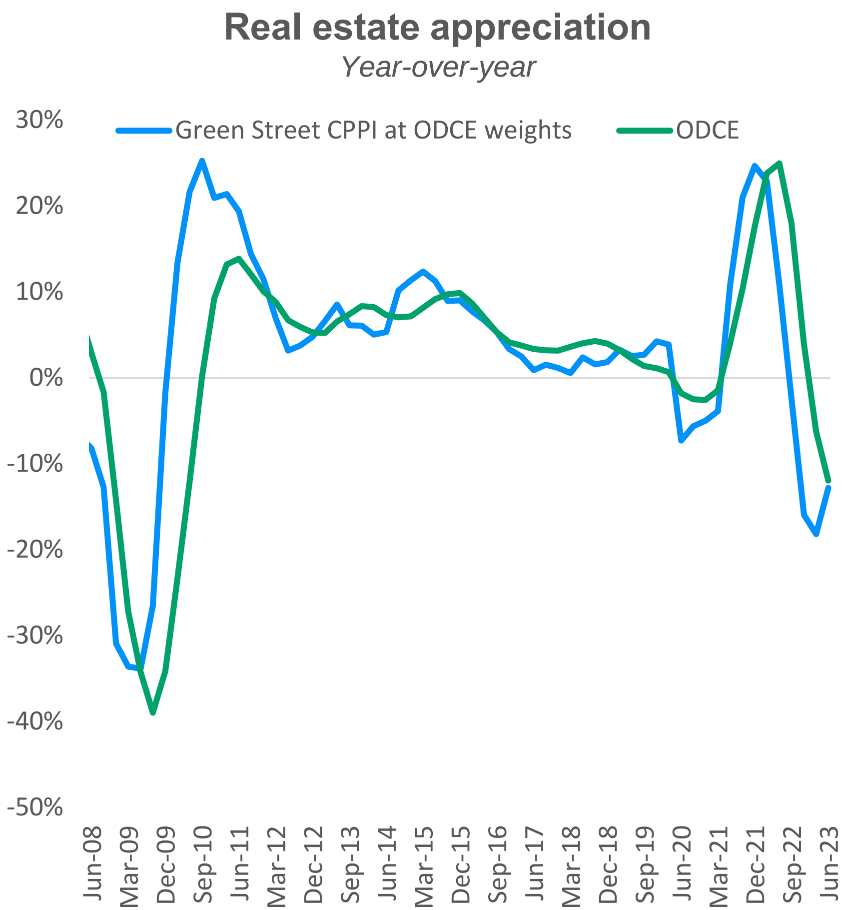
Billions of USD



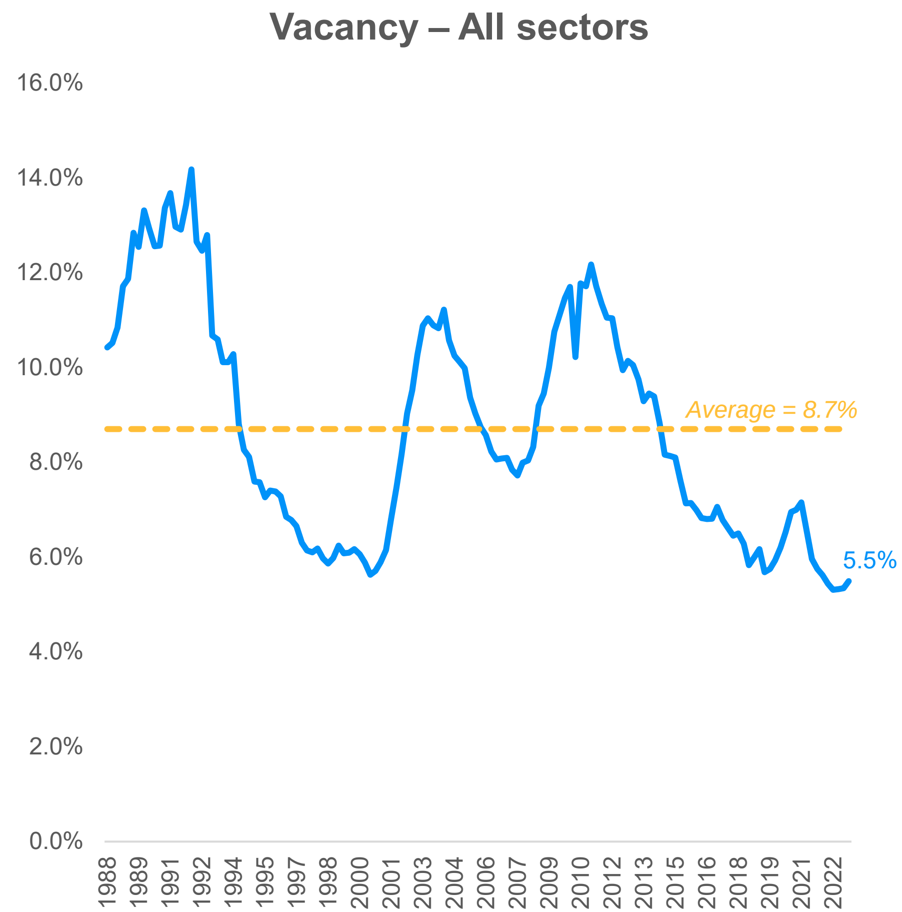
Sources: Left - Moody's Economy.com, FDIC as of Q2 2023; Right – MBA as of April 2023

Capital Markets: Pricing still adjusting to rising rates, while fundamentals remain relatively strong outside of office

Spot pricing and fund pricing converging



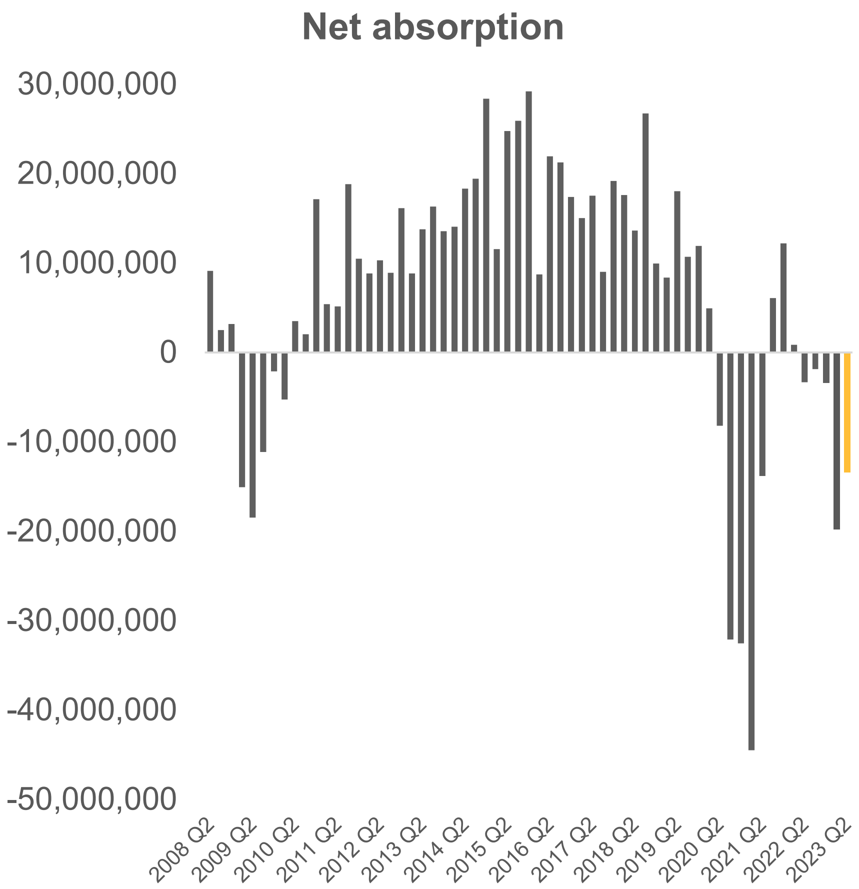
Across all property sectors, fundamentals are strong relative to historical standards. Office is the lone exception



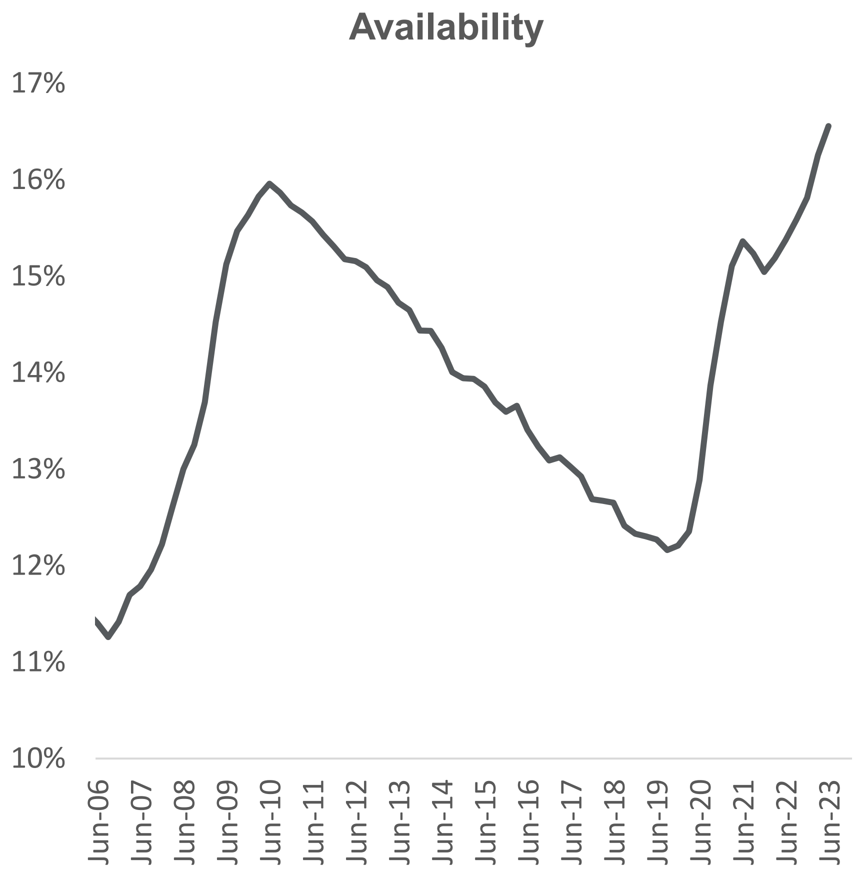
Source: Left - NCREIF, Green Street Advisors, MSCI as of Q2 2023; Right – NCREIF as of Q2 2023

Office: Demand was soft in the first half of the year, pushing availability above the GFC peak

Absorption remained starkly negative in Q2



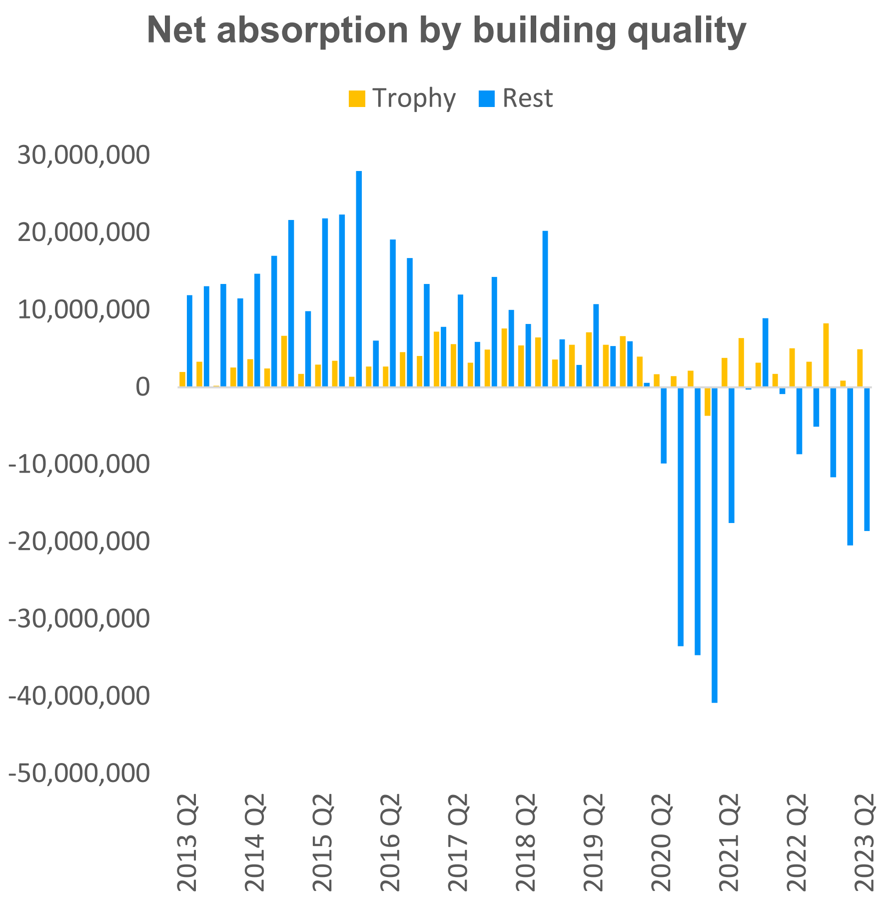
Space givebacks and new deliveries have pushed availability above GFC levels



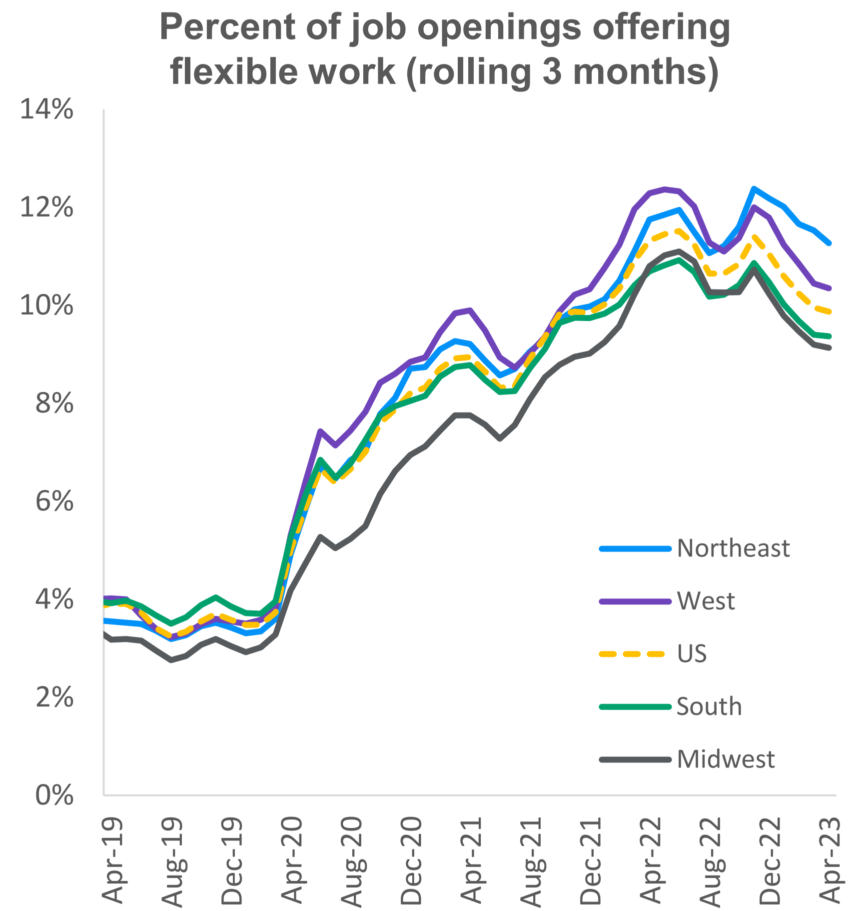
Source: Both - CoStar as of Q2 2023

Office: Demand remains soft outside of the highest quality assets, but some green shoots are emerging

Although overall absorption remains negative, trophy buildings continue to attract tenants



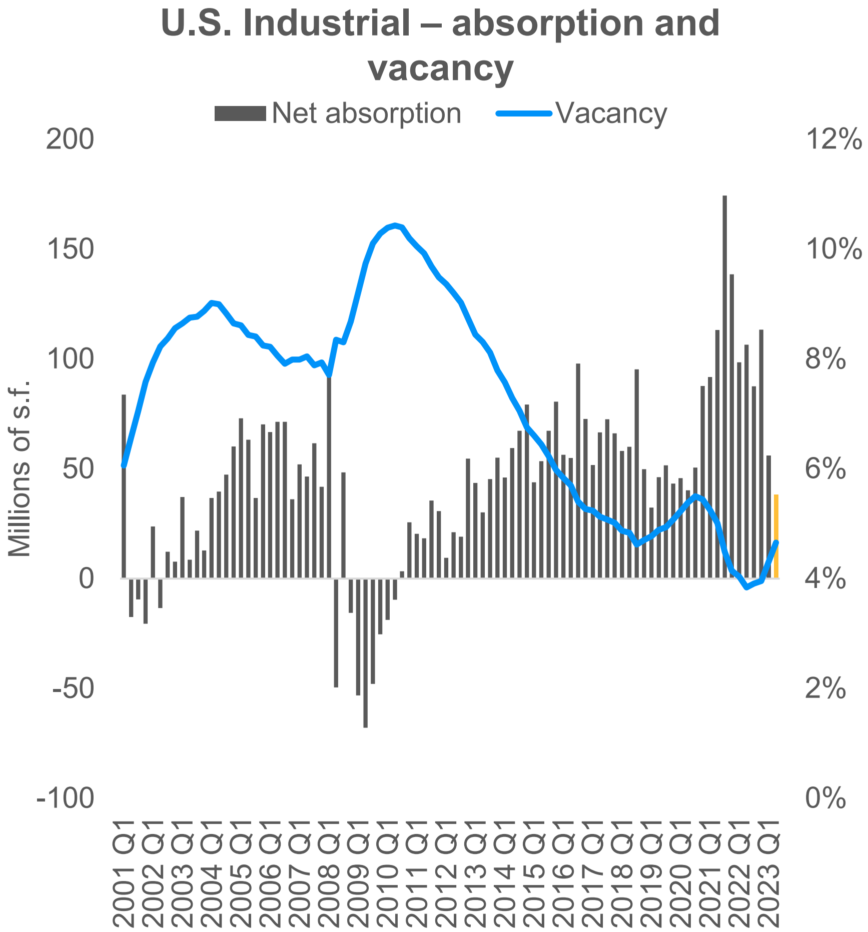
Job postings indicate the worst of the work from home headwind may be behind us



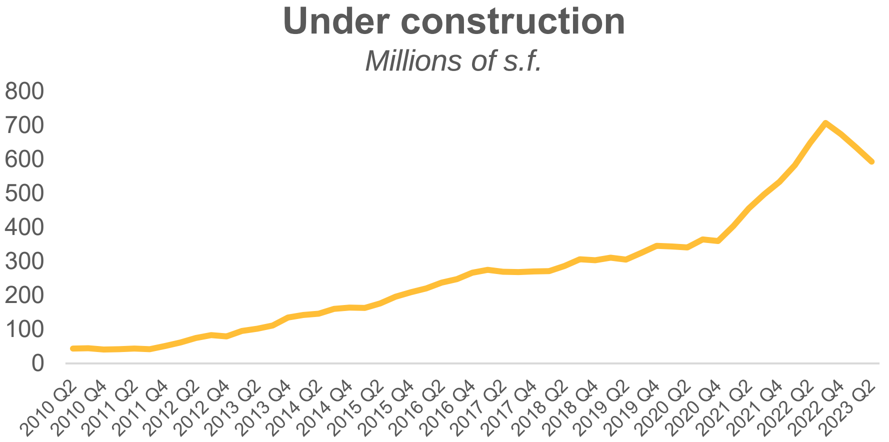
Source: Left - CoStar as of 6/30/23. Right - WFH Map as of 4/30/23

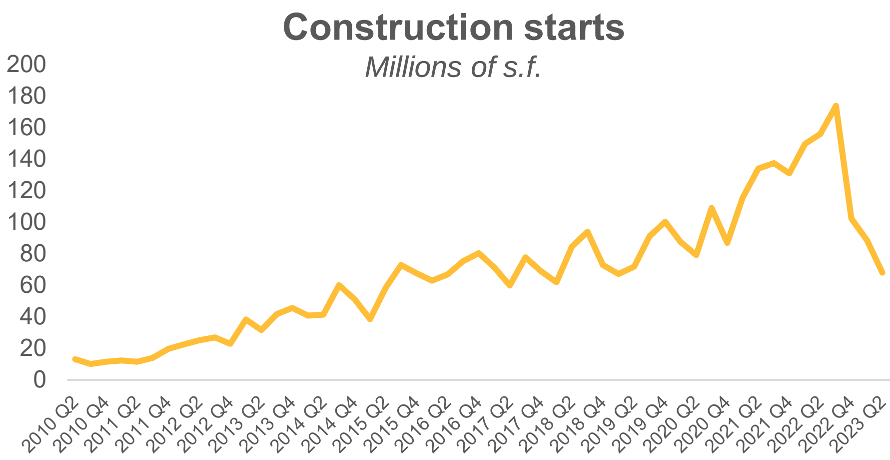
Warehouse: Demand fundamentals moderating from pandemic highs while construction slows

Net absorption well off pandemic highs as ecommerce driven demand slows



Construction levels and new starts have slowed significantly in the past three quarters

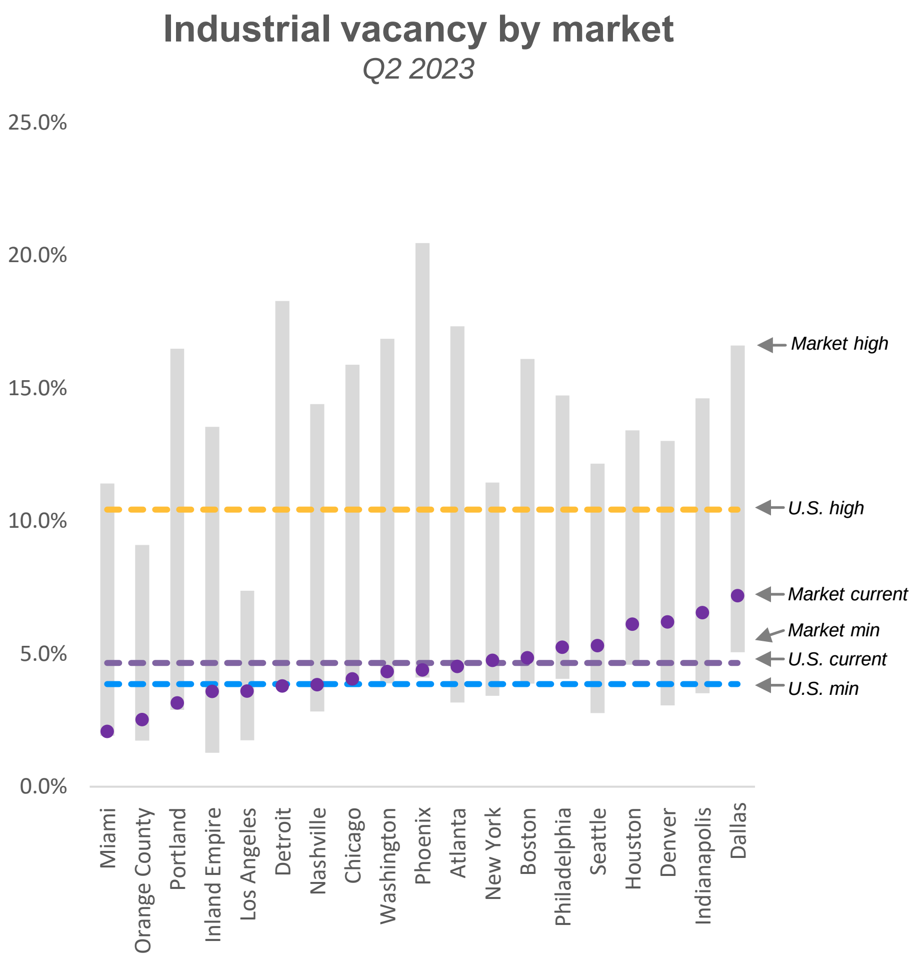




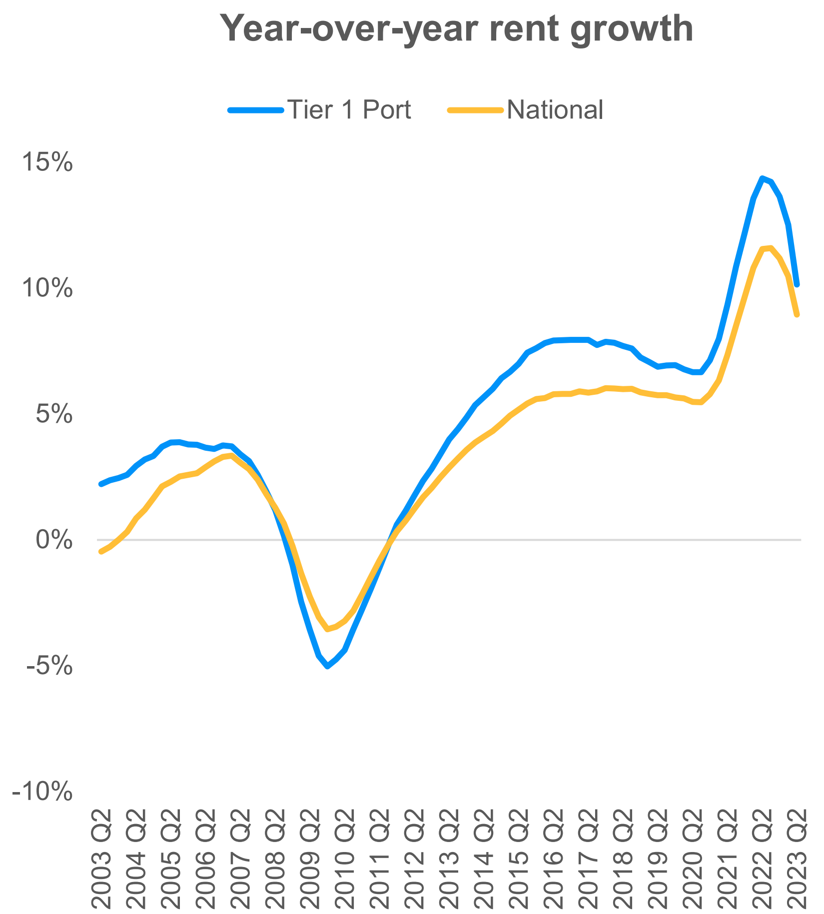
Source: All charts – Costar as of Q2 2023

Warehouse: Vacancy rates across markets are still near historic lows, Tier-1 port markets maintain higher rent growth

Vacancy remains near historic-lows



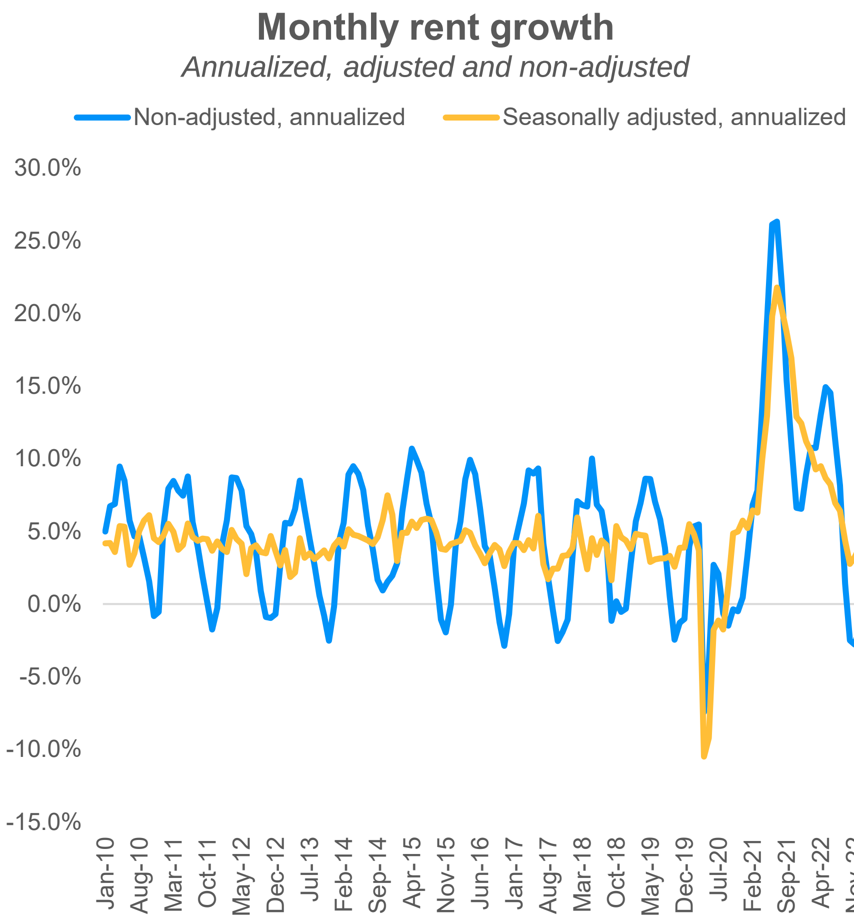
Rent growth slowing, but tier-1 port markets are still outperforming*



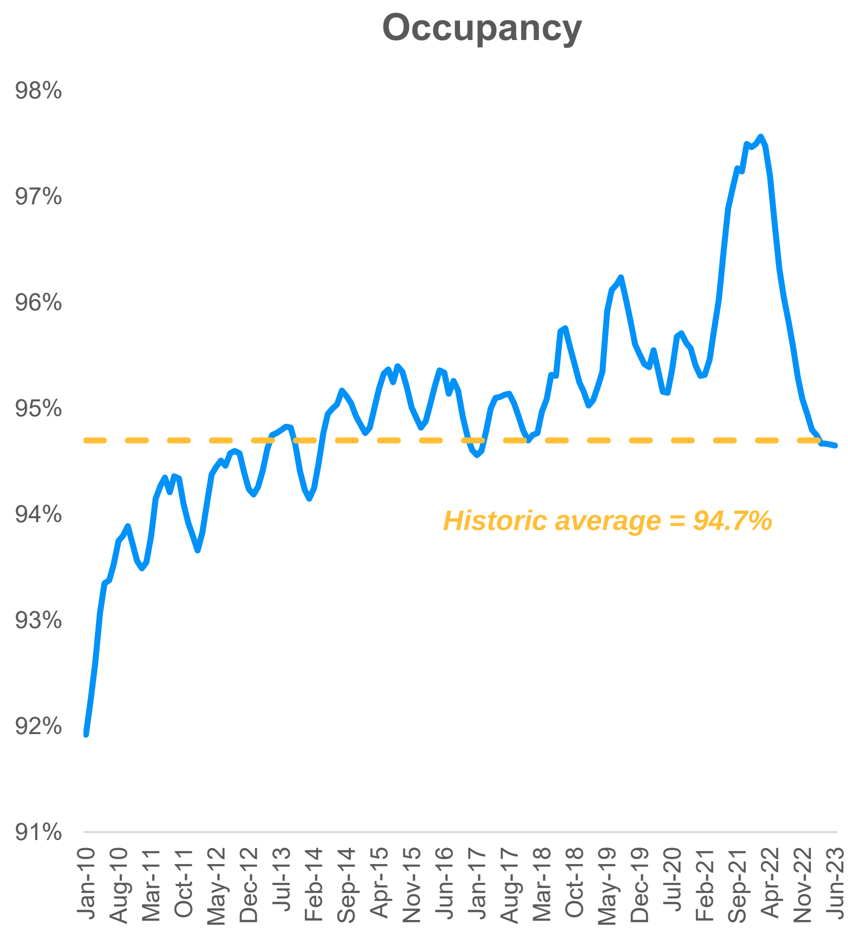
Source: Both - CoStar as of Q2 2023; Historical minimum and maximums in chart on left are based on data back to Q1 2000 *Tier-1 port markets include Los Angeles, Orange County, Riverside, New York and Northern New Jersey

Multifamily: Growth slowing as markets normalize after the pandemic surge

Multifamily rent continuing to gain ground, but the past few months have been below the seasonal trend



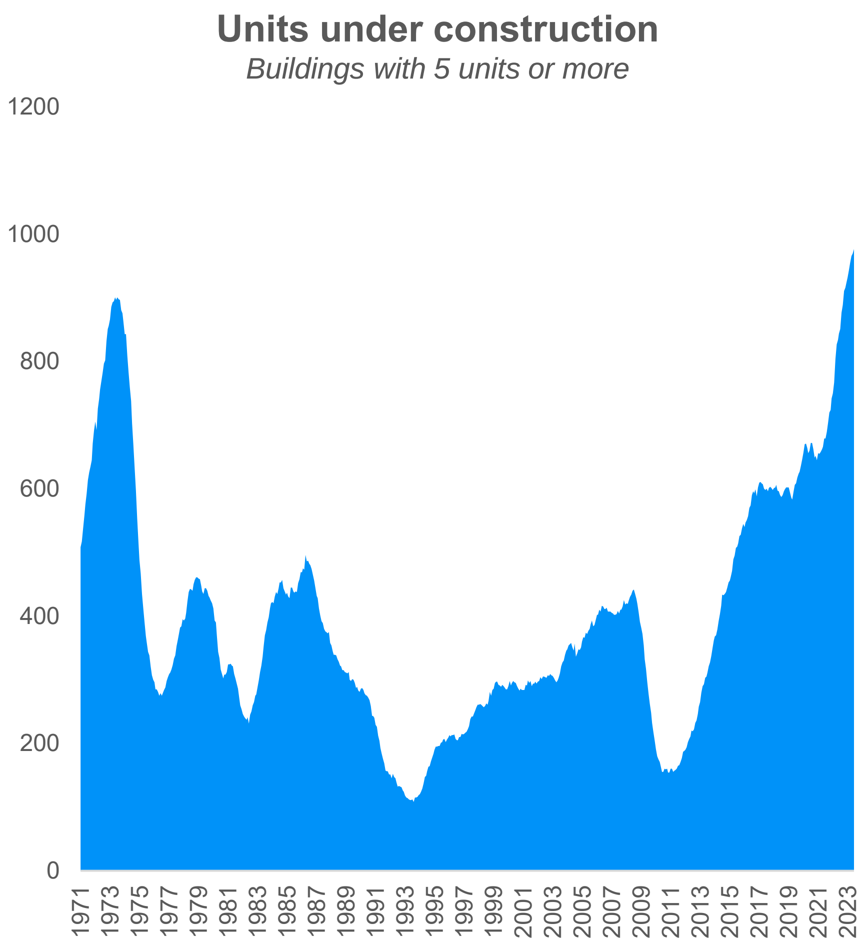
Occupancy looks to be settling back to its long-term average



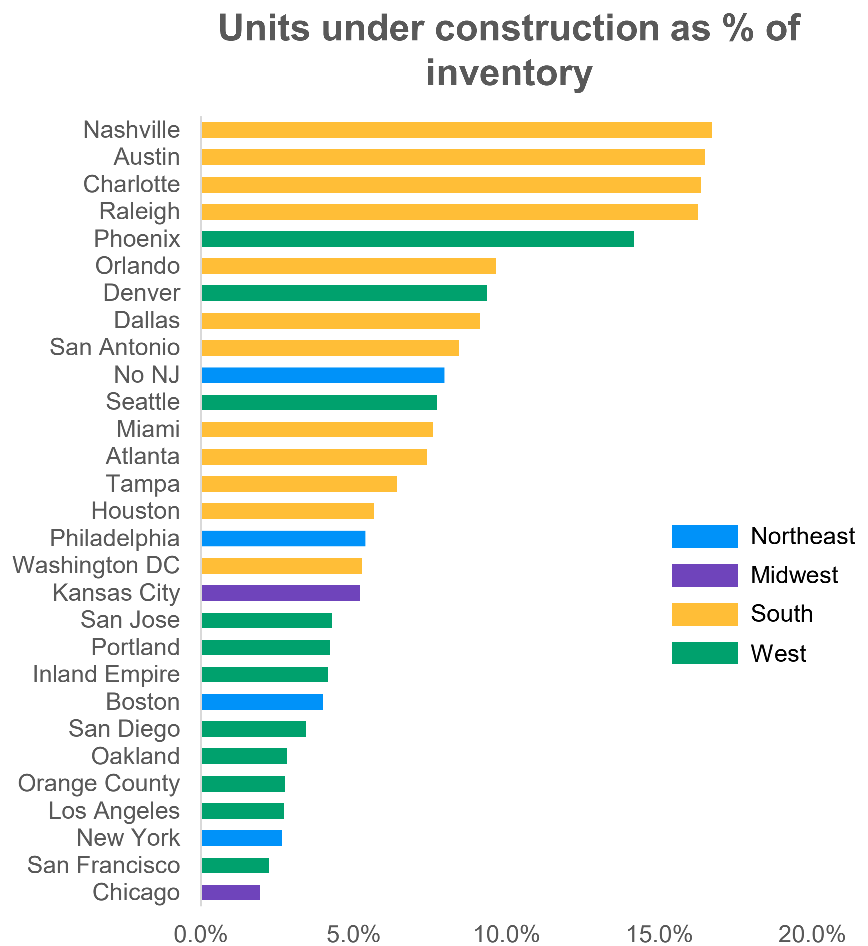
Source: Both - Axiometrics, JPMAM, as of 6/30/23

Multifamily: Development elevated, particularly in the Sunbelt

Multifamily construction is currently at an all-time high



Development varies by market, with construction most concentrated in the Sunbelt

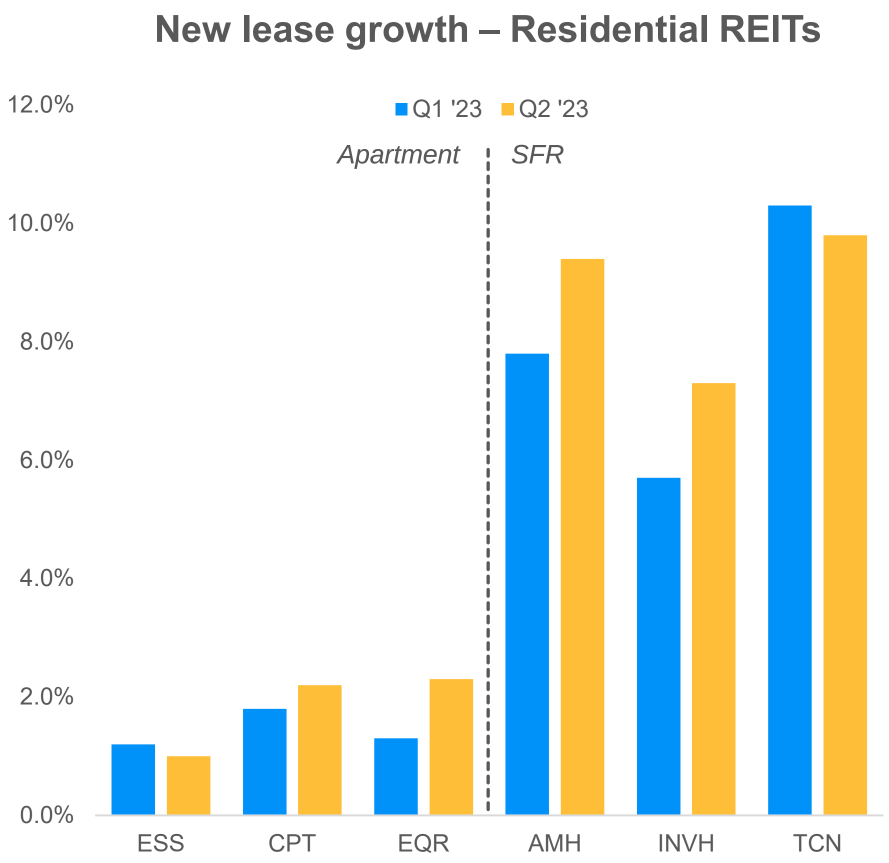


Source: Left - U.S. Census Bureau; Right – Axiometrics as of 6/30/2023; Regions based on U.S. Census Bureau definitions

SFR: Limited for-sale inventory remains a headwind for ownership while driving strong fundamentals for single-family rentals

Lock-in effect of higher mortgage rates has severely limited for-sale housing inventory

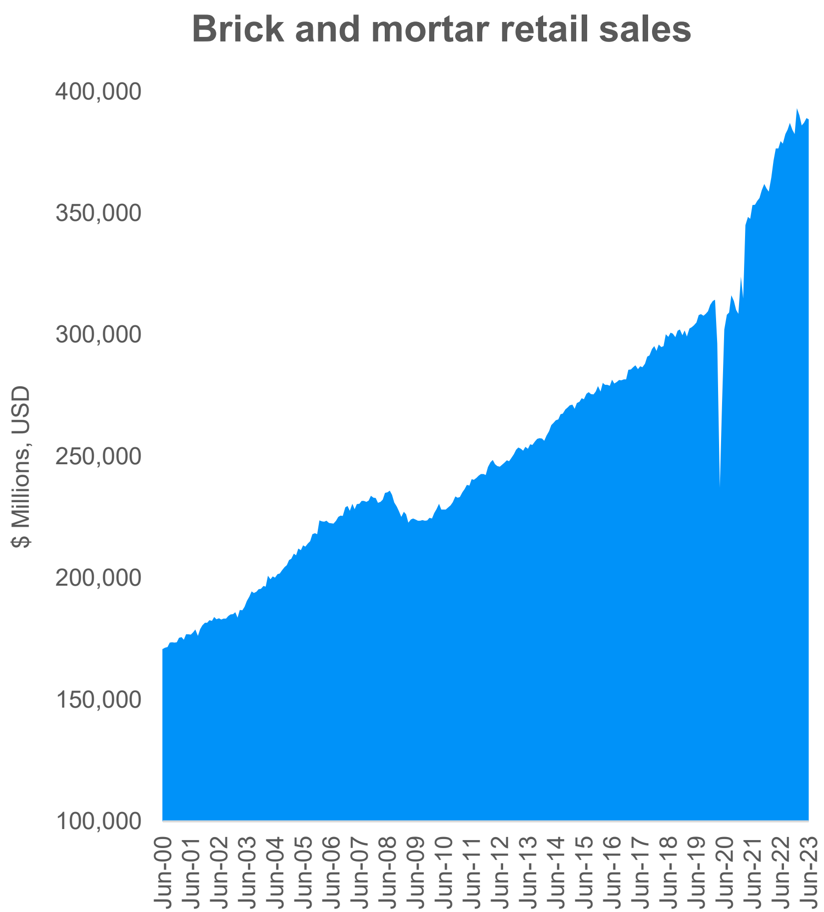
SFR REIT new lease growth significantly outpacing apartment REITs



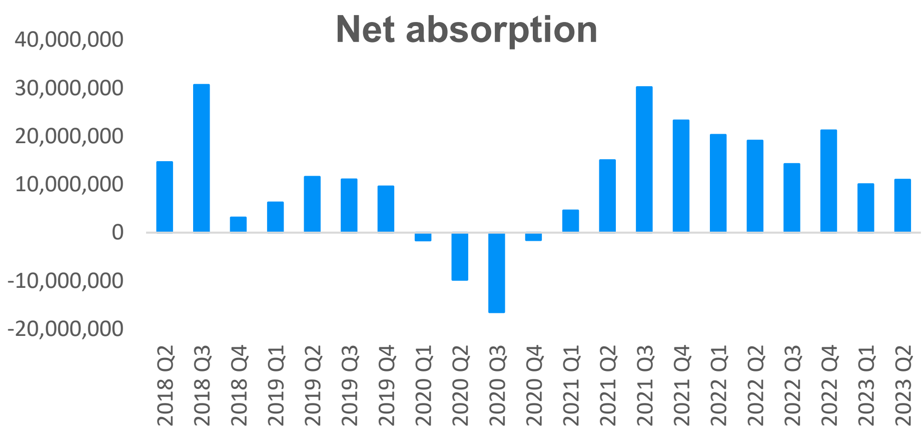
Source: Left - National Association of Realtors, Moody's Economy.com, as of 6/30/23. Right: Company Reports as of Q2 ‘23

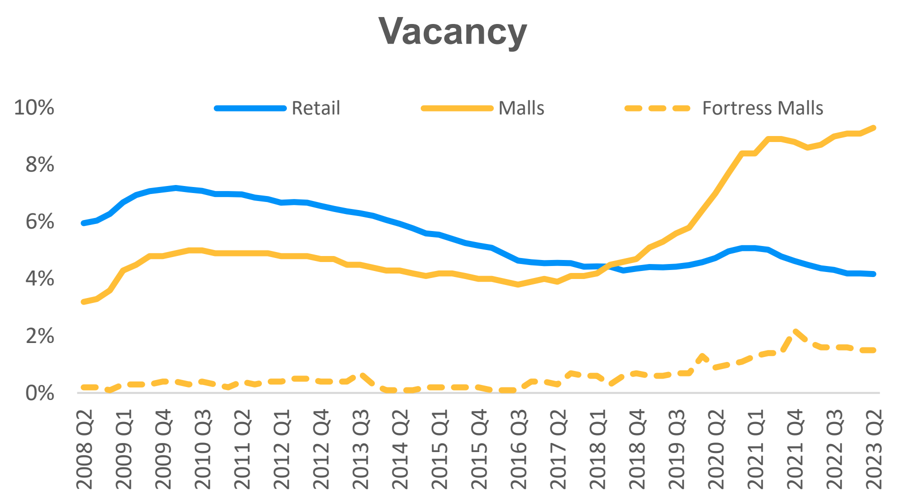
Retail: US consumers continue to help drive demand for retail space

Retail sales are well above pre-pandemic levels and growing



Property fundamentals are showing relative strength





Source: Left - BOC as of 6/30/23; Right – CoStar as of 6/30/23

2H2023: Healthy but moderating fundamentals offset by challenging debt markets

Capital market conditions are still challenging, but the worst may be behind us	Transaction volume and spot market pricing are down but showing signs of stabilizing
Office fundamentals take a step back	Absorption falls and vacancy rises, but better days may not be too far off. Top quality assets continue to outperform
Warehouse demand continues to normalize	Demand continues to moderate off pandemic highs, while construction activity shows signs of slowing
Multifamily rent growth easing, extended sectors represent attractive opportunities	Rent growth moderates as development remains high. Single-family rental product benefiting from for-sale housing market conditions
Retail metrics hold firm as the sector exits the pandemic stronger than expected	Strong sales buoyed by a resilient consumer drive healthy leasing and rent growth

Source: JPMorgan, as of 6/30/2023. Forecasts, projections and other forward-looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecasts, projections and other forward statements, actual events, results or performance may differ materially from those reflected or contemplated.

02

Investment Summary & Performance

Alaska Retirement Management Board
Investment summary as of June 30, 2023

Invested capital	Market value
Strategic Property Fund	$172,476,878

Account Performance (%)	Income	Appreciation	Total	ODCE
Three months[1]	0.8	-2.3	-1.6	-2.7
One year	3.0	-13.0	-10.4	-10.0
Three years	3.3	3.8	7.2	7.9
Five years	3.5	2.2	5.8	6.5
Ten years	4.1	4.1	8.3	8.7
Fifteen years	4.6	1.2	5.8	5.7
Twenty years	5.0	3.0	8.2	7.8
Twenty-five years	5.7	2.9	8.7	8.3
Since inception (7/1/84)	6.4	1.8	8.3	7.3

[1]non-annualized returns.

Past performance is not a guarantee of comparable future results. Total return assumes the reinvestment of income. Performance results are gross of investment management fees. The deduction of an advisory fee reduces an investor’s return. Actual account performance will vary depending on individual portfolio security selection and the applicable fee schedule.

03

Strategic Property Fund

Strategic Property Fund Positioning

High Conviction	Execution	Outperformance Drivers
▪ Infill and port proximate industrial	▪ Constructed new state-of-the-art product ▪ Focused on Tier 1 Coastal Markets / SoCal ▪ Sale of low growth industrial	▪ Avg rent 80% mark-to-market ▪ 4.5-year WALT ▪ 17M SF development pipeline
▪ Narrowed investable universe of office and retail	▪ Divested $5B of commodity office profitably at avg 4.5% cap rate ▪ Sold commodity west coast grocery portfolio in 1Q 2022 at 4.4% cap rate	▪ Asset selection driving outperformance vs peers ▪ Well capitalized ownership driving leasing success ▪ Extensive renovations completed in key assets
▪ Extended sectors - driving outsized rent growth	▪ Build-to-Rent SFR ▪ Outdoor storage ▪ Self storage	▪ Programmatic ventures in place to facilitate scale ▪ Accretive entry points with best-in-class operators and developers

Source: JPMAM. It should not be assumed that Fund positioning in the future will be profitable or will equal past performance.

Fund Sector Statistics

Sector Exposure[1]

	SPF 2Q20	SPF 2Q23	ODCE 2Q23
Industrial	18.0%	30.5%	35.0%
Residential	22.0%	27.7%	27.9%
Office	37.2%	22.4%	18.1%
Retail	21.6%	17.8%	10.0%
Extended Sectors		8.4%	N/A

NOI Growth[2]

	2022 Actual	2023 Budget	YTD Actual
Industrial	8.3%	11.6%	12.4%
Residential	22.2%	13.3%	14.3%
Office	-8.2%	9.5%	10.6%
Retail	16.4%	6.2%	7.6%
Total	**6.7%**	**9.7%**	**11.1%**

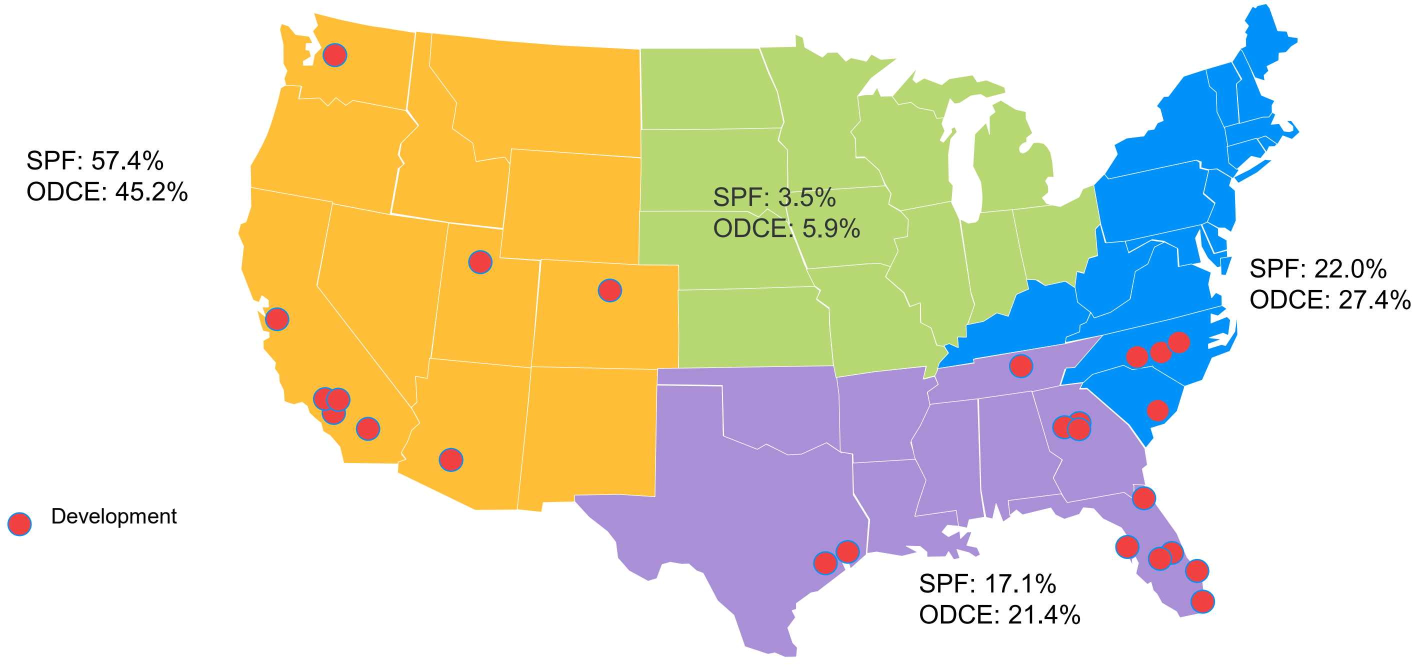
Sector Occupancy

	2Q 2023	2023 Rollover	2024 Rollover
Industrial	97.2%	5.6%	9.1%
Residential	92.0%	N/A	N/A
Office	88.9%	2.7%	10.8%
Retail	91.0%	8.3%	10.8%

As of June 30, 2023. [1]Net of debt. [2]Shows same store NOI growth. Extended sector details include future pipeline. Diversification does not guarantee investment returns and does not eliminate the risk of loss. The target returns are for illustrative purposes only and are subject to significant limitations. An investor should not expect to achieve actual returns similar to the target returns shown above. Because of the inherent limitations of the target returns, potential investors should not rely on them when making a decision on whether or not to invest in the strategy. Please see the complete Target Return disclosure at the conclusion of the presentation for more information on the risks and limitation of target returns. Provided for update and reporting purposes only, not to be construed as investment advice.

Portfolio Geographic Allocation

Geographic Exposure[1]



Highlights

Accretive underweights to Chicago and Washington, DC

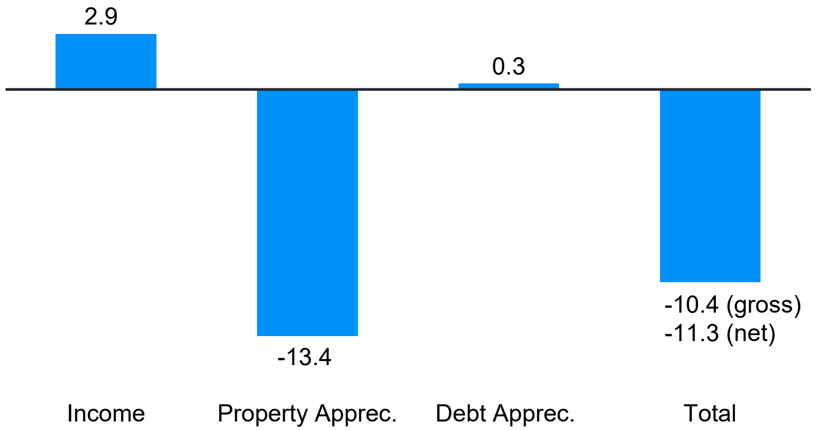
Industrial and residential development concentrated in high growth Sunbelt markets

Diversified West Coast exposure with dominant assets
30% industrial, 30% office, 20% retail, and 20% residential

As of June 30, 2023. [1]Shows development projects currently under development as of March 31, 2023. Diversification does not guarantee investment returns and does not eliminate the risk of loss. The target returns are for illustrative purposes only and are subject to significant limitations. An investor should not expect to achieve actual returns similar to the target returns shown above. Because of the inherent limitations of the target returns, potential investors should not rely on them when making a decision on whether or not to invest in the strategy. Please see the complete Target Return disclosure at the conclusion of the presentation for more information on the risks and limitation of target returns. Provided for update and reporting purposes only, not to be construed as investment advice.

3Q22 to 2Q23 - repricing core; evaluating the entry point

Return (%)



Vineyard Industrial, Ontario, CA

Unleveraged Sector Depreciation (%)

Retail	-1.9
Residential	-7.2
Industrial	-11.6
Office	-16.4

Valuation Commentary

- **Retail:** Strong leasing activity supported valuations
- **Industrial and Residential:** Lowest starting cap rates led to largest cap rate expansion. Values stabilizing supported by continued rent growth and transaction activity.
- **Office:** Impacted by expanding cap rates and weakening fundamentals

Data as of June 30, 2023. Returns represent composite level returns. Performance returns are time-weighted, calculated by geometrically linking monthly returns. Property appreciation and Debt returns may not equal total appreciation returns and income and total appreciation returns may not equal total gross returns due to compounding effects of linking the monthly returns. Source: JPMAM. Past performance is not a reliable indicator of current and future results. Total return assumes the reinvestment of income. Performance results are gross of investment management fees. The deduction of an advisory fee reduces an investor's return. Actual account performance will vary depending on individual portfolio security selection and the applicable fee schedule. Largest contributors and detractors are based on absolute value. Provided for update and reporting purposes only, not to be construed as investment advice.

Short term repricing impacts filter through long term results

Annualized returns as of June 30, 2023 (%)	Three Months[1]	One Year	Three years	Five Years	Ten Years	Twenty Years	Since incep. 1/1/98
Income	0.8	2.9	3.3	3.5	4.1	5.0	5.8
Appreciation	-2.3	-13.1	3.8	2.2	4.1	3.0	2.9
SPF Total Gross	**-1.6**	**-10.4**	**7.2**	**5.8**	**8.3**	**8.2**	**8.9**
ODCE Total Gross	-2.7	-10.0	8.0	6.5	8.7	7.8	8.5
SPF Total Net	**-1.8**	**-11.3**	**6.1**	**4.8**	**7.2**	**7.1**	**7.8**

SPF and benchmark returns as of 2Q 2023. [1]Returns for periods less than one year are not annualized. **The performance shown above is not the actual performance of any private placement investment vehicle. Performance is that of a predecessor fund that was managed in a similar manner by the portfolio manager. Past performance is not a reliable indicator of current and future results.** Total return assumes the reinvestment of income. Performance results are gross of investment management fees. Net returns are based on the highest applicable fee rate for this strategy. The deduction of an advisory fee reduces an investor's return. Actual account performance will vary depending on individual portfolio security selection and the applicable fee schedule.

Sector Details

Industrial

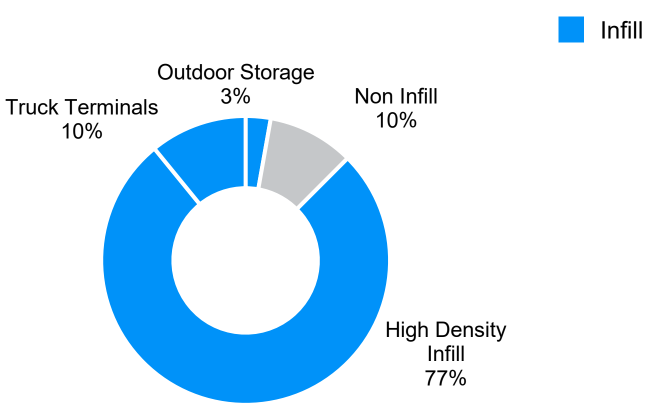
Sector Overview

Returns[1]	SPF	Peer Set
1 Year	-9.7%	-3.1%
3 Year	20.9%	20.3%
5 Year	17.2%	16.9%

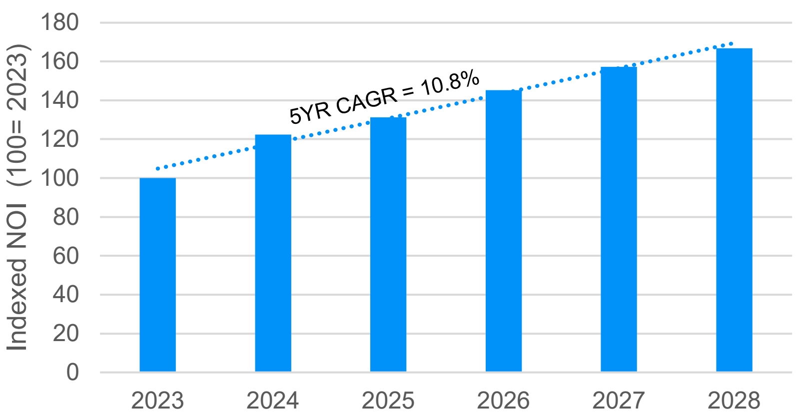
Fund Highlights

- Two-thirds of portfolio located in tier 1 coastal markets
- Scaled truck terminal and outdoor storage ventures driving outsized rent growth
- Imbedded development pipeline of 17M SF to drive increased sector allocation as well as profit
- Wtd. avg. 80% mark-to-market opportunity with 4.5 years WALT

Industrial Portfolio by Subsector[2]



Projected NOI Growth



Information as of June 30, 2023. [1]Performance is unlevered and Peer set for unlevered performance is MSCI/PREA US ACOE ex-SPF [2]Based on % of NAV. Results shown are not meant to be representative of actual investment results. Forecasts, projections and other forward looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecasts, projections and other forward statements, actual events, results or performance may differ materially from those reflected or contemplated. Provided for update and reporting purposes only, not to be construed as investment advice.

J.P.Morgan
ASSET MANAGEMENT

Dispositions: Recapitalization of Real Term I Portfolio

RealTerm I Portfolio

Property Type	Class A Industrial
Locations	Northern New Jersey, Chicago, Inland Empire, Atlanta, LA
Disposition Date	Q2 2023
Size	2.0M SF[1]
Gross Sales Price	$579.4M

Asset Highlights

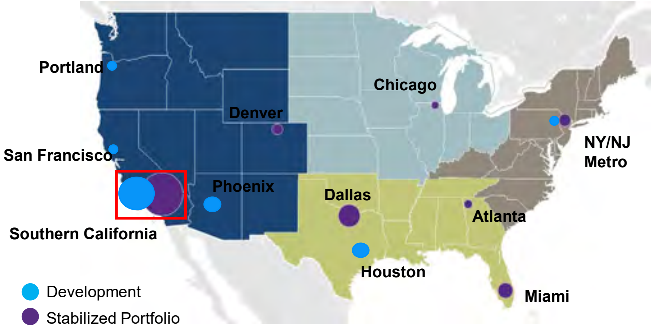
- Recapitalized the Realterm I Portfolio, a 61-asset portfolio consisting of truck terminals, IOS, and last-mile warehouse facilities
- 49% of the Portfolio was sold based on a gross valuation of $1.2B. Since inception IRR of 19.5%, 2.1x EM, and profit of $308.0M on the 49% interest sold.

As of June 30, 2023. [1]The Portfolio is comprised of a mixed use of assets including truck terminals, last mile warehouses, and IOS; as such the Portfolio consists of 866.2 acres as well as 2,637 dock doors across 61 assets. All case studies are shown for illustrative purposes only and should not be relied upon as advice or interpreted as a recommendation. Shown for illustrative purposes only and should not be interpreted as recommendations to buy or sell. Past performance is not a reliable indicator of current and future results.

Southern California Development Pipeline

Project	Vine Ontario	Mead Valley
Location	Ontario, CA	Riverside County, CA
Investment Date	June 2021	February 2021
Ownership	98%	98%
Size	25 Acres / 525K SF	48 Acres / 681K SF
NAV	$126.8M	$136.1M

- Two industrial development projects totaling 73 acres in Ontario and Riverside Co., CA
- Each project reflects an opportunity to develop and operate Class A industrial assets within in the Inland Empire, one of the country's most dynamic industrial markets
- Vine Ontario's initial phase of development consists of three buildings totaling 290K SF. The project will be delivered in early 3Q 2023 with one building currently pre-leased and a second lease pending, which will bring total pre-leasing to 39%. SPF anticipates achieving a 7% return on cost on the project.
- Phase II of Vine Ontario, two buildings totaling 235K SF, is planned for development in 2024-2025.
- Mead Valley consists of two buildings totaling 681K SF and will be delivered in 4Q 2023. One building (348K SF or 51% of net rentable area) has been pre-leased to a credit tenant at a rent 2x higher than underwriting, achieving a 10% return on cost.



As of July 19, 2023. This example is included solely for its aesthetic appeal. This example represents one of the investments of the Fund. However, you should not assume that these types of investments will be available to or, if available, will be selected for investment by the Fund in the future. The above example does not constitute investment advice or recommendations. It is not a solicitation or an offer to purchase or sell any investment. Past performance is not a reliable indicator of current and future results. Any investment mentioned throughout presentation are shown for illustrative purposes. A full list of SPF holdings are included in appendix.

Residential

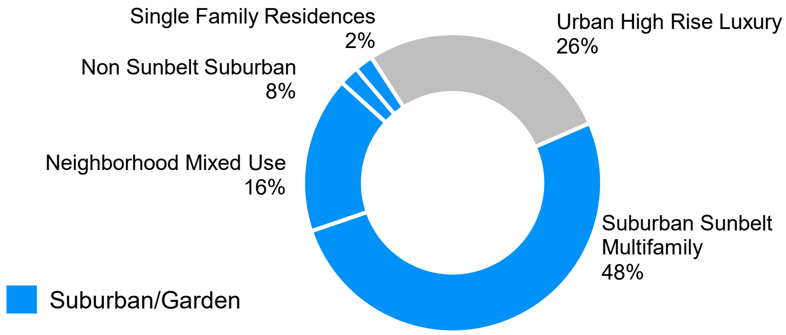
Sector Overview

Returns[1]	SPF	Peer Set
1 Year	-4.1%	-6.6%
3 Year	7.4%	7.1%
5 Year	6.4%	5.9%

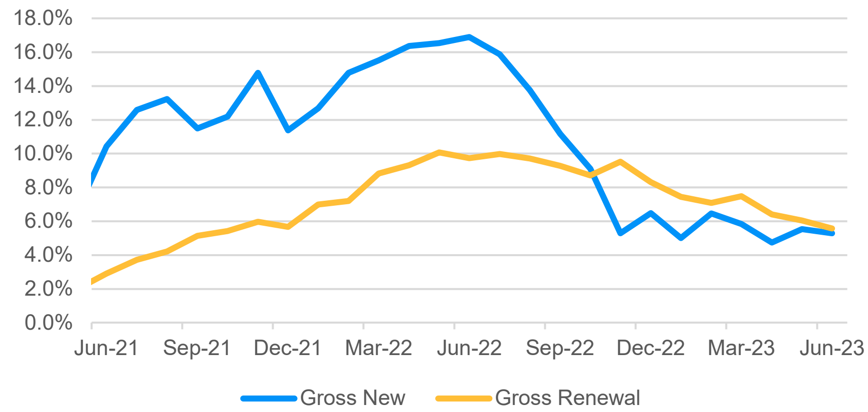
Fund Highlights

- Affordability focus with 65th avg. rent percentile and 20.2% avg. rent-to-income ratio
- Portfolio 75% suburban/garden, 61% in Sunbelt markets
- Single family rental portfolio of 1,700+ homes growing to 3,000+

Residential Portfolio by Subsector[2]

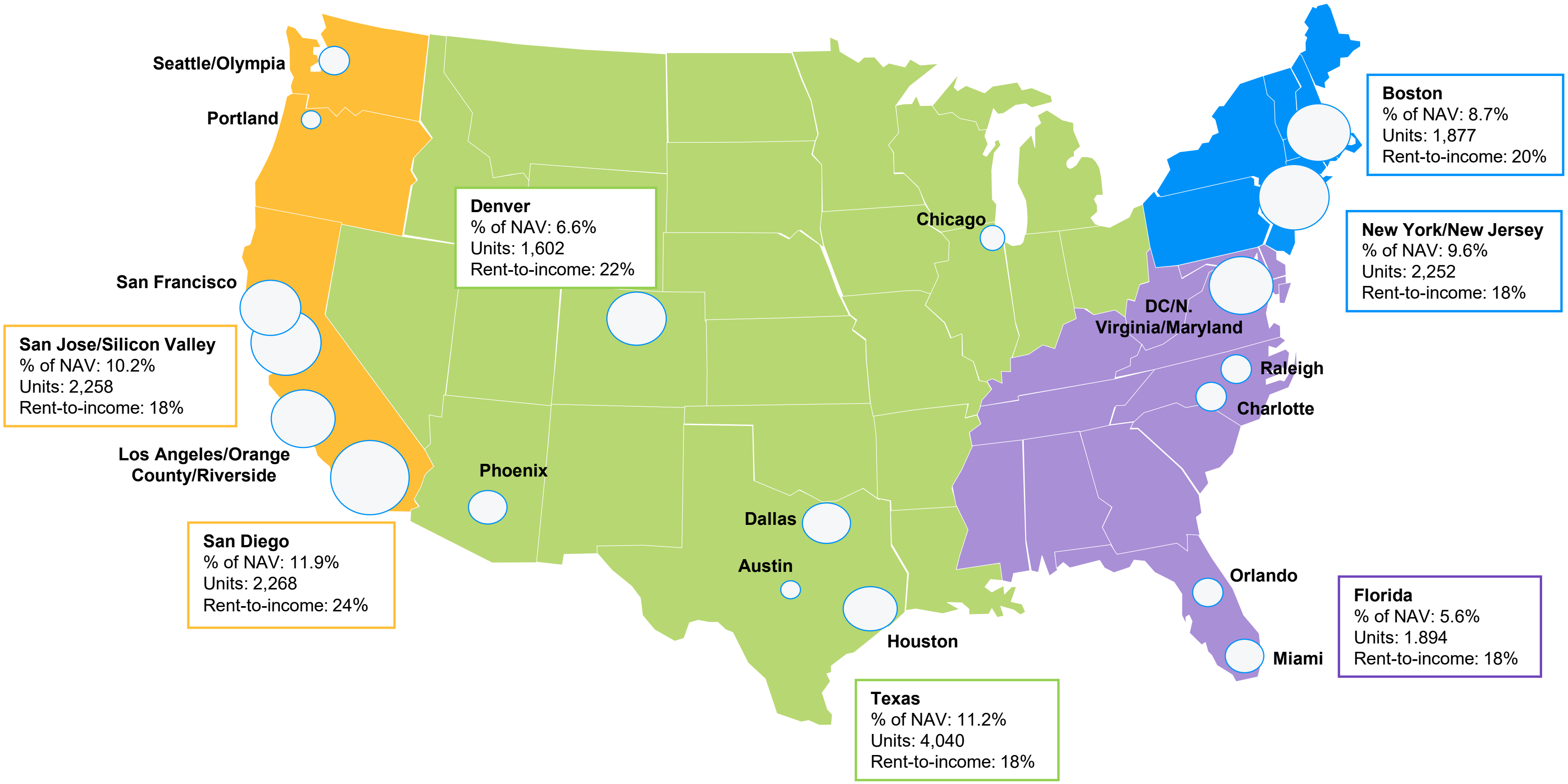


Trade-outs



Information as of June 30, 2023 unless otherwise noted. [1]Performance is unlevered and Peer set for unlevered performance is MSCI/PREA US ACOE ex-SPF. [2]Based on % of NAV. Forecasts, projections and other forward-looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecasts, projections and other forward statements, actual events, results or performance may differ materially from those reflected or contemplated. Provided for update and reporting purposes only, not to be construed as investment advice.

Residential Markets



As of March 31, 2023. Allocations based on NAV. Source: JPMAM. All case studies are shown for illustrative purposes only and should not be relied upon as advice or interpreted as a recommendation. Any securities mentioned throughout the presentation are shown for illustrative purposes only and should not be interpreted as recommendations to buy or sell. Past performance is not a reliable indicator of current and future results. Any investment mentioned throughout presentation are shown for illustrative purposes.

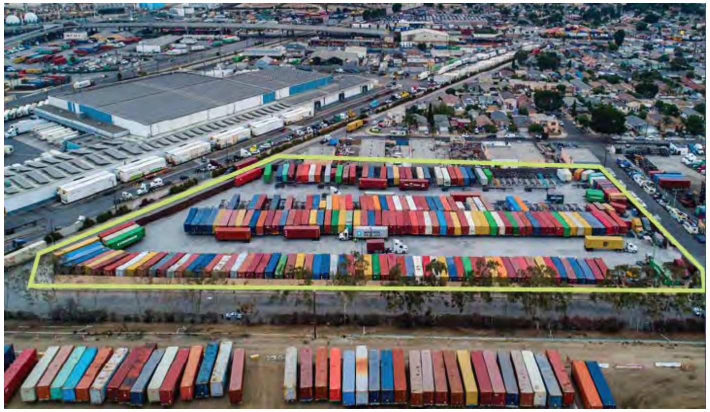
Single Family Rental: Development via a scalable programmatic venture

Asset Overview

Property type	Single family residences (rental)
Partner	American Homes 4 Rent ("AMH")
Initial close (JV I / JV II)	May 2020 / July 2023
Total program size* (JV I & II)	USD $1.25B

- Programmatic joint venture to build single family rental homes located primarily in the Southeast and Sunbelt
- Increases exposure to the residential sector with the aim of generating outsized yield and stronger rent growth relative to apartment construction
- Joint Venture I to date: Closed 29 sites totaling ~2,000 homes
- Joint Venture II to date: Formed second programmatic JV with AMH and first site closed in July 2023, with three additional sites expected to close in July 2023.
- Rationale:
  - Building into U.S housing shortage
  - Demographic tailwinds
  - Impediments to homeownership
  - Advantages to renting

Kingdom Crest, Nashville, TN



All case studies are shown for illustrative purposes only and should not be relied upon as advice or interpreted as a recommendation. Any securities mentioned throughout the presentation are shown for illustrative purposes only and should not be interpreted as recommendations to buy or sell. Forecasts, projections and other forward looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecasts, projections and other forward statements, actual events, results or performance may differ materially from those reflected or contemplated. Any investment mentioned throughout presentation are shown for illustrative purposes. *Total program size represents equity commitment.

J.P.Morgan ASSET MANAGEMENT

Office

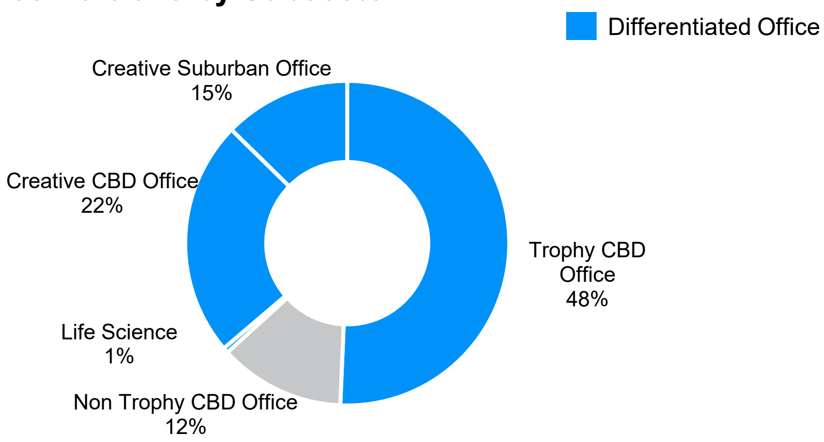
Sector Overview

Returns[1]	SPF	Peer Set
1 Year	-13.0%	-20.2%
3 Year	-1.4%	-5.8%
5 Year	1.7%	-1.8%

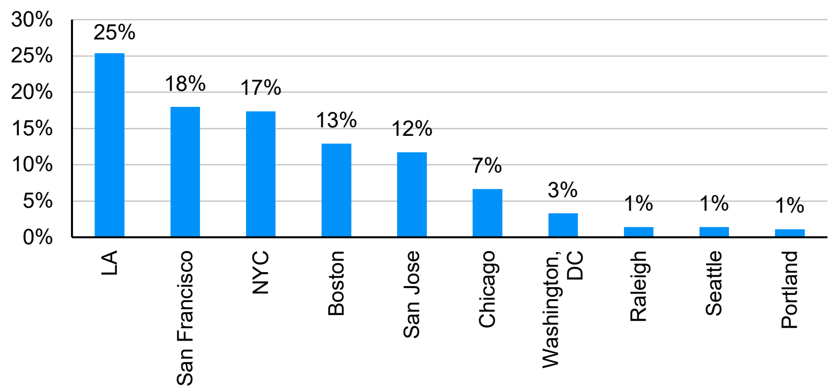
Fund Highlights

- 90% leased among differentiated assets, which comprise nearly 90% of office portfolio
- Capturing outsized share of lease activity with tenants gravitating toward assets with strong sponsorships
- 3M+ SF of leases executed post-COVID with 800K SF currently pending

Office Portfolio by Subsector[2]



Office Portfolio by MSA[2]

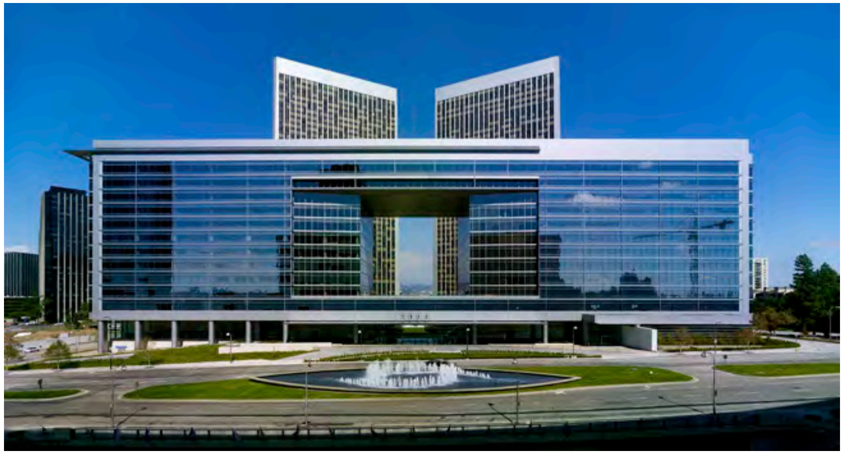


Information as of June 30, 2023 unless otherwise noted. [1]Performance is unlevered, excludes medical office/lab and Peer set for unlevered performance is MSCI/PREA US ACOE ex-SPF. [2]Based on % of NAV. Forecasts, projections and other forward-looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecasts, projections and other forward statements, actual events, results or performance may differ materially from those reflected or contemplated. Provided for update and reporting purposes only, not to be construed as investment advice.

Century Park

Asset Overview

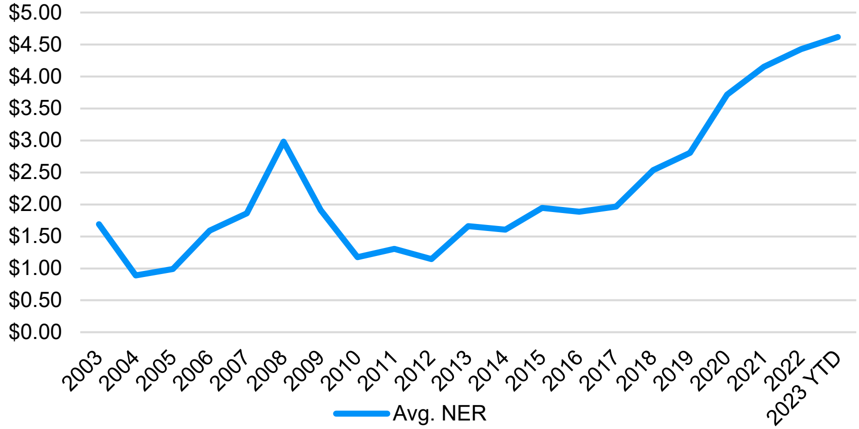
Property type	Office
Location	Los Angeles, CA
Investment Date	July 2014
Ownership	50%
Size	3.1M SF
NAV	$1.2B
Leasing	96.0%



Asset Highlights

- Highly amenitized, multi-tenant office complex in West Los Angeles consisting of two dominant assets—Century Plaza Towers and 2000 Avenue of the Stars
- Strong leasing momentum benefitting from the migration of high credit tenants out of Downtown LA
- 1.1M SF of executed leases (67 transactions) since the start of the pandemic through 2022, with an additional 165K SF of executed and pending leases YTD 2023 (14 transactions)
- Consistent rent growth with notable lease trade outs ranging from 86% to 110%

CPT NER Trends



As of June 30, 2023. This example is included solely for its aesthetic appeal. This example represents one of the investments of the Fund. However, you should not assume that these types of investments will be available to or, if available, will be selected for investment by the Fund in the future. The above example does not constitute investment advice or recommendations. It is not a solicitation or an offer to purchase or sell any investment. Past performance is not a reliable indicator of current and future results. Any investment mentioned throughout presentation are shown for illustrative purposes.

Reduced overall office holdings

Over the past 3 years, SPF has completed $5bn of office sales at a weighted average 4.5% cap rate

	60 State Street	1918 Eighth Avenue	Landmark Center	The Crescent	One Memorial Drive	Trammell Crow Center	Sunnyvale Town Center	McKinney & Olive
Date Sold	Mar-20	Dec-20	Jan-21	Mar-21	Aug-21	Mar-22	Nov-22	Dec-22
Location	Boston, MA	Seattle, WA	Boston, MA	Dallas, TX	Cambridge, MA	Dallas, TX	Sunnyvale, CA	Dallas, TX
Year Built	1978	2010	1928 (Reno-2018)	1985	1985	1984	2010	2016
Total Gross Price[2]	$334 M	$589 M	$1,015 M	$655 M	$454 M	$502 M	$193 M	$397 M
Going-in cap	4.9%	4.5%	3.8%	4.9%	3.7%	3.9%	6.4%	5.1%
Buyer	Starwood	Hudson Pacific/CPP	Alexandria Real Estate Equities	Crescent RE Equities	MetLife and Norges Bank	Regent Properties	KKR	Granite & Highwoods
Key Tenants	Wilmer Cutler, Pioneer	Amazon	Boston Children's Hospital, Harvard, Toast	McKool Smith, Weil Gotshal	Microsoft, Intersystems	Goldman Sachs, Baker Botts	Uber	Foley & Lardner, Sidley Austin
Realized IRR	4.9%	11.3%	8.4%	11.8%	22.0%	7.2%	6.8%	15.2%

60 State Street, Boston, MA

Trammell Crow Center, Dallas, TX

One Memorial Drive, Cambridge, MA

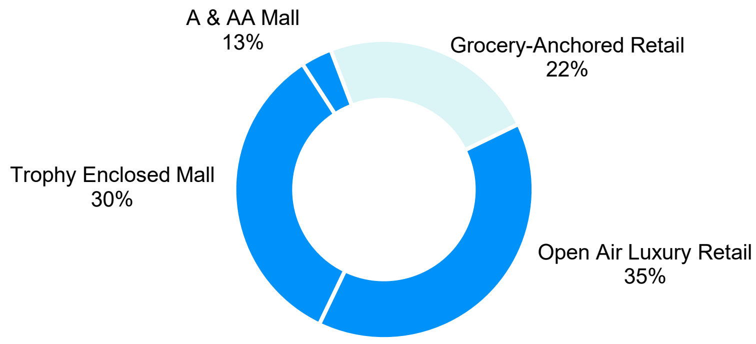
Information as of 4Q 2022 unless otherwise noted. [1]Represents total value of all office sales (incl. partial sales) at Fund share between 2020 and 2022.[2]Represents Fund share of final sale. [3]At 100% gross sales price. These example are included solely for its aesthetic appeal. These examples represent investments of the Fund. However, you should not assume that these types of investments will be available to or, if available, will be selected for investment by the Fund in the future. The above example does not constitute investment advice or recommendations. It is not a solicitation or an offer to purchase or sell any investment.

Retail

Sector Overview

Returns[1]	SPF	Peer Set
1 Year	2.9%	-1.7%
3 Year	4.8%	1.4%
5 Year	1.6%	-0.5%

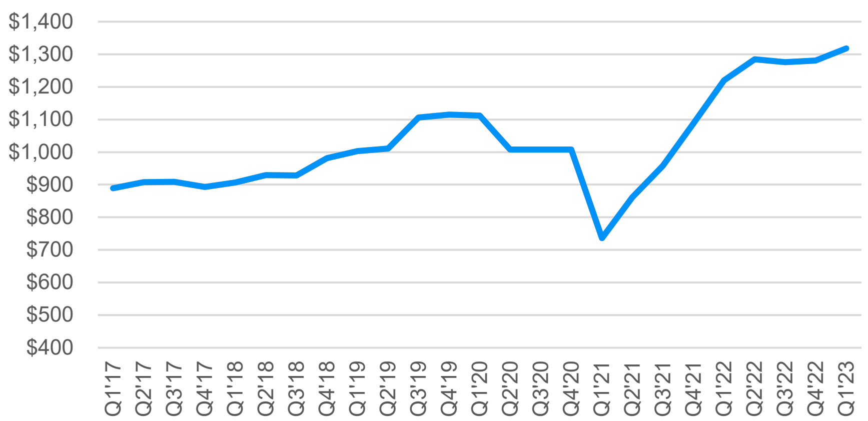
Retail Portfolio by Subsector[2]



Fund Highlights

- Divested of over $2B in commodity retail since 2019
- 90% of mall NAV ranked in top 10 malls in the US
- SPF sales ($1,371psf) are 2x the US average
- Experiential/luxury retail anticipated to demonstrate resilience despite market volatility. Driven by strong consumer and credit retailers
- Leasing velocity out pacing pre-covid levels by 10-15%

REA Annualized Mall Sales



Information as of June 30, 2023 unless otherwise noted. [1]Performance is unlevered and Peer set for unlevered performance is MSCI/PREA US ACOE ex-SPF. [2]Based on % of NAV. Forecasts, projections and other forward-looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecasts, projections and other forward statements, actual events, results or performance may differ materially from those reflected or contemplated. Provided for update and reporting purposes only, not to be construed as investment advice.

NorthPark Center, Dallas, TX

Asset Overview

Property type	Class AAA retail
Investment Date	May 2014
Ownership	60%
Size (SF)	2.0M
Occupancy	92%
NAV (SPF Share)	$616.3M

Asset Highlights

- Releasing spreads for new leases signed in 2022 are up 52% over the prior rent. Of the 20 new tenants signed, more than 50% of these are the only location in Dallas.
- 2023 NOI on track to be 21% higher than 2019
- Rolling 12-month comparable sales are $1,551 psf (+67% over last year and 16% relative to pre-COVID)
- Property gets over 11 million visitors per year. Traffic has returned to within 10% of pre-pandemic levels

As of June 30, 2023. This example is included solely for its aesthetic appeal. This example represents one of the investments of the Fund. However, you should not assume that these types of investments will be available to or, if available, will be selected for investment by the Fund in the future. The above example does not constitute investment advice or recommendations. It is not a solicitation or an offer to purchase or sell any investment. Past performance is not a reliable indicator of current and future results. Any investment mentioned throughout presentation are shown for illustrative purposes. A full list of SPF holdings are included in appendix.

Extended Sectors & Balance Sheet

Extended Sectors

Truck Terminals & Industrial Outdoor Storage

Thesis

- Extensions of traditional industrial
- Impediments to new supply
- Critical nodes in supply chain
- Early innings of institutionalization
- Difficult to scale

Execution

- Initial truck terminal acquisition in 2018; portfolio currently $1.6 bln
- 1st ODCE fund in truck terminal sector
- Acquired 40 IOS sites to date to create institutional quality portfolio totaling $300M+

Single Family Residential

Thesis

- Millennials entering family formation years
- Ongoing impediments to home ownership
- Operational efficiencies in purpose built rental communities
- Create new housing stock

Execution

- Build-for-rent program with AMH, top SFR developer operator
- Portfolio of 1,700 homes with path to 3,000 homes
- High retention, strong rent trade-outs

Age Restricted Housing

Thesis

- Demand tailwinds for affordable product catering to aging Baby Boomer cohort
- High retention (+/-80%) results in steady occupancy, low turnover costs, and a durable income stream

Execution

- Acquired 2,400 unit portfolio located across multiple Southern California submarkets in 2006
- Favorable Prop 13 tax basis results in 40+ bps of annual incremental income compared reset basis
- Accretive asset to the portfolio since acquisition

Self Storage

Thesis

- High operating margins (>70%), low operating intensity, and low capex requirements
- Modest monthly rents and sticky tenant base
- "Mom and Pop" ownership provides opportunities to improve operations and mark rents to market

Execution

- Aggregation strategy provides best risk-adjusted returns
- Formed $500M with established national operator to acquire individual properties
- Closed on initial investment in 1Q 2023

This example is a representative investment. However, you should not assume that this type of investment will be available to or, if available, will be selected for investment in the future. There can be no guarantee of future success. A full list of firm recommendations for the past year is available upon request.

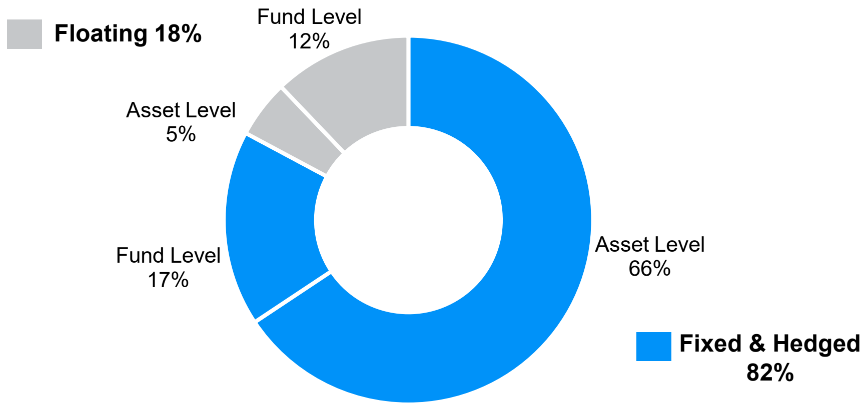
Balance sheet

Details (USD, millions)

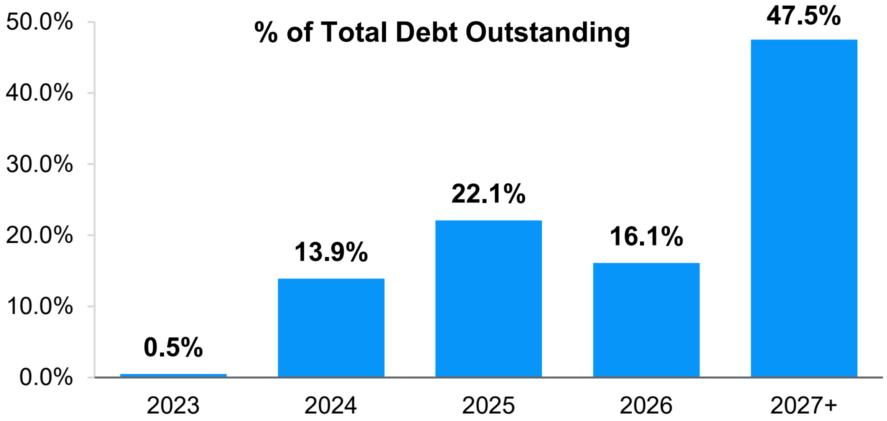
Gross Asset Value	42,352.7
Net Asset Value	31,097.3
Cash	3.8%
LTV	27.4%
Contribution Queue	713.8
Redemption Queue	5,599.3

Broadstone Olivine, Littleton, CO

Debt Details[1]



Upcoming Debt Maturities[2]



Data as of June 30, 2023 unless otherwise noted. It should not be assumed that Fund positioning in the future will be profitable or will equal past performance. [1]Fixed vs floating loan designation based on contractual terms. [2] Does not include outstanding line of credit.

Summary

SPF positioned for the future

Allocations aligned with secular tailwinds; industrial and multi-family comprise over 60% of SPF sector exposure

Strong asset selection across sectors drive alpha

Extended sectors driving outsized returns – allocation will continue to expand

Calibrated development pipeline in high conviction sectors, attractive entry point with embedded appreciation

Single Family Rentals, Various, US

Forecasts, projections and other forward-looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecasts, projections and other forward statements, actual events, results or performance may differ materially from those reflected or contemplated.

Appendix

Real Estate Americas Platform Overview

J.P. Morgan Real Estate Americas: A premier manager of real estate in open-end funds

$76bn

Gross Asset Value of total real estate investments[1]

60+ yrs.

History of managing real estate strategies

~$11bn

Gross Asset Value of real estate debt investments[1]

$60bn

Gross Asset Value across all core offerings[1]

220+

Professionals in the United States

860+

Institutional and high net worth clients globally

$10bn

Annual acquisition activity over the past year

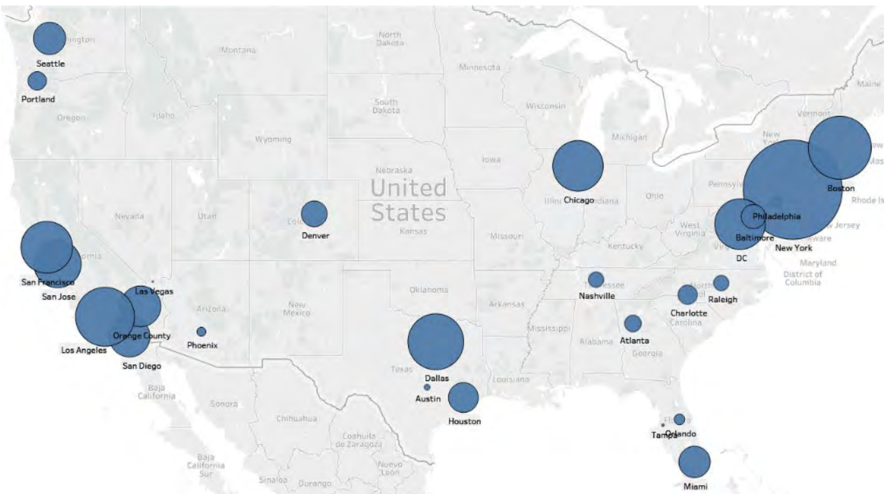
Data as of June 30, 2023, unless otherwise noted. Source: J.P. Morgan Asset Management. [1]Includes CML business. There can be no assurance that the past performance or success of the business will serve as an indicator of such future performance or success.
[1]Preliminary AUM as of June 30, 2023, and includes CML business.

J.P.Morgan
ASSET MANAGEMENT

Depth of Real Estate Americas platform creates differentiated information advantage

$76 billion in AUM[1] translates into…

Total market exposure (FMV)



- **Over 220 professionals** in 6 offices across the country
- Investment teams **specialized by market**
- **Sector strategists** providing deep expertise in each sector
- Dedicated **Development and Engineering team** of 6 individuals to oversee development projects
- Average annual transaction volume of **$13.7bn per year[2]**
- **$12.2bn in deals sourced** in 2022 alone**; closed on ~$10bn**
- Access to **extensive proprietary and non-proprietary, real-time** daily data used to **drive investment decisions**
- Market insights from **Chase's proprietary data**[5] from banking **50% of U.S. households**

58
Markets

401
Investments[3]

178mn
Square Feet / **1.6k** acres / **4K+** truck terminals of commercial GLA[4]

69k
Residential units

3,000+
Tenants across 20 NAICS

Source: J.P. Morgan Asset Management as of June 30, 2023
[1]Preliminary AUM as of June 30, 2023, and includes CML business. [2]Average transaction volumes over past 5 years 2018-2022. [3]Includes direct real estate and land investments. [4]Acres includes outdoor storage and land. [5]J.P. Morgan Chase Bank, N.A. (Chase) is proud to serve nearly half of America's households with a broad range of financial services. For more information, visit the website: https://www.chase.com/digital/resources/about-chase.

Strategic Property Fund Investment Team and Partners

Portfolio Management

Kimberly Adams
Strategic Property Fund

28 years of experience

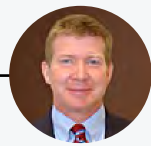
Sue Kolasa, CFA
Strategic Property Fund

23 years of experience

Jason Curran
Strategic Property Fund

12 years of experience

Key Investment Partners



Mike Kelly

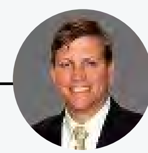
Head of Real Estate Americas
34 years of experience

Craig Theirl

CIO, Real Estate Americas
24 years of experience

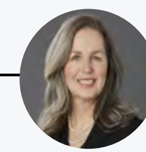
Brian Nottage, PhD, CFA

Head of Investment Strategy
25 years of experience



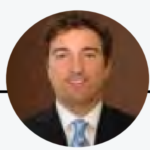
Mark Bonapace

Head of Asset Management
33 years of experience



Ann Cole

Global Head of Real Estate Client Strategy
34 years of experience



Jim Kennedy

Head of Development & Engineering
33 years of experience

Dianna Russo

Director of ESG + R
29 years of experience

Jeff Miller

Head of Debt Capital Markets
20 years of experience

Key Functional Partners

Josh Weintraub, CFA
REA COO

Al Dort
Finance

Ruchi Pathela
Valuations

Steve Greenspan
Product Development

Jill Golubitsky
Human Resources

Inna Semenchuk
Risk

Kristin Swon
Compliance

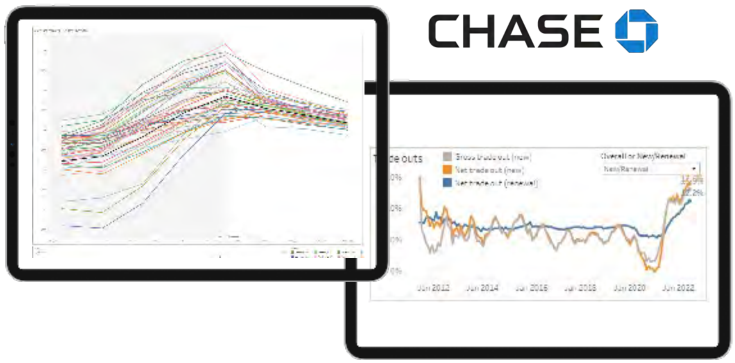
Gary Lazarus
Legal

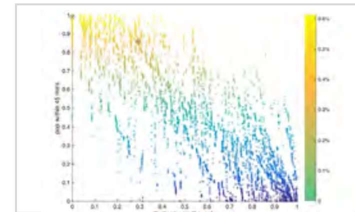
Ben Berookhim
Technology

As of 6/23. There can be no assurance that these professionals will continue to be involved with J.P. Morgan Asset Management or the Investment Advisor, or that the past performance or success of any such professional serves as an indicator of such professional's future performance or success.

Disciplined and integrated investment process fostering innovation

..unmatched access to **proprietary data**[1]





Top-down research
Analyze market conditions and trends

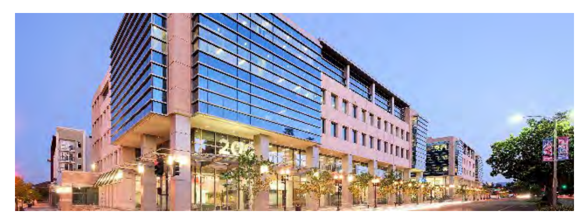
Acquisitions	Asset Management	Dispositions
Buy right	**Maximize value**	**Sell right**

Bottom-up investment philosophy
Market transaction intelligence: Acquisition, leasing, financing, sales

Single family rentals

High-flow through truck terminal

Creative office



[1]J.P. Morgan Chase Bank, N.A. (Chase) is proud to serve nearly half of America's households with a broad range of financial services. For more information, visit the website: https://www.chase.com/digital/resources/about-chase.
For illustrative and discussion purposes only.

Appendix

Supplemental Exhibits

Investment committee

Institutionalized process employed across the platform: collaborative, streamlined, efficient, and thorough

Voting members: unanimous vote required to approve all acquisitions and dispositions

Chief Investment Officer

- Provides investment experience and ensures consistency of process and policy
- Underwriting responsibility

Portfolio Manager

- Represents the interests of the Fund
- Responsible for adherence to Fund investment strategy and maintaining portfolio diversification

Head of Asset Management

- Assures consistency of asset management policies across regions and sectors
- Responsible for providing a further reasonableness check on underwriting from an asset management perspective

Real Estate Research Senior Member

- Provides macro perspective
- Advises on economic and demographic trends, risks/opportunities and portfolio strategies

Participating members: provide expertise in respective areas to aid in decision making

Head of Real Estate Americas	Development and Engineering	Financial	Head of Portfolio Strategy	Global Head of Client Strategy	Sector Strategist	Director of Valuations	Debt Capital Markets	Director of ESG+R

For illustrative purposes only
May 2023

Valuation Process

Independent third-party valuation review and approval – Every asset – Every quarter

- **Quarterly Valuations**
  - Every asset is appraised annually by a third-party appraisal firm.
  - In quarters when a third-party appraisal firm does not value an asset, the third-party appraisal management firm, SitusAMC, appraises each office, industrial, and retail asset.
  - For multifamily assets, SitusAMC recommends assets that should be reviewed for a potential interim quarterly valuation, and if JPM and SitusAMC agree that a change in value from the current carrying value is supported, SitusAMC produces an interim quarterly valuation that is reviewed and approved by a member of the Valuations team and Asset Management.
  - The Valuations Team reviews and signs off on every value.
  - SitusAMC delivers a concurrence letter at the end of every quarter stating that all final values reported are fair and reasonable and reflect the best estimates of Fair Value as of the dates of value.
- **Review of Appraisals**
  - All third-party appraisals are reviewed and approved by Asset Management, Valuations, and SitusAMC.
  - Asset Management reviews all appraisals for factual information, and all three groups review all appraisals for reasonableness of market leasing and capital market assumptions.
  - The Valuations Team reviews valuations for reasonableness of assumptions and final value, as well as consistency of pricing parameters within geographic region and property type.
  - Unreconciled differences with externally appraised values are documented and retained, and per valuation policy, the appraiser’s value is the maximum that can be recorded.
- **Quarterly Review and Annual Audit**
  - PricewaterhouseCoopers performs a quarterly review and annual audit of all appraisals.
- **Quarterly Valuation Governance Committee Review**
  - The results of the valuation process are reported on a quarterly basis to the Valuation Governance Committee. The Valuation Governance Committee is comprised of members from JPMAM Control Management, Compliance, Risk Management, Business Management, Alternative Operations, and Legal, and is responsible for reviewing the results of the valuation process and ensuring adherence to policy.

Select Third-Party Appraisal Firms:

- Breakpoint Advisors
- Capright
- CBRE
- Cushman & Wakefield
- Joseph J. Blake
- Mazars USA LLP
- National Valuation Consultants
- National Property Valuation Advisors
- Qval Property Advisors
- Weitzman Associates

Appendix

Schedule of Investments

SPF Industrial Investments

As of June 30, 2023

Investment Name	Location	Ownership	Square Footage (SF)	NAV (USD 000s)	% of NAV
Black Creek Build to Core	Various	JV	6,885,747	1,396,661	4.22%
Greater Los Angeles Industrials	Various, CA	WO	2,532,116	783,916	2.37%
Vineyard Industrial I	Ontario, CA	JV	1,946,335	710,827	2.15%
Toyota Campus	Torrance, CA	JV	1,044,669	668,315	2.02%
Alliance Texas - Industrial	Fort Worth, TX	WO	7,212,166	648,076	1.96%
South Florida Logistics Center	Miami, FL	JV	1,643,312	638,835	1.93%
Kimball Business Park	Chino, CA	WO	1,031,008	398,853	1.21%
Dugan Texas	Various, TX	JV	6,047,818	390,867	1.18%
South Bay Industrials - SPF	Compton, CA	JV	1,530,874	331,892	1.00%
Douglas Park IV	Long Beach, CA	JV	-	321,542	0.97%
Vineyard Industrial II	Ontario, CA	WO	1,053,225	267,762	0.81%
Central Denver (Pecos Phase I and II)	Denver, CO	WO	1,146,363	267,210	0.81%
Big 5 Distribution Center	Riverside, CA	WO	953,132	213,250	0.64%
RealTerm II Portfolio	Various	JV	1,512,543	203,364	0.61%
PortSouth Bryla	Carteret, NJ	WO	459,500	173,452	0.52%
Pico Rivera	Pico Rivera, CA	JV	306,278	162,074	0.49%
Pinnacle	Dallas, TX	JV	1,338,100	146,698	0.44%
Mead Valley	Perris, CA	JV	680,744	136,100	0.41%
4633 La Palma	Anaheim, CA	WO	281,548	128,581	0.39%
Vine Ontario	Ontario, CA	JV	290,439	126,789	0.38%
HUB 25	Denver, CO	WO	545,523	125,638	0.38%
Greater Los Angeles - Mira Loma	Eastvale, CA	JV	376,007	125,044	0.38%
Chariot Logistics Center	Melrose Park, IL	WO	623,000	105,131	0.32%
5555 Jurupa	Ontario, CA	WO	460,000	97,898	0.30%
Sam Houston Center	Houston, TX	WO	833,720	89,162	0.27%
DBC - Osage Street Portfolio	Denver, CO	WO	431,600	84,817	0.26%
Black Creek Open End Fund	Various	JV	23,249,524	71,781	0.22%

Ownership: WO indicates wholly owned investments and JV indicates joint venture investments. Totals may not sum due to rounding. These examples represent some of the investments of the Fund. However, you should not assume that these types of investments will be available to or, if available, will be selected for investment by the Fund in the future.

SPF Industrial Investments (cont'd)

As of June 30, 2023

Investment Name	Location	Ownership	Square Footage (SF)	NAV (USD 000s)	% of NAV
Highway 4051	Grapevine, TX	WO	540,000	66,132	0.20%
Park West	Hebron, KY	WO	542,960	54,355	0.16%
Marina Crossings	Chicago, IL	JV	633,276	41,460	0.13%
North Fairbanks	Houston, TX	JV	2,169,020	37,053	0.11%
CenterPoint Truck Terminal Portfolio	Various	JV	342,926	29,254	0.09%
RealTerm Portfolio	Various	JV	212,221	22,908	0.07%
Chino East End	Chino, CA	JV	359,370	20,218	0.06%
TOTAL INDUSTRIAL Warehouse (SF)			**69,215,064**	**9,085,841**	

Investment Name	Location	Ownership	Acres	NAV (USD 000s)	% of NAV
RealTerm Portfolio	Various	JV	466	290,292	0.88%
Zenith IOS	Various	JV	531	277,242	0.84%
RealTerm II Portfolio	Various	JV	34	51,966	0.16%
CenterPoint Truck Terminal Portfolio	Various	JV	223	11,637	0.04%
TOTAL IOS			**1,254**	**631,021**	

Investment Name	Location	Ownership	# of Terminals	NAV (USD 000s)	% of NAV
RealTerm Portfolio	Various	JV	2,488	234,547	0.71%
CenterPoint Truck Terminal Portfolio	Various	JV	1,243	76,711	0.23%
RealTerm II Portfolio	Various	JV	409	32,992	0.10%
TOTAL # of terminals			**4,140**	**344,352**	

Investment Name	Location	Ownership	Square Footage (SF)	NAV (USD 000s)	% of NAV
Westport Storage 1	Chino, CA	JV	81,362	19,111	0.06%
TOTAL SELF STORAGE			**81,362**	**19,111**	

Ownership: WO indicates wholly owned investments and JV indicates joint venture investments. Totals may not sum due to rounding. These examples represent some of the investments of the Fund. However, you should not assume that these types of investments will be available to or, if available, will be selected for investment by the Fund in the future.

SPF Residential Investments

As of June 30, 2023

Investment Name	Location	Ownership	Units	NAV (USD 000s)	% of NAV
Landsby	Mountain View, CA	JV	632	410,228	1.24%
Promenade Rio Vista	San Diego, CA	JV	970	375,380	1.14%
Chorus	San Francisco, CA	JV	416	345,107	1.04%
Park Lane Seaport Residential	Boston, MA	WO	465	279,190	0.84%
Palisade	San Diego, CA	WO	300	254,681	0.77%
The Reserve at 4S Ranch	San Diego, CA	WO	540	245,252	0.74%
Sunnyvale Town Center - Residential	Sunnyvale, CA	WO	274	242,871	0.73%
The Capitol	New York, NY	WO	387	242,802	0.73%
CSX	Washington, DC	JV	756	219,614	0.66%
Via Las Colinas	Irving, TX	WO	784	212,817	0.64%
Vantage - Phase II	Jersey City, NJ	WO	452	207,222	0.63%
Vantage	Jersey City, NJ	WO	448	204,574	0.62%
Sunnyvale Town Center -Block 3 Resi/Retail	Sunnyvale, CA	JV	479	203,689	0.62%
The Lofts Portfolio	San Diego, CA	WO	458	203,364	0.61%
Beltway Portfolio	Various	JV	1,628	199,748	0.60%
Mountain Gate	Littleton, CO	WO	496	181,694	0.55%
Single Family Residences	Mount Pleasant, SC	JV	1,498	173,127	0.52%
The Westcott	Houston, TX	JV	315	170,941	0.52%
Aspect	Fullerton, CA	WO	323	165,741	0.50%
Gio Midtown	Miami, FL	WO	447	163,636	0.49%
Broadstone Scottsdale Waterfront	Scottsdale, AZ	WO	259	143,964	0.44%
Viridian	Greenwood Village, CO	WO	420	143,260	0.43%

Ownership: WO indicates wholly owned investments and JV indicates joint venture investments. Totals may not sum due to rounding. These examples represent some of the investments of the Fund. However, you should not assume that these types of investments will be available to or, if available, will be selected for investment by the Fund in the future.

SPF Residential Investments (cont'd)

As of June 30, 2023

Investment Name	Location	Ownership	Units	NAV (USD 000s)	% of NAV
Broadstone Olivine	Littleton, CO	JV	326	133,638	0.40%
Strata	San Francisco, CA	WO	192	133,632	0.40%
Landings at LaVillita	Irving, TX	WO	409	130,466	0.39%
Fairways at Raccoon Creek WO	Littleton, CO	WO	360	128,623	0.39%
Aster Avenue	Sunnyvale, CA	JV	412	128,091	0.39%
Polo Lakes Apartments	Wellington, FL	WO	366	126,898	0.38%
Wakaba	Los Angeles, CA	WO	240	121,465	0.37%
Ink Block	Boston, MA	JV	315	118,104	0.36%
The Circle at Hermann Park - Amalfi	Houston, TX	JV	420	111,657	0.34%
Apollo on H Street	Washington, DC	JV	431	111,295	0.34%
Third and Valley	South Orange, NJ	WO	215	110,349	0.33%
The Hub	Brooklyn, NY	JV	750	104,474	0.32%
The Parker	Chicago, IL	JV	227	101,955	0.31%
1330 Boylston	Boston, MA	JV	200	101,592	0.31%
San Palmas	Chandler, AZ	WO	240	99,579	0.30%
Fenway Triangle - SPF	Boston, MA	JV	405	99,356	0.30%
Lakeside at LaVillita	Irving, TX	WO	331	98,225	0.30%
The Circle at Hermann Park - Esplanade	Houston, TX	JV	375	96,834	0.29%
Venue	San Francisco, CA	WO	147	94,068	0.28%
Mosaic South End	Charlotte, NC	WO	269	91,599	0.28%
The Devon Four25	Raleigh, NC	WO	261	87,159	0.26%
Elizabeth Square	Charlotte, NC	WO	267	86,763	0.26%

Ownership: WO indicates wholly owned investments and JV indicates joint venture investments. Totals may not sum due to rounding. These examples represent some of the investments of the Fund. However, you should not assume that these types of investments will be available to or, if available, will be selected for investment by the Fund in the future.

SPF Residential Investments (cont'd)

As of June 30, 2023

Investment Name	Location	Ownership	Units	NAV (USD 000s)	% of NAV
Stack House	Seattle, WA	WO	278	85,372	0.26%
St. Johns Wood Apartments	Reston, VA	WO	250	84,591	0.26%
The District	Washington, DC	WO	125	80,134	0.24%
Grey House	Houston, TX	WO	279	78,288	0.24%
Van Ness Residential	Boston, MA	JV	172	77,977	0.24%
Altis Lake Willis Phase I	Orlando, FL	JV	329	71,391	0.22%
Altis Blue Lake	Lake Worth, FL	JV	318	71,056	0.21%
Paseo at Winter Park	Winter Park, FL	WO	204	71,009	0.21%
Grand Isle - SPF	Murrieta, CA	JV	453	69,475	0.21%
3500 Westlake	Austin, TX	WO	175	68,877	0.21%
Britton Place	Lacey, WA	WO	192	62,199	0.19%
Midtown Green	Raleigh, NC	WO	214	61,215	0.19%
7 Ink	Boston, MA	JV	180	60,850	0.18%
Jacaranda	Fullerton, CA	WO	131	58,099	0.18%
North Hills - Residential	Raleigh, NC	JV	287	57,529	0.17%
70 at Capitol Yards	Washington, DC	JV	448	56,086	0.17%
Seacliff - SPF	Huntington Beach, CA	JV	271	54,346	0.16%
The Louisa	Portland, OR	WO	242	52,670	0.16%
Temecula Apartments - SPF	Temecula, CA	JV	346	52,376	0.16%
The Wilcox	Seattle, WA	WO	132	51,717	0.16%
Broadstone Cross Creek	Fulshear, TX	JV	696	47,271	0.14%
Stevenson Ranch - SPF	Stevenson Ranch, CA	JV	272	45,275	0.14%

Ownership: WO indicates wholly owned investments and JV indicates joint venture investments. Totals may not sum due to rounding. These examples represent some of the investments of the Fund. However, you should not assume that these types of investments will be available to or, if available, will be selected for investment by the Fund in the future.

SPF Residential Investments (cont'd)

As of June 30, 2023

Investment Name	Location	Ownership	Units	NAV (USD 000s)	% of NAV
Broadstone Jordan Ranch	Fulshear, TX	JV	302	43,120	0.13%
Valencia - SPF	Valencia, CA	JV	226	42,218	0.13%
Laguna Niguel Apartments - SPF	Laguna Niguel, CA	JV	190	39,264	0.12%
Terra Vista - SPF	Rancho Cucamonga, CA	JV	216	38,017	0.11%
Trio	Newton, MA	JV	140	33,549	0.10%
100 at Capitol Yards	Washington, DC	JV	246	31,549	0.10%
909 at Capitol Yards	Washington, DC	JV	237	30,512	0.09%
Rancho Santa Margarita - SPF	Rancho Santa Margarita, CA	JV	166	26,392	0.08%
Pasadena Apartments - SPF	Pasadena, CA	JV	98	21,690	0.07%
Altis Lake Willis Phase II	Orlando, FL	JV	230	21,021	0.06%
850 Lake Shore Drive	Chicago, IL	JV	198	18,267	0.06%
TOTAL RESIDENTIAL			**28,148**	**9,168,124**	

Ownership: WO indicates wholly owned investments and JV indicates joint venture investments. Totals may not sum due to rounding. These examples represent some of the investments of the Fund. However, you should not assume that these types of investments will be available to or, if available, will be selected for investment by the Fund in the future.

SPF Office Investments

As of June 30, 2023

Investment Name	Location	Ownership	Square Footage (SF)	NAV (USD 000s)	% of NAV
Century Plaza Towers	Los Angeles, CA	JV	2,318,092	837,236	2.53%
China Basin	San Francisco, CA	WO	938,913	607,244	1.84%
1345 Avenue of the Americas	New York, NY	JV	1,952,096	524,808	1.59%
Water Garden II	Santa Monica, CA	WO	647,464	497,753	1.51%
Market Square - SPF	San Francisco, CA	JV	1,088,516	438,929	1.33%
Back Bay - 500 Boylston	Boston, MA	JV	760,187	393,469	1.19%
Sunnyvale City Center	Sunnyvale, CA	WO	481,389	383,772	1.16%
2000 Avenue of the Stars	Los Angeles, CA	JV	801,110	357,053	1.08%
200 Fifth Avenue	New York, NY	JV	867,350	339,353	1.03%
Sunnyvale Town Center - Block 3 Office	Sunnyvale, CA	JV	609,534	337,589	1.02%
10-30 S. Wacker	Chicago, IL	JV	2,416,372	302,208	0.91%
Park Place at Bay Meadows	San Mateo, CA	WO	257,712	253,170	0.77%
101 Constitution	Washington, DC	JV	517,095	245,079	0.74%
Back Bay - 222 Berkeley	Boston, MA	JV	570,393	231,093	0.70%
125 W55th Street	New York, NY	WO	586,538	216,646	0.66%
10 Hudson Yards	New York, NY	JV	1,876,057	203,117	0.61%
Van Ness Office/Retail	Boston, MA	JV	267,216	192,498	0.58%
The Water Garden - SPF	Santa Monica, CA	JV	680,818	185,257	0.56%
111 North Canal	Chicago, IL	WO	863,698	183,685	0.56%
Sunnyvale Town Center	Sunnyvale, CA	WO	156,960	147,077	0.44%
225 Franklin Street	Boston, MA	JV	939,025	138,074	0.42%
North Hills - Office	Raleigh, NC	JV	355,563	105,781	0.32%

Ownership: WO indicates wholly owned investments and JV indicates joint venture investments. Totals may not sum due to rounding. These examples represent some of the investments of the Fund. However, you should not assume that these types of investments will be available to or, if available, will be selected for investment by the Fund in the future.

SPF Office Investments (cont'd)

As of June 30, 2023

Investment Name	Location	Ownership	Square Footage (SF)	NAV (USD 000s)	% of NAV
818 Stewart Street	Seattle, WA	WO	239,114	104,595	0.32%
Brewery Blocks - Office	Portland, OR	WO	324,697	82,897	0.25%
River Oaks Office	Houston, TX	WO	67,060	36,308	0.11%
Shoreway Life Science	Belmont, CA	JV	153,642	29,891	0.09%
Alliance Texas - Office	Fort Worth, TX	WO	116,147	14,447	0.04%
Lincoln Yards South Parcel G.1	Chicago, IL	JV	281,603	8,181	0.02%
TOTAL OFFICE			**21,134,361**	**7,397,211**	

Ownership: WO indicates wholly owned investments and JV indicates joint venture investments. Totals may not sum due to rounding. These examples represent some of the investments of the Fund. However, you should not assume that these types of investments will be available to or, if available, will be selected for investment by the Fund in the future.

SPF Retail Investments

As of June 30, 2023

Investment Name	Location	Ownership	Square Footage (SF)	NAV (USD 000s)	% of NAV
Edens - SPF	Various	JV	13,760,972	1,216,309	3.68%
Valley Fair Mall	San Jose, CA	JV	1,059,836	1,172,328	3.55%
Royal Hawaiian Center	Honolulu, HI	WO	317,446	800,400	2.42%
University Towne Center	San Diego, CA	JV	1,025,030	671,010	2.03%
NorthPark Center JV	Dallas, TX	JV	1,917,079	616,264	1.86%
Ontario Mills	Ontario, CA	JV	1,303,422	595,524	1.80%
River Oaks Retail	Houston, TX	WO	305,541	446,058	1.35%
Del Amo Fashion Center	Torrance, CA	JV	1,765,422	146,567	0.44%
North Hills - Retail	Raleigh, NC	JV	634,033	91,728	0.28%
Sunnyvale Town Center - Retail	Sunnyvale, CA	WO	137,001	81,757	0.25%
Brewery Blocks - Retail	Portland, OR	WO	118,143	44,691	0.14%
TOTAL RETAIL			**22,343,925**	**5,882,636**	

Ownership: WO indicates wholly owned investments and JV indicates joint venture investments. Totals may not sum due to rounding. These examples represent some of the investments of the Fund. However, you should not assume that these types of investments will be available to or, if available, will be selected for investment by the Fund in the future.

SPF Land Investments

As of June 30, 2023

Investment Name	Location	Ownership	Acres	NAV (USD 000s)	% of NAV
Ontario Ranch East	Ontario, CA	JV	147	155,652	0.47%
Sky Harbor Business Park	Phoenix, AZ	WO	-	146,641	0.44%
Lincoln Yards	Chicago, IL	JV	49	137,166	0.41%
Sunnyvale Town Center - Land	Sunnyvale, CA	JV	8	62,816	0.19%
Guasti Ontario	Ontario, CA	JV	55	32,315	0.10%
Sunnyvale Town Center - Blocks N1T1	Sunnyvale, CA	JV	1	5,399	0.02%
TOTAL LAND			**260**	**539,989**	

Ownership: WO indicates wholly owned investments and JV indicates joint venture investments. Totals may not sum due to rounding. These examples represent some of the investments of the Fund. However, you should not assume that these types of investments will be available to or, if available, will be selected for investment by the Fund in the future.

Appendix

GIPS report

GIPS® Report: Strategic Property Composite

December 31, 2021

Year	Income (%)	Capital (%)	Composite Gross of Fees Return %	Composite Net of Fees Return %	Benchmark Return %	Number of Accounts	Internal Dispersion	Composite Assets ($Millions)	External Appraisal % of Composite Assets	Firm Assets ($ Billions)
2021	3.64	16.85	20.96	19.76	22.17	<6	n/a	33,171	98.8	2,076
2020	3.64	-2.15	1.43	0.41	1.21	<6	n/a	31,032	97.1	1,830
2019	3.84	0.55	4.41	3.36	5.36	<6	n/a	31,594	97.6	1,492
2018	3.93	3.97	8.04	6.96	8.35	<6	n/a	33,424	97.2	1,230
2017	4.20	2.89	7.20	6.14	7.62	<6	n/a	31,895	94.0	1,165
2016	4.44	3.79	8.38	7.31	8.77	<6	n/a	30,515	94.7	1,068
2015	4.87	9.93	15.24	14.10	15.02	<6	n/a	28,717	99.4	834
2014	5.18	5.70	11.14	10.04	12.50	<6	n/a	24,176	99.1	845
2013	5.25	10.16	15.90	14.76	13.94	<6	n/a	21,151	96.5	775
2012	5.26	6.54	12.12	11.02	10.94	<6	n/a	18,515	91.2	701

Firm Definition: J.P. Morgan Investment Management Inc. (JPMIM or the Firm) consists of the assets of institutional clients invested in US managed products including 1) the Fixed Income and Cash assets formerly part of Chase Asset Management and MDSass&Chase Partners, 2) the New York institutional investment division of JPMorgan Chase Bank, N.A., formerly Morgan Guaranty Trust Company of New York, 3) the institutional investment assets of JPMorgan Investment Advisors, Inc. (JPMIA), formerly known as Banc One Investment Advisors Corporation (BOIA), the advisor to institutional assets directly managed by JPMIA or sub-advised by an affiliate institution, and 4) the institutional assets of Bear Stearns Asset Management Inc. The Firm also includes Separately Managed Accounts over which JPMIM has full and sole discretion. JPMIM is marketed under JPMorgan Asset Management.
Compliance Statement: J.P. Morgan Investment Management Inc. claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. J.P. Morgan Investment Management Inc. has been independently verified for the periods 2001-2021. A firm that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the firm's policies and procedures related to composite and pooled fund maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on a firm-wide basis. The Strategic Property Composite has been examined for the periods January 2019 - December 2021. The verification and performance examination reports are available upon request.
Composite Description: The composite includes all discretionary accounts, including pooled funds that are directly invested according to Special Situation Property Strategy. The Strategy is actively managed, value-added, and seeks an increaComposite Description: The composite includes all discretionary accounts, including pooled funds that are directly invested according to Strategic Property Strategy. The strategy is an actively managed diversified core and seeks to generate an income-driven rate of return. It aims to outperform the NCREIF Fund Index – Open End Diversified Core Equity (NFI-ODCE) through asset, geographic and sector selection. The Strategy invests in high-quality stabilized assets with dominant competitive characteristics in markets with attractive demographics throughout the United States. The composite was created in December 2000, and the inception date is 01 January 1998.
Fee Schedule: Both gross and net returns reflect the reinvestment of income, deduction of transaction costs, and are net of withholding taxes where applicable and include the effect of leverage. All returns are expressed in U.S. dollars. Gross returns do not reflect the deduction of investment advisory fees or any other expenses that may be incurred in the management of the account.The composite includes the Strategic Property Fund. The Fund consists of five Fund Investor Vehicles, the Commingled Pension Trust Fund (Strategic Property) of JPMorgan Chase Bank, N.A. ("FIV1"), SPF FIV2 (US) LP ("FIV2"), SPF FIV3 (Lux) SCSp ("FIV3"), SPF FIV4 (Lux) SCSp ("FIV4") and SPF FIV5 (Lux) SCSp ("FIV5"). As of December 31, 2021, the model fee applied is 1.00%. The standard annual fee schedule is as follows: (a) for investors with Fund NAV below $100 million: 1.00% of the participant's pro-rata share of the net asset value on the first $25 million of NAV, 0.95% per annum on the next $25 million of NAV; and 0.85% on the next $50 million; (b) for investors that maintain Fund NAV of $100 million or more: 0.88% of the participant's pro-rata share of the net asset value on the first $100 million of NAV, 0.75% per annum on the next $150 million of NAV, 0.70% per annum on the next $250 million of NAV, 0.50% per annum on the next $200 million; and 0.35% on amounts of NAV thereafter. The fee will only be 0.15% with respect to the market value of cash and cash equivalents in strategy in excess of a 5.0% reserve position for cash and cash equivalents.Actual advisory fees charged and actual account minimum size may vary by account due to various conditions described in Part IIA of Form ADV. Prior to 2018, the fee was deducted quarterly.
Benchmark Description: Effective July 01, 2013, the Composite has changed its benchmark from the NCREIF Property Index (NPI) to the NCREIF Fund Index – Open End Diversified Core Equity (NFI-ODCE). As a capitalization-weighted index of U.S. open-end core direct real estate funds with returns based on changes in the published market value of net assets of its constituents, the NFI-ODCE provides a more meaningful peer-to-peer comparison than the NPI, a market-value weighted index of unleveraged property returns for the investment-grade U.S. real estate market. Released in 2005, the NFI-ODCE was not available for use as a benchmark at the Composite's inception January 1, 1998. The decision to switch the Fund's benchmark to the NFI-ODCE as the index is now more widely used in the industry as a gauge of performance of the overall institutional-quality U.S. real estate marketplace.
Use of Derivatives: The Strategy maintains a degree of leverage through the use of long term, fixed rate debt and floating rate debt that matches the investment strategy for each asset. The Strategy has the ability to enter into interest rate swaps, caps or other such hedging transactions to protect (hedge) against interest rate fluctuations.
Calculation Methodology: Income and Capital Returns are expressed gross of management fees and may not equal to the total Composite return due to the compounding effect of linking sub-period returns. Performance reporting is based on valuations after accounting for all capital adjustments.
Composite Valuation: For periods prior to 1 January 2011, assets were externally appraised by an independent appraiser at least every 36 months. Beginning 1 January 2011, assets are externally appraised annually. When market circumstances dictate, the Firm may increase the frequency of external appraisals. Since inception, all real estate assets have undergone a monthly internal valuation to account for capital adjustments. Internal property valuations are determined by applying market discount rates to future projections of gross cash flows and capitalized terminal values over the expected holding period for each asset. The percentage of composite assets valued using an external valuation is shown for each annual period. The total composite assets under management represent net asset values. Real estate asset valuations are determined by applying market discount rates to future projections of gross cash flows and capitalized terminal values over the expected holding period for each asset. To the extent leverage (debt) is used, the debt is valued separately from the real estate. Property mortgages, notes, and loans are marked to market using prevailing interest rates for comparable property loans if the terms of existing loans preclude the immediate repayment of such loans. Due to the nature of real estate investments, valuations are based upon subjective unobservable inputs.
Internal Dispersion: The internal dispersion of annual returns is measured by the asset-weighted standard deviation of gross account returns included in the composite for the full year. For periods with less than 6 accounts included for the entire year, internal dispersion is not presented (n/a) as it is not considered meaningful.
Description of Discretion: The Firm has responsibility for sourcing, valuing, and managing the acquisition and disposition of assets.
Composite Listing: A listing of composite descriptions, policies for valuing investments, calculating performance, and preparing GIPS Reports are available upon request.
GIPS Trademark: GIPS® is a registered trademark of CFA Institute. CFA Institute does not endorse or promote this organization, nor does it warrant the accuracy or quality of the content contained herein.
Past and Future Performance: Past performance is no guarantee of future results. As with any investment vehicle, there is always the potential for gains as well as the possibility of losses.

Publication Date: 11/30/2022

Appendix

Important Risk and Disclaimers

Investment risk disclosure

Target Returns:

The target returns discussed herein have been established as of the date of this presentation. The target returns have been established by each investment professional based on its assumptions and calculations using data available to it and available investment opportunities and is subject to the risks set forth herein and set forth more fully in the applicable Fund's Memorandum. A more detailed explanation along with the data supporting the target returns is on file with the applicable investment professional and is available for inspection upon request. The target returns are for illustration/discussion purposes only and are subject to significant limitations. An investor should not expect to achieve actual returns similar to the target returns shown above. The target returns are the financial professional's estimate based on the professionals assumptions, as well as past and current market conditions, which are subject to change. Each financial professional has the discretion to change the target returns for the Fund at any time. Because of the inherent limitations of the target returns, potential investors should not rely on them when making a decision on whether or not to invest in any Fund. The target returns cannot account for the impact that economic and market factors have on the implementation of an actual investment program. Unlike actual performance, the target returns do not reflect actual trading, liquidity constraints, fees, expenses, and other factors that could impact the future returns of a Fund. Any financial professional's ability to achieve the target returns is subject to risk factors over which such professional may have no or limited control. No representation is made that a Fund will achieve the target return or its investment objective. Actual returns could be higher or lower than the target returns. The data supporting the Target Return is on file with J.P. Morgan Asset Management and is available for inspection upon request.

Property Fund risk:

Past performance of property funds are not indicative of the performance of the property market as a whole and the value of real property will generally be a matter of a valuer's opinion rather than fact. The value of a property may be significantly diminished in the event of a downturn in the property market. Property investments are subject to many factors including adverse changes in economic conditions, adverse local market conditions and risks associated with the acquisition, financing and ownership and operation and disposal of real property. Property funds may impose limits on the number of redemptions and may provide for deferrals or suspension in particular circumstances for a given period of time.

ESG INTEGRATION: In actively managed assets deemed by J.P. Morgan Asset Management ("JPMAM") to be ESG integrated under our governance process, we systematically assess financially material ESG factors (alongside other relevant factors) in our investment decisions with the goals of managing risk and improving long-term returns. Environmental issues are defined as issues related to the quality and function of the natural environment and natural systems. Some examples include greenhouse gas emissions, climate change resilience, pollution (air, water, noise, and light), biodiversity/habitat protection and waste management. Social issues are defined as issues related to the rights, wellbeing and interests of people and communities. Some examples include workplace safety, cybersecurity and data privacy, human rights, local stakeholder relationships, and discrimination prevention. Governance issues are issues related to the way companies are managed and overseen. Some examples include independence of chair/board, fiduciary duty, board diversity, executive compensation and bribery and corruption. These examples of ESG issues are provided for illustrative purposes and are not exhaustive. In addition, as JPMAM's approach to ESG integration focuses on financial materiality, not all factors are relevant to a particular investment, asset class, or Fund.

ESG integration does not change a strategy's investment objective, exclude specific types of companies or constrain a strategy's investable universe. ESG integration is dependent upon the availability of sufficient ESG information relevant to the applicable investment universe. ESG factors may not be considered for each and every investment decision, In order for a [strategy][fund] to be considered ESG integrated, JPMAM requires: (1) portfolio management teams to consider proprietary research on the financial materiality of ESG issues on the [Fund's investments]; (2) documentation of the Adviser's internal research views and methodology throughout the investment process; and (3) appropriate monitoring of ESG considerations in ongoing risk management and portfolio monitoring. ESG determinations may not be conclusive and securities of companies/issuers may be purchased and retained, without limit, by the Adviser regardless of potential ESG impact. The impact of ESG integration on a Fund's performance is not specifically measurable as investment decisions are discretionary regardless of ESG considerations.

The Fund is not designed for investors who wish to screen out particular types of companies or investments or are looking for Funds that meet specific ESG goals.

Private placement risk disclosures

The information attached hereto and included herein (and any related information, whether or not referenced therein; collectively, the "Information") has been provided to you at your request, is for informational purposes only and does not constitute an offer or solicitation with respect to the purchase or sale of any investment. The Information should not be assumed to be accurate or complete as of the date of receipt, is subject to change without notice and may have changed (possibly materially) following the date as of which such information was provided or the date of receipt of the Information. The Information is not intended to provide and should not be relied on for accounting or tax advice.

Prior to making an investment in the Strategic Property Fund (including each fund investor vehicle and their subsidiaries; collectively, the "Fund"), prospective investors should obtain a copy of the Confidential Private Placement Memorandum of the Fund (the "Memorandum"), the applicable subscription agreement or the participation agreement, any relevant constituent document and related documents in relation to a fund investor vehicle, which together contain important forms of agreements and other documents relating to the Fund and the offering of the units in the relevant fund investor vehicle in which they intend to invest. Prospective investors must conduct their own investigation and analysis, and make their own assessment, of the private placement independently and without reliance on JPMorgan Chase & Co., and its subsidiaries and affiliates ("JPMC") or the Fund. In addition, prospective investors are strongly urged to consult their own legal counsel and financial, accounting, regulatory and tax advisers regarding the implications for them of investing in the Fund and the legal requirements and tax consequences within the countries of their citizenship, residence, domicile and place of business with respect to the acquisition, holding or disposal of units and any foreign exchange restrictions that may be relevant thereto. No assurance, representation or warranty is made by any person that the Fund's investment objectives or strategies will be achieved or that JPMC's aims, assumptions, expectations and/or goals will be achieved. The Information may not be relied upon as a guarantee, promise, assurance or representation as to the future. Nothing contained in the Information constitutes investment advice. If there are any conflicts between the contents of the Information and the Memorandum, the information contained in the Memorandum shall prevail. Any investment in the Fund may be made in reliance on the Memorandum only.

Past performance is not a reliable indicator of current and future results. Returns will fluctuate and an investment upon redemption may be worth more or less than its original value. Investors should not assume that similar types of investment activity will be available, or if available, will be selected by the Fund. All of the performance and other figures presented in the Information are subject to adjustment.

Past performance of real estate funds are not indicative of the performance of the real estate market as a whole and the value of real property generally will be a matter of a valuer's opinion rather than fact. The value of a property may be significantly diminished in the event of a downturn in the real estate market. Real estate investments are subject to many factors including adverse changes in economic conditions, adverse local market conditions and risks associated with the acquisition, financing and ownership and operation and disposal or lack of liquidity of real property. Since the Fund anticipates a significant portion of its income will come, directly or indirectly, from rental income from real estate, the Fund's financial position thus will depend indirectly on the success of the businesses operated by the tenants of the Fund's properties. The Fund may impose limits on the number of redemptions and may provide for deferrals or suspension in particular circumstances for a given period of time.

IMPORTANT PERFORMANCE DISCLOSURE:
Investors should note that the investment returns of the fund investor vehicles are likely to vary among one another as a result of the use by the fund investor vehicles of differing investment structures and tax strategies in relation to their investments. In certain circumstances, the variation in returns between the fund investor vehicles may be material.

The net asset value per unit of each fund investor vehicle is expected to differ because each fund investor vehicle is likely to incur or otherwise be subject to different levels of expenses and taxes through its investment structure. The taxes and expenses of a fund investor vehicle may be greater than those of SPF, which, accordingly, may result in lower returns to investors of any such fund investor vehicle.

None of the Information or any of the contents contained therein may be distributed in its current or any modified form without the prior written authorization of JPMC.

Important Information

NOT FOR RETAIL DISTRIBUTION: This communication has been prepared exclusively for institutional, wholesale, professional clients and qualified investors only, as defined by local laws and regulations.

This is a promotional document and is intended to report solely on investment strategies and opportunities identified by J.P. Morgan Asset Management and as such the views contained herein are not to be taken as advice or a recommendation to buy or sell any investment or interest thereto. This document is confidential and intended only for the person or entity to which it has been provided. Reliance upon information in this material is at the sole discretion of the reader. The material was prepared without regard to specific objectives, financial situation or needs of any particular recipient. Any research in this document has been obtained and may have been acted upon by J.P. Morgan Asset Management for its own purpose. The results of such research are being made available as additional information and do not necessarily reflect the views of J.P. Morgan Asset Management. This presentation is qualified in its entirety by the offering memorandum, which should be carefully read prior to any investment in a fund. The purchase of shares of a fund is intended only for sophisticated investors for whom an investment in such fund does not constitute a complete investment program and who fully understand and are willing to assume the risks involved in such fund's investment program. An investment in the funds involves a number of risks. For a description of the risk factors associated with an investment in a fund, please refer to the section discussing risk factors in the offering memorandum (available upon request). Shares of the funds are not deposits, obligations of, or endorsed or guaranteed by, JPMorgan Chase Bank, NA or any other bank and are not insured by the FDIC, the Federal Reserve Board or any other government agency. Any forecasts, figures, opinions, statements of financial market trends or investment techniques and strategies expressed are those of J.P. Morgan Asset Management, unless otherwise stated, as of the date of issuance. They are considered to be reliable at the time of production, but no warranty as to the accuracy and reliability or completeness in respect of any error or omission is accepted and may be subject to change without reference or notification to you. Investments in Alternative Investment Funds (AIFs) involves a high degree of risks, including the possible loss of the original amount invested. The value of investments and the income from them may fluctuate in accordance with market conditions and taxation agreements. Changes in exchange rates may have an adverse effect on the value, price or income of the products or underlying investment. Both past performance and yields are not reliable indicators of current and future results. There is no guarantee that any forecast will come to pass. Any investment decision should be based solely on the basis of any applicable local offering documents such as the prospectus, annual report, semi-annual report, private placement or offering memorandum. For further information, any questions and for copies of the offering material or sustainability-related disclosures you can contact your usual J.P. Morgan Asset Management representative. Where required, this information is available in English at https://am.jpmorgan.com. A summary of investor rights is available at https://am.jpmorgan.com/lu/investor-rights. J.P. Morgan Asset Management may decide to terminate the arrangements made for the marketing of its collective investment undertakings. Any reproduction, retransmission, dissemination or other unauthorized use of this document or the information contained herein by any person or entity without the express prior written consent of J.P. Morgan Asset Management is strictly prohibited.

In the United Kingdom, the Funds are categorized as a Non-Mainstream Pooled Investment as defined by the Financial Conduct Authority (FCA). The Funds are not available to the general public and may only be promoted in the UK to limited categories of persons pursuant to the exemption to Section 238 of the Financial Services and Markets Act 2000 (FSMA 2000). This information is only directed to persons believed by JPMorgan Asset Management (UK) Limited to be an eligible counterparty or a professional client as defined by the FCA. Persons who do not have professional experience in matters relating to investments should not rely on it and any other person should not act on such information.

Investors should note that there is no right to cancel an agreement to purchase shares under the Rules of the Financial Conduct Authority, the normal protections provided by the UK regulatory system do not apply and compensation under the Financial Services Compensation Scheme is not available. J.P. Morgan Asset Management or any of its affiliates and employees may hold positions or act as a market maker in the financial instruments of any issuer discussed herein or act as the underwriter, placement agent or lender to such issuer. The investments and strategies discussed herein may not be appropriate for all investors and may not be authorized or its offering may be restricted in your jurisdiction, it is the responsibility of every reader to satisfy himself as to the full observance of the laws and regulations of the relevant jurisdictions. Prior to any application investors are advised to take all necessary legal, regulatory and tax advice on the consequences of an investment in the products.
Securities products, if presented in the U.S., are offered by J.P. Morgan Institutional Investments, Inc., member of FINRA. J.P. Morgan Asset Management is the brand for the asset management business of JPMorgan Chase & Co. and its affiliates worldwide.

To the extent permitted by applicable law, we may record telephone calls and monitor electronic communications to comply with our legal and regulatory obligations and internal policies.
Personal data will be collected, stored and processed by J.P. Morgan Asset Management in accordance with our privacy policies at https://am.jpmorgan.com/global/privacy.

Important Information (Continued)

This document is meant for informational purposes only and is intended solely for the person to whom it is delivered. It is confidential and may not be reproduced or distributed, in whole or in part, to any third parties and in any jurisdiction without the express prior written consent of JPMorgan Asset Management.

Investment involves risk. Not all investments are suitable for all investors. Investors should consult professional advice before investing. Investments are not similar to or comparable with fixed deposits. Value of investments may fall or rise including loss of capital. The opinions and views expressed here are as of the date of this publication, which are subject to change and are not to be construed as investment advice. Estimates, assumptions and projections are provided for information only and may or may not come to pass.

This communication is issued by the following entities:

Singapore: EXCLUSIVE USE BY INTERMEDIARIES and INSTITUTIONAL USE- NOT FOR FURTHER DISTRIBUTION. In Singapore this material is issued by JPMorgan Asset Management (Singapore) Limited (Co. Reg. No. 197601586K). This advertisement or publication has not been reviewed the Monetary Authority of Singapore. This document has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this document or any other material in connection with the offer or sale, or invitation for subscription or purchase, of the fund(s) mentioned in this document may not be circulated or distributed, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor pursuant to Section 304 of the Securities and Futures Act, Chapter 289 of Singapore (the “SFA”) or (ii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Hong Kong: **EXCLUSIVE USE BY INTERMEDIARIES OR PROFESSIONAL INVESTORS WITHIN THE MEANING OF THE SECURITIES AND FUTURES ORDAINANCE – NOT FOR FURTHER DISTRIBUTION.** Investment involves risk. Offering document should be read for further details including the risk factors. Past performance information presented is not indicative of future performance. Investments in emerging markets, if relevant, may be more volatile than other markets and the risk to your capital is therefore greater. This material and funds mentioned may or may not be authorized by the Securities and Futures Commission in Hong Kong and may not be available to the public of Hong Kong. This material has not been reviewed by the Securities and Futures Commission. Issued in Hong Kong by JPMorgan Funds (Asia) Limited and/or JPMorgan Asset Management (Asia Pacific) Limited.

Australia: For Wholesale clients only. This document is not intended to be distributed or passed on, directly or indirectly, to any person who is not a wholesale client as defined in the Corporations Act. This document contains only factual information, which is not intended to be and must not be taken as financial product advice. Independent advice must be obtained before making any financial decisions. To the extent permitted by applicable law, we may record telephone calls and monitor electronic communications to comply with our legal and regulatory obligations and internal policies. This document is issued by JPMorgan Asset Management (Australia) Limited (ABN 55143832080) (AFSL 376919), which is regulated by the Australian Securities and Investments Commission.

Malaysia: This document is provided in response to your request. This document is for informational purposes only and does not constitute an invitation or offer to the public. As the recognition by the Malaysian Securities Commission pursuant to section 212 of The Malaysian Capital Markets And Services Act 2007 has not been / will not be obtained nor will this document be lodged or registered with the Malaysian Securities Commission, the fund hereunder is not being and will not be deemed to be issued, made available, offered for subscription or purchase in Malaysia and neither this document or other material in connection therewith should be distributed, caused to be distributed or circulated in Malaysia.

Philippines: THIS MATERIAL IS PROVIDED IN RESPONSE TO YOUR REQUEST. Under Republic Act No. 8799, known as the Securities Regulation Code of the Philippines (the “Code”), and its implementing rules, securities, such as the Securities, are not permitted to be sold or offered for sale or distribution within the Philippines unless such securities are approved for registration by the Securities and Exchange Commission of the Philippines (“SEC”) or are otherwise exempt securities or sold pursuant to an exempt transaction. To the extent that the Code is deemed applicable to any offering of Securities to Philippine investors, the Securities are being offered pursuant to an exempt transaction under Section 10.1(l) of the Code. The securities described herein have not been registered with the Securities And Exchange Commission under the securities regulation code of the Philippines. Any future offer or sale thereof is subject to the registration requirements under the code unless such offer or sale qualifies as an exempt transaction.

Important information (continued)

Brunei: This material is provided in response to your request. This prospectus relates to a private collective investment scheme which is not subject to any form of domestic regulations by the Autoriti Monetari Brunei Darussalam (“Authority”). This prospectus is intended for distribution only to specific classes of investors as specified in section 20 of the Securities Market Order, 2013, and must not, therefore, be delivered to, or relied on by, a retail client. The Authority is not responsible for reviewing or verifying any prospectus or other documents in connection with this collective investment scheme. The Authority has not approved this prospectus or any other associated documents nor taken any steps to verify the information set out in this prospectus and has no responsibility for it. The units to which this prospectus relates may be illiquid or subject to restrictions on their resale. Prospective purchasers of the units offered should conduct their own due diligence on the units.

Thailand: The document is provided in response to your request. The document has not been approved by the Securities and Exchange Commission which takes no responsibility for its contents. No offer to the public to purchase the Funds will be made in Thailand and this document is intended to be read by the addressee only and must not be passed to, issued to, or shown to the public generally.

Indonesia: The document is provided in response to your request. This material does not constitute an offer to sell nor a solicitation to buy securities in Indonesia.

India: This material is provided in response to your request. The interests in the Fund(s) mentioned in this document is/are not being offered to the Indian public for sale or subscription but are being privately placed with a limited number of Sophisticated Private and Institutional investors. The interests in the Fund(s) is/are not registered or approved by the Securities and Exchange Board of India, the Reserve Bank of India or any other governmental/ regulatory authority in India. This document is not and should not be deemed to be a ‘prospectus’ as defined under the provisions of the Companies Act, 2013 (18 of 2013) and it will not be filed with any regulatory authority in India. Pursuant to the Foreign Exchange Management Act, 1999 and the regulations issued there under, any investor resident in India may be required to obtain prior special permission of the Reserve Bank of India before making investments outside of India, including any investment in the Fund. The Fund(s) mentioned in this document, have/ has neither obtained any approval from the Reserve Bank of India or any other regulatory authority in India nor intends to do so, hence any eligible investor who is resident of India will be entirely responsible for determining their eligibility to invest in the interests in the Fund(s).

Vietnam: The document is provided in response to your request. This Document does not contemplate an offer to sell the interests in the Fund in Vietnam. The Document has not been approved by the State Securities Commission of Vietnam or any other competent authorities in Vietnam which takes no responsibility for its contents. No offer to purchase the interests in the Fund will be made in Vietnam and this Document is intended to be read by the addressee only and must not be passed to, issued to, or shown to the public generally. The value of the interests in the Fund, the possibility of gaining profit and the level of risk stipulated in this data in purely for reference purposes only and may change at any time depending on market status. Investment in this Fund does not carry any assurance that investors will make a profit. Investors should themselves carefully balance the risks and the level of those risks before they make any decision to invest in this Fund. It is investors’ responsibilities to ensure that they are eligible to make investment in this Fund. Investors are responsible for obtaining all applicable approvals and complying with requirements under Vietnamese laws.

Korea: The document is provided to you at your request. Neither the Fund mentioned in this document nor the issuer of this document is making any representation with respect to the eligibility of any recipients of this document to acquire the interests in the Fund therein under the laws of Korea, including but without limitation the Financial Investment Services & Capital Market Act, Foreign Exchange Transaction Act and Regulations and thereunder. The interests in the Fund have not been registered under the Financial Investment Services and Capital Markets Act, and none of the interests in the Fund may be offered, sold or delivered, or offered or sold to any person for re-offering or resale, directly or indirectly, in Korea or to any resident of Korea except pursuant to applicable laws and regulations of Korea.

Important information (continued)

This communication is issued by the following entities:

In the United States, by J.P. Morgan Investment Management Inc. or J.P. Morgan Alternative Asset Management, Inc., both regulated by the Securities and Exchange Commission; in Latin America, for intended recipients' use only, by local J.P. Morgan entities, as the case may be.; in Canada, for institutional clients' use only, by JPMorgan Asset Management (Canada) Inc., which is a registered Portfolio Manager and Exempt Market Dealer in all Canadian provinces and territories except the Yukon and is also registered as an Investment Fund Manager in British Columbia, Ontario, Quebec and Newfoundland and Labrador. In the United Kingdom, by JPMorgan Asset Management (UK) Limited, which is authorized and regulated by the Financial Conduct Authority; in other European jurisdictions, by JPMorgan Asset Management (Europe) S.à r.l. In Asia Pacific ("APAC"), by the following issuing entities and in the respective jurisdictions in which they are primarily regulated: JPMorgan Asset Management (Asia Pacific) Limited, or JPMorgan Funds (Asia) Limited, or JPMorgan Asset Management Real Assets (Asia) Limited, each of which is regulated by the Securities and Futures Commission of Hong Kong; JPMorgan Asset Management (Singapore) Limited (Co. Reg. No. 197601586K), which this advertisement or publication has not been reviewed by the Monetary Authority of Singapore; JPMorgan Asset Management (Taiwan) Limited; JPMorgan Asset Management (Japan) Limited, which is a member of the Investment Trusts Association, Japan, the Japan Investment Advisers Association, Type II Financial Instruments Firms Association and the Japan Securities Dealers Association and is regulated by the Financial Services Agency (registration number "Kanto Local Finance Bureau (Financial Instruments Firm) No. 330"); in Australia, to wholesale clients only as defined in section 761A and 761G of the Corporations Act 2001 (Commonwealth), by JPMorgan Asset Management (Australia) Limited (ABN 55143832080) (AFSL 376919).

This document is provided in response to your request. This document is for informational purposes only and does not constitute an invitation or offer to the public. This document including any other documents in connection are for intended recipients only and should not be distributed, caused to be distributed or circulated to the public. This document should not be treated as a prospectus or offering document and it has not be reviewed or approved by regulatory authorities in these jurisdictions. It is recipient's responsibility to obtain any regulatory approvals and complying with requirements applicable to them.

For U.S. only: If you are a person with a disability and need additional support in viewing the material, please call us at 1-800-343-1113 for assistance.

Sentinel Real Estate Advisors Corporation

Mandate: **Real Estate Separate Account** **Hired: 2000**

Firm Information

Sentinel is an independent, privately held, real estate investment manager headquartered in New York, NY. Sentinel and its affiliates comprise a fully integrated organization that provides real estate investment management services to institutional and qualified private investors in the United States and abroad. Sentinel manages pooled and separate accounts holding diversified portfolios of real estate properties valued at $9.5 billion consisting of nearly 29,000 apartment units and 5.4 million square feet of commercial real estate.

Key Executives:
George Tietjen, Portfolio Manager
Gregory Macchia, Associate

Investment Approach

Sentinel's mandate is unique among ARMB's real estate separate accounts focusing specifically on multifamily investments. Sentinel's organization structure is vertically integrated so virtually all professionals working on an investment property are Sentinel employees. The strategy for ARMB is to construct a portfolio of core multifamily properties in markets with high barriers to entry with a focus on income and long-term appreciation. Once a property is acquired, Sentinel seeks to add value to that investment. Sentinel's asset and property management teams take an active role in maximizing the property's potential through aggressive leasing strategies, continuous maintenance and capital improvement programs and cost controls.

Benchmark: NFI-ODCE Index

Total ARMB Mandate

Assets Under Management:
6/30/2023: $283,841,020

Concerns: None

6/30/2023 Performance

	Last Quarter	1-Year	3-Years Annualized	6-Years Annualized	23-Years Annualized
Manager Gross	-1.73%	-7.29%	12.80%	9.88%	9.98%
Fee	0.10%	0.38%	0.39%	0.45%	0.57%
Manager Net	-1.83%	-7.67%	12.41%	9.43%	9.41%
Benchmark	-2.88%	-10.73%	7.04%	5.88%	6.83%

ALASKA RETIREMENT MANAGEMENT BOARD

George Tietjen, Managing Director/Portfolio Manager

Gregory Macchia, Associate

ARMB SEPARATE ACCOUNT BOARD PRESENTATION

BY SENTINEL REAL ESTATE CORPORATION

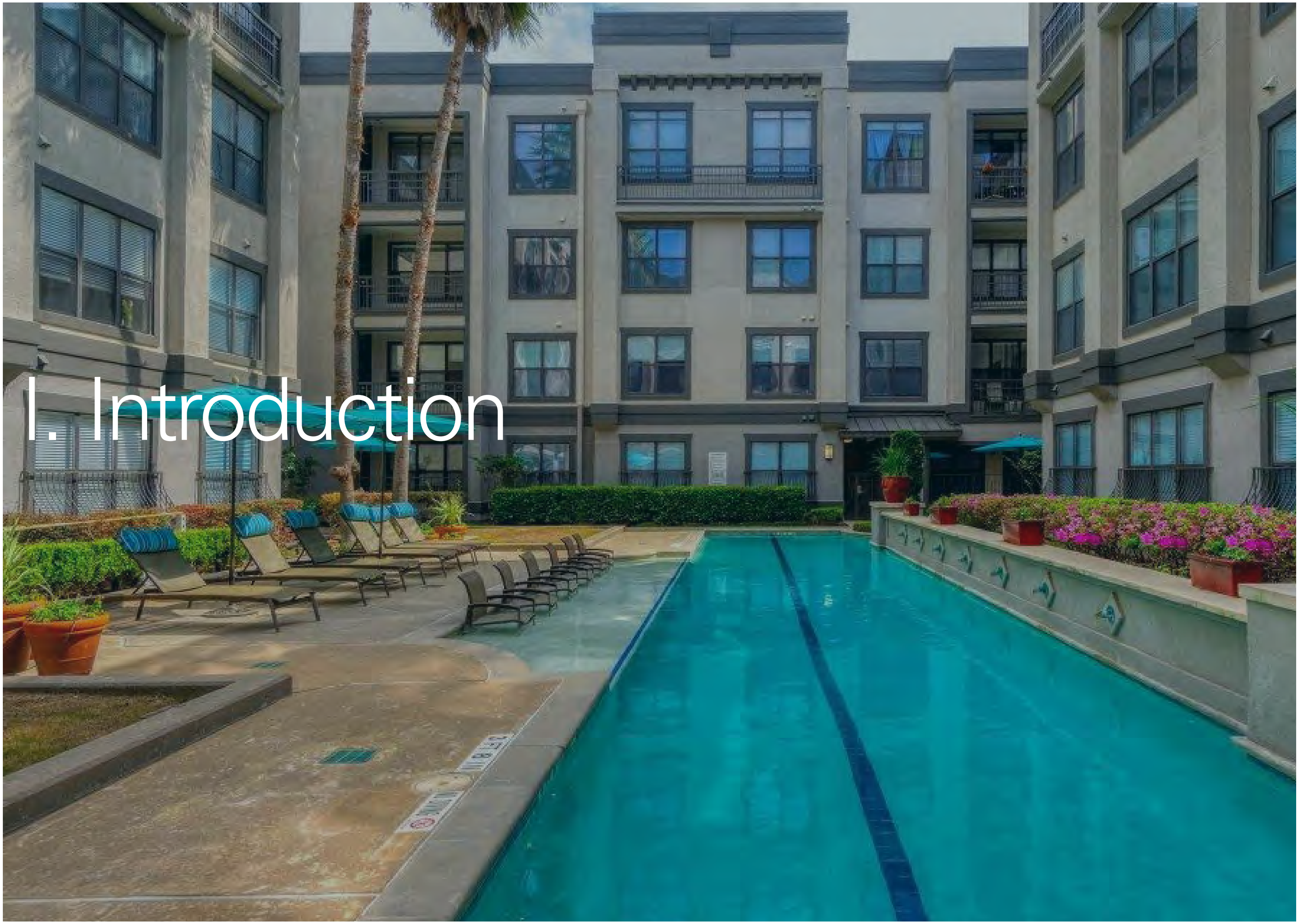
September 14-15, 2023

Sentinel

Table of Contents

Sentinel

I. Introduction

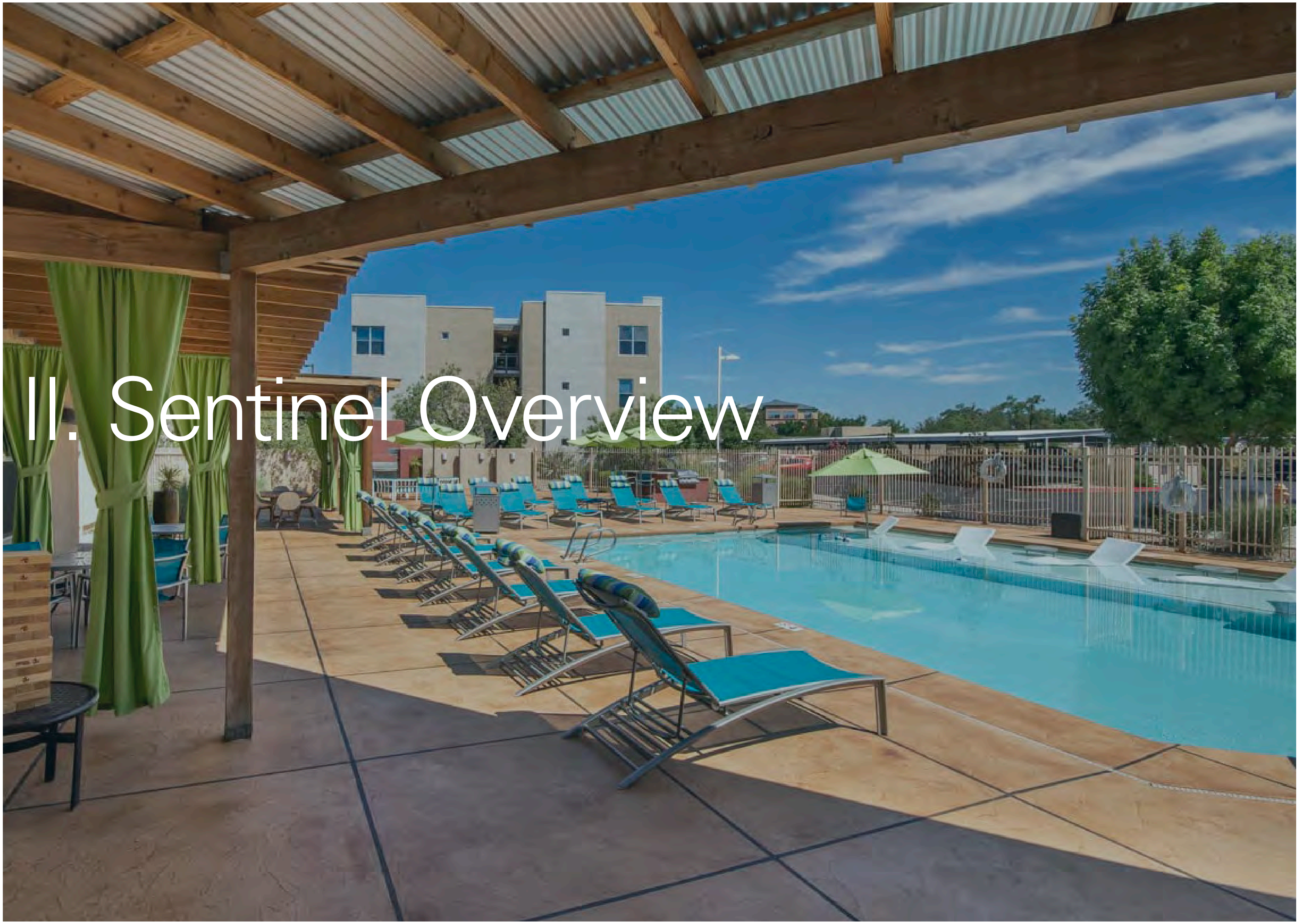


Portfolio Management Team

George Tietjen is a Managing Director responsible for portfolio management for one of Sentinel's commingled funds and several separate accounts, as well as client servicing. Prior to joining Sentinel in 1990, he served as Controller for Grayside Realty Corporation from 1986 to 1990. Prior to that, Mr. Tietjen was on the audit staffs of Kenneth Leventhal & Company and Ernst & Young, providing accounting and tax services to real estate clients. Mr. Tietjen is a Certified Public Accountant and received a BS in Accounting from Rochester Institute of Technology and a Master's of Science in Real Estate Investment from New York University. He is also a member of the Advisory Board of The Ohio State University Real Estate Center.

Gregory Macchia is an Associate in Sentinel's Portfolio Management department. Prior to joining Sentinel in 2020, Mr. Macchia worked at Stan Johnson Company where he focused on net lease investment sales, real estate capital markets and structuring large-scale sale leaseback transactions. Mr. Macchia received a bachelor's degree from Boston University with concentrations in Finance, Real Estate and Economics.

II. Sentinel Overview



Sentinel Overview

Sentinel has over 50 years of global real estate experience

1969 – Sentinel is founded

1976 – Launches Sentinel Real Estate Fund

1987 – Establishes first separate account

1988 – Becomes an independent, privately held firm

1998 – Launches first closed-end commercial fund

2001 – Obtains first offshore separate account client

2004 – Forms first private multifamily REIT

2008 – Launches first value-add multifamily fund

2012 – Establishes Australian BTR development platform

2017 – Launches first National Urban strategy fund SNURPI

2019 – Launches US Core-Plus Multifamily Fund

2019 – Celebrates its 50th Anniversary

Highlights

- Founded in 1969
- Independent and privately held
- Vertically integrated, with approximately 800 employees including:
  - Acquisitions
  - Asset and property management
  - Financing
  - Research
- $9.5 billion of AUM
- Headquartered in New York City with nine additional US offices
- International offices in Australia, Germany and The Netherlands
- ESG integrated into all aspects of Sentinel's activities

Since Inception

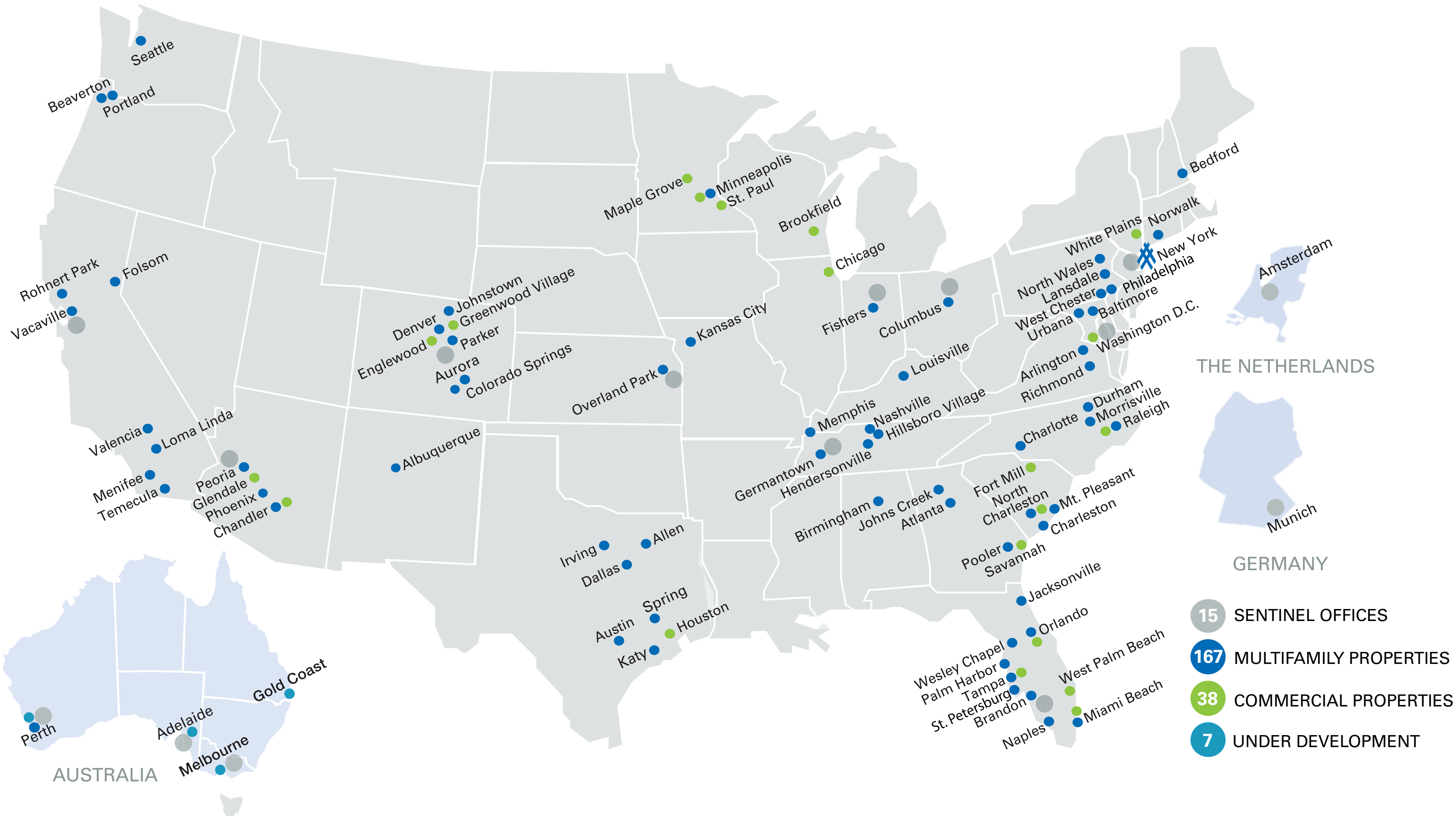
- Over $21 billion of direct real estate investments:
  - Nearly 156,000 apartment units across 640 communities
  - 33.8 million SF across 194 commercial properties

Current Portfolio

- Over 29,000 apartment units across 167 communities
- 5.4 million SF of space across 38 commercial properties

Sentinel's Reach

With offices in 15 locations, Sentinel's real estate portfolio comprises 205 assets



Sentinel

Sentinel Organizational Chart

Vertically integrated organization with senior management averaging 26 years with Sentinel

EXECUTIVE COMMITTEE

Michael F. Streicker, *President*
*26**

Leland J. Roth, *Chief Financial Officer*
*29**

Karen F. Hallock, *Managing Director*
*35**

Reporting to Michael F. Streicker:

- RESIDENTIAL TRANSACTIONS — *10 Employees* — *10***
- RESIDENTIAL ASSET MANAGEMENT — *33 Employees* — *16***
- PORTFOLIO MANAGEMENT — *10 Employees* — *15***
- DEVELOPMENT MANAGEMENT – AUSTRALIA — *10 Employees* — *2***
- COMMERCIAL ASSET MANAGEMENT AND TRANSACTIONS — *6 Employees* — *14***
- COMPLIANCE/LEGAL — *11 Employees* — *23***
- GLOBAL INVESTOR SERVICES — *10 Employees* — *9***
- ARCHITECTURAL DESIGN /CAPITAL PROGRAMS/ SUSTAINABILITY — *9 Employees* — *7***

Reporting to Leland J. Roth:

- FINANCING TRANSACTIONS — *2 Employees* — *11***
- ACCOUNTING/ FINANCIAL REPORTING — *37 Employees* — *15***
- TREASURY/TAX — *12 Employees* — *11***
- IT & YARDI SYSTEMS — *13 Employees* — *14***
- RISK MANAGEMENT — *2 Employees* — *2***
- HUMAN RESOURCES & PAYROLL/OFFICE SERVICES — *10 Employees* — *15***

Reporting to Karen F. Hallock:

- RESEARCH & COMMUNICATIONS — *20 Employees* — *19***

INVESTMENT COMMITTEE

- Michael F. Streicker, President, *26**
- Karen Charde, Managing Director, *25**
- Karen F. Hallock, Managing Director, *35**
- Robert Leniart, Managing Director, *41**
- Brian Ritter, Managing Director, *20**
- Nick Stein, Managing Director, *16**
- George Tietjen, Managing Director, *34**

** Years with Sentinel*
*** Group average years with Sentinel*

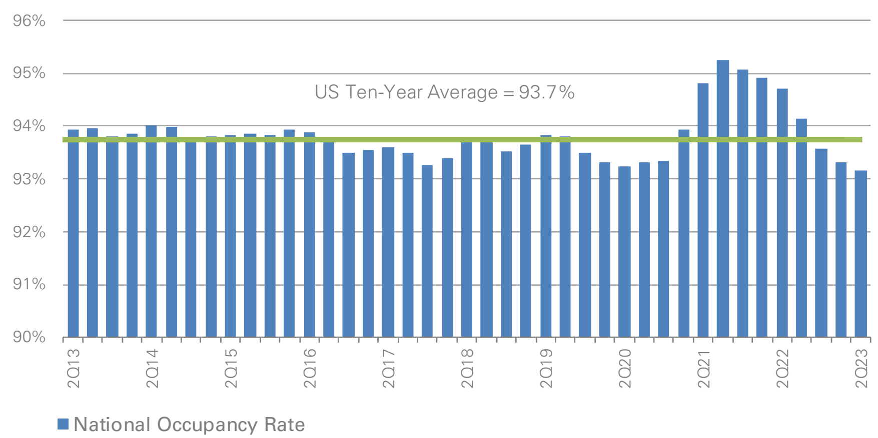

III. US Multifamily Market Update

Demand in the US Apartment Market

- Multifamily operating fundamentals in the United States continued to show signs of slowing in the second quarter of 2023. The nation's occupancy rate declined by 160 basis points year-over-year to 93.1% as of the second quarter and is now 70 basis points below the five-year historical average of 93.8%. This represented the fifth consecutive quarter that occupancy levels have fallen on a year-over-year basis.
- Effective rent growth nationwide decelerated to 0.9% over the past 12 months, down from a robust 9.3% during the same period in 2022, and down compared to last quarter's annual growth rate of 2.6%. Following double-digit rent increases last year, Sun Belt markets are seeing the most significant rental rate declines, while Midwest locations continue to perform well.
- Absorption in the second quarter of 2023 reached approximately 105,000 units, which was the highest level of demand since the record level of 266,000 units in second quarter of 2021. This was, however, outweighed by the delivery of 145,000 units during the quarter. Absorption over the trailing 12 months through June 2023 was about 184,000 units, well below the 377,000 units absorbed during the previous year. This annual level of absorption lagged the delivery of approximately 510,000 units during the same period and trended well below the five-year historical average absorption of approximately 392,000 units seen from 2017 through 2022.

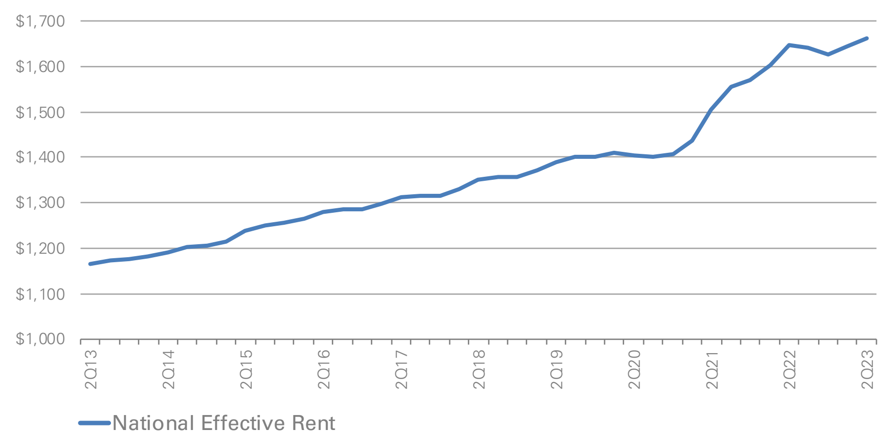
Quarterly Occupancy

Source: CoStar



National Effective Rents

Source: CoStar

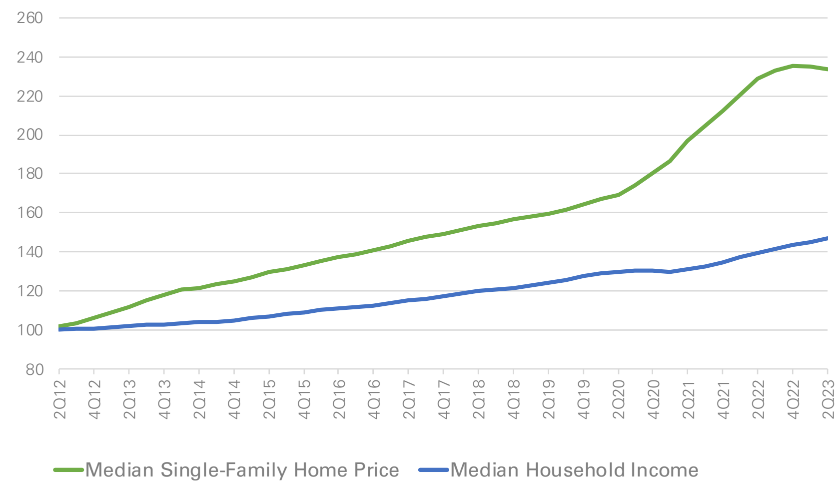


Homeownership Trends

- The US homeownership rate remained relatively flat over the past 12 months, measuring 65.9% as of the second quarter of 2023, up 10 basis points from 65.8% during the same three-month period in 2022 but was 330 basis points below the 2004 high of 69.2%. Homeownership nationwide continues to trend in line with the long-run average of 65.3% since 1965.
- Homeownership rates for all age cohorts remain well below their peak levels through the most recent April to June quarter.
- While sales of single-family homes have declined significantly, prices have remained firm due to lean inventory levels. According to the National Association of Realtors (NAR), the median sales price for a single-family home was $410,200 in June 2023, declining by 0.9% from the record-high of $413,800 seen in June 2022.
- The NAR reported that approximately one-third of all homes were sold above their listing price in June 2023. This has led to first-time home buyers competing with other buyers for a limited number of existing homes. Consequently, the percentage of first-time home buyers has declined from 30% in June 2022 to 27% in June 2023. This monthly percentage was in line with the annual share of 26% seen in 2022, which was the lowest annual level on record.

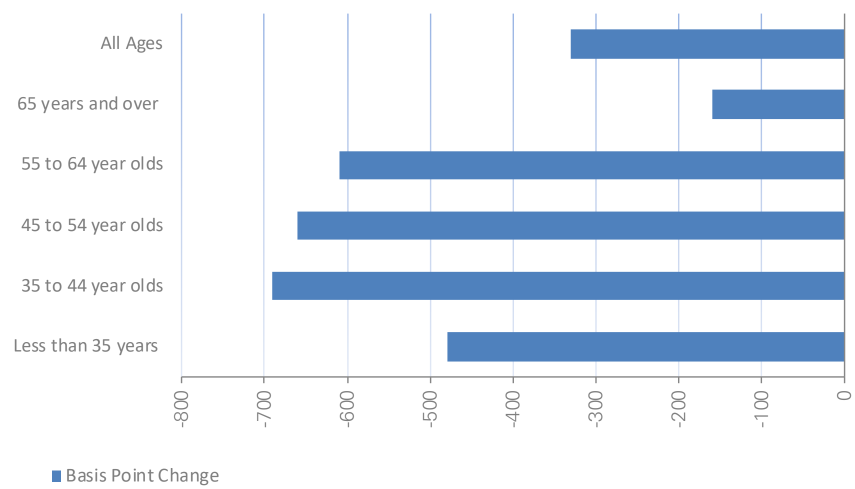
US Median Home Price and Median Household Income Rolling Index

Source: National Association of Realtors; Oxford Economics 1Q12=100



Change in US Homeownership by Age Cohort 2004-2Q23

Source: US Census Bureau

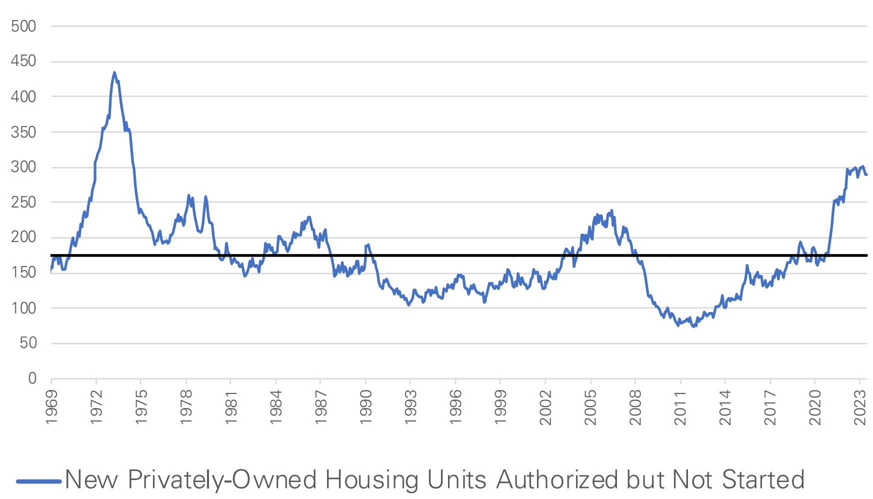


Supply in the US Apartment Market

- There was a seasonally adjusted annual rate of 1.43 million privately-owned housing units started in June 2023, down 8.1% year-over-year. Single-family home commencements in June were down 7.4% from a year ago, while multifamily starts on buildings with five or more units were 11.2% below last year's pace. Housing starts have now fallen in 11 of the past 12 months.
- While this level of new housing starts was 35.1% above the historical average during the 15-year period since the Global Financial Crisis in 2008, when the nation saw historically low build levels, it was just 0.1% above the long-run average since 1959.
- Multifamily development is currently at an all-time high with 977,000 units under construction but remains focused on high demand Sun Belt markets and comprises mainly mid- and high-rise assets that appeal to higher income renters. These types of buildings require double to triple the construction time to be completed compared to garden-style properties, and therefore deliveries are expected to be spread out over the next one to three years.
- Higher financing costs and a shortage of skilled labor continue to adversely impact construction starts. The number of privately-owned housing units authorized, but not started, stood at 289,100 units as of June 2023—reflecting one of its highest levels since the early-1970s.

New Privately Owned US Housing Units Permitted but Not Started

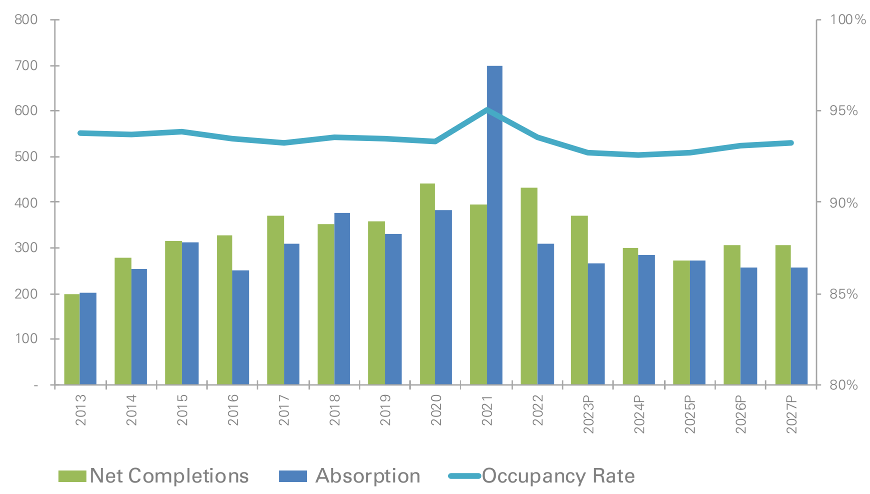
Source: US Census Bureau



US Apartment Market Trends

Source: CoStar

(P) Projected



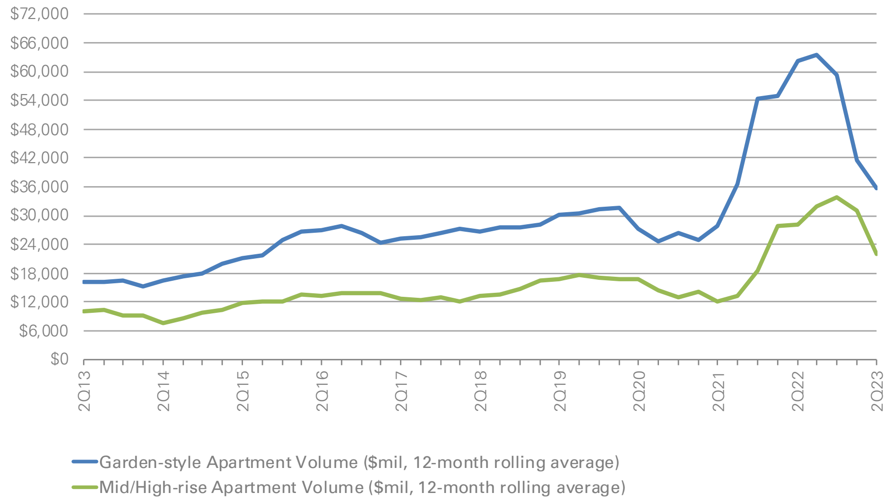
Sentinel

Transaction Activity

- Multifamily investment activity has noticeably slowed nationwide. Sales volume during the second quarter of 2023 was reported to be $28.2 billion (Real Capital Analytics), representing a decrease of 71.8% year-over-year from the all-time quarterly high of $100.1 billion in the second quarter of 2022. This was 25.9% below the second quarter historical average of $38.1 billion in the five years prior to the pandemic. On an annual basis, transaction volume measured $187.9 billion, which was less than half of the $427.8 billion in sales seen during the prior one-year period.
- Institutional investment continued to pull back during the quarter, while non-institutional private-equity investors were able to gain market share.
- Buyers using debt are facing higher interest rates, which is slowing sales and putting upward pressure on cap rates.
  - The average 12-month rolling top-decile cap rate rose 30 basis points to 4.0% as of the second quarter of 2023—representing the first year-over-year increase in three and a half years.
  - Cap rates for garden-style communities increased by 20 basis points over the trailing 12 months, from 3.8% to 4.0%. This was 30 basis points higher than the average rolling 12-month top-decile cap rate of 3.7% for mid- and high-rise assets.

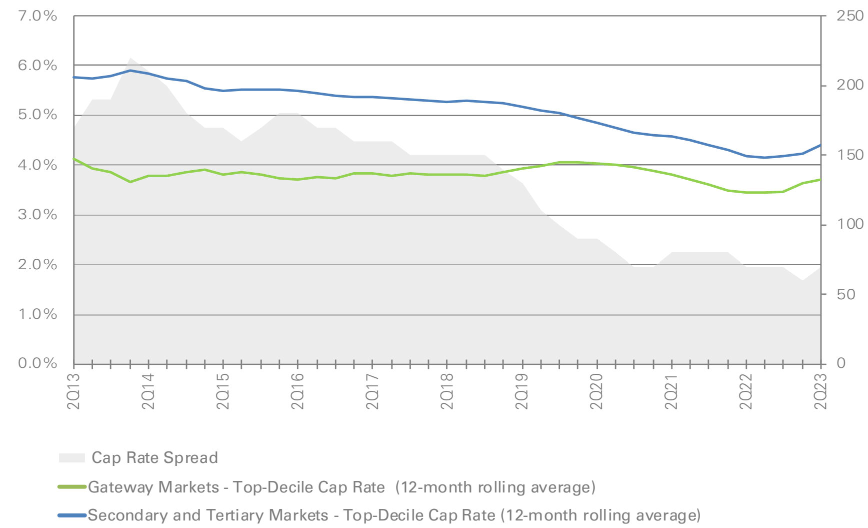
US Quarterly Sales Volume

Source: RCA



US Apartment Cap Rates

Source: RCA



IV. Account Update

Account Overview

Geographically diversified, open-end vehicle targeting stabilized multifamily properties in desirable suburban locations in secondary US markets

Key Statistics
(as of June 30, 2023)

Strategy: Core-style apartments separate account

Inception Date: December 31, 1999

Gross Asset Value: $350 million

Net Asset Value: $284 million

Number of Assets: Five apartment communities

Average Property Size: $70 million

Total Unit Count: 1,352

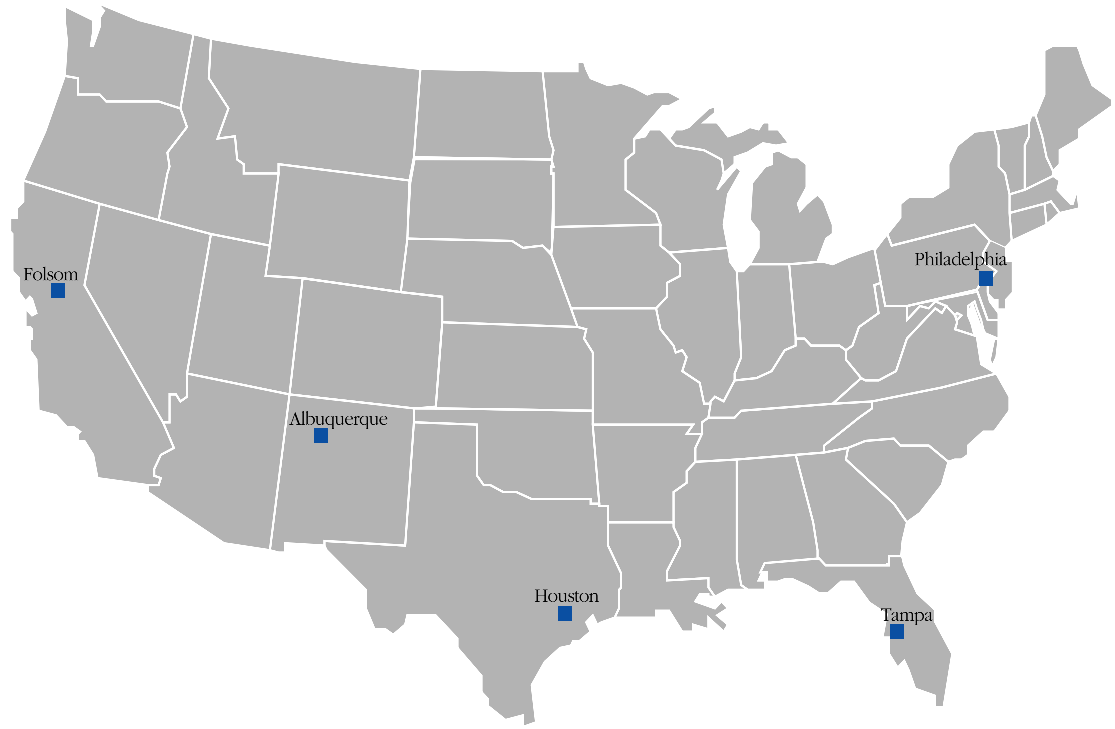
Occupancy (Annual AVG): 92.3%

Annualized Net Returns
Since Inception (3Q 2000):

ARMB: 9.73%

NFI-ODCE: 6.96%

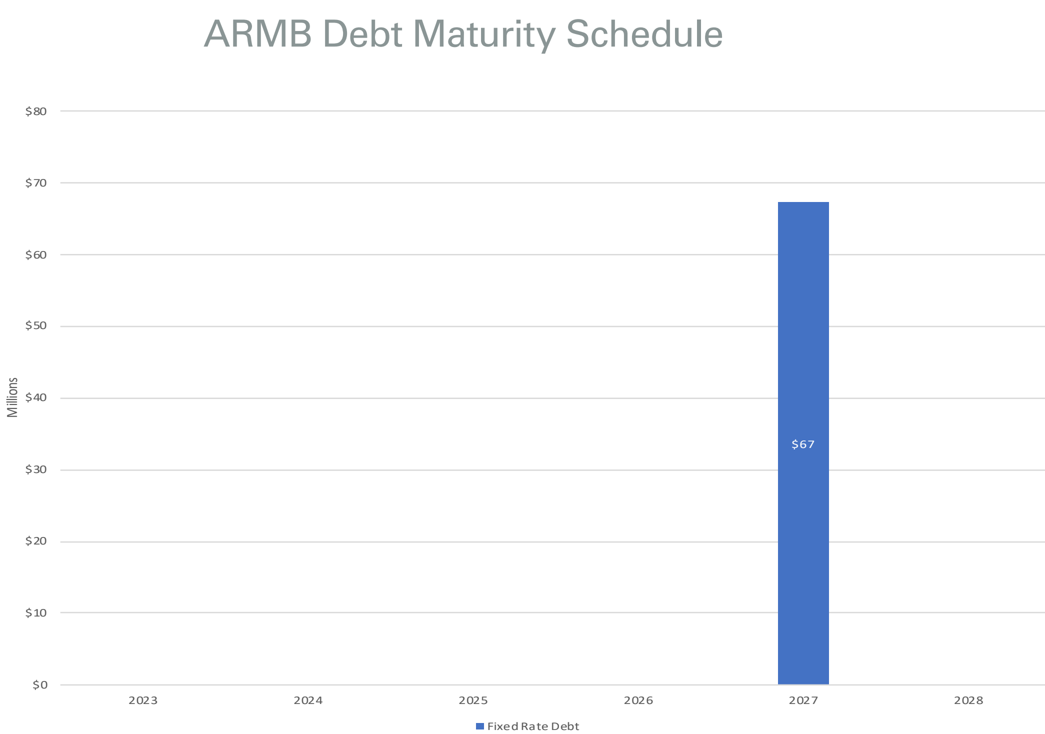
Current Portfolio Diversification



Sentinel

Account Leverage Summary

- Portfolio leverage ratio of 18.3%.
- Two apartment communities encumbered by debt.
- Debt is entirely fixed rate with a weighted average annual interest rate of 2.67%.
- No near-term debt maturities.



Sentinel

V. Performance

Account Performance

Periods Ended June 30, 2023

ARMB SEPARATE ACCOUNT PERFORMANCE (GROSS)				NCREIF APARTMENT PERFORMANCE (GROSS)[1]	NFI-ODCE PERFORMANCE (GROSS)[2]
PERIOD	INCOME	APPRECIATION	**TOTAL**	TOTAL	TOTAL
QUARTER	1.03%	-2.76%	**-1.73%**	3.86%	-2.68%
1-YEAR	4.10%	-11.06%	**-7.30%**	-0.40%	-9.97%
3-YEAR	4.71%	7.93%	**12.91%**	9.84%	7.98%
5-YEAR	4.88%	4.74%	**9.78%**	7.62%	6.49%
10-YEAR	5.14%	5.10%	**10.44%**	8.20%	8.73%
INCEPTION	5.99%	3.96%	**10.12%**	8.49%	7.81%

ARMB SEPARATE ACCOUNT PERFORMANCE (NET)				NFI-ODCE PERFORMANCE (NET)[2]
PERIOD	INCOME	APPRECIATION	**TOTAL**	TOTAL
QUARTER	0.94%	-2.76%	**-1.82%**	-2.88%
1-YEAR	3.70%	-11.06%	**-7.67%**	-10.73%
3-YEAR	4.29%	7.93%	**12.46%**	7.04%
5-YEAR	4.43%	4.74%	**9.32%**	5.56%
10-YEAR	4.65%	5.10%	**9.92%**	7.77%
INCEPTION	5.42%	3.96%	**9.54%**	6.84%

(1) The NCREIF Apartment Subindex is an unleveraged, property level index, which includes 2,372 properties valued at $254.05 billion. The NCREIF Apartment Subindex does not include net performance.

(2) The NFI-ODCE (NCREIF Fund Index-Open-End Diversified Core Equity) is a fund level, capitalization weighted, time-weighted return index. It includes property investments at ownership share, cash balances and leverage; therefore, the returns reflect the fund's actual ownership positions and financing strategy. Total net assets: $240.74 billion. The NFI-ODCE index includes multiple property types: apartments, industrial, office, retail and other.

Portfolio Operations Update

- Portfolio same-store net operating income for the 12 months ended June 30, 2023, remained in line with the prior year.
- Same-store portfolio total revenue increased by 4.7% on a year-over-year basis mainly due to an increase in market rents.
- The portfolio's average same-store ccupancy during the period was 92.8%, a 202-basis-point decrease compared to the prior fiscal year.
- Portfolio same-store operating expenses increased by 13.4% primarily due to higher costs associated with insurance, contract services and real estate taxes.

Houston, Texas

Lansdale, Pennsylvania

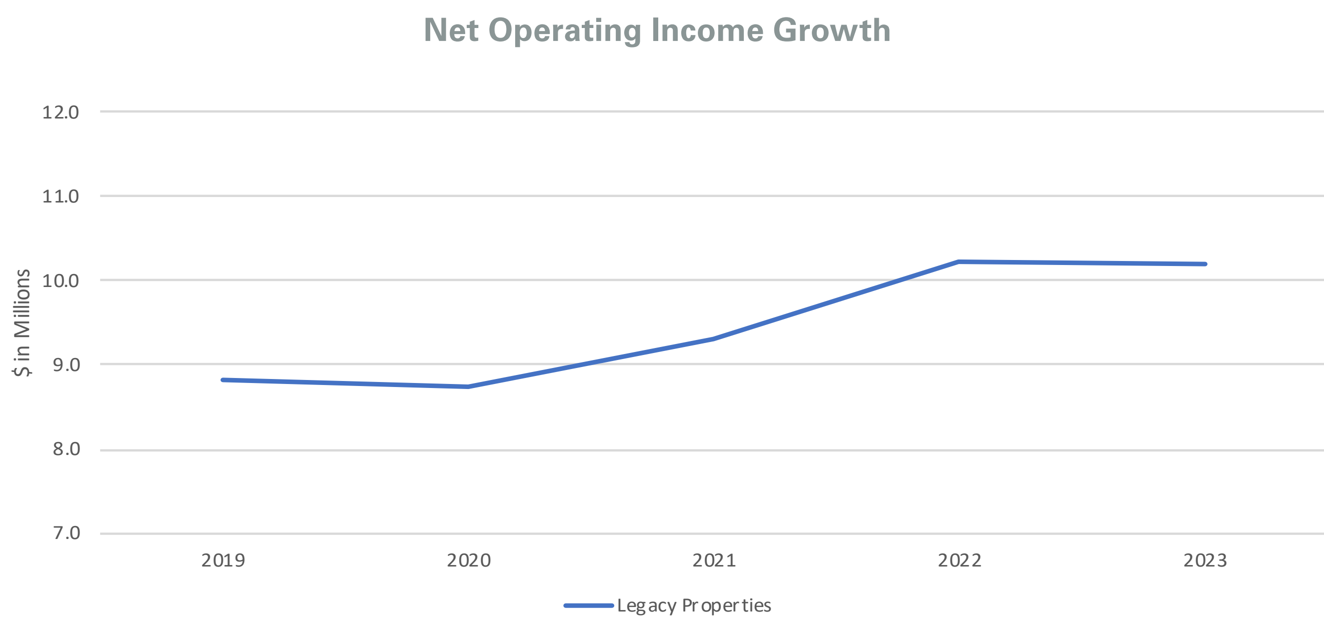
Brandon (Tampa), Florida

Fiscal Year Ended June 30, 2023

	Fiscal 2023 Actual	Fiscal 2022 Actual	Variance (%)
Total Income	$16,746,895	$15,993,444	4.7%
Less: Taxes and Insurance	$2,319,453	$2,049,712	-13.2%
Utilities	$754,585	$635,860	-18.7%
Other Expenses	$3,473,480	$3,087,752	-12.5%
Total Operating Expenses	$6,547,519	$5,773,324	-13.4%
Net Operating Income	$10,199,377	$10,220,121	-0.2%

Net Operating Income Growth

- Net operating income at the portfolios's legacy properties increased by an average annual rate of 3.8% between fiscal year 2019 and fiscal year 2023.



3000 Sage Apartments

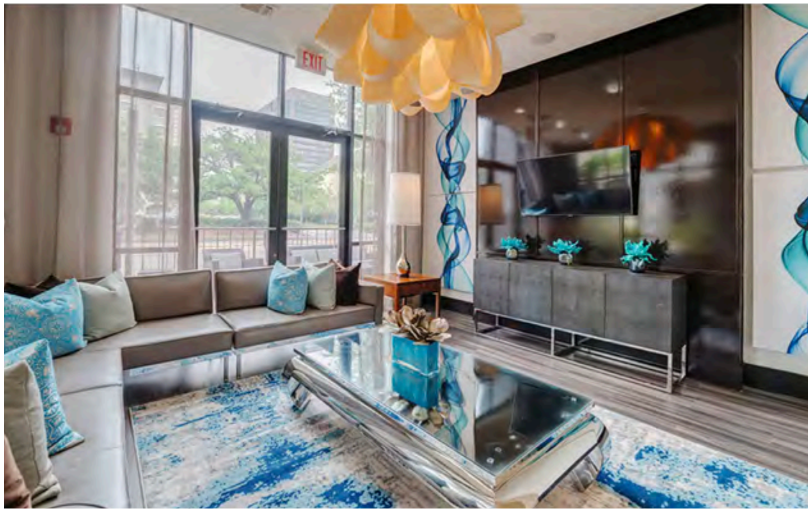
Location:	Houston, Texas
Acquisition Date:	November 1, 2021
Property Type:	Mid-rise
Number of Units:	324
Purchase Price:	$62,600,000 ($193,210/unit)
Value (6/23):	$56,550,000 ($174,537/unit)
Loan Amount:	$0
Interest Rate:	N/A
Pro Forma Unlevered IRR:	6.40%

Fiscal Year Ended June 30, 2023

	Fiscal 2023 Actual	Fiscal 2023 Budget	Variance (%)
Total Income	$5,084,463	$5,550,764	-8.4%
Less: Taxes and Insurance	$1,617,011	$1,670,093	3.2%
Utilities	$306,183	$227,220	-34.8%
Other Expenses	$1,819,399	$1,545,799	-17.7%
Total Operating Expenses	$3,742,593	$3,443,112	-8.7%
Net Operating Income	$1,341,870	$2,107,652	-36.3%

- 3000 Sage Apartments is located within the desirable Galleria-Uptown submarket of Houston, Texas.
- The Galleria Mall, Texas' largest suburban mixed-use development, is located within walking distance of the property. The 2.4 million-square-foot lifestyle center and includes over 400 retail, dining and entertainment destinations, two hotels with a combined 900rooms and 1.1 million square feet of high-end office space.
- Texas Medical Center, the largest medical center in the world with 106,000 direct employees and 72,000 students, is located five miles from the property.
- Disappointing operating performance in 2023 was the result of continued performance issues since acquisition. During the year, the property experienced high rent delinquency, suboptimal occupancy performance and substantial increases in operating expenses. These topics are being addressed and a new general manager has been appointed.
- Sentinel anticipates operating performance to gradually improve throughout fiscal 2024. The property is budgeted to undergo a robust capital improvement program including a full renovation of the leasing office, resident clubhouse and fitness center.

3000 Sage Apartments



Lansdale Station Apartments

Location:	Lansdale (Philadelphia), Pennsylvania
Acquisition Date:	June 21, 2022
Property Type:	Mid-rise
Number of Units:	186
Purchase Price:	$61,100,000 ($328,495/unit)
Value (6/23):	$60,800,000 ($326,882/unit)
Loan Amount:	$0
Interest Rate:	N/A
Pro Forma Unlevered IRR:	6.22%

Fiscal Year Ended June 30, 2023

	Fiscal 2023 Actual	Fiscal 2023 Budget	Variance (%)
Total Income	$4,378,692	$4,556,815	-3.9%
Less: Taxes and Insurance	$735,817	$721,295	-2.0%
Utilities	$186,526	$214,845	13.2%
Other Expenses	$852,773	$1,111,157	23.3%
Total Operating Expenses	$1,775,115	$2,047,297	13.3%
Net Operating Income	$2,603,577	$2,509,518	3.7%

- Lansdale Station Apartments is located within the Upper Montgomery County submarket of Philadelphia, Pennsylvania.
- The property is one block off Main Street in downtown Lansdale, providing access to multiple lifestyle amenities, including awardwinning restaurants, boutique retailers and an array of entertainment options.
- The Southeastern Pennsylvania Transportation Authority's (SEPTA) Lansdale train station is located adjacent to the property, giving residents direct access to Center City Philadelphia in 45 minutes.
- Merck, the largest employer in Montgomery county with over 12,500 employees, has several facilities near the property and is continuing to expand its presence in the area.
- The primary short-term goal for Lansdale Station Apartments is to lease the remaining 7,797 square feet of vacant retail space. Sentinel is targeting a local or regional prospect with a strong financial background that can enhance the visibility of the community and cater to the needs of the residents.

Lansdale Station Apartments

ABQ Uptown Apartments

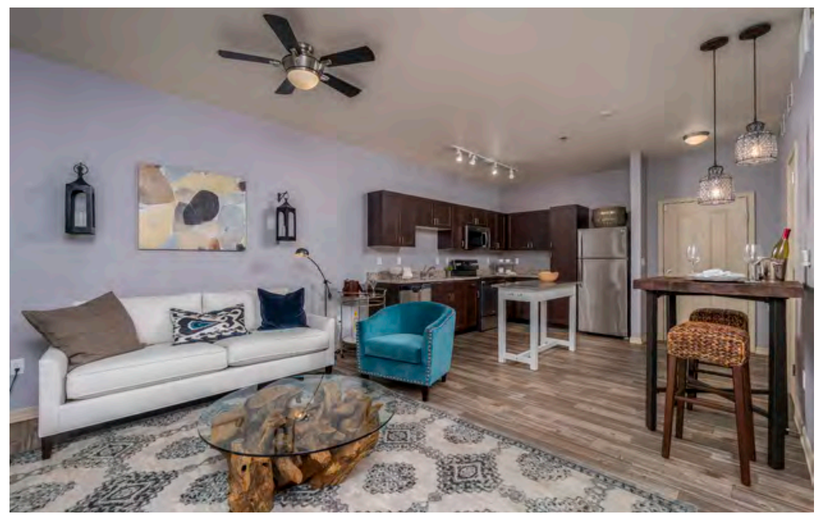
Location:	Albuquerque, New Mexico
Acquisition Date:	September 7, 2018
Property Type:	Garden
Number of Units:	198
Purchase Price:	$38,800,000 ($195,960/unit)
Value (6/23):	$60,750,000 ($306,818/unit)
Loan Amount:	$23,650,000 (38.9% LTV)
Interest Rate:	2.51%
Since Inception IRR (Net):	15.00%

Fiscal Year Ended June 30, 2023

	Fiscal 2023 Actual	Fiscal 2022 Actual	Variance (%)
Total Income	$3,912,359	$3,717,650	5.2%
Less: Taxes and Insurance	$311,500	$297,923	-4.6%
Utilities	$111,319	$106,659	-4.4%
Other Expenses	$839,544	$808,254	-3.9%
Total Operating Expenses	$1,262,363	$1,212,837	-4.1%
Net Operating Income	$2,649,996	$2,504,813	5.8%

- ABQ Uptown Apartments is in the Uptown neighborhood of Albuquerque, approximately six miles east of Downtown.
- The property is adjacent to a Trader Joe's grocery store directly east from ABQ Uptown, a 220,000-square-foot destination, lifestyle retail center anchored by tenants such as Apple, Lululemon, Williams-Sonoma and Pottery Barn.
- ABQ Uptown Office Park is approximately one-half mile west of the property and encompasses two million square feet of Class A office space. The office park's tenancy includes top financial services firms such as Wells Fargo, New York Life, Charles Schwab, Liberty Mutual Insurance and UBS.
- Additional nearby employers include Kirtland Air Force Base, Netflix, ABQ Studios and University of New Mexico Hospital.
- The complete renovation of the property's clubhouse, fitness center and resident lounge was completed during fiscal 2023. The newly improved spaces are anticipated to allow ABQ Uptown Apartments to maintain its competitive advantage in an increasingly desirable sub-market of of Albuquerque.

ABQ Uptown Apartments



Preserve at Blue Ravine Apartments

Location:	Folsom (Sacramento), California
Acquisition Date:	July 17, 2008
Property Type:	Garden
Number of Units:	260
Purchase Price:	$40,570,000 ($156,038/unit)
Value (6/23):	$89,850,000 ($345,577/unit)
Loan Amount:	$43,550,000 (48.5% LTV)
Interest Rate:	2.75%
Since Inception IRR (Net):	9.29%

Fiscal Year Ended June 30, 2023

	Fiscal 2023 Actual	Fiscal 2022 Actual	Variance (%)
Total Income	$6,275,778	$6,061,167	3.5%
Less: Taxes and Insurance	$734,810	$667,634	-10.1%
Utilities	$286,183	$224,988	-27.2%
Other Expenses	$1,242,828	$1,122,060	-10.8%
Total Operating Expenses	$2,263,820	$2,014,682	-12.4%
Net Operating Income	$4,011,958	$4,046,485	-0.9%

- Preserve at Blue Ravine Apartments is in the premier Sacramento suburb of Folsom with a highly rated school system, numerous shopping and restaurant choices, a walkable downtown area and an expansive bike and walk trail system.
- The property competes in the middle of the rental market in Folsom and maintains a competitive advantage compared to newer communities at higher price points due to its comprehensive unit renovation program and attractive amenity offerings.
- The community is well-located on Blue Ravine Road and offers convenient commuter access to US-50, the shopping, and restaurants of Old Folsom and along Bidwell Road, as well as the Folsom Lake State Recreational Area.
- Investments have been made in building systems and unit renovations over the holding period to extend the life of the investment and increase the property's returns. Roofing and balcony repair projects scheduled for fiscal 2023 were completed during the period. A project to paint and replace deteriorated wood throughout the exterior of the property is scheduled for early fiscal 2024. Upgrades to unit interiors will provide additional income while continuing to yield a strong return on investment.

Preserve at Blue Ravine Apartments

Versant Place Apartments

Location:	Brandon (Tampa), Florida
Acquisition Date:	September 14, 2000
Property Type:	Garden
Number of Units:	384
Purchase Price:	$27,264,000 ($71,000/unit)
Value (6/23):	$80,350,000 ($209,245/unit)
Loan Amount:	$0
Interest Rate:	N/A
Since Inception IRR (Net):	9.59%

Fiscal Year Ended June 30, 2023

	Fiscal 2023 Actual	Fiscal 2022 Actual	Variance (%)
Total Income	$6,558,758	$6,214,628	5.5%
Less: Taxes and Insurance	$1,273,143	$1,084,155	-17.4%
Utilities	$357,084	$304,212	-17.4%
Other Expenses	$1,391,108	$1,157,438	-20.2%
Total Operating Expenses	$3,021,336	$2,545,805	-18.7%
Net Operating Income	$3,537,422	$3,668,822	-3.6%

- Versant Place Apartments is located in Brandon, Florida, approximately 15 miles from downtown Tampa.
- The property provides a strong value proposition for prospective tenants by offering spacious unit layouts and a high level of unit and amenity finishes, while remaining a more affordable option than newer communities in the area.
- Versant Place has updated unit interiors with new stainless steel kitchen appliances and wood-style flooring for a return on cost of approximately 20%. The program will be accelerated in fiscal 2024 as the dated appearance of the original features is resulting in a less competitive product in the market.
- Notable capital projects planned for the upcoming fiscal year include a roof replacement, resident amenity upgrades in the popular pool areas, and resident lounge in the clubhouse.

Versant Place Apartments

Recap of 2023

- Portfolio allocation suspended during fiscal 2023.
- Challenging capital markets conditions preventing additional financings.
- Focus on maintaining occupancy levels while driving rent growth to provide strong income returns.
- Initial stage of 3000 Sage Apartments capital improvement program paused to focus on operational challenges.
- Completed renovations of clubhouse, fitness center and resident lounge at ABQ Uptown Apartments.

Fiscal 2024 Strategy

- Prioritize operational performance and implementation of the capital improvement program at 3000 Sage Apartments.
  - Operations: Occupancy levels, tenant delinquency and operating expense growth.
  - Capital Improvements: Renovation of the property’s leasing office, resident clubhouse and fitness center.
- Focus on maintaining stable operating performance at the three legacy properties and Lansdale Station Apartments.
- Monitor transaction and capital markets activity to understand the impact on financings and valuations.

Timberland Investment Resources, LLC

Mandate: **Timberland** **Hired:** **2008**

Firm Information

Timberland Investment Resources, LLC (TIR) is a Timberland Investment Management Organization. TIR is 100% owned by the equity partners of the firm, who also serve as Managing Directors.

As of 6/30/23, the firm's total assets under management were $2.16 billion.

Key Executives:
Mark Seaman, CEO
Chris Mathis, CIO
Tom Johnson, Client Relations and Corporate Development
Chung-Hong Fu, Economic Research and Analysis

Investment Approach

TIR's investment philosophy emphasizes active timber and land management, which requires that TIR perform not only the investment management but also many property management functions in-house. TIR is able to reduce operating expenses because of the active level of management conducted with direct employees of TIR. The account management and property management decision making functions are also performed in-house by TIR Partners and staff.

TIR believes that much of the return potential for a timberland portfolio, particularly a southern pine portfolio, is contained in the biological growth of the timber. In order to maximize the growth and thus, return potential, TIR conducts economic and biometric research, coupled with effective implementation of intensive, stand level management plans through TIR's own foresters deployed in the field. TIR's forest biometrician and economist perform research to benefit client portfolios. The same economic and biometric analysis used to develop the acquisition strategy is applied to the disposition strategy, recognizing that in some cases, properties acquired as timberland may transition to Higher-and-Better-Use properties (e.g., recreation, conservation, etc.) over the investment term.

Benchmark: NCREIF Timberland Index.

Total ARMB Mandate

Assets Under Management:
6/30/23 $399,499,569

Concerns: None

6/30/2023 Performance

	Last Quarter	1-Year	3-Years Annualized	6-Years Annualized	14.75-Years Annualized
Manager Gross	0.32%	9.42%	8.25%	5.73%	5.22%
Fee	0.16%	0.68%	0.70%	0.79%	0.75%
Manager Net	0.16%	8.74%	7.55%	4.94%	4.47%
Benchmark	1.71%	11.13%	8.67%	5.43%	4.61%

TIMBERLAND
INVESTMENT RESOURCES LLC

Growing value for our clients every day

Alaska Retirement Management Board (ARMB)
Timberland Investment Portfolio Review

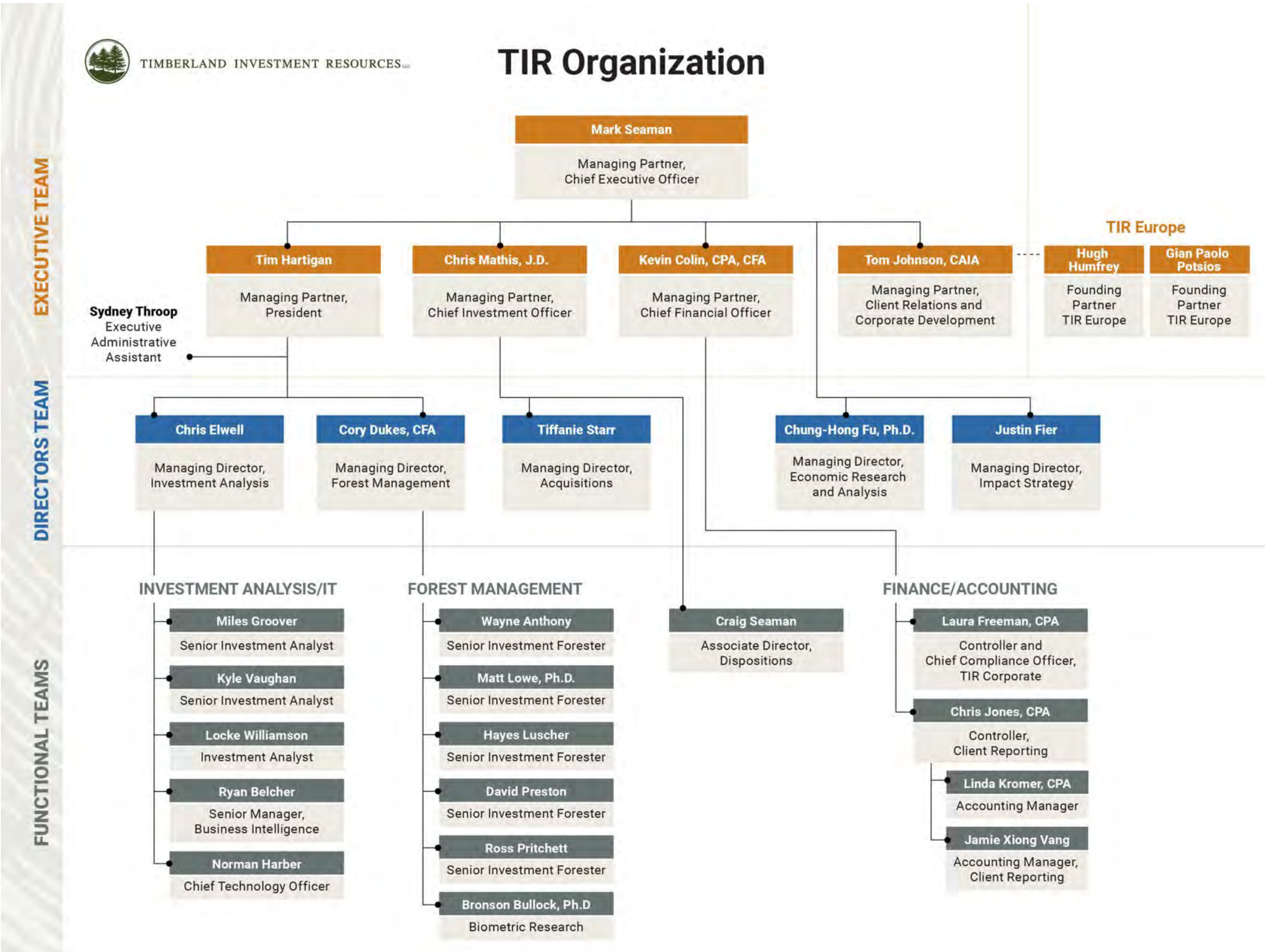
Agenda

Firm Overview

Timberland Investment Resources, LLC

- Established in 2003 and now manages more than $2.16 billion in assets under management through eight separate accounts, eight commingled funds, and one club account (135 individual investors in total).
- All forest operations independently certified under the Sustainable Forestry Initiative (SFI).
- 100% employee-owned firm.
- Senior management team averages more than 30 years of experience.
- Seven U.S. offices with headquarters in Atlanta, Georgia and a London-based affiliate, TIR- Europe.
- Known as a middle market, value-oriented manager.

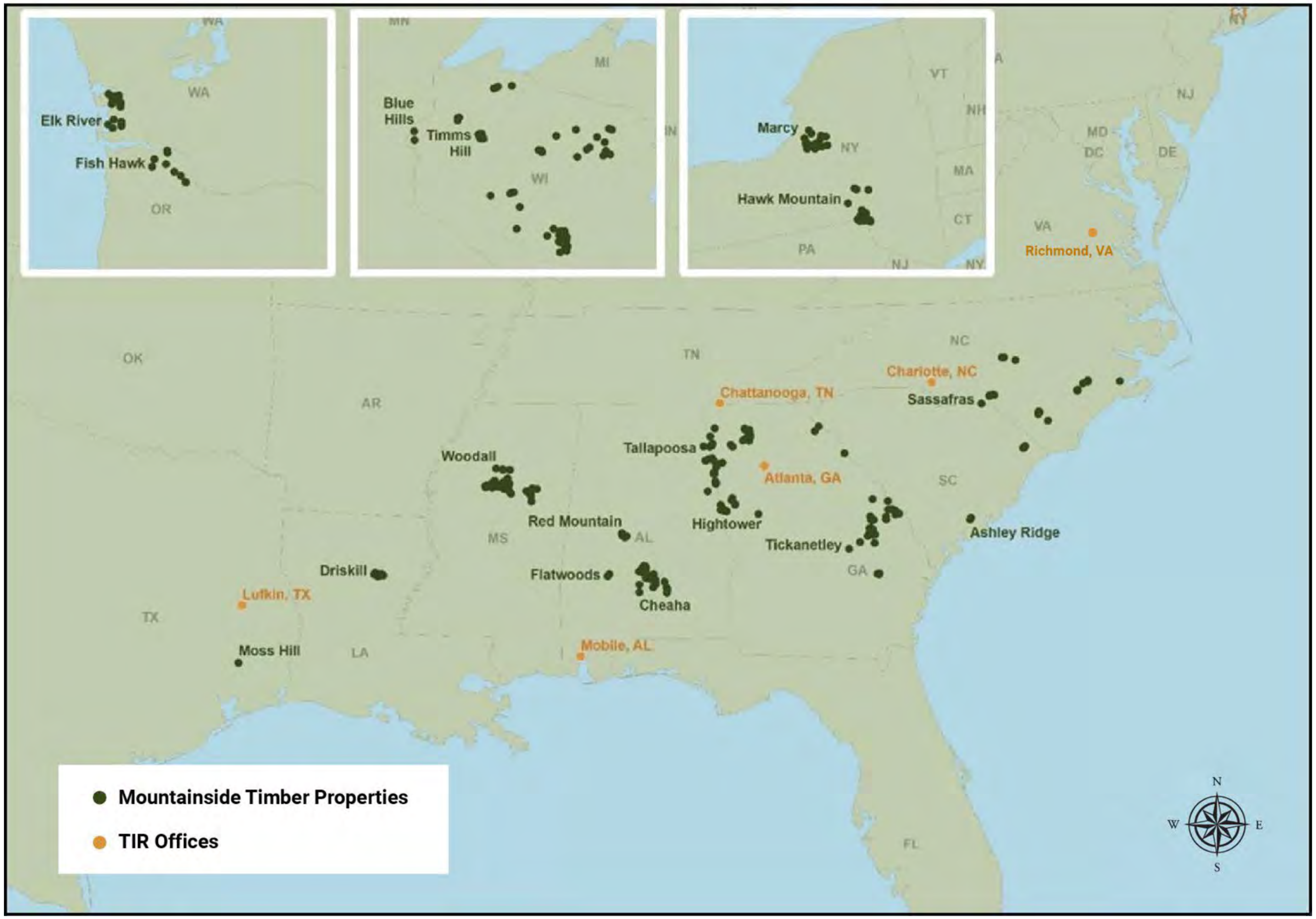
TIR Organization Structure (includes TIR-Europe)



Mountainside Timber

Mountainside Timber – Asset Location Map

Mountainside Timber, LLC Properties: 152,153 acres



Mountainside Timber, LLC

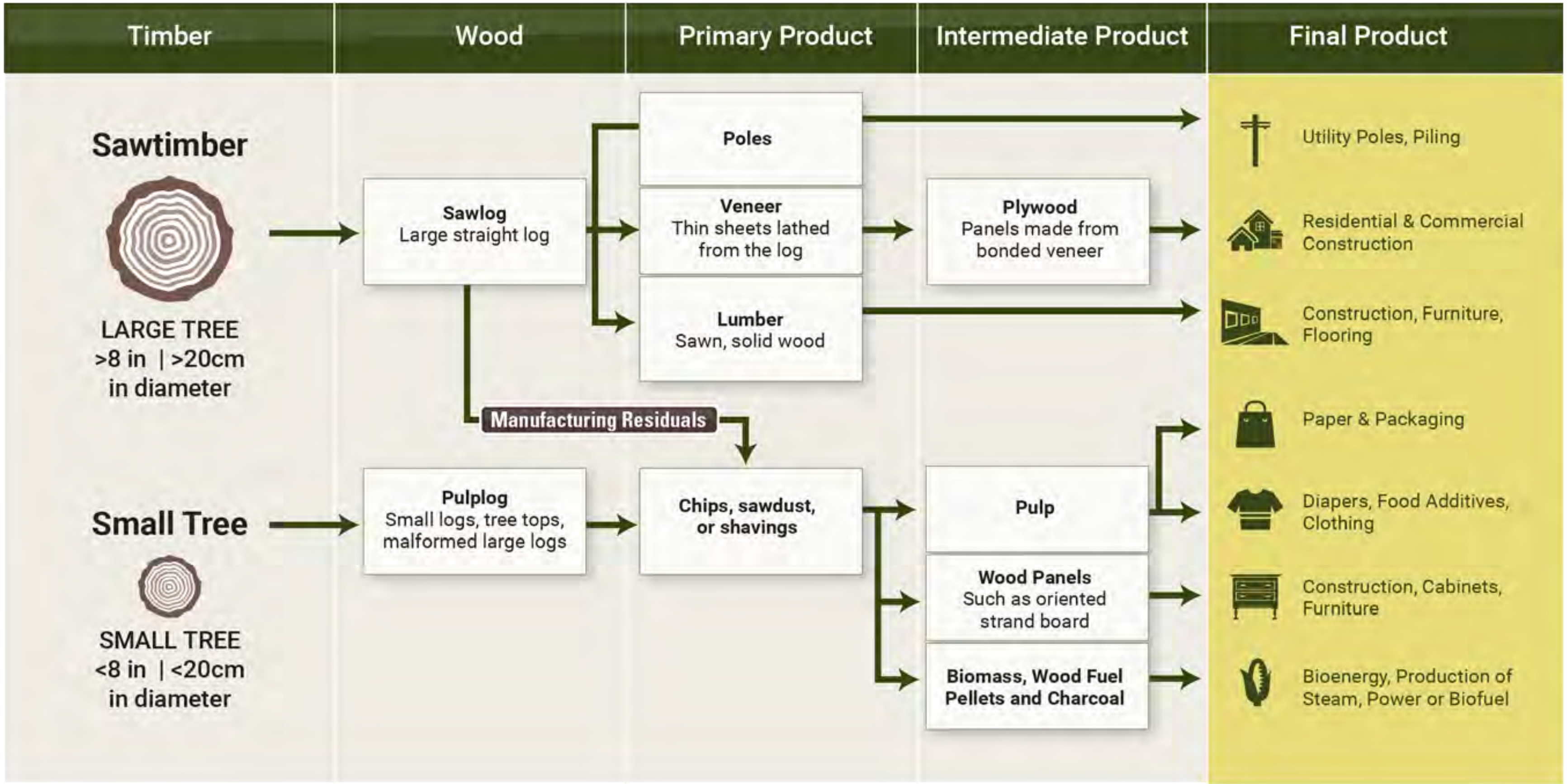
- Formed in 2008 with a capital commitment of $100 million.
- Capital commitment increased over time to $244 million.
- In 2020, assets from Hancock Timber Resource Group (Salmon Timber) were consolidated into Mountainside. The market value of the assets was approximately $100 million at the time of the conversion and included three properties in Alabama, Oregon, and Washington.
- Prior to the consolidation, fees were renegotiated to reflect the increase in scale of assets under management.
- Total market value of the Mountainside assets was $392.8 million as of 6/30/2023.
- The portfolio is unleveraged and is compared to the NCREIF Timberland Index and net-of-fee total return between public equities and fixed income over rolling six-year periods.
- To provide a sense of scale, the properties represent 250 square miles, and if all the trees in Mountainside were harvested and loaded on trucks, they would stretch end-to-end across the width of the State of Alaska.

Timber Basics

Timber Basics – Two Timber Types – Diverse End-Use Products

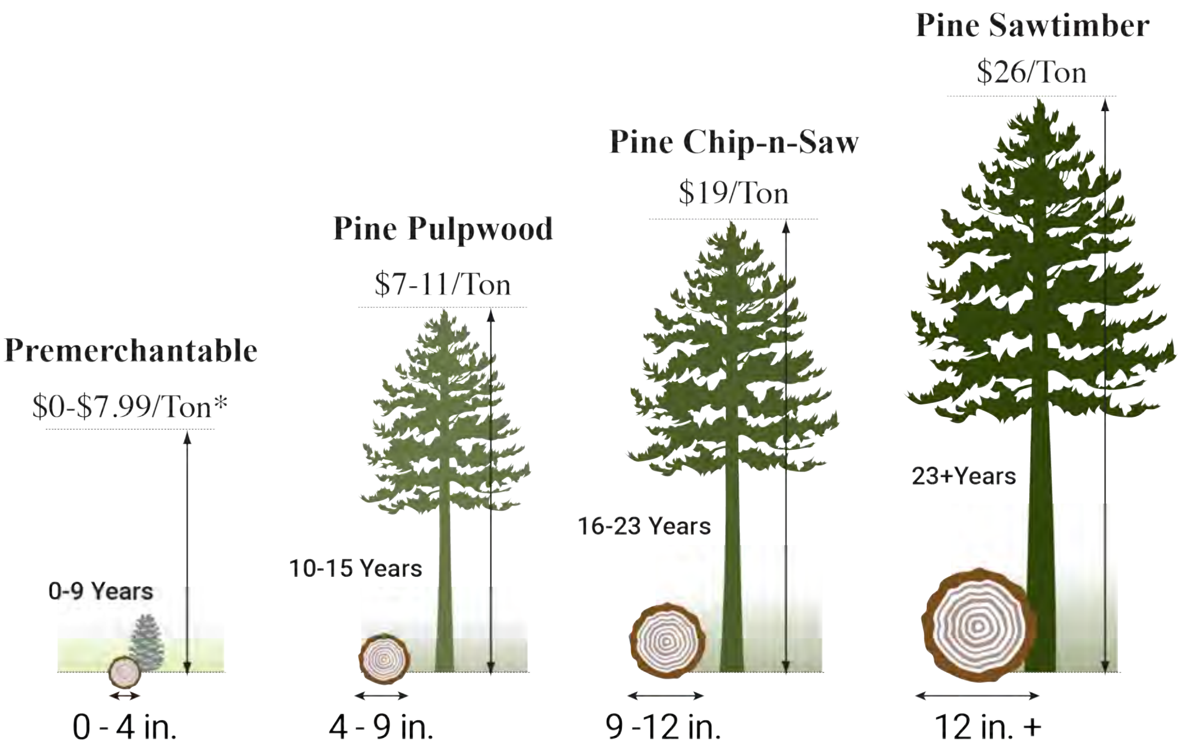
Timber Basics – Main Products Produced from Timber

Flow diagram that shows how the main economic products of a timber harvest, sawtimber and pulpwood, become value-added products.



Timber Basics

Timber grows twice: in volume and price…



Note: General southeast-wide average prices for pine products.

Economic and Market Outlook

Key Themes of Last Year and This Year

Last Year 2022

Rising interest rates and economic slowdown

- The Fed is tightening monetary policy, which will raise mortgage rates
- High energy prices and the Ukraine war could lead to a global economic downturn

Housing market faces a period of weakness

- Rising mortgage rates and economic uncertainty will likely create a slowdown in new home construction

Demand for timber stable

- Home improvement spending is holding up well
- A reduction in Canadian imports means greater demand for U.S. lumber

This Year 2023

Consumers shift to services over goods

- Following heavy purchases during Covid, people have shifted their spending towards eating out, entertainment and travel
- Less demand for packaging and furniture

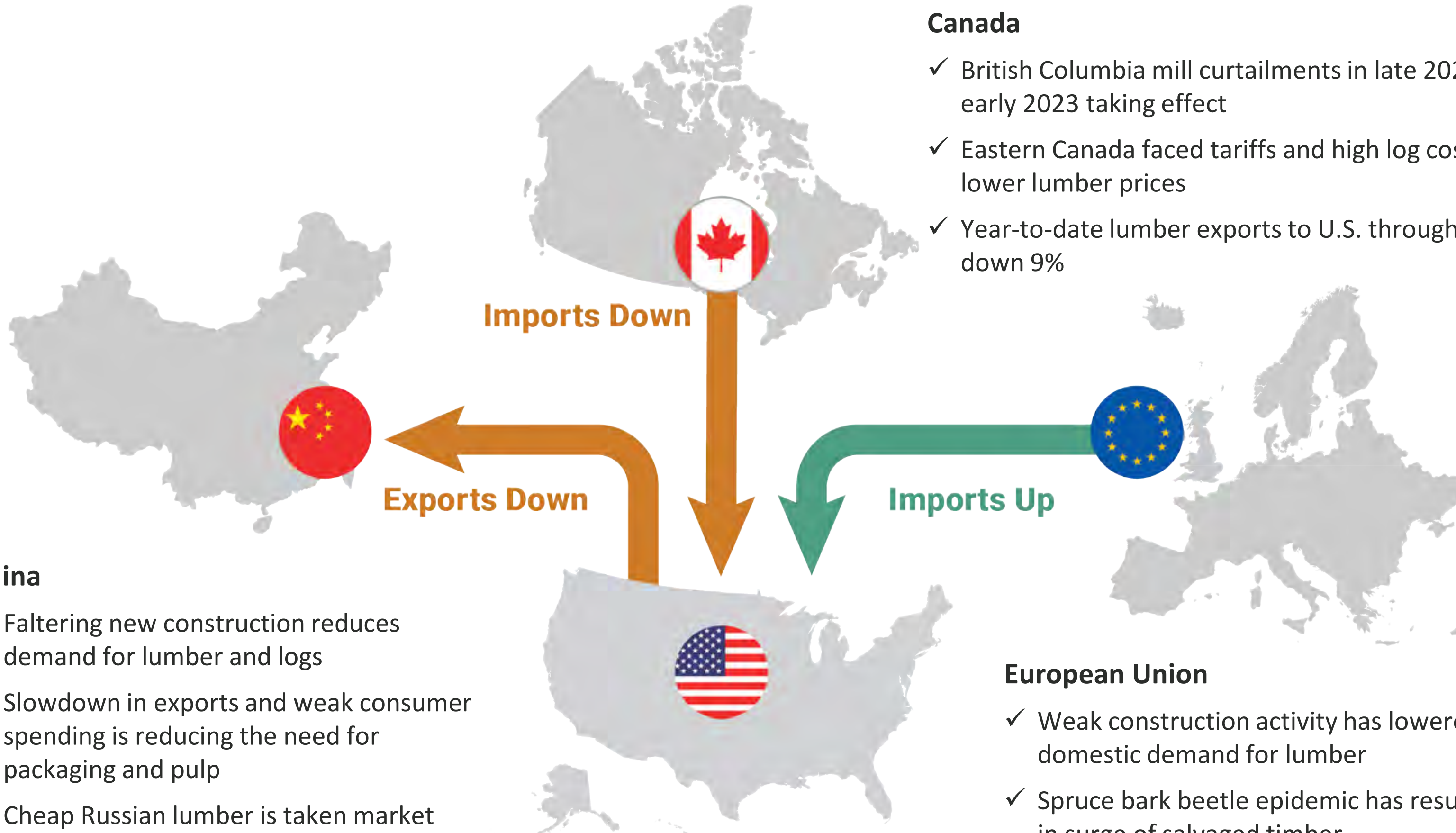
Possible real estate fallout amid high rates

- Real estate owners cannot easily roll over debt or fund new purchases
- This could spill over to multi-family (i.e., apartments and condominiums)

New home construction stabilizes

- High mortgage rates are a headwind, yet…
- Low inventory of existing homes has encouraged buyers to seek newly-built homes

Wood Trade Dynamics for 2023



Canada

- ✓ British Columbia mill curtailments in late 2022 and early 2023 taking effect
- ✓ Eastern Canada faced tariffs and high log costs amid lower lumber prices
- ✓ Year-to-date lumber exports to U.S. through July down 9%

China

- ✓ Faltering new construction reduces demand for lumber and logs
- ✓ Slowdown in exports and weak consumer spending is reducing the need for packaging and pulp
- ✓ Cheap Russian lumber is taken market share from U.S. logs and lumber

Note: Countries are not drawn to equal scale.

European Union

- ✓ Weak construction activity has lowered domestic demand for lumber
- ✓ Spruce bark beetle epidemic has resulted in surge of salvaged timber
- ✓ EU lumber exports to U.S. year-to-date through June are up 5%

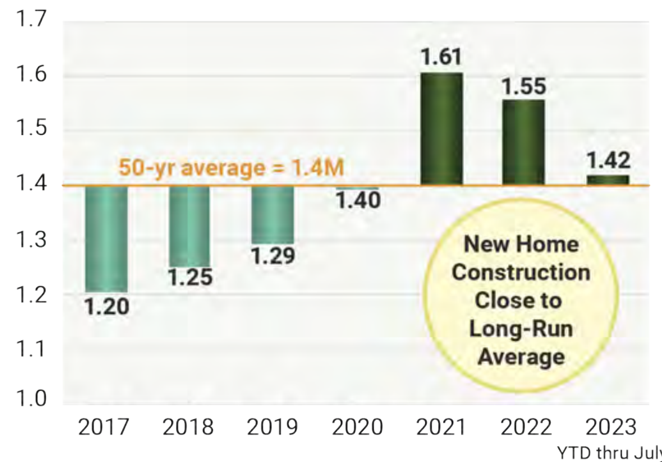
Housing Starts Stabilizes After Initial Pullback

Mortgage rates have doubled to 7%, which has slowed demand in the housing market. On the other hand, low availability of existing homes for sale has pushed more home buyers to seek newly built homes.

Housing Inventory
Active Listings of Existing Homes (Million)

Source: Realtor.com

Housing Starts
Above or Below 50-Year Average (Million)

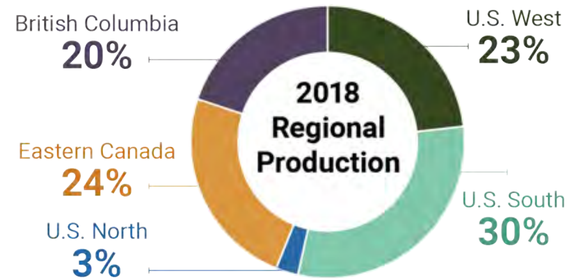


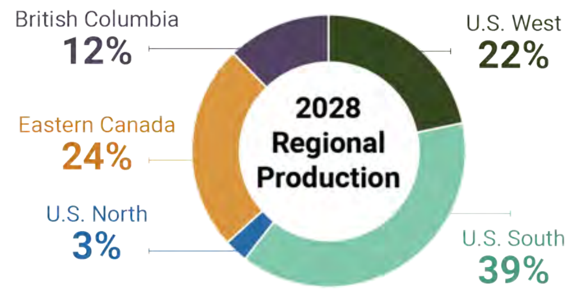
Source: U.S. Census Bureau

U.S. South Will Meet Growing Demand for Lumber

After a possible 2024 downturn, new home construction is expected to regain momentum, driving lumber demand higher. Where that lumber is sourced, however, will change.

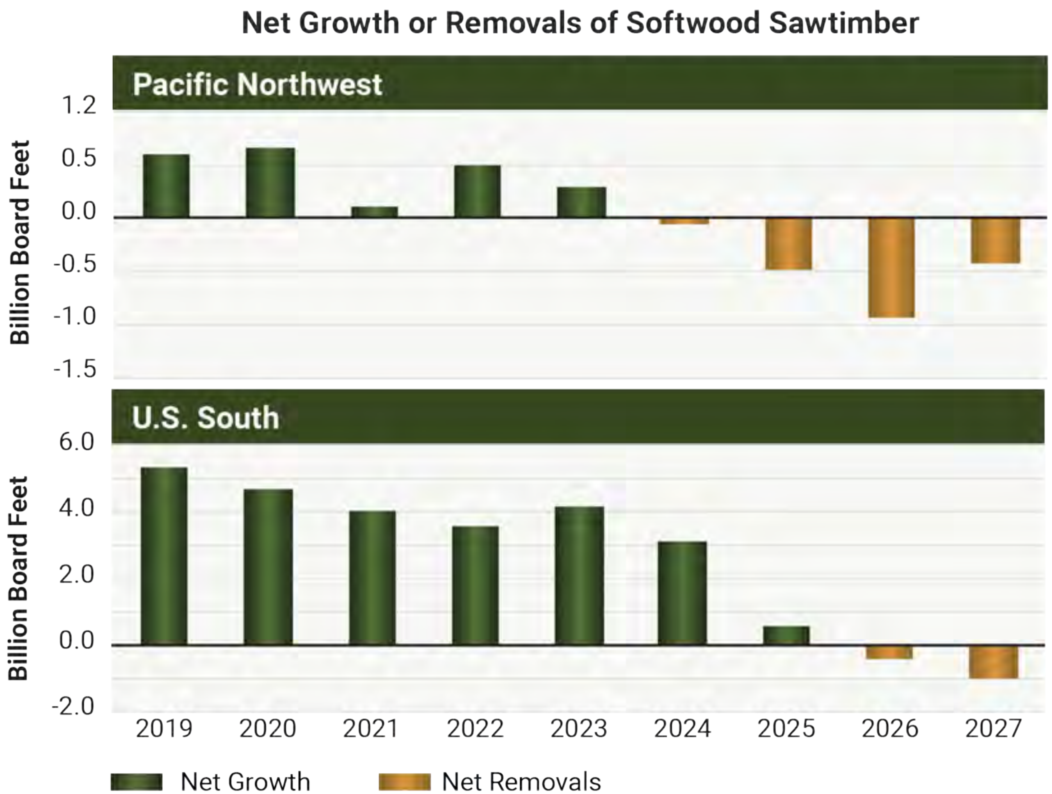
Source: Forest Economic Advisors Timber Forecast 2023 Q2





Supply & Demand Balance Could Favor Landowners

Demographic demand for housing combined with a decline in Canadian supply will put greater pressure on timber supplies in both the Pacific Northwest and the South. Removals are expected to exceed growth, which can help support log prices for both regions.

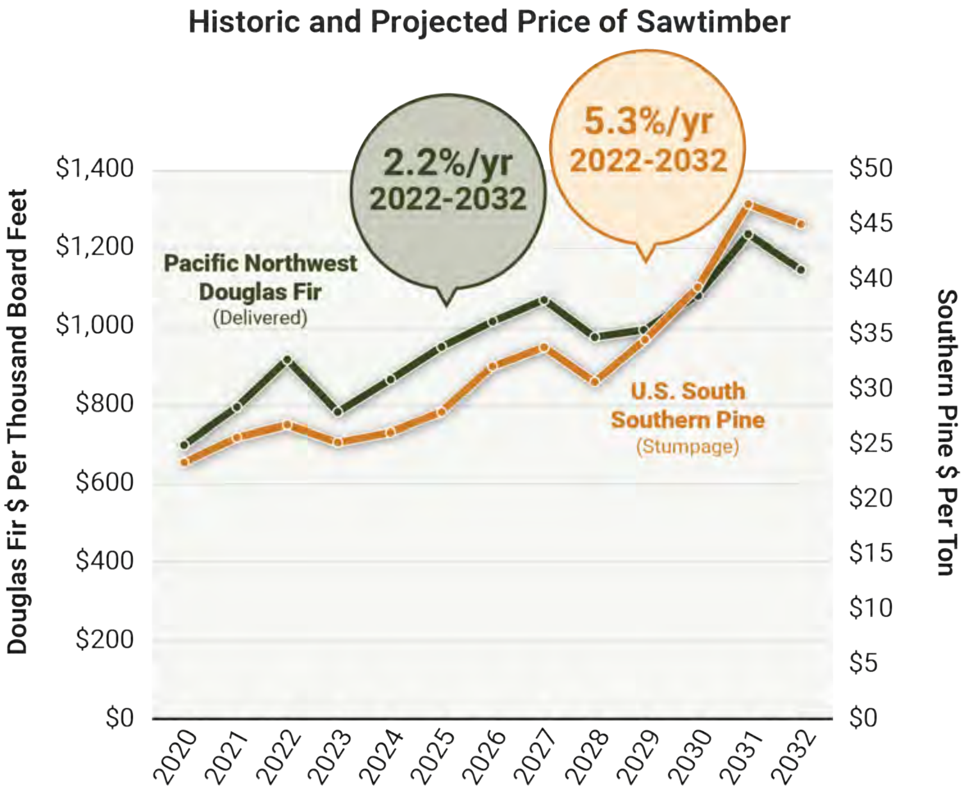


Data reflects operable, privately-owned timberland. Public or protected forests are excluded. Removals include harvests and losses from land use change. Source: Forest Economic Advisors Timber Forecast 2023 Q2

Prices in the South Can Catch Up with the West

As the South gains market share in lumber production, this could close the sawlog price gap between the South and the Pacific Northwest

Douglas Fir

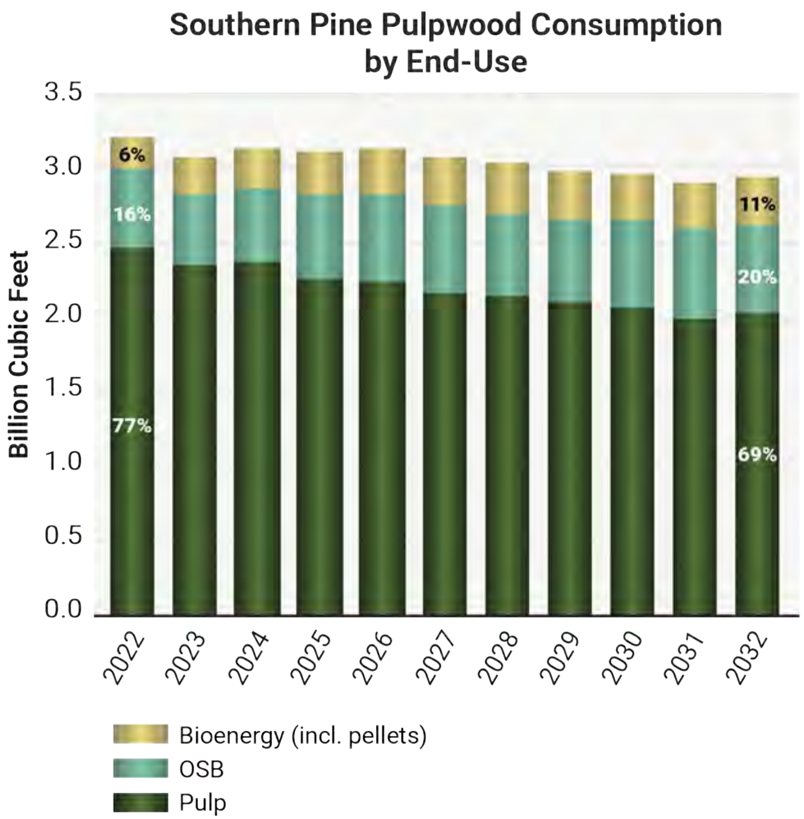


Source: Forest Economic Advisors Timber Forecast 2023 Q2

Southern Pine (Loblolly)

Pulpwood Demand is Supported by OSB and Pellets

The South has faced a reduction in pulp and paper mill capacity amid a decline in paper demand. However, much of the loss is expected to be supplanted by fresh investments in OSB and pellet capacity.

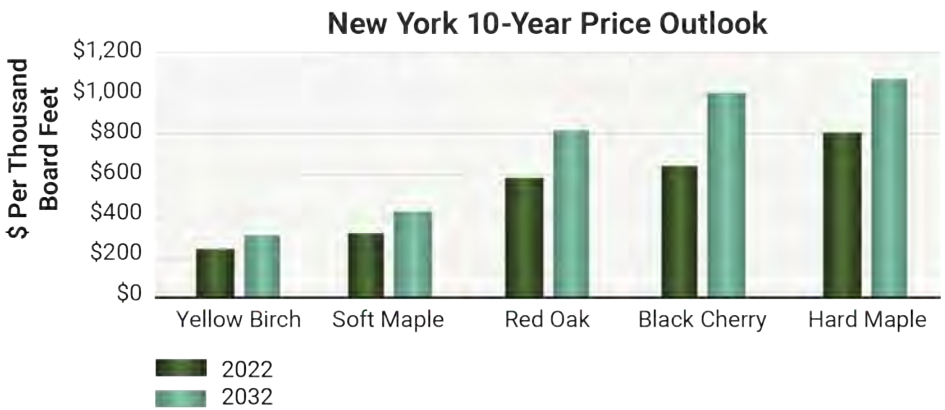


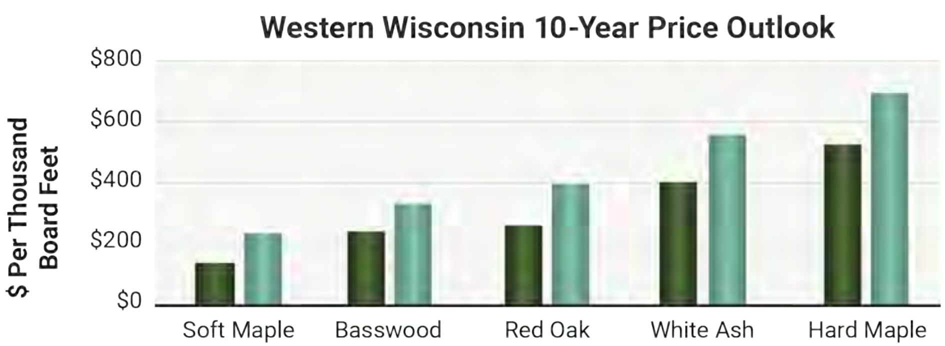
Source: Forest Economic Advisors Timber Forecast 2023 Q2

Source: Fastmarkets RISI North American Timber Forecast (Jan 2023)

Northern Hardwoods

China's economic slowdown will hurt American hardwood exports in the near-term. Long-term, a rebound in the U.S. housing market will support northern hardwood demand for use in flooring, cabinets, window frames and furniture.

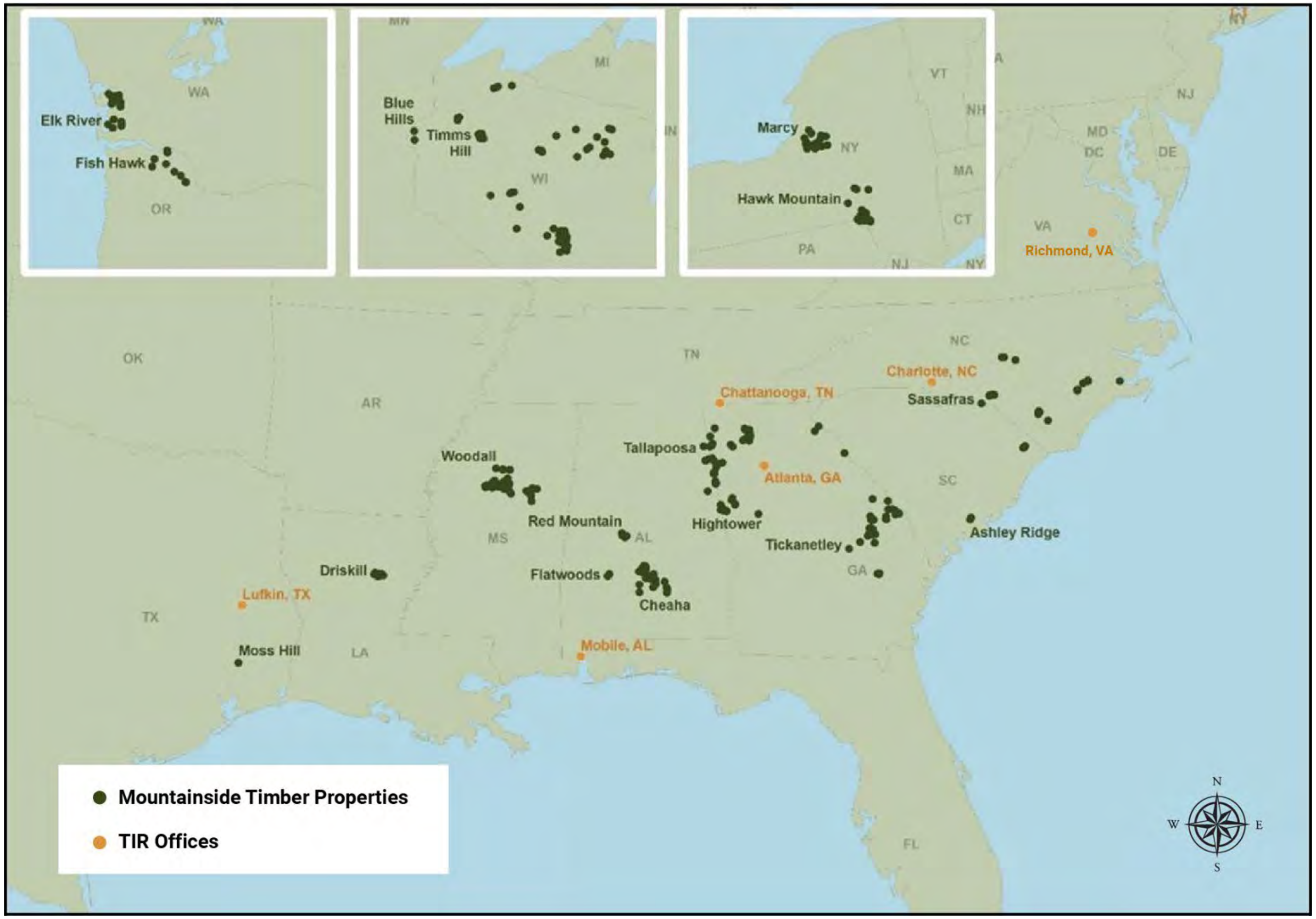




Source: Forest Research Group, Hardwood Price Forecast 2023 H1 (Feb. 21, 2023)

ARMB Portfolio Overview

Diversification - Geographically



The Mountainside Timber portfolio encompasses properties located in 11 states (152,153 acres and 346 separate tracts) across all the major timber producing regions of the U.S.

Diversification - Species and Product Classes

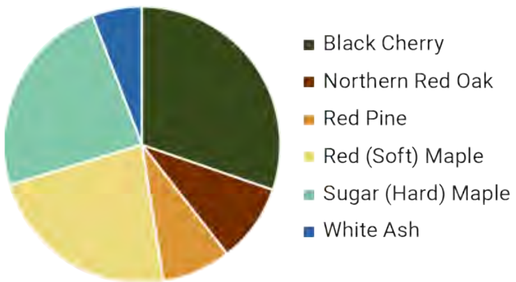
Mountainside also has broad diversification across species, product classes (e.g., pulpwood, chip-n-saw, and sawtimber) and overall age-class distribution.

- Relatively even age-class distribution for softwood and broad hardwood diversification.
- Geographical distribution is roughly comparable to NCREIF with some strategic tilts (overweighted in the Lake States and Northeast and underweighted in the Pacific Northwest).

Mountainside Timber, LLC - Portfolio Diversification - 6/30/23

Region	Portfolio Acres	% of Portfolio	Portfolio Value	% of Portfolio	NCREIF Value	NCREIF Asset Weighting
South	103,462	68%	$253,292,186	64%	$16,826,742,413	64%
Lake States	17,402	11%	$23,795,061	6%	$1,055,447,865	4%
Northwest	13,783	9%	$68,338,976	17%	$7,129,927,569	27%
Northeast	17,507	12%	$47,403,639	12%	$1,420,491,772	5%

Mountainside Portfolio Diversification by Timber Type



Performance Summary

- On a gross basis, Mountainside has outperformed the NCREIF (National) benchmark by 88 basis points since inception and by 29 basis points on a trailing 6-year basis. It is also outpacing the Bloomberg Barclays Aggregate Index while trailing the Russell 3000.

Mountainside Timber, LLC - Portfolio Returns - 6/30/2023

Time-Weighted Returns	Mountainside (Gross)	Mountainside (Net)	NCREIF (National)	Barclays US Bond Index(2)	Russell 3000
Year to Date	7.65%	7.32%	3.49%	2.09%	16.17%
Trailing 12 Months	**9.46%**	**8.77%**	**11.13%**	**-0.53%**	**18.95%**
Trailing 3 Years	8.28%	7.57%	8.67%	-3.97%	13.89%
Trailing 5 Years	5.79%	5.04%	5.80%	0.77%	11.39%
Trailing 6 Years	**5.72%**	**4.95%**	**5.43%**	**0.57%**	**11.95%**
Trailing 10 Years	5.52%	4.72%	5.90%	1.36%	12.34%
Since Inception(1)	**5.38%**	**4.56%**	**4.50%**	**2.57%**	**13.84%**

(1) Since inception represents the company contribution return for the fund. This supports comparison with the NCREIF since inception calculation.

(2) AGG is the Bloomberg Barclays US Aggregate Bond Index

Yields

- Yields have averaged 4.51% since 2013.
- The 2023 yield is projected to be in line with recent years.

Mountainside Timber, LLC - Distribution & Yield - 6/30/23

Calendar Year	Cash Distribution	Beg Year NAV	Cash Yield
2013	$6,000,000	$171,453,496	3.50%
2014	$7,500,000	$189,008,917	3.97%
2015	$14,000,000	$269,945,189	5.19%
2016	$13,300,000	$276,684,112	4.81%
2017	$18,400,000	$276,813,308	6.65%
2018	$22,800,000	$285,655,074	7.98%
2019	$4,200,000	$268,275,894	1.57%
2020	$5,900,000	$268,695,726	2.20%
2021	$17,000,000	$359,610,786	4.73%
2022	$17,100,000	$364,918,668	4.69%
Total Cash Distribution	**$126,200,000**	**Avg Annual Yld***	**4.51%**

Yield — Return of capital, capital gains, and ordinary income
* Calculated based upon full calendar years 2013-2022

Summary

- Timber markets have softened in 2023 in response to lower housing starts (caused by increased mortgage rates). However, housing starts have begun to rebound in response to a limited availability of existing homes.
- Interest in timberland for recreation, conservation, and personal investment has stayed strong as investors are looking for inflation protection assets and places to build homes for remote work.
- Our outlook is for stable timber markets beyond a possible 2024 downturn, when macro trends and housing fundamentals take hold (i.e., in response to pent up demand for housing).

Risks & Emerging and Developing Opportunities

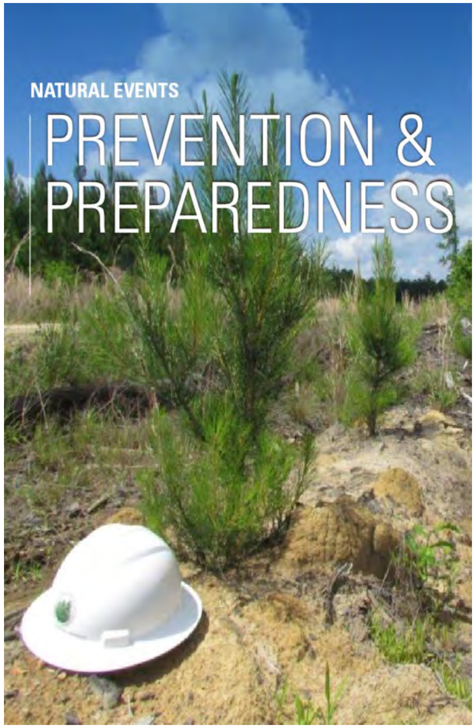
Risks

Systemic Risks

- Market Risk
- Physical Risks
  - The “Big Three” - Fire, Wind, Insects
- Regulatory and Policy Risks

Risk Mitigation

- Market - Diversification
- Physical Risks - Mitigation
  - o Advanced Genetics and Breeding
  - o Active Forest Management
    - ➢ Healthy trees are more resistant to threats
    - ➢ Plowing fire lanes and road maintenance
  - o Early Detection and Response Time
- Regulatory, Legal, and Policy Risks – Active engagement with policy makers through the National Alliance of Forest Owners (NAFO)



Physical risks are low – The average annual loss for Mountainside has been 1.5 basis points per year over the past five years (2018-2022)

Emerging and Developing Opportunities

Recreation and Conservation Values

- Demographic influences and land value uses change over time pushing values into other higher and better uses such as recreation values and conservation values (~30% premiums).
- *166 basis points of the total 9.46% return for the 2023 fiscal year has been generated from these retail land sales (24 transactions, total $8.1 million).*

Solar Opportunities

- Solar energy has also seen significant growth (with half of all new projects being launched in the U.S. Southeast).
- TIR has spent several years working to enhance opportunities with solar developers that focus on sourcing rural lands for large-scale projects.
- Solar opportunities provide enhanced economics for landowners (at least 3X+ values relative to traditional timberland valuations).

Carbon

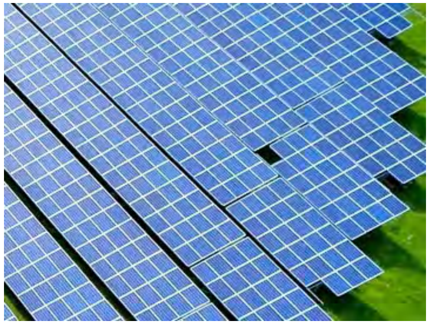
- Significant focus in the media; increasing option value for landowners.
- Mountainside Timber’s forest assets currently hold 13.6 million metric tons of carbon dioxide – *roughly equivalent to the amount of carbon dioxide emitted by 3 million passenger cars each year.*
- Marketplace quadrupled between 2020 and 2021 to over $2 billion. Boston Consulting Group expects it to be worth $10 to $40 billion by 2030 – with some investors acquiring timberland primarily for its carbon properties.


WSJ

ENERGY

Carbon Capture Wins Fans Among Oil Giants

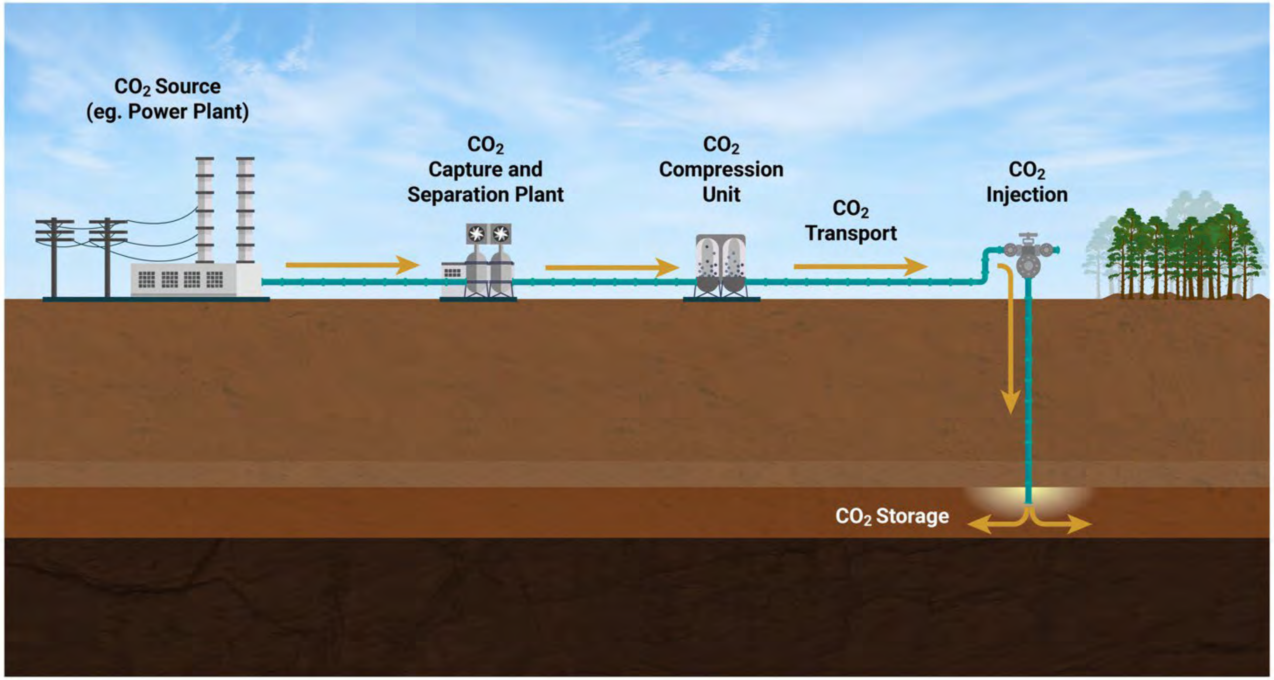
Exxon, Chevron and others are joining a broader push to make the technology cheaper and more efficient



Emerging and Developing Opportunities

Carbon Capture and Storage (CCS)

- Technology that captures CO2 directly from industrial sources, diverts it prior to release in the atmosphere, and injects it into the earth where it becomes mineralized with the rock.
- Pursued by major oil companies that result in landowner lease opportunities with attractive economics.



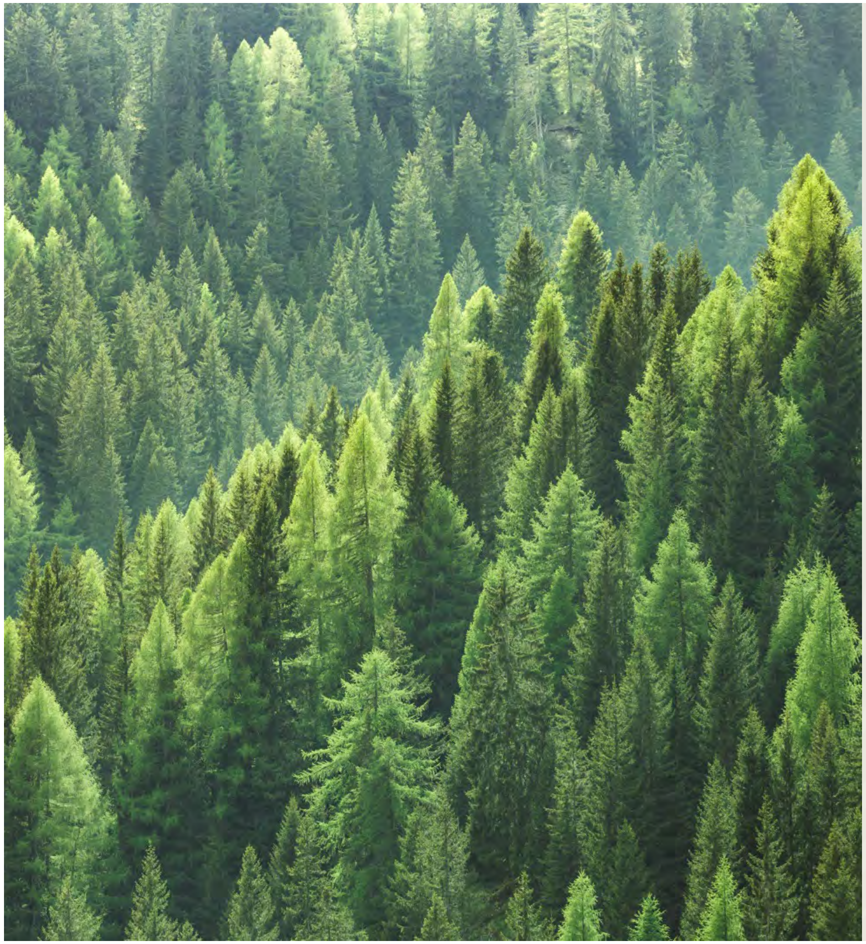
Thank you for your business!

Appendix A: Role of Timberland in a Pension Portfolio

Timberland in a Pension Portfolio

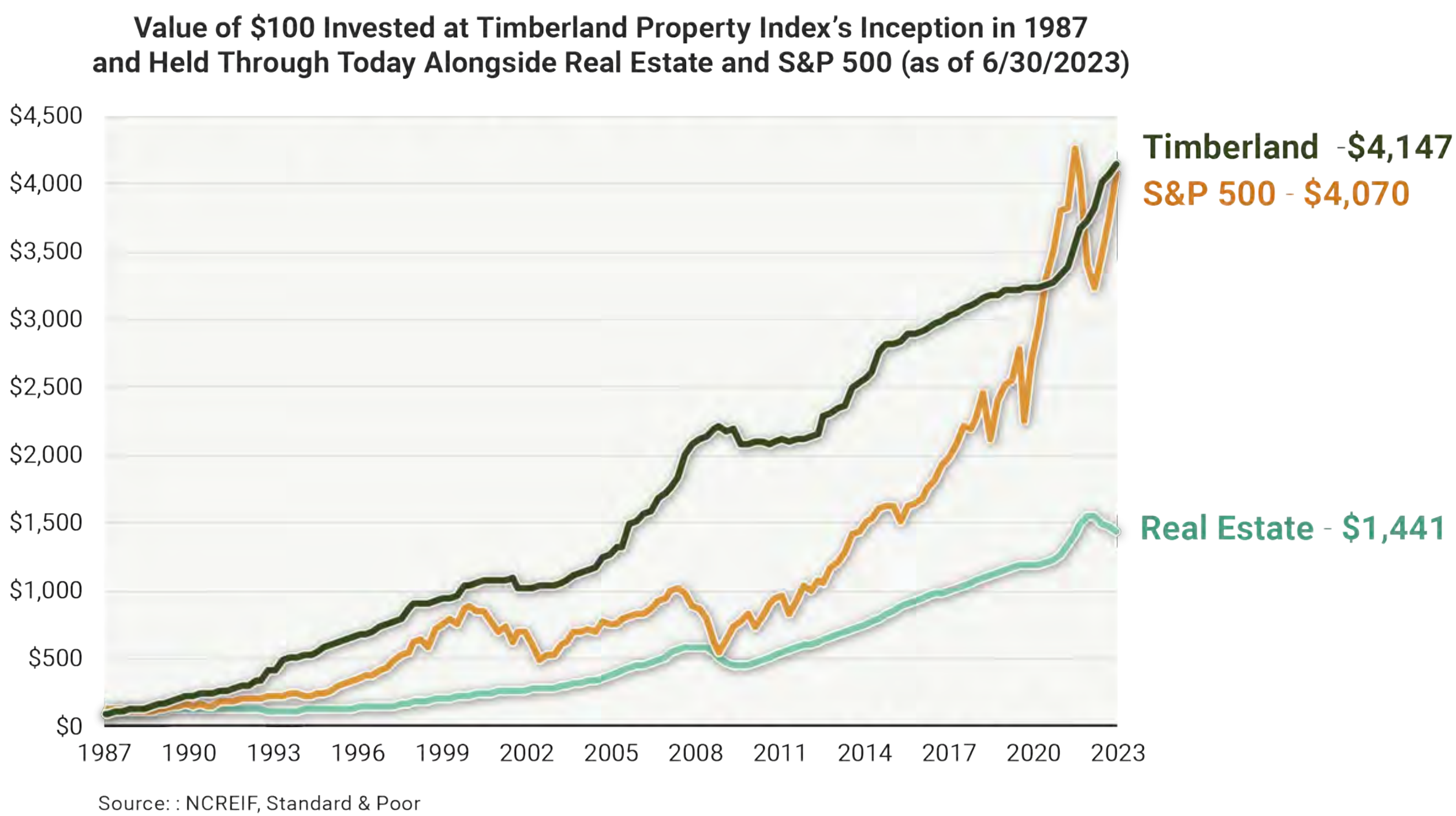
Rationale

- Return
- Diversification
- Inflation Hedge
- Capital Preservation
- Yield



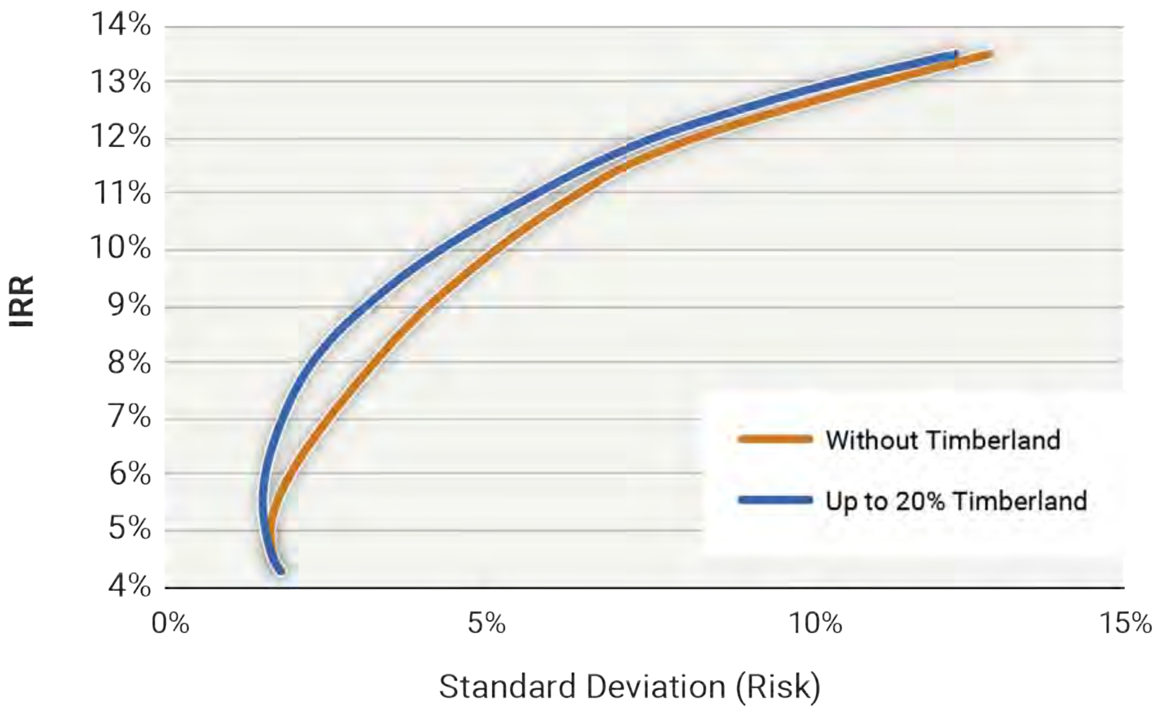
Return

Timberland provides attractive long-term return characteristics that is competitive with stocks and alternative assets.



Risk

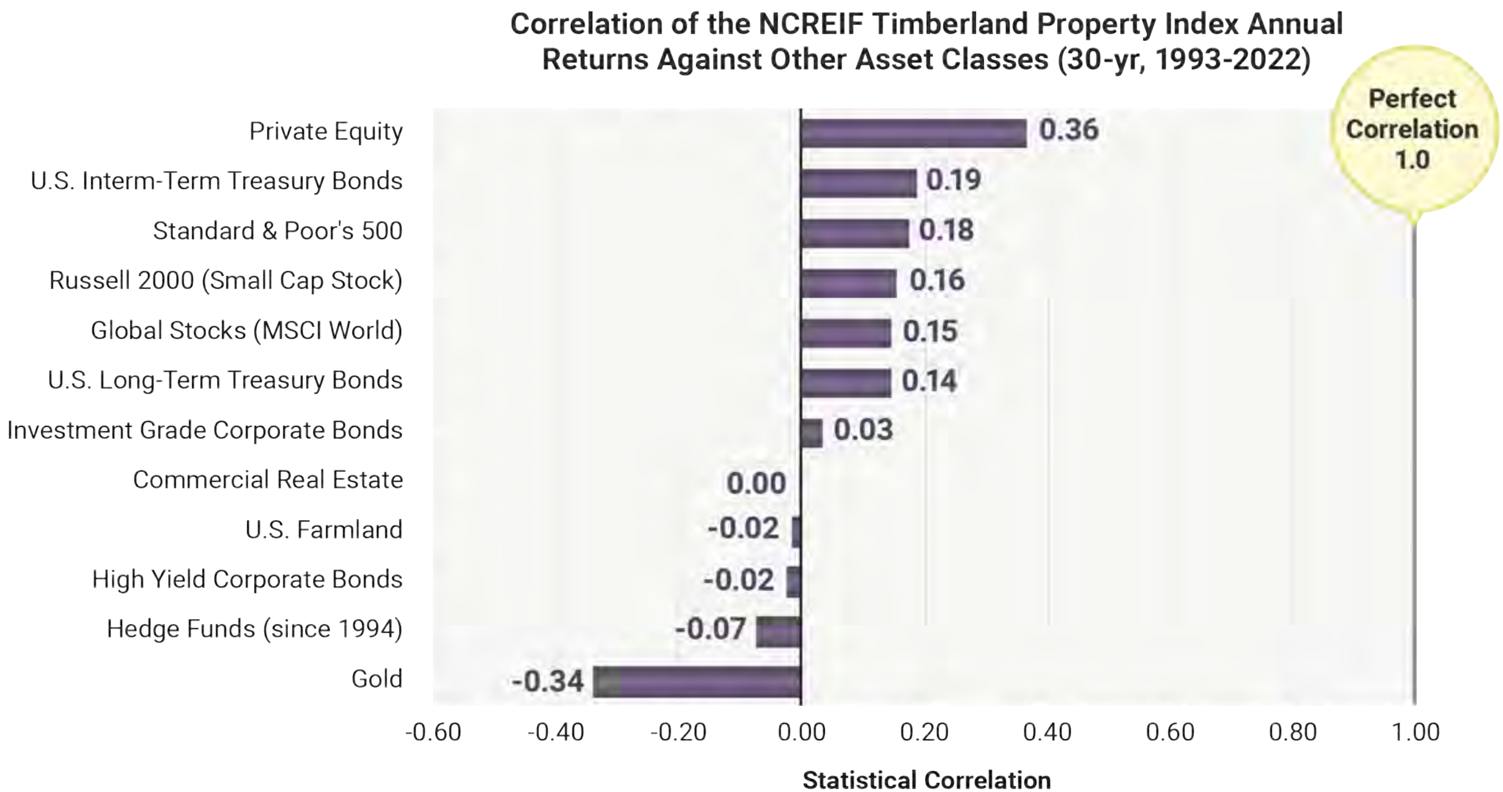
Adding timberland to a typical pension plan portfolio can reduce risk for a given target return.



Source: TIR Research

Diversification

Timberland's biological growth properties provide a risk and return characteristic that adds to the diversification of any real assets portfolio.



Source: Kroll's 2023 SBBI Yearbook, NCREIF, Standard & Poor, Cambridge Associates, LBMA, MSCI, Bloomberg

Inflation Hedge

Timberland has consistently shown strong inflation hedging properties relative to other real assets.

Sources: NCREIF Timberland Property Index, NCREIF National Property Index, Standard & Poor, U.S. Census Bureau (for inflation)
Inflation is measured by the U.S. Consumer Price Index (All Urban Consumers, All Items)

STAFF BIOGRAPHIES

Tom Johnson, Managing Partner, Client Relations and Corporate Development

johnson@tirllc.com | 617-264-4769

Tom is a founding partner and member of both TIR's Executive Team and Investment Committee. He is responsible for delivering investment solutions and insights to the marketplace on behalf of the firm and for building and maintaining strong, transparent, partnership-oriented relationships with the firm's separate account clients. During his years with TIR, Tom also has driven a broad array of organizational and growth-related initiatives. This includes TIR Europe, TIR's London-based affiliate, which leads the firm's global initiatives. In addition to serving as the TIR Executive Committee's liaison to TIR-Europe, Tom leads the firm's public policy initiatives. Tom began his career at Wachovia where he spent ten years managing significant client relationships in the institutional investment and corporate trust markets. In that capacity, he served as the bank's West Coast Territory Manager, which entailed directing all business development and client relationship management activities in support of its retirement and charitable fund clients. Prior to joining TIR, Tom was a Principal Consultant at PricewaterhouseCoopers Management Consulting. In that role, he was an industry advisor to global investment management firms, overseeing major projects that influenced the implementation of clients' business operations and marketing functions. In addition to his years of experience in the institutional investment arena, Tom is a forester who grew up in a saw-milling family in North Carolina. This background gives him a unique perspective on the timberland asset class – enabling him to provide valuable counsel to TIR with regard to the firm's strategic direction and ensuring that it consistently reflects and represents the needs and interests of its clients. Tom is a graduate of Appalachian State University where he earned a BSBA in Finance. He also earned an MBA and an MFR (Master of Forest Resources), with honors, at the University of Georgia and is a member of the Phi Kappa Phi honor society. He holds the designation of Chartered Alternative Investment Analyst (CAIA) and serves on the Board of the National Alliance of Forestland Owners (NAFO) as well as the Advisory Board of the University of Georgia's Center for Forest Business.

Chris Mathis, JD, Managing Partner, Chief Investment Officer

mathis@tirllc.com | 404-736-3486

Chris is a member of both TIR's Executive Team and Investment Committee. In the role of CIO, Chris directs investment strategy development and implementation. He also provides oversight of TIR's transactional management functions and supports portfolio-level efforts to create enhanced investment value by conceptualizing and executing value-added initiatives. These include strategic wholesale as well as retail land sales and alternative land-use strategies, including recreational transactions to individuals and the development of solar and mineral resources and environmental mitigation banks. He also provides oversight for Mission Forest Products, TIR's sawmill business, which is located in Corinth, Mississippi. Chris has a broad range of experience in timberland finance, law and operations in the forest products industry. He previously held a variety of senior leadership positions at Temple-Inland, including: Vice President of Treasury and Investor Relations; Vice President of Strategic Resource Planning; and Senior Corporate Attorney. During his tenure at Temple-Inland, Chris led the tax deferred sale of 1.55 million acres of the company's high-quality timberland assets for $2.4 billion. He also managed Temple-Inland's Treasury and Investor Relations departments through the financial crisis and the $4.3 billion sale of the company to International Paper in February 2012. In addition, he served on the company's Pension Investment Committee, which managed its $1.3 billion-defined benefit plan. Just prior to joining TIR, Chris headed the Mathis Property Group, where he consulted with a family-office to evaluate investment opportunities in timberland and other real estate asset classes. Chris is a native of Texas and holds BBA, MBA and JD degrees from Texas Tech University. He also completed the Executive Program at the Stanford University Graduate School of Business.

Chung-Hong Fu, Managing Director, Economic Research and Analysis

fu@tirllc.com | 404-848-2000

Hong oversees all economic and market analysis and forecasting for TIR and plays a key role in the development of the firm's investment strategies. He was a founding member of TIR and also was instrumental in establishing the firm's research-driven investment ethic. Hong began his career at Temple-Inland where he served as a Resource Utilization Specialist and Business Analyst. In these roles, he provided economic and research analysis services, which were utilized by senior executives to make strategic decisions involving a broad range of opportunities and challenges, including asset securitization, acquisitions, resource management and business optimization. Prior to joining TIR in 2003, Hong served as Senior Investment Analyst with Global Forest Partners, where he performed global timber acquisition assessments, created a variety of decision support models, and directed the firm's currency risk management function. Hong is recognized in the timberland investment arena for his measured and comprehensive analyses of the trends and events that drive investment performance and influence the long-term risk and return profile of the asset class. He writes extensively on these and related issues and is frequently consulted by market participants and analysts, including the news media, for his unique and well-informed perspectives. Hong is a graduate of Northwestern University where he received a BS in Biology. He also earned an MS in Environmental Management at Duke University and an MBA at Columbia University. He received his Ph.D. in Forest Economics at North Carolina State University.

Important Notice

These materials (the "Materials") and the information contained herein are being provided to Alaska Retirement Management Board ("you" or the "recipient") to provide information regarding Timberland Investment Resources, LLC ("TIR") and the timberland portfolio that TIR manages on behalf of the recipient (the "Portfolio"). The Recipient should not construe the contents of the Materials as legal, tax, accounting, investment or other advice. The Recipient should make its own inquiries and consult its advisors as to legal, tax, financial, and other relevant matters concerning any investment, including the Portfolio. The indicative terms and other information included in the Materials are incomplete, subject to change and are provided for discussion purposes only.

The Materials are not an offer to sell a security nor the solicitation of an offer to buy a security and no offer or solicitation should be implied by the delivery of the Materials. The Materials and related information about the Portfolio cannot be used in conjunction with the marketing of any product or security in any jurisdiction, and the Materials may not be distributed in any jurisdiction except in accordance with legal requirements applicable in such jurisdiction. Recipients should not rely on the Materials in making any future investment decision. Statements contained in the Materials are based on current expectations, estimates, targets, projections, opinions and beliefs of TIR. Such statements involve known and unknown risks, uncertainties and other factors. These and other forward-looking statements contained in the Materials are speculative in nature, involve a number of assumptions which may not prove to be valid, and may be changed without notice. "Forward-looking statements" can be identified by the use of forward-looking terminology such as "may," "will," "seek," "should," "expect," "anticipate," "project," "estimate," "intend," "continue," "target," "plan" or "believe" or the negatives thereof or other variations thereon or comparable terminology. Due to various risks and uncertainties, actual events or results or the actual performance of the Portfolio may differ materially from those reflected or contemplated in such forward-looking statements. No reliance may be placed for any purpose whatsoever on the information, representations or opinions contained in the Materials, and no liability is accepted for any such information, representations or opinions, nor does TIR or any other person, to the maximum extent permitted by law, accept any responsibility or liability whatsoever for any direct or indirect loss howsoever arising from the use of the Materials.

Statements in the Materials are made as of September 2023, unless otherwise stated herein, and the delivery of the Materials shall not at any time under any circumstances create an implication that the information contained herein is correct as of any time subsequent to such date. TIR does not have any obligation to update or revise any statement in the Materials or correct inaccuracies whether as a result of new information, future events or otherwise. The information contained herein has not been audited, contains approximates and has no bearing on the future performance of the Portfolio. The Portfolio's investment advisor, TIR, is registered as an investment adviser with the U.S. Securities & Exchange Commission ("SEC") and has filed with the SEC, and will be required to update periodically, Form ADV. Part 2 to the Form ADV contains essential information about a given investment advisory firm, including information about firm management, clients, fee arrangements and the handling of conflicts of interests.

Performance Information. In considering any target or projected performance information contained herein, the Recipient should bear in mind that such information is not necessarily indicative of future results. While the targeted or projected returns are based on assumptions regarding estimates of underlying cash flows, current business plans, timing, financing terms and residual values for the investments which TIR believes are reasonable, there can be no assurance that such results will actually be realized or that capital contributed by the Recipient will be returned. Such assumptions are made solely for purposes of underwriting or valuing investments and are not for purposes of projecting returns on such investments, the eventual realization value of such investments or the Portfolio's overall performance. Actual gross and net returns for the Portfolio may vary significantly from any targeted or projected returns set forth herein and will depend on, among other factors, future operating results, the availability and terms of financing, the value of the assets and market conditions at the time of disposition, any related transaction costs and the timing and manner of sale, all of which may differ from the assumptions on which the targeted or projected returns are based.

Information regarding expected market returns and market outlooks is based on research, analysis, and opinions of certain members of TIR. These opinions are speculative in nature, may not come to pass, and are not intended to predict the future of any specific investment. Certain factual economic and market information contained herein has been obtained from published sources prepared by other parties and has not been independently verified by TIR. While such sources are believed to be reliable, TIR does not assume any responsibility for the accuracy or completeness of such information.

Past performance is not indicative of future results. In considering the operating history contained herein, recipients should bear in mind that such operating history is not necessarily indicative of future results, and there can be no assurance or guarantee that TIR or the Portfolio will achieve comparable results in the future.

Images contained herein are for illustrative purposes only.

TIMBERLAND
INVESTMENT RESOURCES LLC

Growing value for our clients every day

Thank You

IFM Investors

Mandate: **IFM Global Infrastructure Fund** **Hired: 2015**

Firm Information

IFM Investors, established in 1995, is a global fund manager owned by 17 Australian pension funds.

IFM has a team of more than 120 investment professionals on the infrastructure team in offices across the globe.

As of 6/30/2023, the firm's total assets under management were approximately $143 billion across infrastructure (equity), debt, listed equities, and private equity asset classes. As of 6/30/2023, the net asset value of the IFM Global Infrastructure Fund ("the Fund") was $54 billion.

Key Executives:
Kyle Mangini, Head of Infrastructure - Global
Julio Garcia, Head of Infrastructure - North America
Deepa Bharadwaj, Head of Infrastructure - Europe
Michael Hanna, Head of Infrastructure - Australia

Investment Approach

IFM Investors believes a professionally managed portfolio of infrastructure assets can provide long-term institutional investors with significant benefits: portfolio diversification, participation in economic growth, protection from inflation, asset-level earnings resilience, and portfolio risk management. Infrastructure assets can also help investors to match their long-term liabilities with long-term investments.

IFM seeks to construct and maintain a portfolio which consists of long-term, core infrastructure assets. Core infrastructure assets typically have monopoly-like characteristics, strong market positions, a reliable regulatory environment, high barriers to entry, limited demand-elasticity, exposure to inflation and economic growth, and long lives.

The Fund utilizes an open-end structure that suits the long-lived nature of the assets and provides investors with vintage year diversification, embedded growth opportunities with strategic partners, and the alignment of long-term liabilities with long-lived infrastructure investments.

The Fund's foreign currency exposure is hedged, to the extent that it is reasonably practicable and prudent, against currency movements.

Target Portfolio Return: 8-12% per annum, net of fees

Total ARMB Mandate

Assets Under Management:
6/30/23: $706,622,682

Concerns: None

6/30/2023 Performance

	Last Quarter	1-Year	3-Years Annualized	6-Years Annualized	8.25-Years Annualized
Manager Gross	2.72%	10.21%	13.12%	12.94%	12.24%
Fee	.20%	.63%	.74%	.73%	.72%
Manager Net	2.52%	9.58%	12.38%	12.21%	11.52%
CPI+4%	2.04%	6.97%	9.78%	7.73%	7.16%

IFM Investors

IFM Global Infrastructure Fund ('IFM GIF')

Alaska Retirement Management Board

As of June 2023

Important Disclosures

The following disclosure applies to this material and any information provided regarding the information contained in this material. By accepting this material, you agree to be bound by the following terms and conditions.

This material does not constitute an offer, invitation, solicitation, or recommendation in relation to the subscription, purchase, or sale of securities in any jurisdiction and neither this material nor anything in it will form the basis of any contract or commitment.

IFM Investors (defined as IFM Investors Pty Ltd and its affiliates) will have no liability, contingent or otherwise, to any user of the material or to third-parties, or any responsibility whatsoever, for the correctness, quality, accuracy, timeliness, pricing, reliability, performance or completeness of the information in this material. In no event will IFM Investors be liable for any special, indirect, incidental, or consequential damages which may be incurred or experienced on account of a reader using or relying on the information in this material even if it has been advised of the possibility of such damages.

Certain statements in this material may constitute "forward looking statements" or "forecasts". Words such as "expects," "anticipates," "plans," "believes," "scheduled," "estimates" and variations of these words and similar expressions are intended to identify forward-looking statements, which include but are not limited to forecasts, projections of earnings, performance, and cash flows. These statements involve subjective judgement and analysis and reflect IFM Investors' expectations and are subject to significant uncertainties, risks, and contingencies outside the control of IFM Investors which may cause actual results to vary materially from those expressed or implied by these forward -looking statements. All forward-looking statements speak only as of the date of this material or, in the case of any document incorporated by reference, the date of that document. All subsequent written and oral forward-looking statements attributable to IFM Investors or any person acting on its behalf are qualified by the cautionary statements in this section. Readers are cautioned not to rely on such forward-looking statements. The achievement of any or all goals of any investment that may be described in this material is not guaranteed. Case studies are provided for illustrative purposes only and should not be relied on to make an investment decision.

Past performance does not guarantee future results. The value of investments and the income derived from investments will fluctuate and can go down as well as up. A loss of principal may occur.

The target returns included herein are presented for illustrative purposes only to demonstrate IFM Investor's approach to investments and are not intended to constitute any performance predictions of the IFM Global Infrastructure Fund ("Master Fund"). IFM Investors believes the target returns are appropriate based on its experience investing in and managing infrastructure assets and historical returns. Target returns are not a requirement for any particular portfolio investment but rather describe the portfolio-wide return objectives that will generally inform decision-making for the Master Fund at the time investments are made. Target returns are based on certain assumptions that may not materialize and other information that may prove inaccurate. These assumptions generally involve considering past performance, long run economic conditions, and portfolio composition. Investors should not rely on any target returns or any other reference to future results or events, all of which are hypothetical and not a guarantee of future performance. Actual returns will depend on many factors and are subject to substantial risks and uncertainties.This material may contain information provided by third parties for general reference or interest. While such third-party sources are believed to be reliable, IFM Investors does not assume any responsibility for the accuracy or completeness of such information.

This material does not constitute investment, legal, accounting, regulatory, taxation or other advice and it does not consider your investment objectives or legal, accounting, regulatory, taxation or financial situation or particular needs. You are solely responsible for forming your own opinions and conclusions on such matters and for making your own independent assessment of the information in this material. Tax treatment depends on your individual circumstances and may be subject to change in the future.

Risks of IFM Investors' investment programs typically include: assets of IFM Investors funds may have limited liquidity; distributions are uncertain, a return on your investment is not guaranteed and you may lose all or a substantial amount of your investment; unfavorable economic conditions in the markets in which IFM Investors funds operate could adversely affect your investment; assets acquired with leverage have risks including loss of value and limits on flexibility needed if there are changes in the business or industry.

Liquidity- An investment in the Partnership provides limited liquidity since withdrawal rights are not unqualified and Interests may not be transferred without the prior written consent of the General Partner, which may be withheld in its absolute discretion. Although portfolio investments may generate some current income, they are expected to be generally illiquid.

Valuation- Most of the portfolio investments will be highly illiquid and will most likely not be publicly traded or readily marketable.

Economic conditions- Interest rates, general levels of economic activity, the price of securities and participation by other investors in the financial markets may affect the value of portfolio investments made by the Master Fund or considered for prospective investment.

Leverage- Portfolio investments may include businesses whose capital structures may have significant leverage.

Important Disclosures

An infrastructure investment is subject to certain risks including but not limited to: the burdens of ownership of infrastructure; local, national and international economic conditions; the supply and demand for services from and access to infrastructure; the financial condition of users and suppliers of infrastructure assets; changes in interest rates and the availability of funds which may render the purchase, sale or refinancing of infrastructure assets difficult or impractical; changes in environmental and planning laws and regulations, and other governmental rules; environmental claims arising in respect of infrastructure acquired with undisclosed or unknown environmental problems or as to which inadequate reserves have been established; changes in energy prices; changes in fiscal and monetary policies; negative economic developments that depress travel; uninsured casualties; force majeure acts, terrorist events, under insured or uninsurable losses; and other factors beyond reasonable control. Please consult the constituent documents for more information on risks specific to infrastructure investing. An investment in any of these investment programs should be made only after careful review of the risk factors described in the related offering documents.

ESG Disclosure

Investing on the basis of sustainability/ESG criteria involves qualitative and subjective analysis. There is no guarantee that the determinations made by the adviser will align with the beliefs or values of a particular investor. Companies identified by an ESG policy may not operate as expected, and adhering to an ESG policy may result in missed opportunities.

While IFM Investors seeks to integrate certain ESG factors into its investment process and firm operations, there is no guarantee that IFM Investors' ESG strategy will be successfully implemented or that any investments or operations will have a positive ESG impact. Applying ESG factors to investment decisions involves qualitative and subjective decisions and there is no guarantee the criteria used by IFM Investors to formulate decisions regarding ESG, or IFM Investors' judgment regarding the same, will be reflected in the beliefs or values of any particular client or investor. There are significant differences in interpretation of what constitutes positive ESG impact and those interpretations are rapidly changing. The description of ESG integration herein is provided to illustrate IFM Investors' intended approach to investing and firm operations; however, there is no guarantee that the processes will be followed in every circumstance or at all

Presenters

Julio Garcia

Head of Infrastructure, North America

IFM Investors

Julio is responsible for IFM's infrastructure business in North America and manages the infrastructure team in the US.

Julio joined IFM Investors in January 2008 in Melbourne, Australia, and relocated to New York in 2014. Julio's experience includes senior roles in deal sourcing, investment evaluation, transaction execution, asset management, investment banking and strategy. Julio has led several major infrastructure investments and has been a director on the boards of various infrastructure companies, including the Port of Brisbane, NSW Ports, Ecogen Energy, Northern Territory Airports and Wyuna Water. Prior to joining IFM Investors, Julio held positions with Viant Capital, Bank of America, Robertson Stephens and Gemini Consulting.

Julio holds a Master's Degree in Business Administration from the Stanford University Graduate School of Business, and a Bachelor of Arts (Public Policy) degree from Stanford University.

David Altshuler

Head of Global Client Solutions, North America

IFM Investors

David is an Executive Director at IFM Investors, where he is responsible for leading the Global Client Solutions team within North America. In his role, David is responsible for the implementation and oversight of the strategic goals of the team while also developing new business opportunities and managing significant relationships for all asset classes including infrastructure, debt investments, listed equities and private capital.

David has more than 20 years of equity and debt investment experience in infrastructure, energy, and natural resources sectors. Prior to joining IFM Investors, David was the founding partner of StepStone Infrastructure and Real Assets, where he was responsible for constructing and managing portfolios of funds and co investments for institutions globally. David spent the first part of his career at Nuveen Investments, where he was a member of the infrastructure financing team. David currently holds Series 7, 63, and 24 licenses from FINRA.

David holds a Phd from University of Chicago.

Contents

IFM Investors Firm Overview

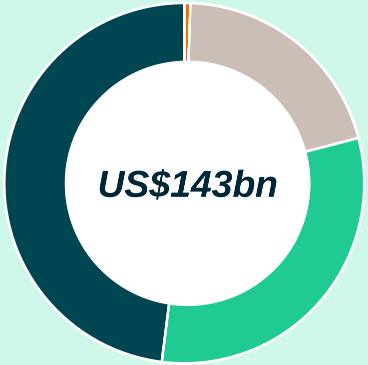
Firm Overview

IFM Investors is a global infrastructure manager with 28 years of experience in the infrastructure sector investing on behalf of long-term, like-minded investors

Established & owned by pension funds

AustralianSuper, Brighter Super, BUSSQ, Mine, ngs Super, REI Super, CareSuper, Cbus, equip, Spirit Super, Australian Retirement Trust, TWUSUPER, First Super, HESTA, Hostplus, UniSuper, Vision Super

US$143 billion across four asset classes[(1)]



- Infrastructure Equity **$72.8bn**
- Debt Investments **$37.8bn**
- Listed Equities **$31.7bn**
- Private Equity **$0.8bn**

11 global locations

New York | Houston | Melbourne | Hong Kong | Amsterdam

London | Berlin | Zurich | Sydney | Seoul | Tokyo

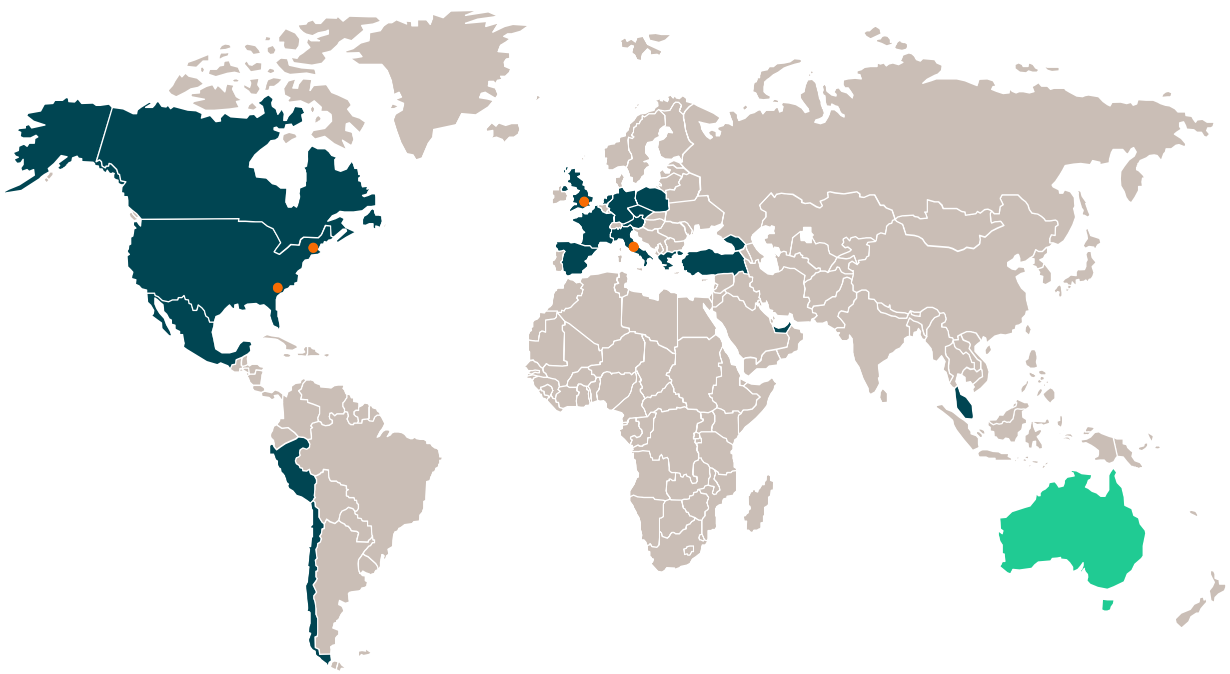
Seek to invest, protect & grow our investors' long-term capital

(1) As at 30 June 2023. US $143bn represents the FUM of investments and undrawn investor commitments. Differences may be due to rounding.

Infrastructure Equity

With a track record of nearly three decades, IFM Investors is an established infrastructure equity manager with global scale

US$ 73 BN	Funds Under Management
3	Open-end infrastructure equity funds
28	Years investing in infrastructure
120+	Infrastructure investment professionals
80+	Transactions since 1995
43	Portfolio Investments(1)



Global Infrastructure Fund (IFM GIF)
Incepted in December 2004

24 Portfolio Investments

FUM: US$57.2bn

Australia Infrastructure Fund (IFM AIF)
Incepted in August 1995

16 Portfolio Investments

FUM: US$12.2bn

Net Zero Infrastructure Fund (IFM NZIF)
Incepted in June 2022

4 Portfolio Investments

FUM: US$1.8bn

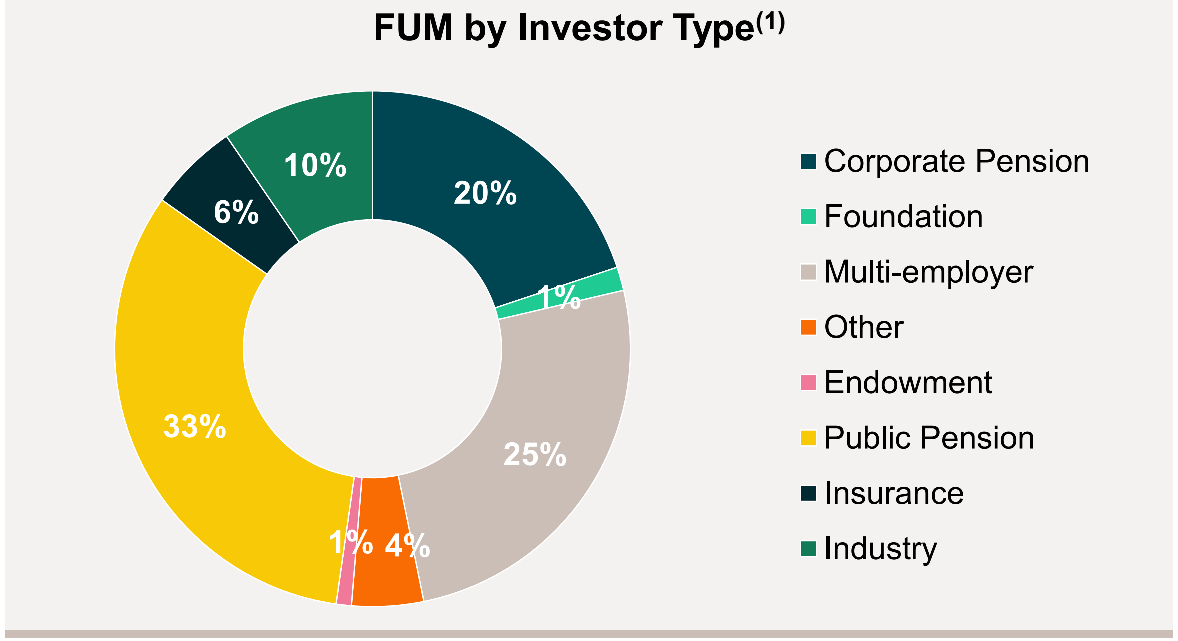
All figures as at 30 June 2023. Differences may be due to rounding.
(1) Portfolio investments total 43 due to an overlapping asset (Sydney Airport) across IFM GIF and IFM AIF.

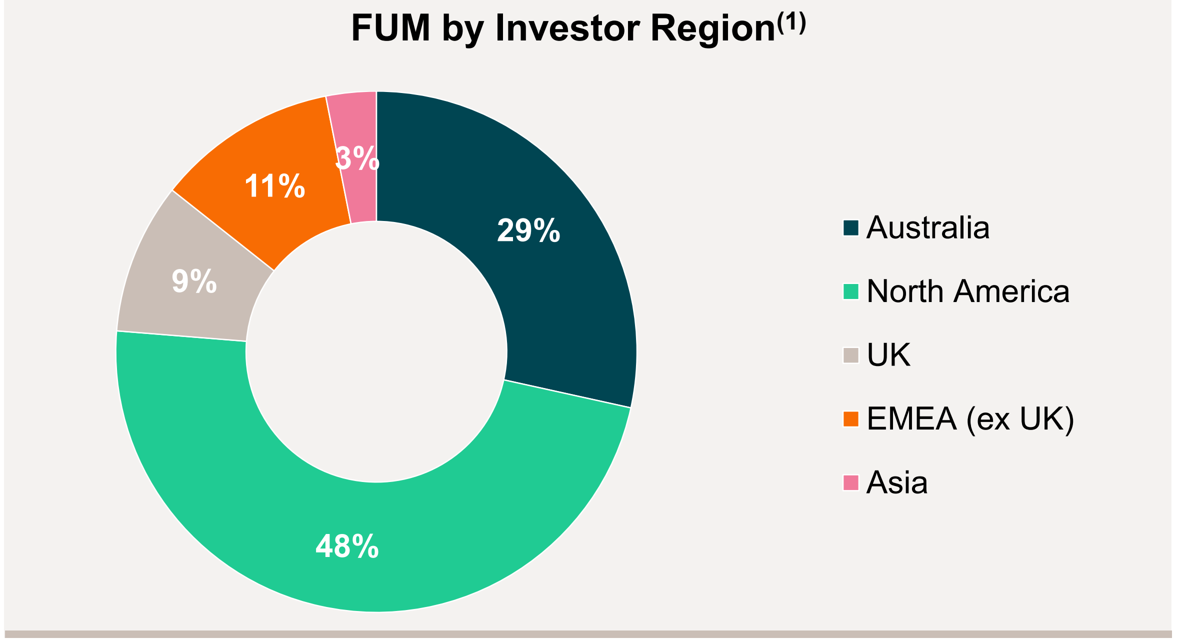
IFM Global Infrastructure Fund

GIF Investor Base

IFM Investors manages infrastructure investments for long-term institutional investors globally, with impacts on our investors' 120 million members and retirees

Serving 584 investors





As at 30 June 2023.
(1) FUM represents total NAV of the IFM Global Infrastructure Master Fund plus all undrawn investor commitments and cash available for investment in USD. Differences due to rounding. Past returns are not indicative of future performance.

Global Infrastructure Team

Kyle Mangini
Global Head of Infrastructure

Julio Garcia
Head of North America

Deepa Bharadwaj
Head of Europe

Michael Hanna
Head of Australia

10	years average tenure at IFM Investors(1)
20	years average industry experience(1)
30%	Women
20+	Languages Spoken
300+	Support staff across Legal, Tax & Ops

120+ Professionals

Investment Team — 93

Infrastructure specialists

- Origination and agile transactional capability
- Deal team continues to be responsible for asset management, ensuring alignment and continuity
- Deep sector knowledge

Asset Management Specialists — 25

Support investment team for value creation across portfolio

- Managing key asset risks
- Enhancing asset performance
- Leveraging portfolio's scale to generate synergies

Portfolio Management — 7

Improving efficiency of portfolio

- Portfolio insight
- Determining optimal asset allocations
- FX, structuring and liquidity management

Diverse Skill Set

- **IB/ Capital Markets**
- **Operations**
- **Regulation/ Government/ Legal**
- **Project Management**
- **HR/Labour Relations**

Note: As of 30 June 2023.
(1) Representative of employees who are Director and above in title.

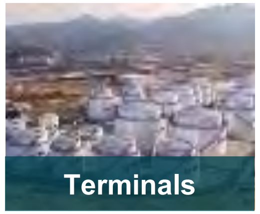
What Does GIF Invest In?

GIF seeks to invest in essential infrastructure assets primarily in OECD countries

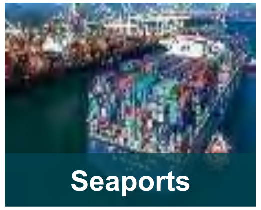
Key target sectors

Utilities

Energy



Transportation



We focus on assets with distinct characteristics:

01 Strong market positions/ High barriers to entry

02 Long asset/ concession life

03 Inflation protection

04 Benefit from regional/ global economic growth

05 Stable and predictable revenues

06 Stable regulatory environment

07 Targeting investment-grade financing

Investment Strategy

GIF is focused on building and managing a diversified portfolio of essential infrastructure assets to deliver stable long-term returns

GIF portfolio company:
Global Container Terminals

Key building blocks of our investment strategy include specific goals through the investment cycle:

Buy Well

- A long-term partner aligned with government entities and strategics
- Opportunities sourced through 120+ dedicated specialists and senior advisors, extended sourcing network through portfolio companies' industry relationships
- Current portfolio is a platform for bolt on acquisitions and capital reinvestment

Manage Intensively

- Strong governance and active board representation
- Integrated Asset Management Specialist team driving global knowledge sharing and best practice
- Prudent and conservative approach towards leverage
- ESG principles embedded in investment decision and asset management(1)

Sell Opportunistically

- Create value with a long-term return focus
- Sell to capture one-off market opportunities
- Partial divestments to rebalance portfolio and partner with strategic sponsors

(1) While IFM Investors seeks to integrate certain ESG factors into its investment process and firm operations, there is no guarantee that IFM Investors' ESG strategy will be successfully implemented or that any investments or operations will have a positive ESG impact. The description of ESG integration herein is provided to illustrate IFM Investors' intended approach to investing and firm operations; however, there is no guarantee that the processes will be followed in every circumstance or at all.

Portfolio Evolution

Buy and manage strategy with opportunistic exits

Since early 2018, we've executed 15 acquisitions and follow-ons, representing >US$21bn(1)

(1) Investments made since 2018 have been included. This is not a representation of all investments completed since the inception of the Global Infrastructure Fund. It should not be assumed that the investments shown herein will be profitable or that investments made in the future will be profitable or will equal the performance of the investments shown herein.
(2) Transaction announced on 23 January 2023.
(3) In August 2023, Buckeye Partners and its joint venture partners closed the sale of 100% of their equity interests in the South Texas Gateway Terminal (STG).
A complete list of historical investments in the portfolio is available upon request. Selected 2018 as start year to demonstrate level of activity over the last ~5 years.

Main Reasons for divesture

- Portfolio Diversification
- Strategic Considerations
- Opportunistic Exit

GIF's Diversified Portfolio

IFM GIF has 24 investments, representing >150 assets. GIF portfolio companies are largely domiciled in OECD countries with mostly control/co-control positions(1)

Indiana Toll Road
Roads - Unregulated

Colonial Pipeline Company
Pipelines & Related

Naturgy
Multi-utility

Anglian Water Group
Water & Wastewater

Arqiva Limited
Telecommunications

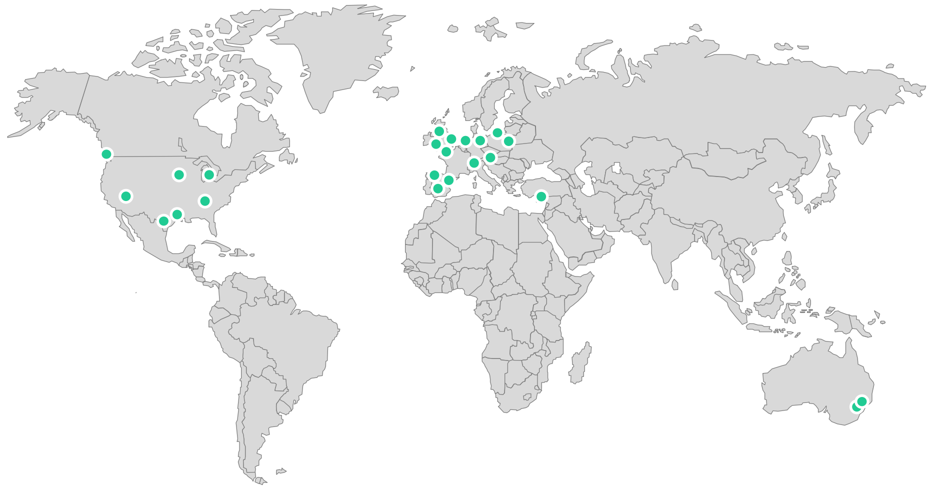
Impala Terminals
Marine Terminals

GlasfaserPlus GmbH
Fibre

Veolia Energia Polska
District heating

Switch
Data Centres

Aleática
Transport multi-sector



Atlas Arteria
Roads - Unregulated

Mersin International Port
Ports

Buckeye Partners
Pipelines & Related

Enwave
District Energy

Vienna Airport
Airports

Sydney Airport
Airports

Freeport Train 2
Liquefied Natural Gas

GCT Global Container Terminals
Ports

M6toll
Toll Roads

FCC Aqualia
Water & Wastewater

Manchester Airports Group
Airports

VTTI
Marine Terminals

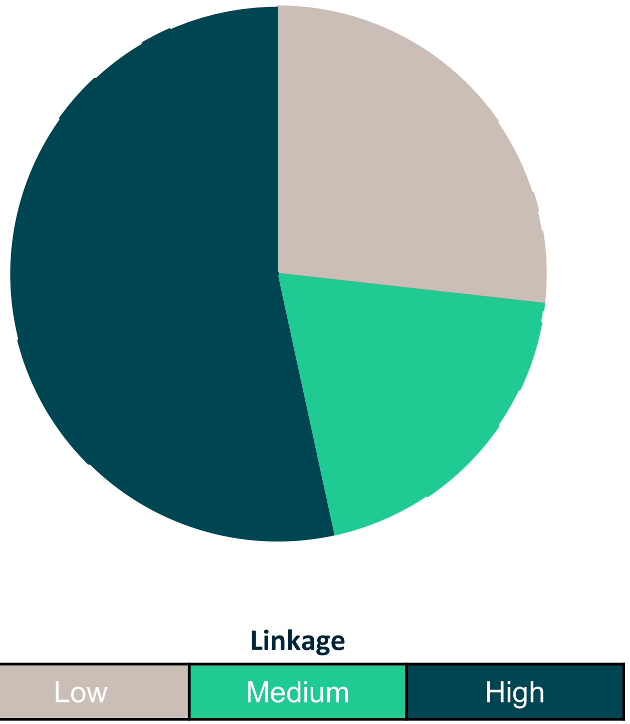
Baltic Hub
Ports

As at 30 June 2023. Portfolio holdings shown are as of the date noted, may not represent all the portfolio's current holdings and are not representative of future investments. Flags denote only the key geographies for each investment and are therefore not exhaustive.
(1) Green border indicates that the transaction closed in 2022.

Inflation Protection

The performance of infrastructure assets is generally positively correlated with inflation

Inflation Heat Map



Portfolio Commentary

- The performance of infrastructure assets can be correlated with inflation in several ways, including direct inflation-linked rate setting mechanisms; regulated real returns; the ability to pass through cost increases to customers; as well as GDP-linkage
  - The GIF portfolio has an inflation beta of 0.9[1]
- The chart below gives some examples of inflation linkage at different GIF assets:

Asset	Source of inflation linkage	Inflation linkage mechanism
Anglian Water	Regulation	Allowed return set in real terms
Aqualia	Concession agreements	Regulated tariffs linked to inflation
Enwave	Contracts	Inflation-linked contracts with end users
Indiana Toll Road	Concession Agreement	Regulated tariffs linked to CPI
Vienna Airport	Regulation	Airport charges linked to CPI

Note: Inflation beta analysis and inflation sensitivity based upon 30 June 2023 data (exclusive of publicly listed assets such as Naturgy and Vienna Airport) as assessed by the independent valuer. (1) Inflation beta has been calculated by using the 1% full lifecycle inflation sensitivity to net asset value, divided by the asset duration (the change in net asset value for a 1% change in discount rate) The pie chart is based on both qualitative and quantitative considerations and is provided for illustrative purposes only. Asset proportions represent NAV as at 30 June 2023. The data should not be relied on to form an investment decision. Past returns are not indicative of future performance.

Asset Management Framework

Objectives

PROTECT
Manage risks and deliver expected returns

ENHANCE
Achieve superior returns from individual assets

EXCEED
Deliver above what seems possible from individual assets

Capability

Investment Team

Asset Management Specialist Team

KNOWLEDGE

- Policies & Guidelines
- White Papers
- Case Studies
- Training

Senior Advisors

Global Network

Action

PLAN
- ~200 targeted and tracked initiatives annually:
  - Portfolio-wide
  - Asset specific
- Embedded in IFM Staff KRA's

IMPLEMENT
- Through Boards
- Through Secondments
- With Management Teams
- With other Shareholders

REVIEW
- Regular Progress tracking to drive performance and accountability
- Quarterly Reporting
- Annual Asset Reviews

Intended Results

Return on Investment

Responsible Investment
- Healthy Environment
- Inclusive Society
- Strong Governance

Risk Mitigation

The asset management framework shown above includes intended results and is not a guarantee of such. Investors should not rely on any target returns or any other reference to future results or events, all of which are hypothetical and not a guarantee of future performance. Actual returns and results will depend on many factors and are subject to substantial risks and uncertainties.

Performance

GIF’s Long-Term Track Record

GIF’s strategy is to manage a diversified portfolio of global infrastructure investments with a net target return of 8-12% over the long term(1)

Net Asset Value: $54 bn

Weighted average leverage: 35%

	1-Year	3-Year	5-Year	7-Year	10-Year	Since Inception (2004)
GIF Net Return(2)	9.0%	12.4%	10.8%	12.2%	10.6%	9.2%

5.4% net cash yield since inception(3)

GIF’s total return seeks a significant contribution from cash yield over the medium to long term

Past returns are not indicative of future performance. All figures as at 30 June 2023. Master Fund performance is provided for illustrative purposes only. Investment decisions should not be made solely based on the return series shown herein because specific feeder fund-level performance will differ from the Master Fund returns. The hedging strategy and fee structure of each feeder fund and between each separate Class Interest will be different, which will impact the performance experienced by an investor. Please note that only Class A interests are being offered to new investors at this time. Feeder fund-level performance is available upon request.

(1) The target return is net of advisory fees, any performance fees, allocable expenses and investment-level taxes. Target returns are presented for illustrative purposes only and are based on certain assumptions that may not materialize and other information that may prove inaccurate. These assumptions generally involve considering past performance, long run economic conditions, and portfolio composition. There is no guarantee that the target returns will be achieved.

(2) The net time-weighted Master Fund returns are presented on a local currency basis, which reflect the aggregated performance of each asset’s respective local currency performance at the Master Fund level, weighted by the USD proportionate equity value of each asset (given USD is the base currency of the fund). By measuring each asset’s performance in its local currency, these returns are considered a proxy for hedged returns (i.e., Class A interests) without having to reflect actual FX spot movements and the cost or benefit of hedging, which are administered through hedge pools at the Master Fund level for hedged feeder funds only. Furthermore, since management and performance fees are only accrued at the unit class and feeder fund levels, the net returns shown reflect the highest feeder level management and performance fee structure (Class A interests) applied on a pro-forma basis.

(3) Cash yield for the IFM Global Infrastructure Master Fund (“Master Fund”) is calculated based on aggregated feeder level distributions to investors over aggregated feeder level NAVs, taking into account fees (including management and performance fees) and expenses. The overall cash yield for the Master Fund is considered as a net calculation. Since inception cash yield is calculated as of the Master Fund’s first distribution to investors in June 2012.

Alaska Retirement Management Board

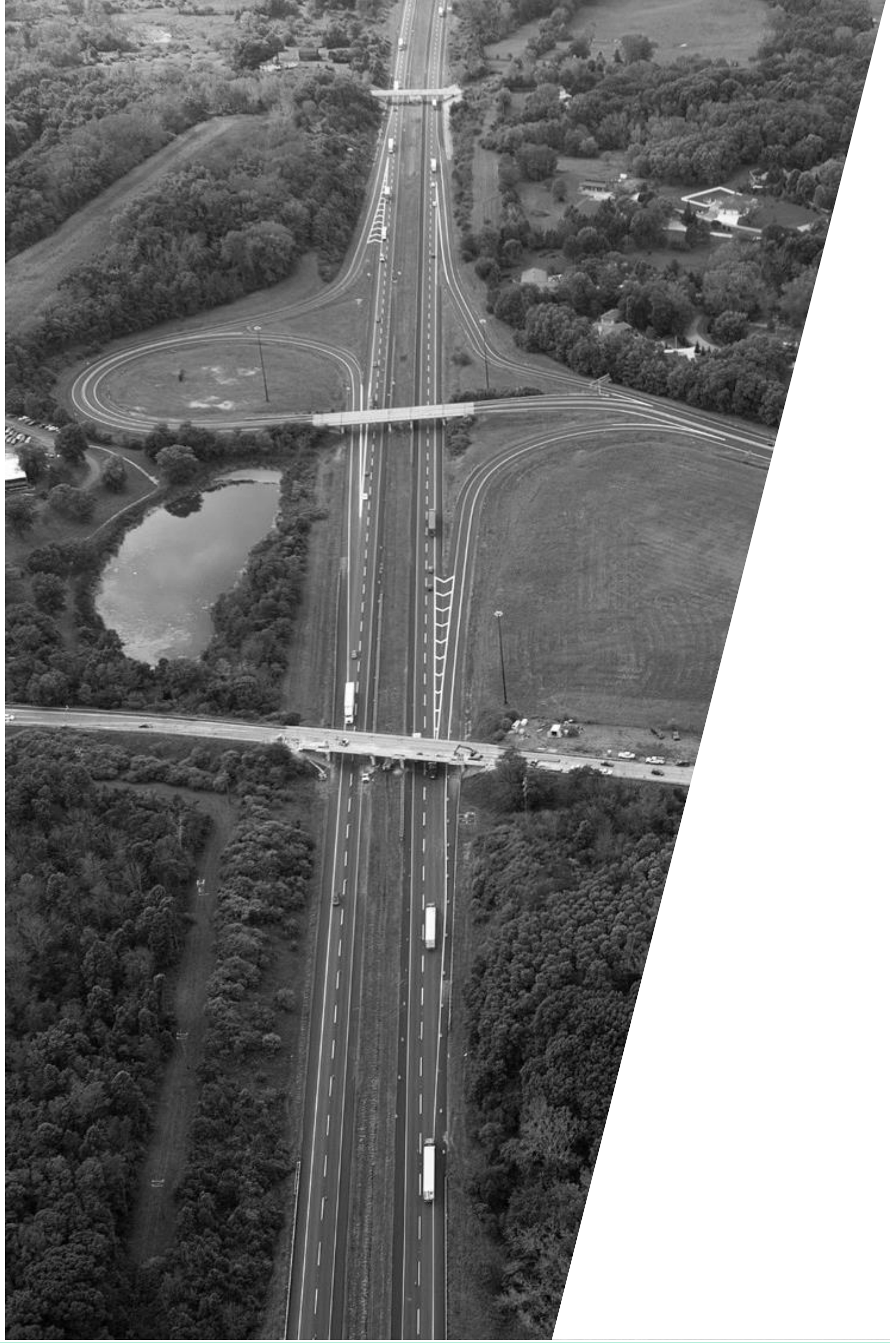
IFM GIF US LP (Class B) Account Activity	Date	Amount (USD)
Initial Commitment	January 2, 2014	$200,000,000
Drawdown	May 13, 2015	$200,000,000
Additional Commitment	September 30, 2015	$50,000,000
Total Distributions Since Inception (Class B)	May 31, 2016	$3,089,338
Ending Capital Balance	May 31, 2016	$219,559,388
Net TWR Since Inception (%p.a.)	**May 31, 2016**	**9.28%**
IFM GIF US LP (Class A) Account Activity	**Date**	**Amount (USD)**
Switch from Class B	June 1, 2016	$219,559,388
Partial Drawdown	February 15, 2017	$25,000,000
Partial Drawdown	April 19, 2017	$25,000,000
Additional Commitment	October 3, 2016	$50,000,000
Drawdown	November 1, 2017	$50,000,000
Additional Commitment	March 9, 2018	$52,789,278
Partial Drawdown	July 1, 2019	$13,197,320
Partial Drawdown	October 23, 2019	$39,591,959
Total Distributions Since Inception (Class A)	July 31, 2023	$197,803,263
Ending Capital Balance	July 31, 2023	$700,263,433
Net TWR Since Inception (%p.a.)	**July 31, 2023**	**11.94%**

Notes:

1. Investor has chosen to have distributions in CASH via wire.
2. Combined Partnership Net TWR Since Inception: **11.72%.** Return calculated by annualizing the monthly returns since inception for the time in Class B and Class A. Returns are net of fees and are as of 30 June 2023.

Past performance is no guarantee of future results. Returns are shown net of all fees and all costs incurred by the investment programs, but before withholding taxes and other costs that are incumbent on clients. Nothing contained herein should be deemed to be a prediction or projection of future performance of any investment.

Case Studies



INDIANA TOLL ROAD

Company Overview

Toll road in the Midwest region of the United States

DESCRIPTION

- Indiana Toll Road ("ITR") is a 157-mile, divided highway in the state of Indiana. The road spans northern Indiana, from its border with Ohio to the Illinois state line near Chicago
- Operates under a long-term concession with 59 years remaining

INVESTMENT THESIS

- ITR is a high quality, core, U.S. dollar denominated transportation asset with a strong competitive position
- ITR provides IFM GIF with exposure to U.S. GDP and inflation
- ITR serves as a critical part of the U.S. freight distribution network and the U.S. national transportation network, linking the Midwest to the Northeast
  - Approximately 74% of ITR's toll revenue is generated from heavy vehicles
  - The Midwest and Northeast regions account for approximately 40% of the United States' national GDP

All figures current as of December 31, 2022.

SWITCH

Company Overview

A Leading North American Data Center Platform

DESCRIPTION

- Switch is an owner/operator of data centre platforms in the US, operating 17 data centres in five campuses across the country
- On 6 December 2022, IFM Investors Global Infrastructure Fund ("IFM GIF") completed the acquisition of Switch via a take-private transaction. IFM GIF holds a 37.0% stake in the investment, with investment partner DigitalBridge ("DBRG") holding 55.4% and key members of the Switch management team holding the remainder

INVESTMENT THESIS

- Critical digital infrastructure essential to the efficient functioning of the internet
- Visible and actionable 10-year growth pipeline, benefiting from strong industry tailwinds
- Proprietary data centre designs deliver industry-leading uptime, power usage, cooling and efficiency standards
- Leader on sustainability, with 100% of its facilities powered by renewable energy
- Stable and recurring revenue structure characterized by diverse customer base (>1,350 logos) and low churn relative to industry benchmarks, reflecting uniquely strong customer demand
- >20 year track record of growth and has proven defensive through market cycles, including the recent COVID-19 pandemic

All figures current as of December 31, 2022.

ifminvestors.com

IFM Investors

CONTACTS :

David Altshuler
Executive Director, Head of Global Client Solutions, North America
FINRA Registered Representative
P : +1 212 784 2266
E : david.altshuler@ifminvestors.com

IFM (US) Securities, LLC
Member: FINRA/SIPC

IFM-1AUGUST2023-3032511

IFM-24AUG2023-3080860

UBS Farmland Investors, LLC

Mandate: **Farmland** **Hired:** **2004**

Firm Information

UBS Farmland Investors, LLC is a subsidiary of UBS Realty Investors, LLC, which is an indirect wholly owned subsidiary of UBS AG. UBS AG is a pre-eminent global financial services firm, with stock registered on both the New York and Zurich stock exchanges.

As of 6/30/23, UBS Farmland, LLC's total assets under management were $2.3 billion.

Key Executives:
Darren Rabenou, Head of Food & Agriculture and Head of ESG Investment Strategies
Jim McCandless, Senior Portfolio Manager, Co-Chief Investment Officer
Daniel E. Murray, Head of Asset Management, Co-Chief Investment Officer
Tom O'Shea, Head of Portfolio & Client Services

Investment Approach

UBS Farmland Investors, LLC investment decision-making is team-oriented. Regional managers source and screen new investment opportunities in consultation with the portfolio manager and members of the investment committee to ensure that the investments meet the established guidelines and standards. Approval and commitment of capital must be cleared by the regional manager, portfolio manager and investment committee.

Inputs to the process include comparable sales and rent data; rainfall and growing season statistics; irrigation sources and water costs; drainage systems; crop yield history; soil types and topography; crop marketing and/or contracts; buildings and improvements; conservation plans; mineral exploration/production activity; economic analysis – returns/projections; phase I environment site assessment; and legal (access, encroachment, etc).

Benchmark: Leased only properties in NCREIF Farmland Index weighted 80% row and 20% permanent crop.

Total ARMB Mandate

Assets Under Management:
6/30/23: $1,064,199,645

Concerns: None

6/30/2023 Performance

	Last Quarter	1-Year	3-Years Annualized	6-Years Annualized	18.25-Years Annualized
Manager Gross	0.61%	11.56%	9.80%	7.04%	9.35%
Fee	0.15%	0.68%	0.70%	0.77%	0.85%
Manager Net	0.46%	10.88%	9.10%	6.27%	8.50%
Benchmark	1.64%	11.36%	10.07%	7.56%	10.69%

Midnight Sun

UBS Asset Management, Real Estate & Private Markets
Food & Agriculture

Alaska Retirement Management Board

Jim McCandless
Daniel Murray

September 15, 2023

MSI#26 Phoenix Farms, Warren & McDonough County, IL
Corn growing in the summer

Table of contents

UBS

General risk disclosure

- Certain sections of this presentation are forward looking statements and are subject to certain risks and uncertainties that could cause actual results to differ materially. This material is designed to support an in-person presentation, is not intended to be read in isolation, and does not provide a full explanation of all the topics that are presented and discussed.
- An investment in farmland will involve significant risks and there are no assurances against loss of principal resulting from farmland investments or that the portfolio's objectives will be attained.
- **This is not a recommendation. Investors must have the sophistication to independently evaluate investment risks and to exercise independent judgment in deciding to invest in farmland.** Investors must also have the financial ability and willingness to accept and bear the risks, including, among other things:
  - **Risk of illiquidity.** Farmland is an illiquid investment. There can be no assurance that there will be a ready market for each property at the time it may be necessary to dispose of the same;
  - **Risks of investing in farmland.** These risks include adverse changes in economic conditions (local, national, international), persistent changes in weather, and environmental issues;
  - **Legal & Taxation.** Investors should consult their own legal and tax advisers for potential US and/or local country legal or tax implications on any investment.
- Investors should evaluate all risk and uncertainties before making any investment decision.

Section 1

UBS Farmland Investors team

Highly experienced team

UBS Farmland Investors Team is supported by an Investment Committee that averages over 35 years industry experience

UBS Farmland Investors Portfolio Team

James McCandless
Senior Portfolio Manager
Co-Chief Investment Officer
Managing Director
55 years industry experience

Daniel Murray
Head of Asset Management
Co-Chief Investment Officer
Executive Director
14 years industry experience

Thomas O'Shea
Head of Portfolio & Client Services
Managing Director
31 years industry experience

Investment Committee

Portfolio Management

James McCandless
Senior Portfolio Manager
Experience of 55 yrs.

Asset Management

Daniel Murray
Head of Asset Management
Experience of 14 yrs.

Charles W. Bryan
Asset Manager
Experience of 39 yrs.

Brian C. Duke
Asset Manager
Experience of 27 yrs.

D. Cullum Jefferies
Asset Manager
Experience of 25 yrs.

Erik C. Roget
Asset Manager
Experience of 42 yrs.

Food & Agriculture

Darren Rabenou
Head of Food & Agriculture
Experience of 33 yrs.

As of September, 2023

Farmland US – Team

Head of Farmland, Co- Chief Investment Officers

1 **James B. McCandless** *(Hartford)*
Managing Director
Senior Portfolio Manager
Co-Chief Investment Officer
Head of Farmland

1 **Daniel E. Murray** *(Hartford)*
Executive Director
Head of Asset Management
Co-Chief Investment Officer

Asset Management

2 **Brian C. Duke, AFM** *(Hillside)*
Director
Regional Manager, Midwestern

1 **Dawn Zukowski** *(Hartford)*
Associate Director
Agricultural AM Analyst

6 **Erik Roget** *(Lodi)*
Director
Regional Manager, Western

6 **Mark Van Elswyk** *(Lodi)*
Associate Director
Agricultural Asset Manager

3 **D. Cullum Jefferies** *(Dallas)*
Director
Regional Manager, Southern

4 **Charles W. Bryan, Jr.** *(Nampa)*
Director
Regional Manager, Northwestern

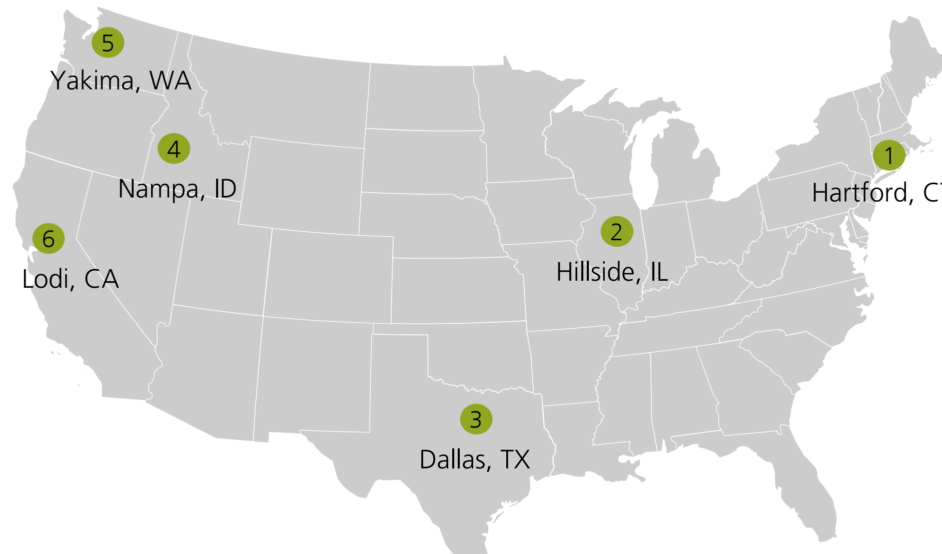
5 **Darren Hartman** *(Washington)*
Director
Regional Manager, Northwestern

Support

1 **Barbara Missal** *(Hartford)*
Director
Associate Portfolio Manager

1 **Manisha Bicchieri** *(Hartford)*
Associate Director
Sustainability & Research Analyst

1 **Gloria Batty** *(Hartford)*
Authorized Officer
Product Specialist



- UBS Farmland Investors LLC is the farmland investment business within UBS Asset Management, Real Estate & Private Markets, Food & Agriculture
- UBS Farmland Investors LLC began investing for US tax-exempt investors in 1991 through its predecessor and has been a major contributor to the NCREIF Farmland Index since its inception in that same year
- Our seasoned regional officers are responsible for the sourcing, acquiring, managing and selling of properties in their regions subject to investment committee approval

Data as of June 30, 2023
Source: UBS Asset Management, Real Estate & Private Markets, Food & Agriculture

Section 2

Farmland investment characteristics

UBS

US Farmland investment universe

- The investment universe of US farmland is significant at USD 2.9 trillion in value
- A diversity of crops are grown across the US
- A significant proportion of commodity crops are grown in the Corn Belt, Delta States and Southern Plains
- The Pacific West is an important and diverse agricultural region with both annual and permanent cropland

MSI#56 Monarch Orchard, Kern & Tulare Counties, CA
Pistachios approaching harvest

Data as of December 31, 2022
Source: UBS Asset Management, Real Estate & Private Markets, Food & Agriculture and USDA as of August 2022 (2021 value)

Competitive advantages of US agriculture

Geography

- Largest cropland mass in the world located in latitudes favorable to crop production
- Midway between major export markets of Europe, Asia, Mexico and Canada

Infrastructure

- Mississippi, Ohio, Columbia Rivers
- Rails, highways
- Port facilities - New Orleans, Portland, Houston, Los Angeles, Baltimore

Technology & capital

- Biotechnology, mechanical, conservation
- Land grant colleges, agricultural extension programs
- Innovative farmers with strong management skills
- Well-capitalized farm economy

Data as of December 31, 2022
Source: UBS Asset Management, Real Estate & Private Markets, Food & Agriculture and ESRI

Dominant global market share

- Increasing global demand from improving income in developing countries and alternative fuels (ethanol and biodiesel)
- US is most efficient and reliable producer
- Depth and diversity of US exports is unmatched by any other country or region in the world

UBS

Expanding global demand for farm commodities

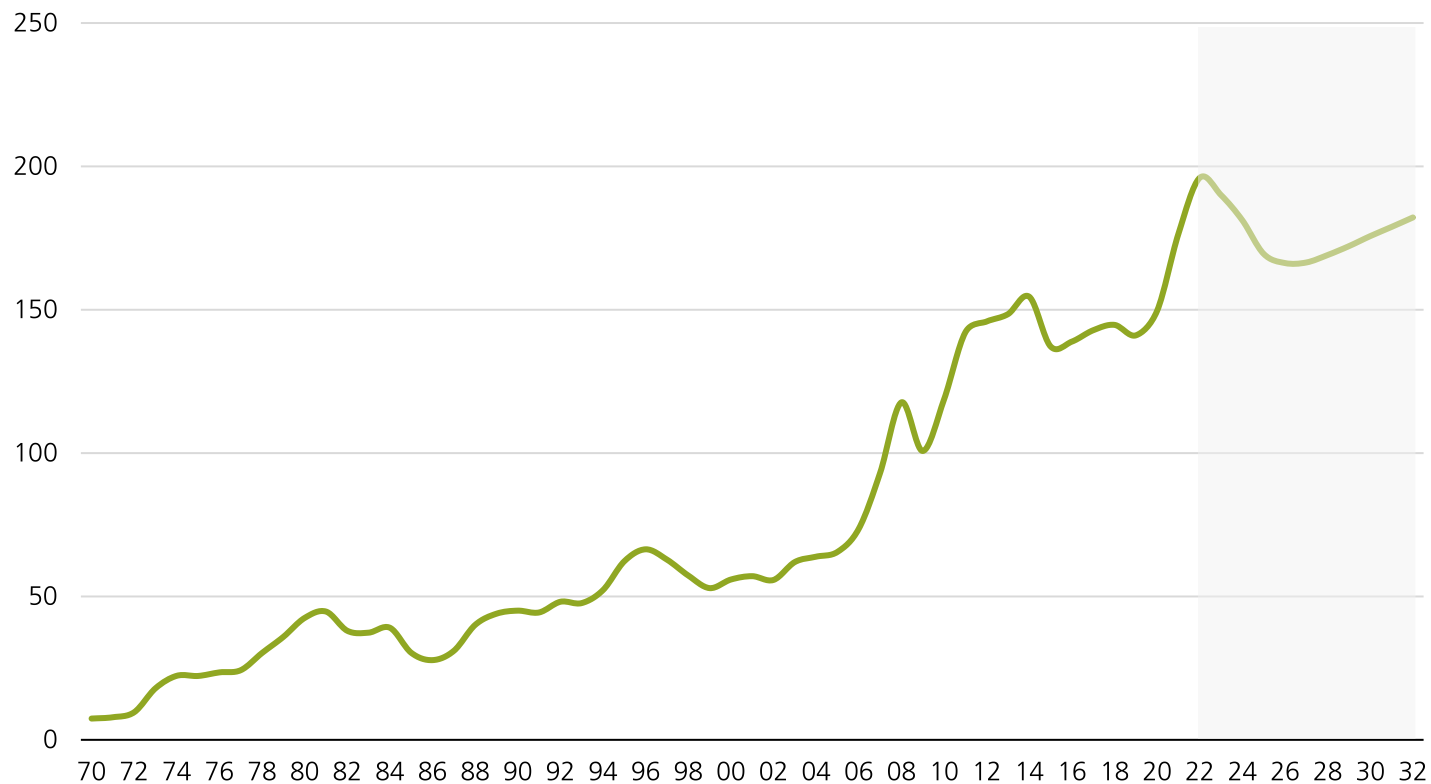
USD 196b
Agricultural exports in 2022

GDP growth around the globe is creating additional demand for commodities in general

Improving incomes in developing countries are having a major impact on the demand for farm commodities

The US is the most dependable exporter of farm commodities in the global market

US agricultural exports, (billion USD)



Data as of March 31, 2023
Source: USDA as of January 2023. 2023 to 2032 are forecasted by the USDA. Data is based on fiscal year.

UBS

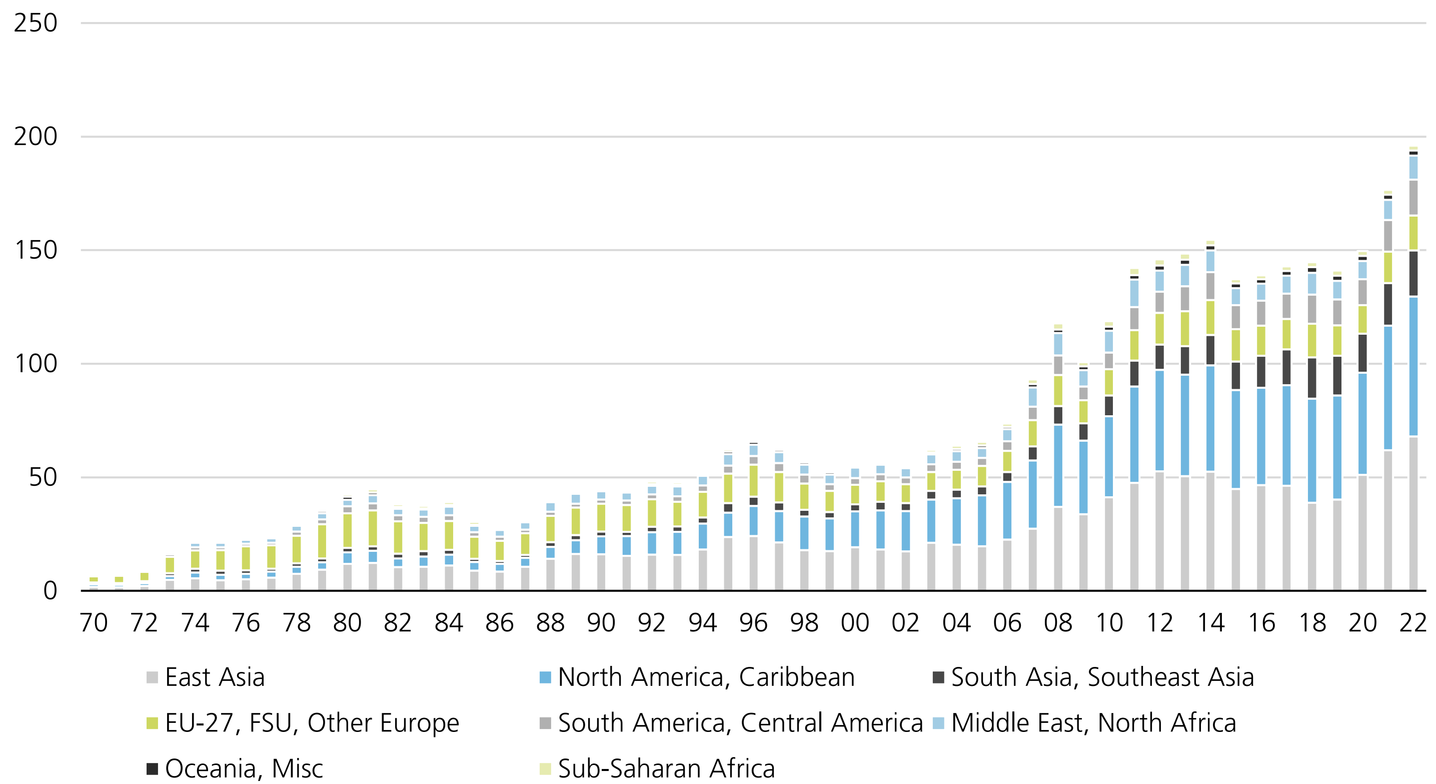
US agricultural exports

Emerging and developing economies are a source of rising demand for US agricultural products

As incomes rise, lifestyles change. For example, people consume more protein in their diet (more meat requires more livestock feed). They also become more mobile and burn more fuel (more fuel increases ethanol demand).

China is a prime example. Sixteen years ago, they were a small buyer, and, despite temporary trade tensions, China remains a prominent export market and imported a record number of US agricultural goods in 2020.

US agricultural exports, 1970-2022, (billion USD)



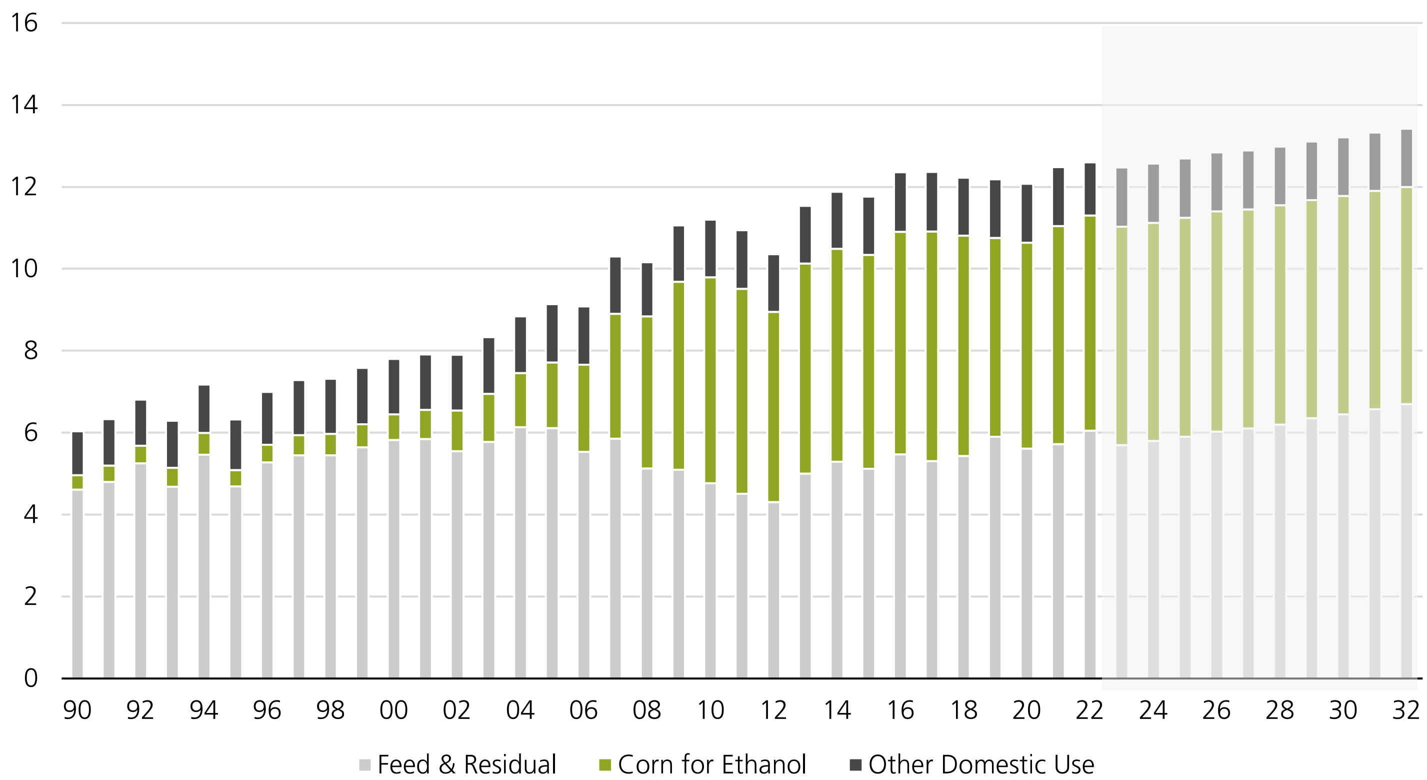
Data as of March 31, 2023
Source: Source: USDA/Economic Research Service as of January 2023

Additional demand from alternative fuels

Alternative fuels in the US has accelerated the demand for corn while feed and other uses have also continued to grow

Increasing demand for corn has resulted in improved supply/demand fundamentals for other row crops as well as corn acreage expanded

US domestic corn use, (billion bushels)



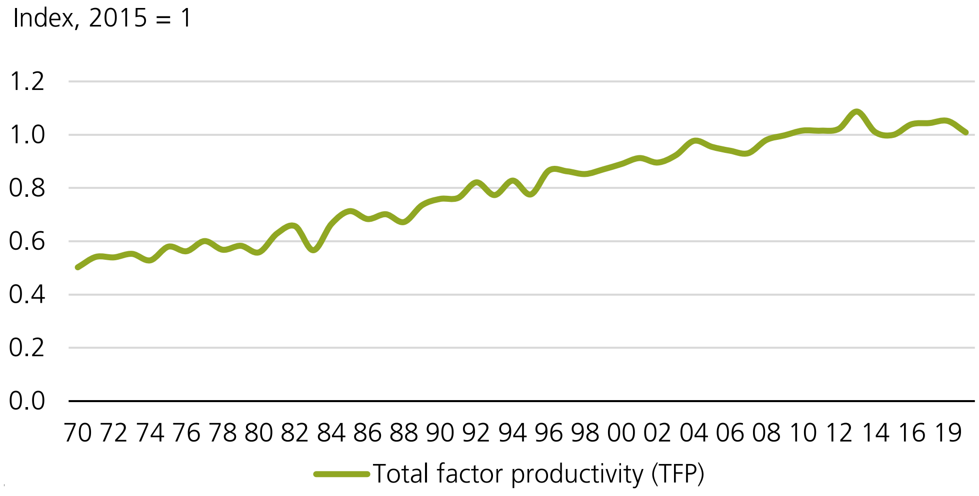
Source: USDA as of January 2023, 2023 through 2032 are forecasted by the USDA

Data as of March 31, 2023
Source: UBS Asset Management, Real Estate & Private Markets, Food & Agriculture

UBS

Productivity of US agriculture

US agriculture total factor productivity 1970 – 2019



Increased productivity is one of the main contributors to economic growth in US agriculture

Productivity has more than doubled since 1970 and has grown at an annual rate of approximately 1.50%

Increased productivity contributed to, and supports, higher farmland values

NAP#28 Camden Currituck, Camden County, NC
Corn maturing on the stalk

Data as of March 31, 2023
Source: USDA, Economic Research Service, Productivity in the United States as of January 2022. USDA, Economic Research Service uses Total Factor Productivity (TFP) which measures changes in the efficiency with which all inputs are transformed into outputs.

US Farm income

USD 140bn

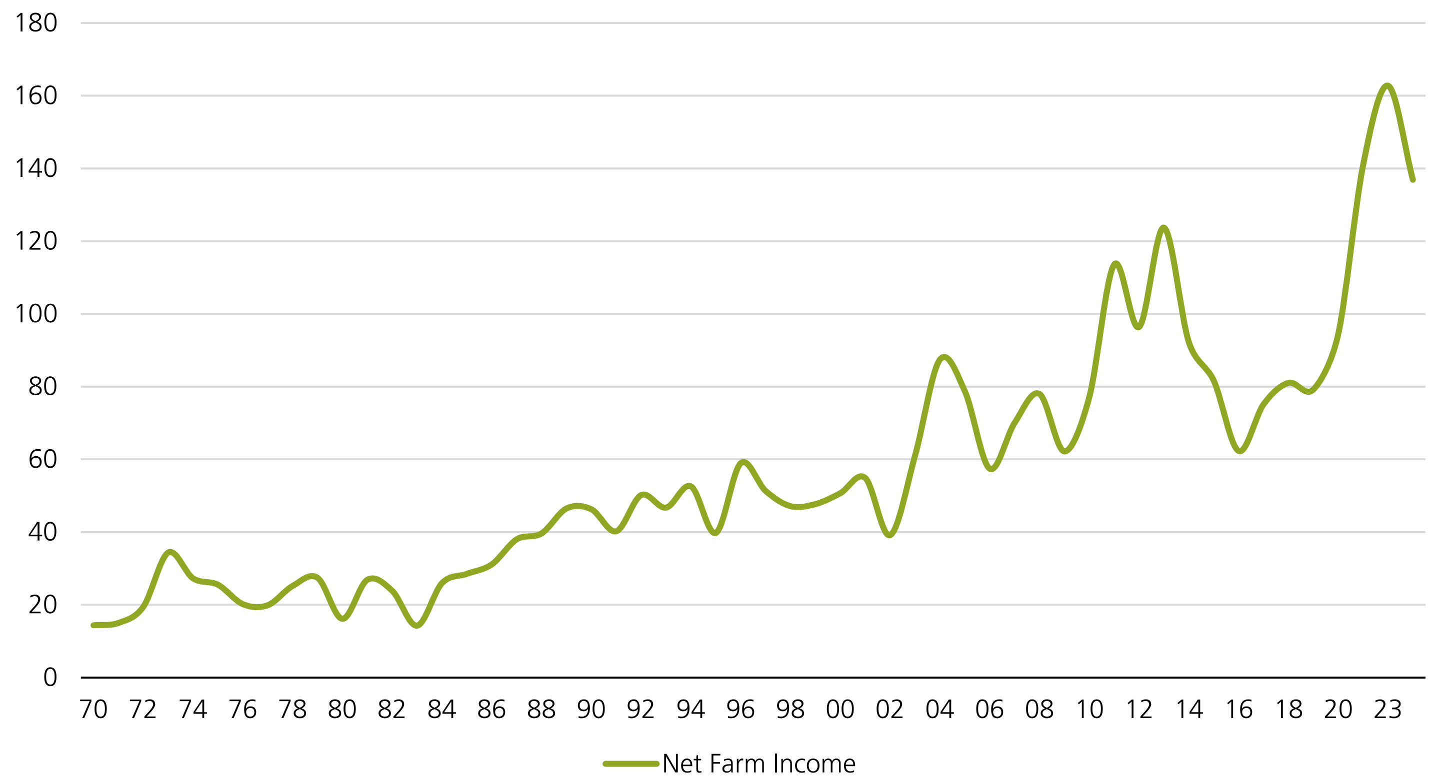
Net farm income for 2021

From 2013 to 2016, a sharp decline in commodity prices reduced net farm income by 50%.

Since then, Net Farm Income has rebounded to near record highs despite multiple challenges such as trade wars and the COVID-19 pandemic.

Farmland rents and values are accelerating upwards.

Net farm income 1970 – 2023, (billion USD)



Data as of March 31, 2023
Source: USDA. 2022 is forecasted by the USDA as of February 2023

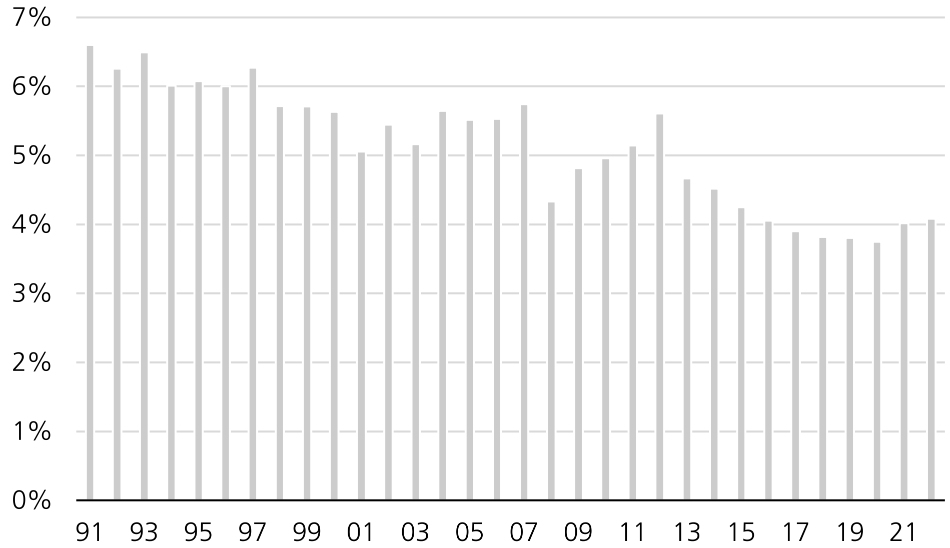
US Farmland income returns

Farmland investments that are leased to local operators tend to provide a steady flow of income

5.06% avg income returns*

0.80% avg capital expenses

Core farmland income returns



MSI#71 Bassinger Grove, Okeechobee County, FL
Valencia oranges ripening on the tree

*Over the past 30 years. Data as of March 31, 2023
Source: NCREIF as of December 31, 2022. Past performance is not an indication of future results, and the possibility of loss does exist. The Core Farmland Index does not include fund-level management or other fees or fund-level expenses, is not available for investment and is for illustrative purposes only.

US Farmland returns

Farmland has provided positive returns in 50 out of 53 years

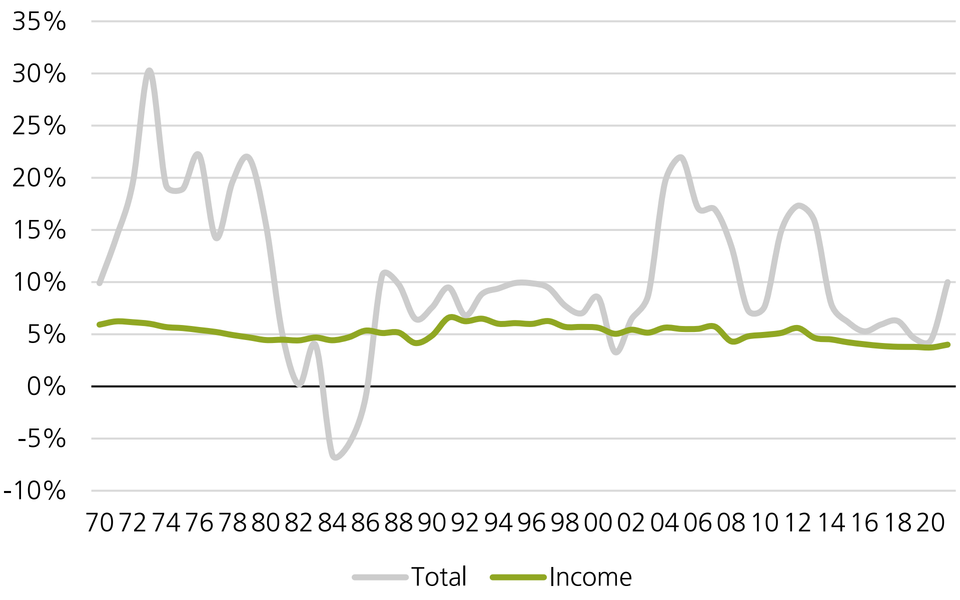
5-6% income returns

10.5% annual total return*

A period of high inflation and low (even negative) real interest rates encouraged leveraged acquisition of farmland in the late 1970s.

Lower farm income has moderated the gains in farmland values recently.

US Farmland returns

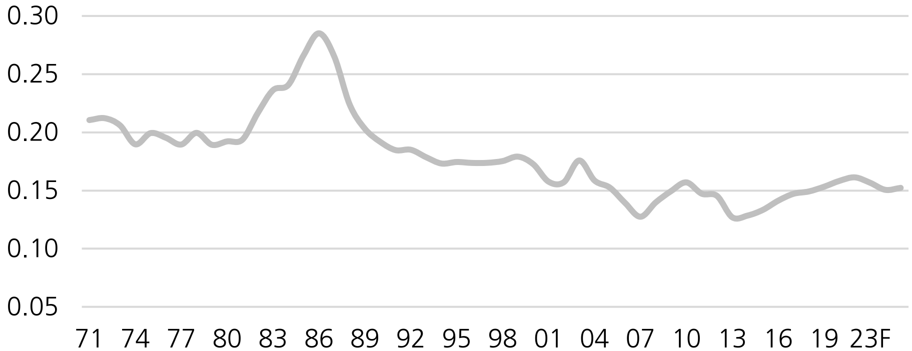


NAP#28 Camden Currituck, Camden County, NC
Recently emerged chipping potatoes in the spring time

*Over the 1970-2022 time period. Data as of March 31, 2023
Source: Ibbotson Associates (1970-1990) and the Core Farmland Index (1991-2022) as of December 31, 2022. Past performance is not an indication of future results, and the possibility of loss does exist. The Core Farmland Index does not include fund-level management or other fees or fund-level expenses, is not available for investment and is for illustrative purposes only.

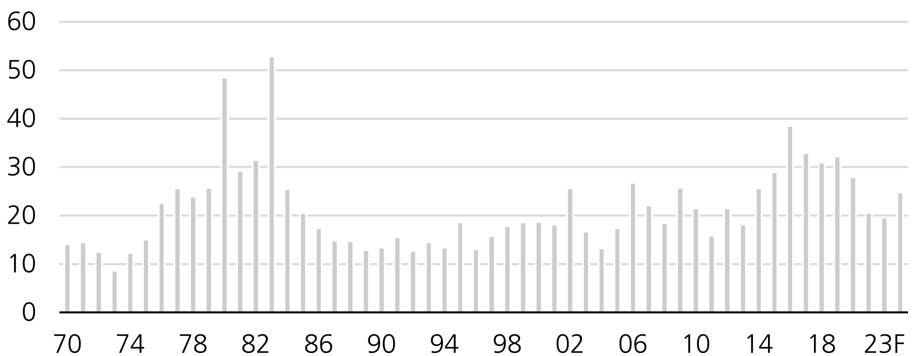
US Farm sector financial indicators

Farm debt/equity ratio



Ratio represents total farm debt divided by equity in land, buildings, equipment, crops and livestock.

Price/earnings ratio



Farm debt/equity ratios have drifted slightly higher as land values have leveled off and debt levels increased slightly.

Farm price/earnings ratios have increased largely due to the drop in Net Farm Income.

Low debt/equity ratios suggest that solid farm sector debt levels remain low.

MSI#60 Carneros Hills Vineyard, Napa County, CA
Chardonnay grapes maturing on vine in early autumn

Data as of March 31, 2023
Source: USDA/Economic Research Service as of December 2022. 2022 is forecasted by the USDA. Ratios represent total farm debt divided by equity in land, buildings, equipment, crops and livestock and building value divided by net farm income.

US Farmland returns in perspective

Annual returns 1970-2022

	Mean		Standard deviation		Correlations				
	Nominal (%)	**Real (%)**	**Nominal (%)**	**Sharpe ratio**	**CPI**	**Bonds**	**Stocks**	**Commercial real estate**	**Farmland (CFI)**
CPI	4.0	-	3.0	n/a	1.00				
Bonds	6.7	2.8	7.1	0.32	(0.17)	1.00			
Stocks	10.4	6.5	17.2	0.35	(0.12)	0.31	1.00		
Commercial Real Estate	9.0	5.0	6.8	0.66	0.30	(0.12)	0.10	1.00	
Farmland (CFI)	**9.7**	**5.8**	**7.5**	**0.71**	**0.35**	**(0.46)**	**(0.18)**	**0.14**	**1.00**

Strong total returns over this 51-year period

Low total return variability with stable income component

Historically strong hedge against inflation

Diversification benefits for a traditional stock and bond portfolio

Source: UBS Asset Management, Real Estate & Private Markets, Research & Strategy research based on data obtained from the Bureau of Labor Statistics, Morningstar, the Bar-Cap Aggregate Bond Index, EAFE International Stock Index, S&P 500 Stock Index, IA SBBI US Small Stock Index, NAREIT, NCREIF Property Index and Core Farmland Index as of December 31, 2022. Source of CPI: Bureau of Labor Statistics. CPI is the Consumer Price Index, an inflationary indicator of the standard of living in the US. It is also referred to as the "cost of living" index. Means are annualized returns consistent with methodology used by NCREIF and are as of December 2022. Standard Deviation and Correlations are based on December ending annual returns. Past performance is not an indication of future results and the possibility of loss does exist. The Core Farmland Index does not include fund-level management or other fees or fund-level expenses, is not available for investment and is for illustrative purposes only.

US Farmland in a real estate portfolio

Annual returns 1991-2022

	Mean		Standard deviation		Correlations					
	Nominal (%)	**Real (%)**	**Nominal (%)**	**Sharpe Ratio**	**CPI**	**Apartme nt**	**Office**	**Industrial**	**Retail**	**Farmland (CFI)**
CPI	2.5	-	1.4	n/a	1.00					
Apartment	8.8	6.3	7.6	0.84	0.24	1.00				
Office	6.5	4.0	9.5	0.43	(0.05)	0.83	1.00			
Industrial	10.3	7.8	10.0	0.79	0.41	0.80	0.70	1.00		
Retail	7.4	4.8	7.7	0.64	(0.04)	0.76	0.76	0.47	1.00	
Farmland (CFI)	**9.9**	**7.4**	**4.7**	**1.58**	**0.26**	**0.33**	**0.34**	**0.18**	**0.48**	**1.00**

Strong total returns with lower variability

High Sharpe Ratio

Relatively low correlations with core property types (no construction cycle with farmland)

Source: UBS Asset Management, Real Estate & Private Markets, Research & Strategy research based on data obtained from the Bureau of Labor Statistics, Morningstar, the Bar-Cap Aggregate Bond Index, EAFE International Stock Index, S&P 500 Stock Index, IA SBBI US Small Stock Index, NAREIT, NCREIF Property Index and Core Farmland Index as of December 31, 2022. Source of CPI: Bureau of Labor Statistics. CPI is the Consumer Price Index, an inflationary indicator of the standard of living in the US. It is also referred to as the "cost of living" index. Means are annualized returns consistent with methodology used by NCREIF and are as of December 2022. Standard Deviation and Correlations are based on quarterly returns. Past performance is not an indication of future results, and the possibility of loss does exist. The Core Farmland Index does not include fund-level management or other fees or fund-level expenses, is not available for investment and is for illustrative purposes only.

Section 3

Midnight Sun portfolio

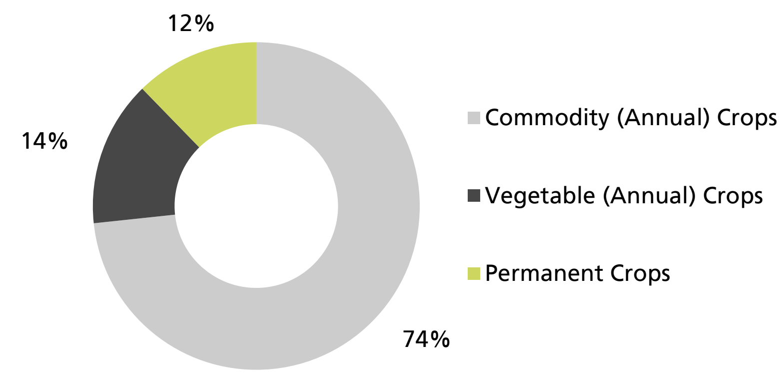
UBS

Midnight Sun portfolio

- Midnight Sun was launched October 7, 2004
- Portfolio summary:
  - USD 1.1 billion in gross asset value
  - Farmland value USD 1,065 million; Cost USD 666 million
  - 145,417 acres (227 square miles) in fifteen states
  - 89 investments growing over 25 major crops
  - Northern Agriculture, LLC transferred effective October 2020 (24 properties; USD 289 million)
  - No leverage utilized in the strategy
  - Cash Dividends: USD 257 million Since Inception

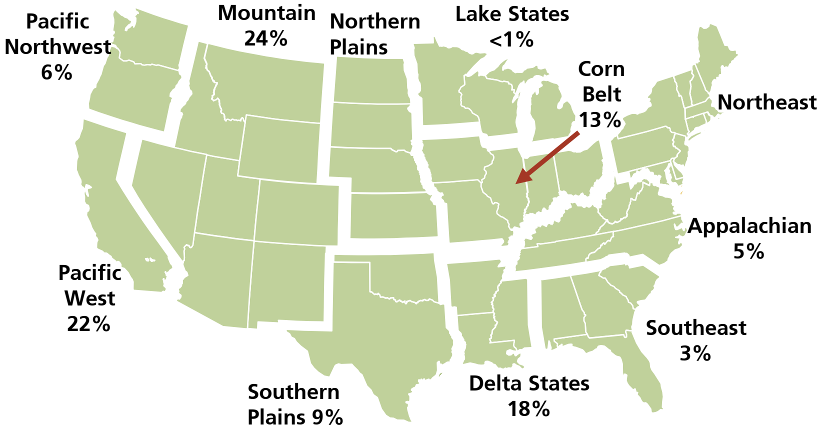
Data as of June 30, 2023
Source: UBS Asset Management, Real Estate & Private Markets, Food & Agriculture

Portfolio distribution by crop type



MSI#54 Coburn Ranch, Monterey County, CA
Cabbage growing in spring

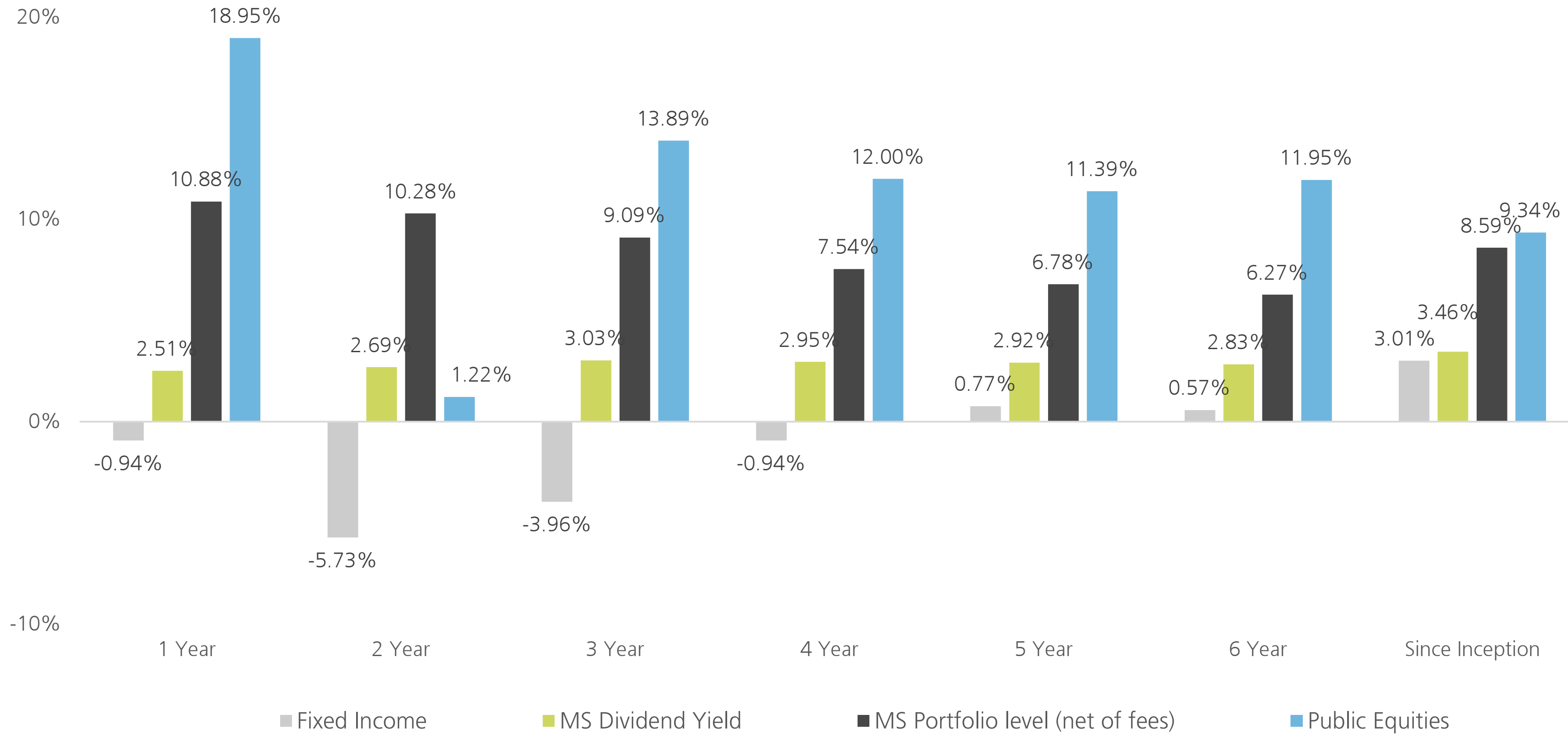
Portfolio distribution by geographic region



UBS

Midnight Sun portfolio

Midnight Sun account annualized performance (fund level, net of fees)



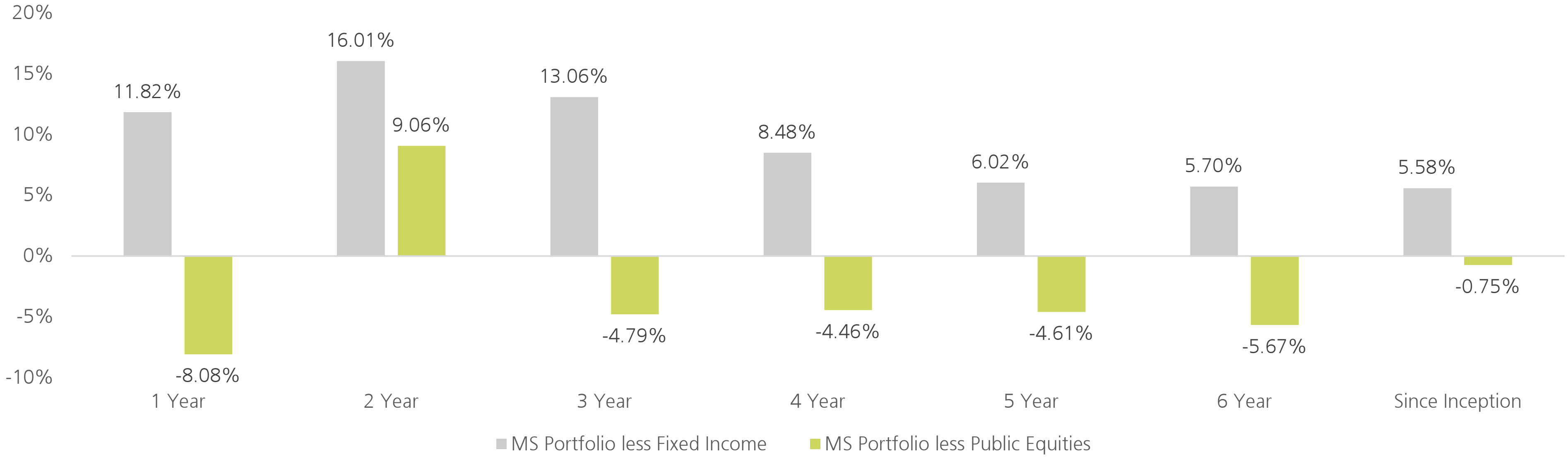
Source: UBS Asset Management, Real Estate & Private Markets, Food & Agriculture. Past performance is not indicative of future results. Inception date for portfolio calculations is 4/1/05 at the client's request. Northern Ag properties are included as of 10/1/20.

Midnight Sun Net Total Return is a time-weighted fund level calculation that includes cash and reinvestment of income and is net of fees and other fund level expenses.

Portfolio Return Objective, Total Return: Over rolling 6 year periods, the equity Farmland investment portfolio is expected to generate a net-of-fee total return between public equities and fixed income using a time-weighted rate of return calculation. Portfolio Return Objective, Income Return: Income, which is defined as cash distributed to ARMB, is expected to produce 4.0% returns over rolling five-year periods with a minimum of 3.0% distributed income after fees and projected capital expenditures. The manager seeks to achieve the stated objectives; however, there is no guarantee the objectives will be met. Inception date for portfolio calculations is 4/1/05 at the client's request. Fixed Income Index: BBgBarc US Agg Bond TR USD Public Equity Index: Russell 3000 TR USD

Midnight Sun portfolio

Midnight Sun account annualized performance (fund level, net of fees)



Index/Return	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	Since Inception
Fixed Income	-0.94%	-5.73%	-3.96%	-0.94%	0.77%	**0.57%**	3.01%
MS Dividend Yield	2.51%	2.69%	3.03%	2.95%	2.92%	**2.83%**	3.46%
MS Portfolio level (net of fees)	10.88%	10.28%	9.09%	7.54%	6.78%	**6.27%**	8.59%
Public Equities	18.95%	1.22%	13.89%	12.00%	11.39%	**11.95%**	9.34%

MS Portfolio less Fixed Income	11.82%	16.01%	13.06%	8.48%	6.02%	**5.70%**	5.58%
MS Portfolio less Public Equities	-8.08%	9.06%	-4.79%	-4.46%	-4.61%	**-5.67%**	-0.75%

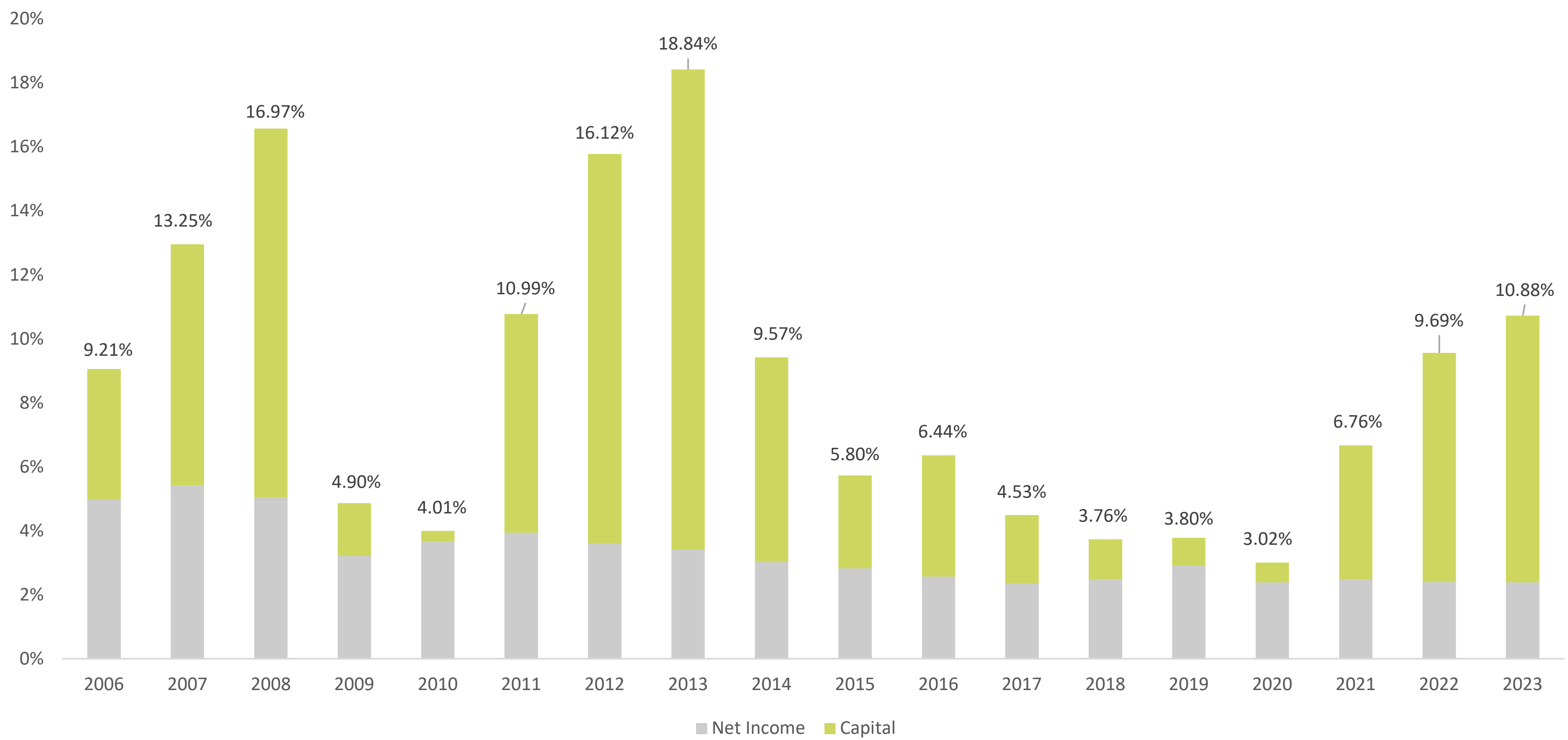
Source: UBS Asset Management, Real Estate & Private Markets, Food & Agriculture. Past performance is not indicative of future results. Inception date for portfolio calculations is 4/1/05 at the client's request. Northern Ag properties are included as of 10/1/20.

Midnight Sun Net Total Return is a time-weighted fund level calculation that includes cash and reinvestment of income and is net of fees and other fund level expenses.

Portfolio Return Objective, Total Return: Over rolling 6 year periods, the equity Farmland investment portfolio is expected to generate a net-of-fee total return between public equities and fixed income using a time-weighted rate of return calculation. Portfolio Return Objective, Income Return: Income, which is defined as cash distributed to ARMB, is expected to produce 4.0% returns over rolling five-year periods with a minimum of 3.0% distributed income after fees and projected capital expenditures. The manager seeks to achieve the stated objectives; however, there is no guarantee the objectives will be met. Inception date for portfolio calculations is 4/1/05 at the client's request. Fixed Income Index: BBgBarc US Agg Bond TR USD Public Equity Index: Russell 3000 TR USD

Midnight Sun portfolio

Midnight Sun account annual performance (fund level, net of fees)

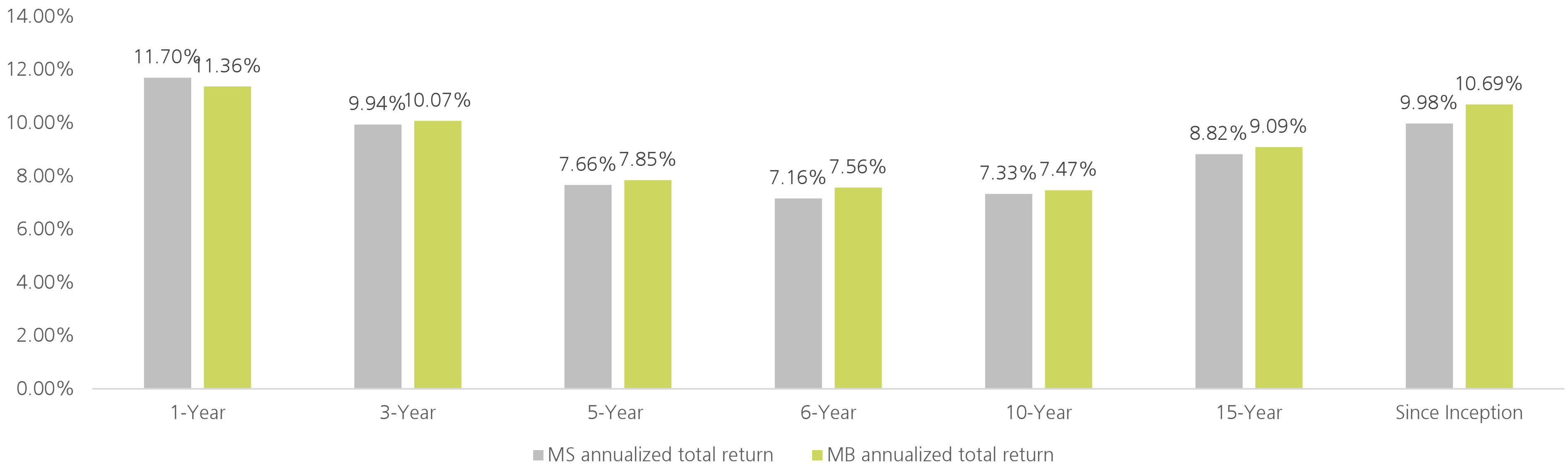


Source: UBS Asset Management, Real Estate & Private Markets, Food & Agriculture. Past performance is not indicative of future results. Inception date for portfolio calculations is 4/1/05 at the client's request. Northern Ag properties are included as of 10/1/20.

Midnight Sun Net Total Return is a time-weighted fund level calculation that includes cash and reinvestment of income and is net of fees and other fund level expenses.

Midnight Sun portfolio

Midnight Sun account annualized performance (property level, gross of fees)



Time Frame	One Year	Three Year	Five Year	Ten Year	Fifteen Year	MS - Since Inception
MS Gross Total	11.70%	9.94%	7.66%	7.33%	8.82%	9.98%
MB Gross Total	11.36%	10.07%	7.85%	7.47%	9.09%	10.69%
Difference	0.34%	-0.13%	-0.18%	-0.14%	-0.27%	-0.71%

Source: UBS Asset Management, Real Estate & Private Markets, Food & Agriculture. Past performance is not indicative of future results. Inception date for portfolio calculations is 4/1/05 at the client's request. Northern Ag properties are included as of 10/1/20.

Midnight Sun Benchmark (MB) is a custom benchmark defined by the client.

Midnight Sun Gross Total Return and MB are property level returns calculated using the NCREIF Farmland Index return formula which does not include fees

UBS

Midnight Sun portfolio

Recent Portfolio Activity - FY 2023

Acquisitions:

MSI#74 Highland Orchard, Yakima Co., WA — *Crops:* apples

Cost: USD 5.175 million — *Appraisal: USD 5.200 million* — *Acres:* 271 gross, 208 net

MSI#75 Potter Ranch, Yuma Co., AZ — *Crops:* winter vegetables

Cost: USD 13.500 million — *Appraisal: USD 13.500 million* — *Acres:* 305 gross, 291 net

Dispositions:

MSI#72 NW Blueberry Ranch, Whatcom Co., WA — *Crops:* blueberries

Cost: USD 4.820 million — *Net Sale Proceeds: USD 2.940 million* — *Acres:* 143 gross, 123 net

Capital Improvement Projects: capital expenditures in FY 2023 were 10% of Net Operating Income which is below the long-term average of 14%.

Significant Capital Projects:

- **MSI#66 Wapato Orchard:** Two separate Cosmic Crisp planting projects
- **MSI#64 Alva Groves:** Ongoing grove redevelopment/diversification project
- **MSI#13 Poitz Farm:** Irrigation infrastructure upgrades
- **MSI#57 Delta Farms:** Irrigation well drilling
- **NAP#432 Hyde 4.5:** Levee construction

MSI#74 Highland Orchard, Yakima County, WA
Young Honeycrisp block in summer

Data as of June 30, 2023

Source: UBS Asset Management, Real Estate & Private Markets, Food & Agriculture

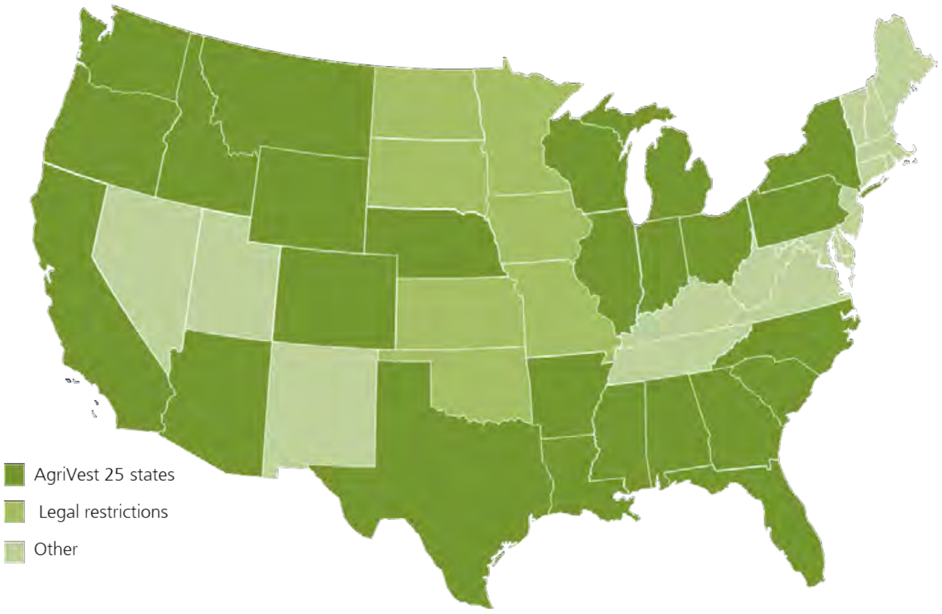
Section 4

Midnight Sun portfolio diversification

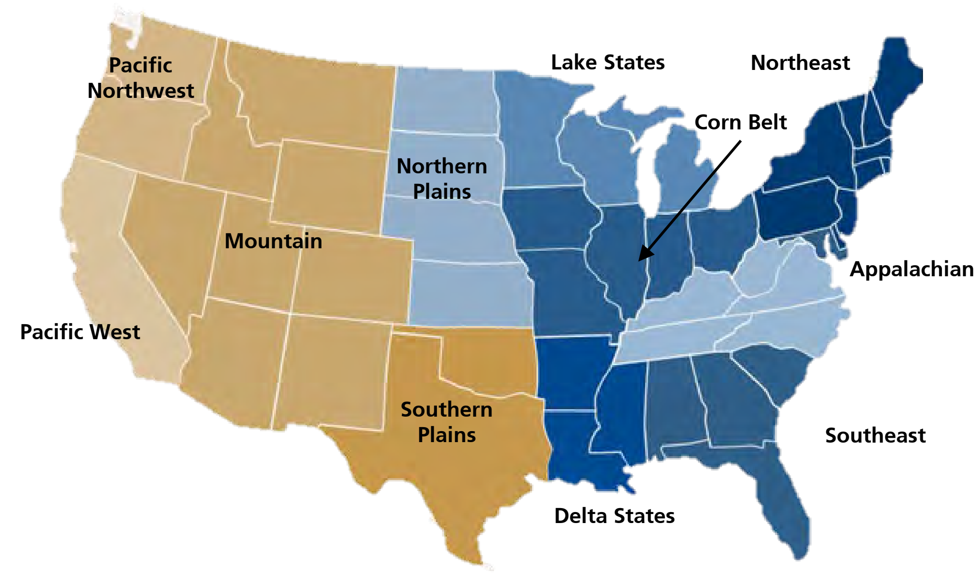
Midnight Sun investable universe

States identified for investment and NCREIF regions

States identified for investment



NCREIF regions

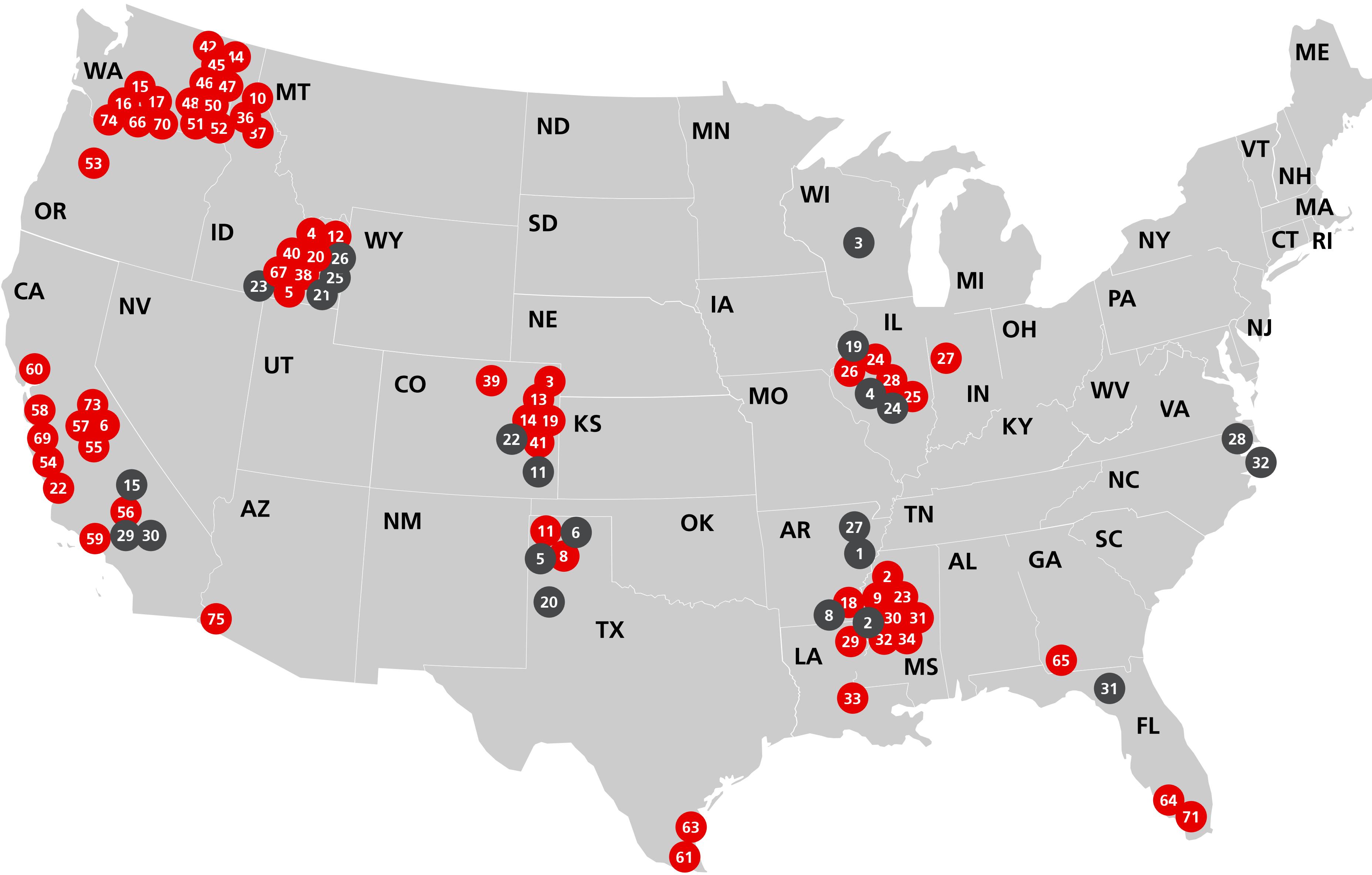


Source: UBS Asset Management, Real Estate & Private Markets, Food & Agriculture

Source: NCREIF

UBS

Midnight Sun property locations

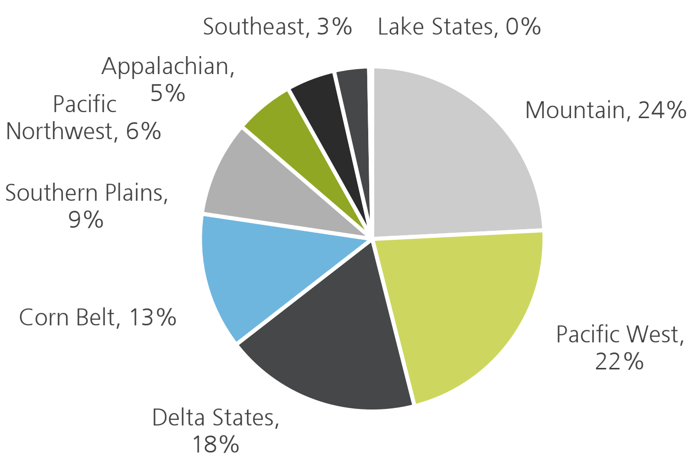


UBS

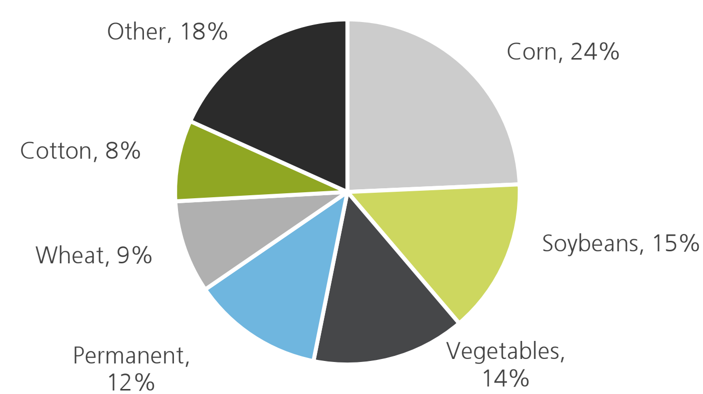
Midnight Sun portfolio diversification

Crops	Mountain	Pacific West	Delta States	Corn Belt	Southern Plains	Pacific Northwest	Appalachian	Southeast	Lake States	Total
Corn	6.25		3.55	7.86	4.16		1.80	0.63	0.04	**24.30**
Soybeans	0.12		7.40	4.93	0.17		1.80		0.04	**14.47**
Vegetables	5.86	5.99			1.02	0.60	0.72		0.21	**14.39**
Permanent		8.45				1.93		1.91		**12.29**
Wheat	5.52		0.26		0.84	1.95	0.12			**8.69**
Cotton	0.05	1.98	4.50		0.84		0.12	0.09		**7.59**
Other	1.59	1.64		0.03	0.57	0.60				**4.44**
Range & Hay	1.46	1.87			0.11					**3.44**
Sugar crops	2.70	0.29			0.43					**3.42**
Rice			2.75							**2.75**
Feed Grains	0.65				0.81	0.49				**1.95**
Berries		1.64								**1.64**
Peanuts								0.63		**0.63**
Total	**24.19**	**21.86**	**18.46**	**12.83**	**8.95**	**5.57**	**4.57**	**3.27**	**0.30**	**100.00**

Percentage as of aggregate farm market value



Percentage as of aggregate farm market value



Other crops include range & hay, sugar crops, rice, feed grains, berries, peanuts, and other
Percentage as of aggregate farm market value

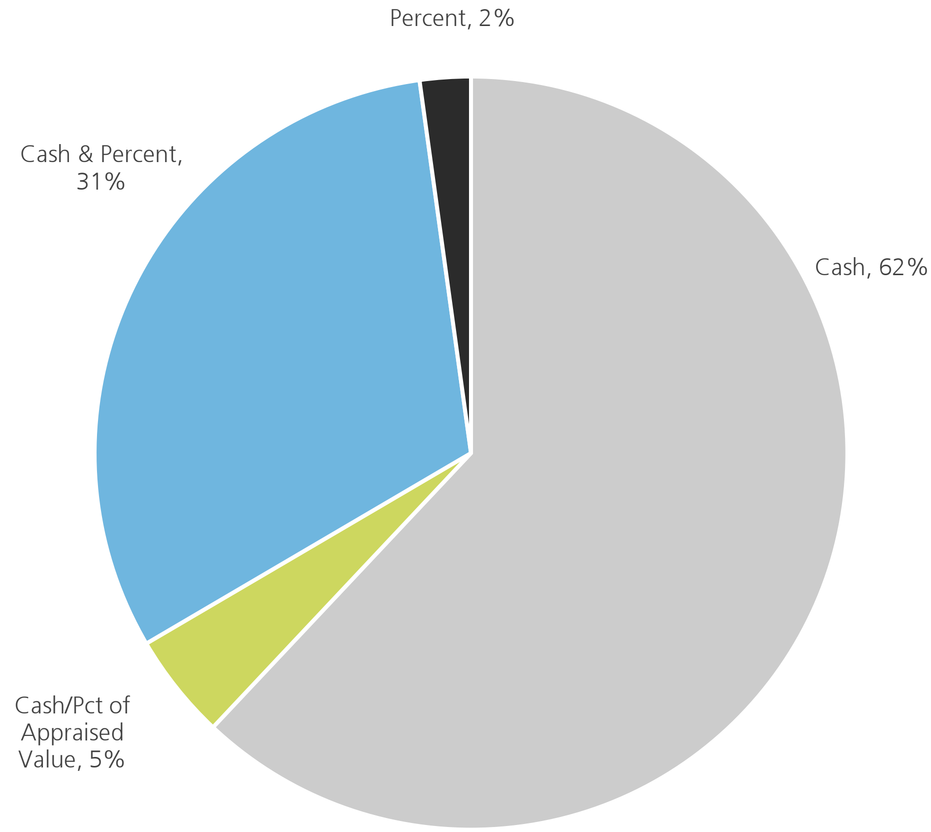
UBS

Midnight Sun portfolio diversification by lease type

Lease type definitions

- Midnight Sun currently has 113 active farm leases (exclusive of ancillary leases such as mineral leases, site leases, and alternative energy leases).
- Cash Rent (77 Leases)
  - A fixed rental amount payable in installments during the year
  - Typical lease term one to three years
  - Common in annual crops; development stages for permanent crops
- Percentage of appraised value (3 Leases):
  - Lease terms can vary one to 12 years
  - Farm specific; not common to crop type or region
- Cash & Percent (30 Leases)
  - A fixed minimum rent with a term based on crop type. Annual crops are typically one to three years; permanent crops are typically 5 years or longer
  - Plus flexible rent based gross revenue of farm
  - Common on commodity crops and permanent crops
- Percent (3 Leases)
  - Typical lease term is 5 years or longer
  - Exclusive to permanent crops
  - No cash minimum received, all rent is a function of annual gross revenue

Lease type proportion by farm carry value



UBS

Section 5

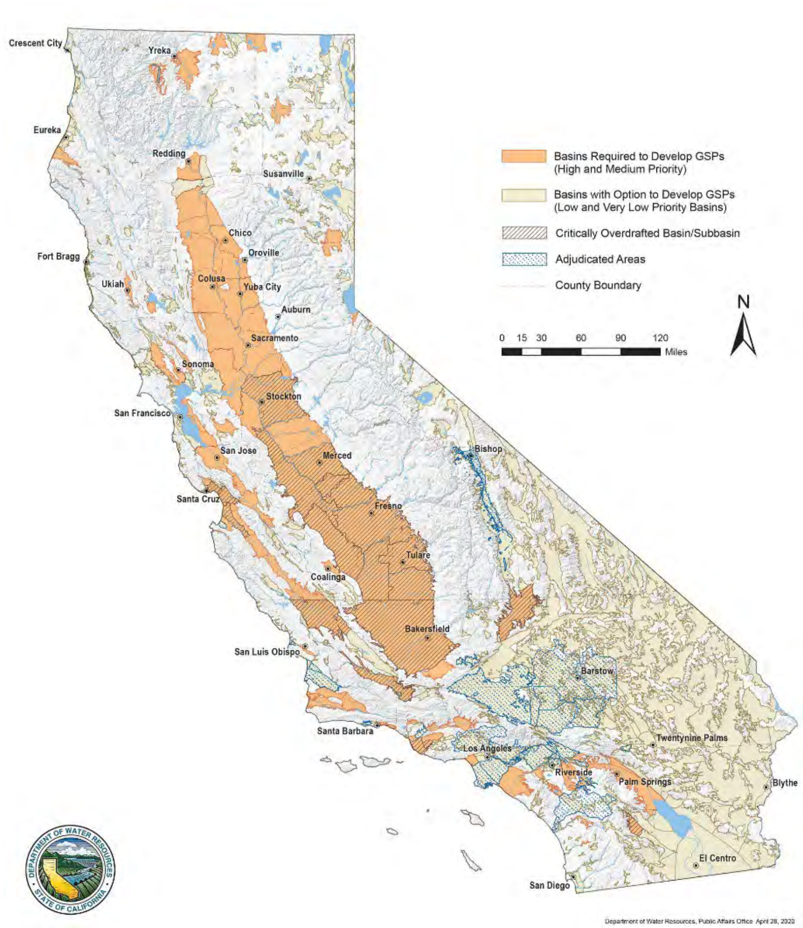
Water update

UBS

California

Sustainable Groundwater Management Act (SGMA) of 2014

Current SGMA Basin Prioritization Map



SGMA Exposure to the Midnight Sun Portfolio

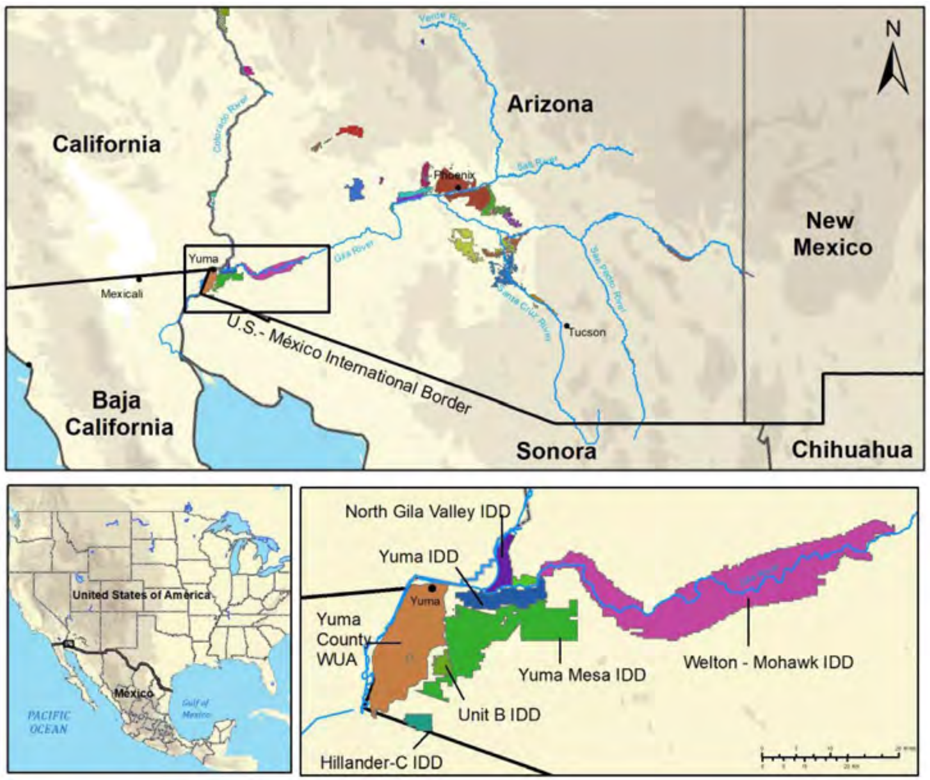
- Due to priority status (High & Medium), much of California's agricultural regions are located in groundwater basins that were required to develop Groundwater Sustainability Plans (GSPs) and begin implementing them in 2022.
- Reductions in groundwater pumping limits will generally be decided at the local level and result in a wide variety of impacts ranging from no impact to required fallowing.
- The California Department of Water Resources has made determinations for 46 groundwater basins. Of the 46, 40 basins have had their GSP's approved. Six basins are deemed inadequate and have transitioned to the State Water Resources Control Board intervention process.
- Midnight Sun's SGMA Risk (percents are measured by farm market value):
  - 44% of Midnight Sun's California portfolio has extremely low SGMA Risk (senior water rights; recycled municipal water supply)
  - 27% of Midnight Sun's California portfolio, is located in the Salinas Valley and relies on groundwater via on-site irrigation wells. The wells are located near the Salinas River and, in our view, are more at risk of reduced flows of the Salinas River than SGMA.
  - 29% of Midnight Sun's California portfolio, is located in the Central or Southern San Joaquin Valley with irrigation water supplied via on-site wells, supplemental surface water, and/or water sharing agreements.

UBS

Arizona

Colorado River Update

Yuma County, AZ Irrigation District Map



Relevant Event Timeline

- 2021 – United States Bureau of Reclamation (USBR) declares Tier One Water Shortage for 2022 water deliveries
- 2022 – USBR declares Tier Two Water Shortage for 2023 water deliveries; calls on all Colorado River Stakeholders to develop plans to reduce consumption by 2 – 4 million acre feet annually
- 2023 – Lower Basin states (CA, AZ, NV) propose plan to conserve 1 million acre feet per year for 2024 through 2026; USBR in August scaled back to a Tier One Water Shortage for 2024 deliveries due to above average run off

Colorado River Exposure to the Midnight Sun Portfolio

- 1.3% of the Midnight Sun portfolio (as a percent of farm market value) is exposed to the Colorado River exclusively via the Yuma County Water Users Association (YCWUA)
- YCWUA has never reduced water allotment due to the seniority of water rights

MSI#75 Potter Ranch, Yuma County, Arizona
Winter vegetables growing in late winter (Photo Credit: William Moody)

Section 6

Appendix

UBS

UBS Farmland Investors LLC biographies

- **James B. McCandless,** Managing Director, Head of Real Estate Farmland, President/Chief Executive Officer and Co-Chief Investment Officer of UBS Farmland Investors LLC. Mr. McCandless is one of the founders of AgriVest. He has over 47 years of experience financing and investing in agricultural real estate. His career includes positions with Bank of America, Connecticut Mutual Life Insurance Company and Bell Investment Company. Mr. McCandless' duties with these institutions focused exclusively on financing and equity investment in agricultural real estate. His experience covers a broad range of property types in the primary farming regions of the United States. Mr. McCandless received his bachelor's degree in Animal Science and Business Administration from Oklahoma State University. He is an affiliated member of the American Society of Farm Managers and Rural Appraisers, a member of the Pension Real Estate Association and the National Council of Real Estate Investment Fiduciaries.
- **Daniel E. Murray,** Executive Director and Co-Chief Investment Officer for UBS Farmland Investors, LLC. Mr. Murray is responsible for the Administration of UBS Farmland Investors LLC's asset management activities, property and portfolio performance measurement, as well as evaluation and analysis of property acquisitions and sales. He has over 14 years of experience in agricultural investment work. Dan currently serves as the Chairman of the NCREIF Farmland Committee. Prior to joining the firm in 2019, Mr. Murray held positions in Farmland Investment firms, Commodity Trading firms and a Dairy Research Center. He has undergraduate degrees in Animal Science as well as Applied Economics and Management from Cornell University and an MBA in Finance from Rensselaer Polytechnic Institute.
- **Charles W. Bryan, Jr.,** ARA, Director of UBS Farmland Investors LLC. Mr. Bryan is responsible for managing assets in the Northwest region and is based in Nampa, Idaho. He has been actively involved in agricultural real estate for over 35 years, primarily in the Northwest. Prior to joining the staff of UBS Farmland Investors LLC in 2005, he was a lending officer with Farm Credit Services in Idaho. Mr. Bryan has extensive farmland appraisal experience having also served as a Senior Appraiser and an Engineer Appraiser with Farm Credit Services. He received his bachelor's degree in Geology from Boise State University. He holds the designation "Accredited Rural Appraiser" awarded by the American Society of Farm Managers and Rural Appraisers.
- **Cullum Jefferies,** Director of UBS Farmland Investors LLC. Mr. Jefferies is responsible for managing assets in Texas, Arkansas, Louisiana, Mississippi and Florida. He has over 20 years of experience in real estate investment management. Prior to joining the staff of UBS Farmland Investors LLC in 2009, Mr. Jefferies was with GE Real Estate where he handled acquisitions, asset management, and valuations. He received his bachelor's degree in agribusiness and master's degree of land economics and real estate from Texas A & M University. He owns several small Texas farms with his family.
- **Mark J. Van Elswyk,** Associate Director, UBS Farmland Investors LLC. Mr. Van Elswyk is responsible for assisting the management of assets in California and Arizona and is based in Lodi, CA. He has experience in agricultural appraisal and credit analysis and underwriting. Prior to joining the staff of UBS Farmland Investors LLC in 2022, he was with Yosemite Farm Credit for six years analyzing and underwriting agricultural loans. Before his time at Yosemite Farm Credit, he worked at American AgCredit in their appraisal department analyzing farm real estate throughout California. During his employment with Yosemite Farm Credit, he completed the Agricultural Lending Institute's two-year program and was awarded a Certificate of Completion from California State University, Fresno and the Agricultural Lending Institute, Inc. He received his bachelor's degree in Business Administration from San Francisco State University with a concentration in Finance. He also studied real estate during his time at San Francisco State and received a certificate in commercial real estate from San Francisco State's partnership with the Building Owners and Managers Association.

UBS Farmland Investors LLC biographies

- **Erik C. Roget,** ARA, RPRA, AFM, Director of UBS Farmland Investors LLC. Mr. Roget is responsible for managing assets in California and Arizona and is based in Lodi, CA. He has been actively involved in California and Western US agricultural real estate for over 41 years. Prior to joining the staff of UBS Farmland Investors LLC in 2010, he was Regional Vice President, Western Region, with Rabo Agri-Finance, an affiliate of Rabobank NA. Mr. Roget has extensive farmland appraisal and management experience having also served with Equitable Agri-Business Inc., Correia-Xavier Appraisals and the Federal Land Bank. He received his Bachelor's Degree in Agri-business from California State University-Fresno. He holds the designation "Accredited Rural Appraiser", "Accredited Farm Manager" and "Real Property Review Appraiser" awarded by the American Society of Farm Managers and Rural Appraisers. He holds a CA Certified General Appraiser's license. He and his wife own a farm in Madera County, CA.
- **Brian C. Duke**, AFM, Director of UBS Farmland Investors LLC. Mr. Duke is responsible for managing assets in Illinois, Indiana, Colorado, Wisconsin and Georgia. He has 29 years of experience in the acquisition and management of farmland investments in the Central and Western United States. Prior to joining the staff of UBS Farmland Investors in 2014, Mr. Duke was with The Northern Trust Company for 18 years. He was most recently serving as the Director of Agricultural Services, responsible for the management of over 200 agricultural properties in 27 states. Prior to joining Northern Trust he was the Assistant Manager of L. J. Duke Farms in Indiana. He received his Bachelor's Degree in Agricultural Economics from Purdue University. He holds the designation "Accredited Farm Manager" awarded by the American Society of Farm Managers and Rural Appraisers. He is also a Board Member of The Chicago Farmers organization.
- **Darren Hartman,** Director of UBS Farmland Investors LLC. Mr. Hartman is responsible for managing assets in the Northwest region and is based in Selah, WA. He has been actively involved in agricultural real estate, in the Northwest for nearly 20 years. Prior to joining the staff of UBS Farmland Investors LLC in 2023, he was the President of Clark Jennings & Associates Inc. in Washington State. Mr. Hartman has extensive farmland appraisal experience, farmland real estate brokerage experience and farm loan servicing experience. He received his bachelor's degree in History from the University of Portland. He is licensed in Washington State as a Certified General Appraiser and Broker. He has owned and operated apple orchards in the past for his family.
- **Barbara A. Missal**, Director of UBS Farmland Investors LLC. Ms. Missal is responsible for the management of the UBS Farmland Investors data warehouse, special projects, portfolio reporting, and assisting asset and portfolio management. She has over 30 years of experience with financial reporting and analysis in the real estate industry. Prior to joining the staff of UBS Farmland Investors in 2016, Ms. Missal was with UBS Realty Investors for 25 years. She was most recently a business analyst responsible for defining user requirements, system testing and ongoing user support for various software applications and was previously an accountant responsible for fund and property accounting. Prior to joining UBS Realty Investors, she was an auditor and Certified Public Accountant with Coopers & Lybrand. She received her Bachelor's Degree in Accounting from the University of Connecticut.
- **Manisha Bicchieri**, Associate Director of UBS Farmland Investors LLC. Ms. Bicchieri is responsible for managing the firm's ESG initiatives including the implantation and administration of the Leading Harvest Farmland Management Standard. She is also the firm's research analyst. Ms. Bicchieri has over five years of agricultural finance and investment experience having served as a Credit Representative with Farm Credit East, Portfolio Analyst with Hancock Natural Resource Group and Assistant Vice President of Forestry and Agriculture with the Rohatyn Group. She received her Bachelor of Science in Resource Economics with a concentration in Environmental Economics and Policy from the University of Connecticut.
- **Dawn Zukowski**, Associate Director, UBS Farmland Investors. Ms. Zukowski is responsible for assisting the Southern and Midwest asset managers. She is an experienced real estate analyst with a broad background in portfolio management, finance and legal industries including lease/contract negotiation and review and is accomplished in all areas of property management, acquisition, financing and disposition of real estate including land, residential, retail and commercial properties. She has an A.S. in Legal Assistant Studies and is currently pursuing a B.S. in Business Administration at the University of Massachusetts.

Disclaimer

This document is intended for limited distribution to professional clients/institutional investors and associates of UBS Asset Management. It is not to be distributed to or relied upon by Retail Clients under any circumstances. Using, copying, reproducing, redistributing or republishing any part of this publication without the written permission of UBS Asset Management is prohibited. The recipient agrees that this information shall remain strictly confidential where it relates to the Investment Manager's business. The prior consent of UBS Asset Management should be obtained prior to the disclosure of commercially sensitive information to a third party (excluding the professional advisors of the recipient).

The information and opinions contained in this document have been compiled or arrived at based upon information obtained from sources believed to be reliable and are a reflection of UBS Asset Management's best judgment at the time this report is compiled. No responsibility is accepted for any errors or omissions and all such information and opinions are subject to change without notice; we are under no obligation to update or alter forward-looking statements or opinions as a result of new information. A number of the comments in this document, including statements about performance objectives, risk and/or return targets, are considered forward-looking statements. Actual future results, however, may vary materially. Please note that past performance is not a guide to the future. It should not be assumed that any of the securities transactions or holdings referred to herein were or will prove to be profitable, or that the investment recommendations or decisions we make in the future will be profitable or will equal the performance of the investments referred to in this document. In no circumstances may this document or any of the information included herein (including any forecast, value, index or other calculated amount ("Values") be used for any of the following purposes: (i) valuation or accounting purposes; (ii) to determine the amounts due or payable, the price or the value of any financial instrument, investment fund or financial contract; or (iii) to measure the performance of any investment fund or other financial instrument including, without limitation, for the purpose of tracking the return or performance of any Value or of defining the asset allocation of portfolio or of computing performance fees. This document is a marketing communication. Any market or investment views expressed are not intended to be investment research.

This document is for distribution only under such circumstances as may be permitted by applicable law. It was written without reference to any specific or future investment objective, financial or tax situation or requirement on the part of a particular individual or group. This information is not intended to provide, and should not be relied upon for, accounting, legal or tax advice, or investment recommendations. You should consult your tax, legal, accounting or other specialist advisors as to the legal and tax implications of investing.

With investment in real estate (via direct investment, closed- or open-end funds), the underlying assets are very illiquid. In certain circumstances, repatriations might be delayed if an investment is not readily saleable and there is insufficient cash within the portfolio. The value of investments and the income from them may go down as well as up, and investors may not get back the original amount invested. Source for all data/charts, if not stated otherwise: UBS Asset Management.

Contact information

James B. McCandlesss
Managing Director
UBS Farmland Investors LLC
10 State House Square, 15th Floor
Hartford, CT 06103-3604
james.mccandless@ubs.com

Tel. +1-860-616 9203
Fax: +1-860-616 9204
www.ubs.com/realestate

Daniel E. Murray
Executive Director
UBS Farmland Investors LLC
10 State House Square, 15th Floor
Hartford, CT 06103-3604
daniel.murray@ubs.com

Tel. +1-860-616 9199
Fax: +1-860-616 9204
www.ubs.com/realestate

Together, UBS Realty Investors LLC, UBS Farmland Investors LLC, and UBS Fund Services (USA) LLC , subsidiaries of UBS AG, comprise Real Estate US.

KKR Real Estate Partners Americas

Mandate: **Real Estate** **Hired: 2014**

Firm Information

KKR is a leading global investment firm that offers alternative asset management solutions across private equity, real estate, infrastructure, credit and energy real assets, as well as capital markets and insurance solutions.

As of June 30, 2023, KKR has approximately 2,500 employees, with over 1,530 executives located in 23 offices globally.

KKR manages approximately $519 billion for investors globally as of June 30, 2023.

Key Executives:
Ralph Rosenberg, Global Head of Real Estate
Billy Butcher, Global Real Estate COO and Head of Real Estate Strategy
Chris Lee, Head of Real Estate Americas
Justin Pattner, Head of Real Estate Americas Equity
Roger Morales, Head of Real Estate Americas Acquisitions

Investment Approach

KKR's Americas Opportunistic Real Estate Equity strategy, Real Estate Partners Americas ("REPA"), focuses on opportunities in which KKR has a sourcing, underwriting or execution advantage.

REPA pursues a thematic approach to investing by looking to identify real estate asset classes or geographies where they have high conviction in medium to long-term fundamental trends.

REPA also invests in complex idiosyncratic opportunities that offer attractive risk-reward and seeks to add value through active asset, operational and financial management.

KKR's "One-Firm" approach allows them to access to differentiated insights and information from the broader KKR investment platform that helps them to evaluate transactions, manage risk, and deal with complex situations.

Target Portfolio Return: 12-15% per annum, net of fees

Total ARMB Mandate

Assets Under Management:

6/30/23:	$36,628,808
REPA I	$3,393,703
REPA II	$7,381,214
REPA III	$25,853,981

Concerns: None

6/30/2022 Performance

	Inception Year	ITD IRR	ITD TVPI	Commitment
REPA I	2014	11.90%	1.29x	$75,000,000
REPA II	2018	19.83%	1.37x	$25,000,000
REPA III	2021	-4.33%	.95x	$50,000,000

KKR Real Estate Partners Americas Strategy Update

Prepared by Request of Alaska Retirement Management Board

FRIDAY, SEPTEMBER 15, 2023

KKR Presenting Team Biographies and Contact Information

Title / Contact Information		Experience
	**Justin Pattner** **Head of RE Equity, Americas** **Justin.Pattner@kkr.com**	**Justin Pattner** (San Francisco) joined KKR in 2011 to help found the Global Real Estate business. He is a Partner of the firm and is responsible for KKR's Real Estate Private Equity business in the Americas, overseeing all aspects of the business including investment strategy, asset management and fundraising. Mr. Pattner sits on KKR's Real Estate Equity and Credit Investment Committees in the Americas and on KKR's Real Estate Equity and Credit Portfolio Management Committees in the Americas. Prior to joining KKR, Mr. Pattner was at Eton Park Capital Management where he focused on real estate and real estate related opportunities. Prior to Eton Park, he worked at Lehman Brothers in the real estate private equity group (LBREP) as well as at Lubert Adler Partners. Mr. Pattner graduated magna cum laude from the University of Pennsylvania where he received a B.A. in Economics. Mr. Pattner sits on the Americas Executive Committee of ULI and is member of the Executive Committee for the Fisher Center Policy Advisory Board.
	**Lawrence Ou** **Relationship Manager** **Lawrence.Ou@kkr.com**	**Lawrence Ou** (Los Angeles) joined KKR in 2021 and is a member of the Client and Partner Group. Mr. Ou covers institutional investors in the Americas with an exclusive focus on the KKR Real Estate platform. Prior to joining KKR, he was a first vice president on the global partners team at CIM Group, where he raised capital from institutional investors and consultants. Previously, Mr. Ou held various roles in business development, relationship management and investments at Citigroup, BlackRock and Coca-Cola. He earned a B.B.A from Millsaps College and an M.B.A. from Columbia Business School, where he was a Robert Toigo Foundation Fellow, PREA/Toigo Fellow and Real Estate Executive Council Fellow.

Firm Address (San Francisco)	Firm Website
KKR 555 California Street 50th Floor San Francisco, CA 94104 +1 (415) 315-3620	www.kkr.com

SECTION ONE

Introduction to KKR Real Estate

KKR Real Estate Platform

A global real estate firm with a differentiated approach to investing

A Differentiated Platform

$64B
Assets under management across real estate equity & debt[1]

150+
Investment & asset management professionals globally[2]

Offices in **16** cities and **11** countries

Fully Integrated Real Estate Platform

$45.8B	$3.5B	$14.9B
U.S. AUM	Europe AUM	Asia AUM

Opportunistic Equity • Core+ Equity • Listed Mortgage REIT • Real Estate Credit

Current Global Real Estate Footprint[3]

Industrial

97 Million SF
~550 Properties

Rental Housing

44,100+ Units
~1,200 Properties

Innovation Office

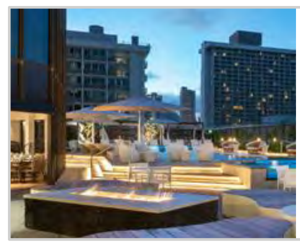
11 Million SF
39 Properties

Niche Housing

~11,500 Student Housing Beds
~7,800 Senior Housing Beds

Other[4]

21 Million SF
120+ Properties



Hospitality

~8,100 Keys
60+ Properties

180+ RE Equity Investments Since Formation of RE Business

As of June 30, 2023, unless otherwise noted. (1) Figures represent AUM across all KKR real estate strategies as reported by KKR & Co. Inc. (NYSE: KKR) as a public company. Strategies include, as applicable, Real Estate Partners Americas, Real Estate Partners Europe, Asia Real Estate Partners, Property Partners Americas, Property Partners Europe, Asia Property Partners, Real Estate Credit, estimated value of Global Atlantic assets, Real Estate NBFC, KJRM, KREST and co-investments. Please see Important Information for additional information regarding the calculation of AUM and KJRM. (2) As of August 2023. Includes investment and asset/portfolio management. (3) Represents global real estate assets that KKR-sponsored real estate equity funds own, as well as assets that KKR-owned platforms manage. (4) Other includes self storage, mixed-use, retail and net lease assets.

Leveraging KKR's Resources and Capabilities

The KKR platform gives us differentiated access and insights, enabling us to source, structure and execute on investment opportunities

KKR Real Estate
Integrated Real Estate Equity and Debt Team

KKR Private Equity
Industry Trends

KKR Capital Markets
Creative Financing Solutions

KKR Credit
Tenant Underwriting

KKR Senior Advisors[1]
Real Estate Industry Expertise and Networks

KKR Capstone
Operational Support

KKR Global Public Affairs
Regulatory and Geopolitical Insights

KKR Global Macro & Asset Allocation
Macro and Demographic Trends

Note: Participation of KKR Private Equity, KKR Capital Markets, and KKR Capstone personnel in the public markets investment process is subject to applicable law and inside information barrier policies and procedures, which may limit the involvement of such personnel in certain circumstances and KKR Credit's ability to leverage such integration with KKR. Discussions with Senior Advisors and employees of the Firm's managed portfolio companies are also subject to the inside information barrier policies and procedures, which may restrict or limit discussions and/or collaborations with KKR Credit. Please see Important Information for additional disclosure, including regarding KKR's internal information barrier policies and procedures, which may limit the involvement of certain personnel in some investment discussions. (1) KKR Senior Advisors are engaged as consultants and are not employees of KKR. Any compensation they receive generally will be paid for by the Fund and / or its portfolio entities and will not be credited against the Fund's management fees or carried interest distributions (or performance payments) payable to the General Partner or its affiliates in respect of the Fund.

Integrated U.S. Real Estate Platform

We believe our integrated platform generates differentiated access to information and enhanced relevance in Real Estate capital markets

- One leadership team
- Scaled and differentiated portfolio: own or lend on ~$207 billion of Real Estate assets[1]
- Large and growing "library" of information and relationships

~$207 Billion

of real estate assets we own or lend on[1]

Real Estate Equity	Real Estate Loans	Real Estate CMBS

Note: As of June 30, 2023, unless otherwise noted. For illustrative purposes only, subject to change. Please refer to the "Important Information" section of this Presentation for additional disclosure regarding KKR's internal information barrier policies and procedures, which may limit the involvement of certain personnel in some investment decisions. (1) Gross asset value ("GAV") of current Americas investments in REPA I, REPA II, REPA III, KPPA, equity investments in KREST, Global Atlantic equity investments, real estate equity investments in KDOF and trophy single tenant investments in KKR Credit accounts and underlying collateral value in RECOP I, RECOP II, KREF, RESTAC, credit investments in KREST, Global Atlantic credit investments and the stabilized opportunistic real estate credit strategy.

U.S. Equity Team: Optimized to Drive Continued Performance and Diversification

Americas Real Estate Equity Leadership

Ralph Rosenberg
Partner
Head of Global RE

Billy Butcher
Partner
Global RE COO & Head of RE Strategy

Chris Lee
Partner
Head of RE Americas

Justin Pattner
Partner
Head of RE Americas Equity

Roger Morales
Partner
Head of RE Americas Acquisitions

Acquisitions

Julia Butler Managing Director
Daniel Palmieri Managing Director
Daniel Rudin Managing Director
Peter Sundheim Managing Director
Michael Whyte Managing Director
Ben Brudney Director
Michael Fancher Director
Bryan Kam Director
Matthew Sherman Director
Vladimir Beko Principal
Diana Fedorova Principal
James Gibson Principal
Avivah Hotimsky Principal
Mary Win Anderson Associate
Arad Lev Ari Associate
John Boyden Associate
Kira Koehler Associate
Wei Li Associate
Fern Martin-Lavielle Associate
Riordon Smith Associate
Alec Swanson Associate
Eric Van Winkle Associate
Ela Ferhangil Analyst
Alexander Izvolsky Analyst
Tulah Kastali Analyst
Riya Luthra Analyst
Andrew Mariados Analyst
Emily Xiao Analyst

GMAA

Paula Campbell Roberts Managing Director
Patrick Holt Associate
Patrycja Koszykowska Associate

Asset Management

Brett Kelly Co Head of U.S. AM
Michael Osborne Co Head of U.S. AM
Liz Liubicich Director
Wills Russell Principal
Rene Roa Associate

Capstone

Karen Hollinger Managing Director

Portfolio Management

Paul Wasserman Head of U.S. PM
Jaime Avila Principal
Christian Kimpel Principal
Nicole Wilson[1] RE ESG
Colin Winrow Principal
Marcos Villarreal Analyst

Capital Markets

Jessica Bell Managing Director
Robert Dusel Director
Jake Beachum Associate
Kelleigh Keating[2] Analyst

Product Strategy

Jon Fiorello Managing Director
Sasha Hamilton Director
Thomas Brewster Principal
Payson Miller Principal
Creaghan Peters Principal
Wellington Lema Associate

Global Ops.

Diana Simmons Global RE CAO

The Real Estate Team is supported by additional KKR resources across Legal, Finance, Operations, Capstone, Public Affairs and the Client and Partner Group

As of August 2023. Please refer to the "Important Information" section of this Presentation for additional disclosure regarding KKR's internal information barrier policies and procedures, which may limit the involvement of certain personnel in some investment discussions. (1) Member of KKR's Public Affairs team. (2) Split between RE Equity and RE Credit.

KKR Real Estate Americas Investment Committee

Global Equity Investment Committee Members[1]

Henry Kravis
KKR Co-Executive Chairman / Co-Founder

George Roberts
KKR Co-Executive Chairman / Co-Founder

Joe Bae
KKR Co-CEO

Ralph Rosenberg
Partner & Global Head of Real Estate

Billy Butcher
Partner & Global Real Estate COO, Head of Real Estate Strategy

Americas Equity and Credit Investment Committee Members[2]

Chris Lee
Partner & Head of Real Estate Americas

Justin Pattner
Partner & Head of Real Estate Equity Americas

Roger Morales
Partner & Head of Real Estate Acquisitions Americas

Matt Salem
Partner & Head of Real Estate Credit

Jenny Box
Partner & Co-Head of Strategic Investments Group

We believe the diverse and tenured Investment Committee allows for seamless flow of information across the Firm, seeking to seek to stay ahead of trends and market movements and providing valuable insight and diverse perspectives

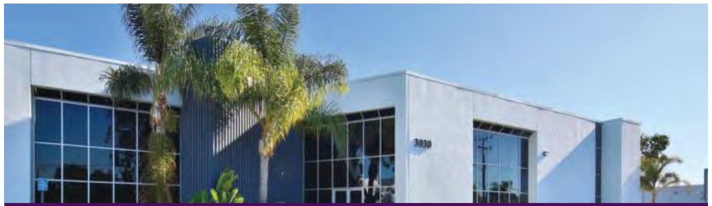
As of August 2023. Please see Important Information for additional disclosure regarding KKR”s internal information barrier policies and procedures, which may limit the involvement of certain personnel in some investment discussions. (1) Ralph Rosenberg and Billy Butcher are also members of the Real Estate Credit Investment Committee. (2) Patrick Mattson (COO of the Real Estate Credit Group and of KREF) and Joel Traut (Partner and Head of Originations) are members of the Credit Investment Committee.

SECTION TWO

KKR Real Estate Partners Americas ("REPA") Strategy

Note: As of June 30, 2023. Unless otherwise indicated, the information in this section reflects the current market views, opinions and expectations of KKR based on its historic experience. Historic market trends are not reliable indicators of actual future market behavior or future performance of any particular investment or any KKR fund, vehicle or account which, may differ materially, and are not to be relied on as such. There is no guarantee the strategies mentioned herein will materialize, and there can be no assurance that investors in the Fund will receive a return of capital. Please see "Important Information"for information regarding forward-looking statements and projections.

REPA Strategy Overview



Alpha Industrial Properties
Industrial | Various, U.S.

Apollo Tempe
Student Housing | Phoenix, AZ

Rosemont Berkeley Lake
Multifamily | Atlanta, GA

01 Current Americas Opportunistic Strategy

- **Primary Sectors:** Industrial, Rental Housing, Niche Housing and Self Storage
- **Transaction Types:** Cash-flowing transitional assets, real estate companies and platforms, distressed situations
- **Geography:** Primarily top-15 markets in the U.S.
- **Target Returns:** 16-20% Gross IRR, 12-15% Net IRR
- **Leverage:** Portfolio leverage maximum of 70%

02 Key Strategy Pillars

- Thematic Approach to Investing
- Deliberate Portfolio Construction
- Proactive Portfolio Management
- Dedicated Operating Capability

03 KKR Differentiators

- **"One-Firm" Approach:** Fully integrated global real estate equity and credit platform supplemented by access to KKR's global investment platform and sourcing networks[1]
- **Alignment of Interest:** KKR (together with its employees, affiliates and KKR Financing Vehicles) have committed a sizable amount to the REPA strategy

Please refer to "Important Information – Risk Disclosures" for information on risks associated with an investment in the Fund

As of June 30, 2023, unless otherwise noted. Top 15 markets represent the top 15 MSAs tracked by the KKR Real Estate team and vary by sector. The aggregate overall targeted return presented above is hypothetical in nature and is shown for illustrative, informational purposes only. Individual investments may have an anticipated gross return below or above the overall gross return indicated. See the "Important Information" regarding the calculation of targeted returns. Actual results experienced by investors may vary significantly from the targeted returns set forth herein. Target Returns May Not Materialize. The investments made by the Fund may differ from those made by the Prior REPA Funds by breadth of geography, sector, asset type, or deal type. Please see "Important Information" for additional information. The specific portfolio entities identified above are presented for illustrative purposes only, are not representative of all the securities purchased, sold or recommended for advisory clients and it should not be assumed that the investments in portfolio entities identified was or will be profitable. (1) Participation of personnel at KKR Private Equity, KKR Infrastructure, KKR Real Energy Assets, KKR Capstone, KKR Credit and KCM in the Fund's investment activities is subject to applicable law and inside information barrier policies and procedures, which may restrict or limit the involvement of such personnel in certain circumstances and the ability of KKR Real Estate to leverage such integration with KKR. Discussions with Senior Advisors, Executive Advisors, Industry Advisors, KKR Advisors and employees of KKR's managed portfolio entities are also subject to inside information barrier policies and procedures, which may restrict or limit discussions and/or collaborations with KKR Real Estate. Please refer to the "Important Information" section of this Presentation for additional disclosure regarding KKR's internal information barrier policies and procedures, which may limit the involvement of personnel in certain investment processes and discussions.

Key Pillar #1: Thematic Approach to Investing

Differentiated access to industry data and demographic information allows us to identify key themes at different points in the cycle

Inputs

Industry Trends – KKR PE Team

Macroeconomic and Demographic Data & Analysis – KKR GMAA Team

Scaled RE Portfolio – Own / lend on ~$195 billion of U.S. RE assets[1]

Deep Market Relationships – Intermediaries & Operating Partners

Evaluate and Refine

Process

01 **Thesis Development**

02 **Investment Approach**

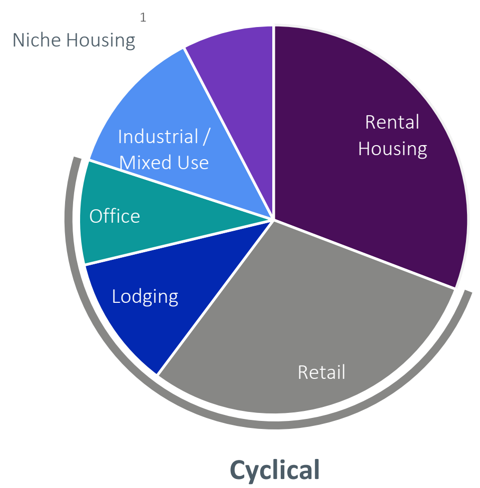
03 **Acquisition Strategy**

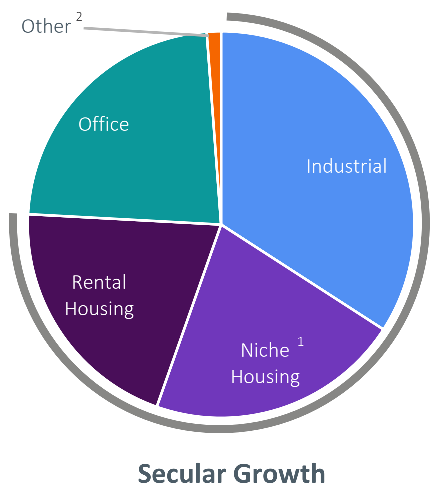
Evaluate and Refine

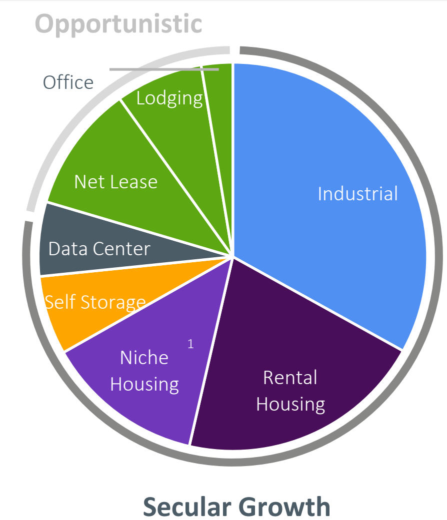
Note: For illustrative purposes only. Please refer to the "Important Information" section of this Presentation for additional disclosure regarding KKR's internal information barrier policies and procedures, which may limit the involvement of personnel in certain investment processes and discussions. (1) Includes gross asset value of current Americas investments in REPA I, REPA II, REPA III, KPPA, equity investments in KREST (credit investments in KREST are represented in the Real Estate Loans or Real Estate CMBS Securities totals, as applicable), Global Atlantic equity investments, real estate equity investments in KDOF, trophy single tenant investments in KKR Credit accounts, and underlying collateral value in RECOP I, RECOP II, KREF, and the stabilized credit strategy.

Key Pillar #2: Deliberate Portfolio Construction

REPA I Peak Portfolio	REPA II Peak Portfolio	REPA III Current Portfolio
Early Cycle ~50% cyclical sectors	**Late Cycle** ~75% secular growth sectors	**Through Cycle** ~80% secular growth sectors and ~20% opportunistic and cyclical dislocation sectors







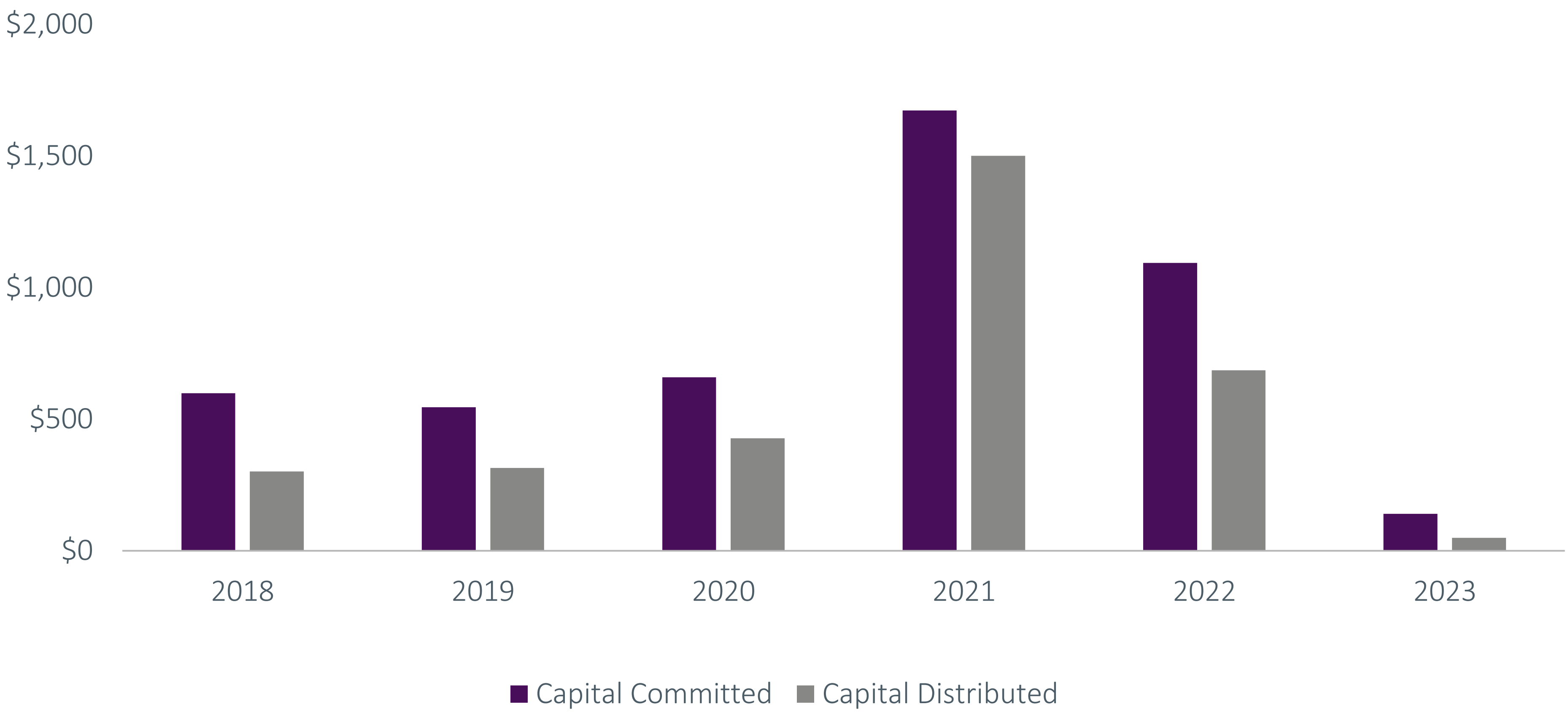
2013 2017 2021

Please refer to "Important Information – Risk Disclosures" for information on risks associated with an investment in the Fund

For illustrative purposes only. Represents total equity cost as of June 30, 2023. The specific investments include all of the REPA I, REPA II, and REPA III investments in the sectors shown above, are not representative of all investments made by KKR Real Estate funds and it should not be assumed that the investments identified were or will be profitable. The investments made by the Fund may differ from those made by REPA I, REPA II and REPA III by breadth of geography, sector, asset type and deal type. Please see "Important Information" for additional information. "Peak" signifies that the investment period of the applicable fund has ended. (1) Niche Housing represents Senior Housing in REPA I and Senior Housing and Student Housing in REPA II and REPA III. (2) Other represents capital in Nighthawk invested in hospitality and capital that is not assigned to any public security.

Key Pillar #3: Proactive Portfolio Management

We take a thoughtful and disciplined approach to capital deployment and harvesting. Since inception, REPA Funds have committed ~$6.0 billion of LP capital and have distributed ~$4.1 billion to LPs



As of June 30, 2023, unless otherwise noted. **Past performance does not predict future returns.**

KKR

Key Pillar #4: Dedicated Operating Capability

We believe our vertically-integrated platforms position us to (1) access fragmented asset classes (2) attract high-quality management teams and (3) proactively source deals in competitive markets

ALPHA INDUSTRIAL PROPERTIES **Industrial Platform**	MCH My Community Homes **Single-Family Rental Platform**	UNIVERSITY PARTNERS **Student Housing Platform**	KRL **Lodging Platform**
Strategic Lease Partners **Net Lease Platform**	ALPHA Storage Properties **Self Storage Platform**	SENTIO INVESTMENTS **Senior Housing Platform**	CyrusOne **Data Center Platform**

~830 employees across platforms

As of June 30, 2023, unless otherwise noted. Includes owned and operated assets. The portfolio entities shown above represent all platforms currently owned or engaged by REPA II and/or REPA III, respectively. The specific portfolio entities identified are not representative of all of the securities purchased, sold or recommended for advisory clients, and it should not be assumed that the investment in the companies identified was or will be profitable. These examples are presented for illustrative purposes only to show the investment characteristics of this strategy. The Fund will not participate in these investments. There can be no assurance that the Fund will be able to consummate investments with the characteristics described herein, or that if consummated, such investments will be profitable. Past performance of any KKR fund or investment referred to in this Presentation is not indicative of future performance. This contains a sub-section of REPA II and REPA III investments, selected to highlight certain sector specific capabilities of REPA II and REPA III. The investments made by the Fund may differ from those made by REPA II and REPA III by breadth of geography, sector, asset type and deal type. Please see "Important Information" for additional information.

REPA Strategy: Track Record

REPA Strategy Composite IRR: 16.8% Gross (12.1% Net)[1]

	As of Q2 2023	REPA I	REPA II	REPA III
Fund-Level Details	**Size**[2]	~$1.5 billion	~$2.0 billion	~$4.3 billion
	Vintage	2013	2017	2021
	Geography	North America / Western Europe	North America	North America
	Status	Harvesting	Harvesting	Investing (66% committed)[3,4]
	IRR	16.1% Gross (11.3% Net)	26.9% Gross (22.2% Net)	-0.8% Gross (-3.7% Net)
	MOIC	1.4x Gross (1.3x Net)	1.6x Gross (1.5x Net)	1.0x Gross (1.0x Net)
	DPI[5]	138% Gross (124% Net)	129% Gross (119% Net)	8% Gross (8% Net)
ARMB Details	**ARMB Commitment**	$75.0 million	$25.0 million	$50.0 million
	Amount Invested	$62.7 million	$25.1 million	$30.0 million
	Amount Realized	$81.2 million	$30.5 million	$2.5 million
	Remaining Value	$3.4 million	$7.4 million	$25.9 million

Please refer to "Important Information – Risk Disclosures" for information on risks associated with an investment in the Fund

As of June 30, 2023, unless otherwise noted. Returns include both realized and unrealized investments. Please see "Important Information" regarding the methodology used to calculate performance and additional disclosure regarding the information included in the above figures (including information regarding REPA I, REPA II and REPA III fund-level performance) and the methodology regarding the REPA Strategy Composite IRR. Past performance is no guarantee of future results. The REPA Strategy is KKR's dedicated U.S. real estate opportunistic equity strategy. Investors should note REPA I also includes European real estate investments prior to the establishment of KKR's dedicated European real estate value-add / opportunistic equity strategy. (1) Please see "Important Information" for additional information regarding past performance and the calculation of the composite returns. (2) Size includes GP and Employee side-by side vehicles. For REPA I, includes $200 million from KFN. All other metrics represent REPA I, REPA II and REPA III, respectively. (3) Percentage committed represents the percentage of capital commitments of each existing (or under contract, as applicable) investment based on underwriting at the time such investment was made or entered into contract as applicable. There can be no assurance that the committed amounts will be fully deployed. Please see "Important Information" for additional information. (4) Inclusive of recycled capital. There can be no assurance that these transactions will be consummated, and if consummated, will be consummated on the terms and price currently anticipated. Any transactions that have not closed are subject to customary closing conditions, and if applicable, execution of transaction documents. (5) Net DPI percentage based on amount of distributions made to limited partners of REPA I, II and III, respectively (net of carried interest, as applicable), relative to the aggregate amount of capital contributions made by limited partners to REPA I, II and III, respectively (including for fees and expenses). Gross DPI percentage based on amount of distributions made to limited partners of REPA I, II and II, respectively (without deduction of carried interest, as applicable), relative to the aggregate amount of capital contributions made by limited partners to REPA I, II and III, respectively (excluding for management fees and organizational expenses). Percentage excludes any potential recycled capital.

SECTION THREE

Select Case Studies

The select investments presented in this section are provided solely for the purpose of illustrating the types of investments that are consistent with REPA III's investment strategy with respect to the particular sector presented. The select investments do not reflect all investments made by REPA III. Such select investments are not necessarily indicative of all or any investments that have been or may be made by REPA III, and there can be no assurance that REPA III's investment team will be able to achieve its investment objectives or avoid substantial losses. Recipients should note that past performance is not a guarantee of future results. Unless indicated, the information in this section reflects the current market views, opinions, or expectations of KKR based on its historic experience. Historic market trends are not reliable indicators of actual or future market behavior or future performance of any particular investment or any KKR fund, vehicle or account, which may differ materially and are not to be relied upon as such. Any discussion under "Current Thesis", "What We Saw" or "Thesis" herein represents the assessment or opinion only of KKR and prospective investors should not rely on such expressions as statements of fact. Please see Important Information for additional disclosures, including disclosures regarding case studies, forward-looking statements, and estimates. The Fund will not participate in these investments. There can be no assurance that the Fund will be able to consummate investments with the characteristics described herein, or that if consummated, such investments will be profitable.

Industrial: KRE Alpha Industrial Properties (“AIP”)

Platform Overview[1]

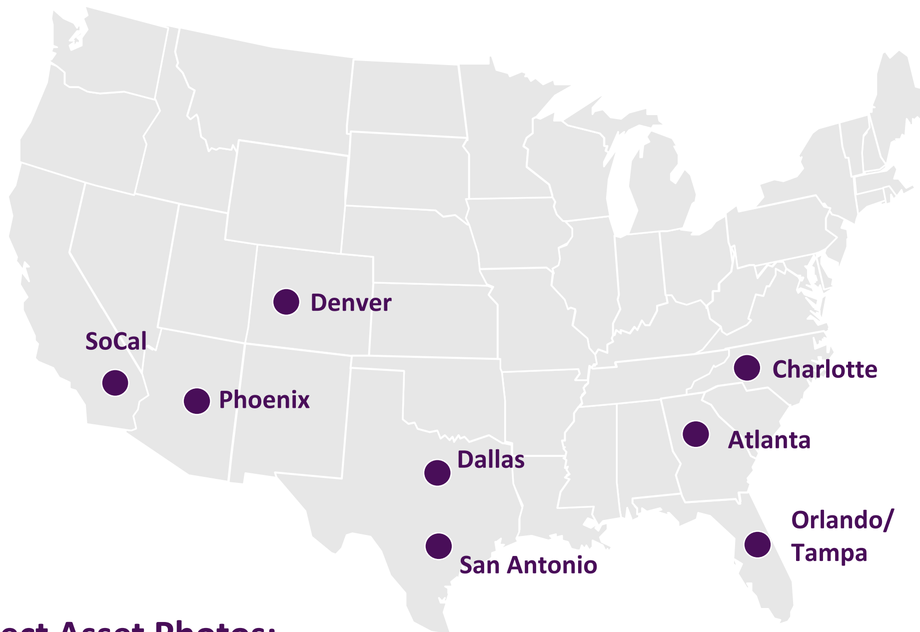
- ~$7.3bn industrial platform[2]
- ~58mm SF portfolio across 15+ major industrial markets
- Sold AIP 1, AIP 2 and part of AIP 3, of the REPA II portfolio, across two different sale transactions in 2021 and 2022, for aggregate proceeds of ~$2.5bn
- Sold / under contract to sell 10 portfolios of AIP 3 assets for aggregate proceeds of ~$560mm between Jul’23 and Sep’23

REPA III Portfolio Details

- ~$2.7bn total all-in-cost (~$890mm REPA III equity invested)

17.8mm SF *Total Portfolio*	**95** *Total Buildings*	**~186k SF** *Avg. Bldg. Size*
2015 *Avg. Vintage*	**~33’** *Avg. Clear Height*	

REPA III Portfolio Footprint



Select Asset Photos:

1855 Dornoch | *San Diego, CA*

As of June 30, 2023, unless otherwise noted. The specific portfolio companies identified are not representative of all of the securities purchased, sold or recommended for advisory clients, and it should not be assumed that the investment in the companies identified was or will be profitable. There can be no assurance that the trends described herein will continue. Please see “Important Information” for additional information regarding forward-looking statements. (1) Includes both owned and operated assets. (2) Reflects gross asset value.

Student Housing: University Partners ("UP")

Platform Overview[1]

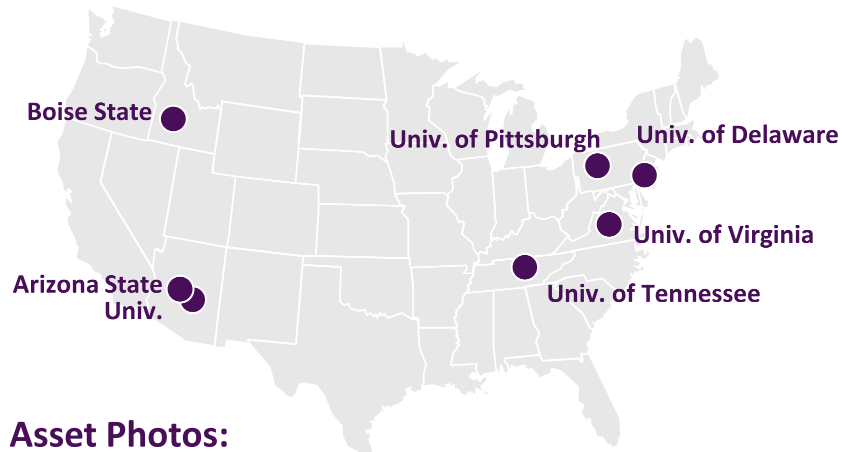
- $1.9bn student housing platform[2]
- ~11.5k beds across 19 assets at 16 universities
- Sold REPA II portfolio in May'22 for $725mm

REPA III Portfolio Details

- Targeting high quality, cash flowing assets in Tier I markets
- $300mm REPA III equity invested across seven assets

4.2k *Beds*	**29.4k** *Avg. Full-Time Undergraduates*	**2018** *Avg. Vintage*
0.2 miles *Avg. Distance to Campus*	**100%** *AY'23-24 Projected Occupancy*	

REPA III Portfolio Details

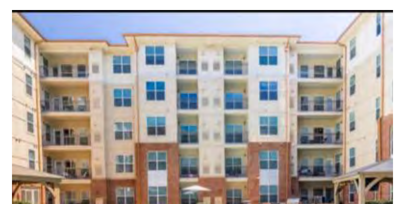


Select Asset Photos:


Apollo at Arizona State Univ.


Bridges at Univ. of Pitt.


The Knox at Univ. of Tennessee


Pavilion at UVA

Note: As of June 30, 2023, unless otherwise noted. There can be no assurance that the trends described herein will continue. Past performance is no guarantee of future results. The select investment above does not reflect all investments made by REPA III. Such select investments are not necessarily indicative of all or any investments that have been made or may be made by any other fund and there can be no assurance that the investment team will be able to achieve its investment objectives or avoid substantial losses. No assurance can be given that real estate businesses and assets can be disposed of at favorable prices or that the market for such assets will either remain stable or, as applicable, recover or improve. The specific portfolio companies identified are not representative of all of the securities purchased, sold or recommended for advisory clients, and it should not be assumed that the investment in the companies identified was or will be profitable. Please see "Important Information" for additional information regarding forward-looking statements. (1) Includes both owned and operated assets. (2) Represents Gross Asset Value of owned/operated assets.

SECTION FOUR

REPA III Current Positioning and Go-Forward Opportunity

Note: As of June 30, 2023, unless otherwise indicated. Unless otherwise indicated, the information in this section reflects the current market views, opinions and expectations of KKR based on its historic experience. Historic market trends are not reliable indicators of actual future market behavior or future performance of any particular investment or any KKR fund, vehicle or account which, may differ materially, and are not to be relied on as such. There is no guarantee the strategies mentioned herein will materialize, and there can be no assurance that investors in any KKR fund will receive a return of capital. The select investments presented in this section are provided solely for the purpose of illustrating the types of investments that are consistent with REPA III thematic focus with respect to the particular theme presented. The select investments do not reflect all investments made by REPA III. Such select investments are not necessarily indicative of all or any investments that have been or may be made by REPA III, and there can be no assurance that REPA III's investment team will be able to achieve its investment objectives or avoid substantial losses. Please see Important Information for additional disclosures, including disclosures regarding case studies, forward-looking statements, and estimates. The investments made by the Fund may differ from those made by REPA III by breadth of geography, sector, asset type and deal type.

Investment Themes and Sectors

We invest behind themes impacting major real estate demand drivers; focused on sectors we believe will benefit from long term secular and defensive demand drivers, while selectively pursuing opportunistic sectors where we see attractive risk/return

Major Real Estate Demand Drivers	Investment Themes
Consumer Behavior	• Propensity to Rent • Value of Bachelors Degree • E-Commerce/Multichannel • Experiences Over Things • Health and Wellness
Demographic Shifts	• Sunbelt Migration • Innovation Cities • Aging Population
Corporate Strategy	• Supply Chain Security / Onshoring • Corporate Relocation / Footprint Expansion • Artificial Intelligence • Energy Transition

Primary Sectors

Industrial **15.6** Million SF

Niche Housing **3,383** Student Housing Beds, **464** Senior Housing Beds

Rental Housing **4,470** Multifamily Units, **3,452** Single-Family Homes

Self Storage **20,909** Units

Opportunistic Sectors

Net Lease **7.6 Million SF**	Lodging **8,062 Keys**
Data Center **55 Properties**	Innovation Office **1 Property; 235k SF**

Please refer to "Important Information – Risk Disclosures" for information on risks associated with an investment in the Fund

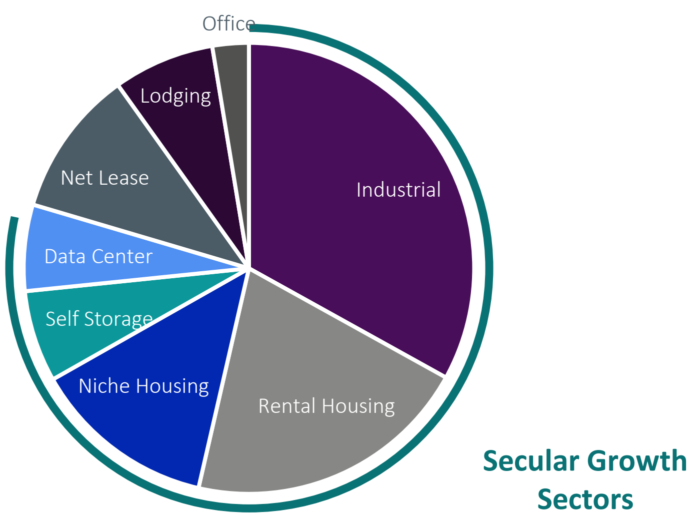
Total SF, unit count, home count, bed count, and key count represents the aggregate portfolio in REPA III as of March 31, 2023, unless otherwise noted. For illustrative purposes only, subject to change. There is no guarantee the strategies mentioned above will materialize. The Fund may use one or more of the strategies described herein. The investments of the Fund may differ from those made by REPA III by breadth of geography, sector, asset type and deal type.

REPA III: Current Portfolio Positioning

Deliberate approach to portfolio construction focused on (i) overall diversification and (ii) specific concentration across target sectors and high-conviction markets experiencing above-trend growth

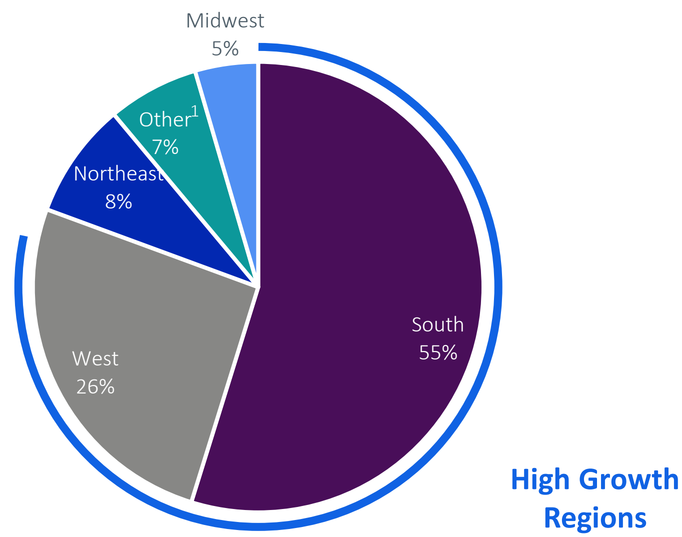
By Sector

80% of portfolio in secular growth sectors



By Geography

81% of portfolio in high growth regions



~$2.8 billion of committed equity closed or under contract/exclusivity[2]

As of June 30, 2023, unless otherwise noted. The investments made by the Fund may differ from those made by REPA III by breadth of geography, sector, asset type and deal type. Sector and Geography charts represent REPA III equity invested as of June 30, 2023. (1) "Other" represents CyrusOne (headquarter located in Dallas, TX) and Strategic Lease Partners assets located outside of the U.S. (2) Represents REPA III equity committed to deals closed or under contract/exclusivity as of June 30, 2023. There can be no assurance that committed amounts will be fully deployed or deployed at all. There can be no assurance that committed amounts will be fully deployed or that transactions under contract/exclusivity will be consummated, and if consummated, will be consummated on the terms and price currently anticipated. Any transactions that have not closed are subject to customary closing conditions, and if applicable, execution of transaction documents.

What’s Driving the Go-Forward Opportunity

While transaction volume has been muted over the last year, we believe we have reached an inflection point, with several catalysts driving the “unwind” and opportunities beginning to present themselves

Liquidity Challenged Owners

- Motivated sellers exiting core assets to opportunistic buyers

Debt Capital Market Illiquidity

- Stressed capital structures and near-term debt maturities
- Ability to access attractive assets and portfolios through debt

Public Market Dislocation

- Bi-lateral opportunities to acquire companies or subset of assets / portfolios
- Attractive pricing on public debt and equity securities

Elevated interest rates and limited liquidity is creating interesting investing opportunities that we believe will only grow over the next several years

For illustrative purposes only, subject to change. There is no guarantee the strategies mentioned above will materialize.

SECTION FIVE

Important Information

Important Information

This presentation is furnished upon request of Alaska Retirement Management Board (the “Recipient”) on a confidential basis and is not for redistribution or public use. The data and information presented are for informational purposes only. The information contained herein should be treated in a confidential manner and may not be transmitted, reproduced or used in whole or in part for any other purpose, nor may it be disclosed without the prior written consent of Kohlberg Kravis Roberts & Co. L.P. (together with its affiliates, “KKR”). By accepting this material, the Recipient agrees not to distribute or provide this information to any other person.

The interests in the Fund (the “Interests”) have not been recommended, approved or disapproved by the U.S. Securities and Exchange Commission (the “SEC”) or by the securities regulatory authority of any state or of any other U.S. or non-U.S. jurisdiction, nor has the SEC or any such securities regulatory authority passed upon the accuracy or adequacy of the Presentation. Any representation to the contrary is unlawful. The Interests have not been registered under the U.S. Securities Act of 1933, as amended (the “Securities Act”), the securities laws of any other state or the securities laws of any other jurisdiction, nor is such registration contemplated. The Fund will not be registered as an investment company under the Investment Company Act of 1940, as amended (the “1940 Act”). Consequently, limited partners of the Fund are not afforded the protections of the 1940 Act. The Fund may utilize leverage and may also engage in bona fide hedging transactions in connection with the acquisition, holding, financing, refinancing or disposition of investments, including foreign currency hedging, swaps and other derivative contracts or instruments. Any amount paid by the Fund for or resulting from such sales, contracts or instruments will be treated as investment-related expenses.

The information contained herein is preliminary, is provided for discussion purposes only, is only a summary of key information, is not complete, and does not contain certain material information about the Fund, including important conflicts disclosures and risk factors associated with an investment in the Fund, and is subject to change without notice. This Presentation shall not constitute an offer to sell or the solicitation of any offer to buy any Interests. Interests shall not be offered or sold in any jurisdiction in which such offer, solicitation or sale would be unlawful until the requirements of the laws of such jurisdiction have been satisfied. Any such offer or solicitation will only be made pursuant to the Memorandum, which qualifies in its entirety the information set forth herein and which should be read carefully prior to any investment in the Fund (together with the Partnership Agreement and the Subscription Agreement) for a description of the merits and risks of such an investment. An investment in the Fund will entail a high degree of risk and no assurance can be given that the Fund’s investment objective will be achieved. Interests issued by the Fund are not registered under the Securities Act of 1933 or the securities laws of any US state or otherwise with any US regulatory authority. Nothing set forth in this Presentation is or shall be deemed to be investment advice or the offer of investment advice to any recipient hereof.

The information in this Presentation is only as current as the date indicated, and may be superseded by subsequent market events or for other reasons. Nothing contained herein constitutes investment, legal, tax, regulatory, accounting or other advice of any kind nor is it to be relied on in making an investment or other decision. This Presentation should not be viewed as a current or past recommendation or a solicitation of an offer to buy or sell any securities or to adopt any investment strategy. This Presentation is not a contractually binding document or an information document required by any legislative provision, and is not sufficient to take an investment decision. The Interests shall not be offered or sold in any jurisdiction in which such offer, solicitation or sale would be unlawful until the requirements of the laws of such jurisdiction have been satisfied.

Please be advised that the selected examples and case studies presented in this Presentation are provided for illustrative purposes only and are intended to provide insight into the investment strategies of the Fund and are not representative of all investments that were made or will be made by REPA I, REPA II and REPA III and it should not be assumed that the Fund will make comparable investments. The actual investment portfolio of the Fund may differ materially in terms of diversity, concentration and asset-type, among other factors, from the types of investments provided in this Presentation. In considering any such investment or other performance information contained herein, prospective investors in the Fund should bear in mind that past performance is not necessarily indicative of future results, and there can be no assurance that the Fund will achieve comparable results or that there will be any return of capital. Actual results of the Fund are dependent on many factors. Notwithstanding the investment objectives of the Fund, it shall not be assumed that investments to be made in the future will be profitable or will equal the performance of any prior investments. Please also note that we do not expect the Fund to participate in the investments of REPA I, REPA II or REPA III. An investment in the Fund will involve significant risks, including the risk that an investor may lose its entire investment and the lack of liquidity inherent in such an investment.

Private funds, such as the Fund, are speculative investments and are not suitable for all investors, nor do they represent a complete investment program. The Fund is available only to qualified investors who are comfortable with the substantial risks associated with investing in private funds. An investment in a private fund, such as the Fund, includes the risks inherent in an investment in securities, as well as specific risks associated with investing in illiquid investments, private companies, companies with little or no operating history, and highly leveraged companies. There can be no assurance that an investment strategy will be successful.

The information in this Presentation is only as current as the date indicated, and may be superseded by subsequent market events or for other reasons. Nothing contained herein constitutes investment, legal, tax or other advice nor is it to be relied on in making an investment or other decision. The information contained herein, including the indicative terms of the investment strategy as defined herein, is not final and may be subject to change in one or more respects.

Investors in a private fund, such as the Fund, may have no right to or a limited right to redeem or transfer their interests in a private fund. No Interests will be listed on an exchange and it is not expected that there will be a secondary market for any Interests. Because of the nature of the trading activities, the results of a Fund’s operations may be volatile from month to month and period to period. An investor could lose all or a substantial portion of his/her/its investment. The Fund’s manager or advisors have total investment authority over the Fund and may be subject to various conflicts of interest. No secondary public market for the sale of Interests exists, nor is one likely to develop. The ability to transfer Interests is limited and subject to certain restrictions and conditions under the Fund Documents. The Fund may be subject to substantial charges for management, advisory and brokerage fees. It may be necessary for those pools that are subject to these charges to make substantial trading profits to avoid depletion or exhaustion of their assets. The Fund is expected to engage in trading on non-U.S. exchanges and markets. The value of the Fund’s assets may be determined by its administrator in consultation with its manager or advisor, or based on information from the manager of the Fund, and may include valuations for unrealized investments.

Important Information (continued)

The information in this Presentation may contain projections or other forward-looking statements regarding future events, targets or expectations regarding the Fund or the strategies described herein, and is only current as of the date indicated. There is no assurance that such events or targets will be achieved, and may be significantly different from that shown here. The information in this Presentation, including statements concerning financial market trends, is based on current market conditions, which will fluctuate and may be superseded by subsequent market events or for other reasons. Past performance is not necessarily indicative of future results and there can be no assurance that the Fund will achieve comparable results or that investors in the Fund will not lose any of their invested capital. Historic market trends are not reliable indicators of actual future market behavior or future performance of any particular investment, which could differ materially, and should not be relied upon as such. Opinions or statements regarding financial market trends are based on current market conditions and are subject to change without notice.

Certain hypothetical data and estimates presented herein are based upon assumptions made by KKR professionals. No representation or warranty is made as to the reasonableness of the assumptions made or that all assumptions used have been stated or fully considered. Actual performance may differ substantially from the forecasted performance presented. Changes in the assumptions may have a material impact on the forecasted performance presented. The data presented represents the assumptions and estimates of the KKR Real Estate investment team and is believed by KKR to be reliable; however, KKR does not guarantee or give any warranty as to the accuracy, adequacy, timeliness or completeness of such assumptions. Nothing contained herein may be relied upon as a guarantee, promise or forecast or a representation as to the future.

KKR Credit currently conducts its activities through the following advisory entities: KKR Credit Advisors (US) LLC, which is authorized and regulated by the SEC, KKR Credit Advisors (Ireland) Unlimited Company, which is authorized and regulated by the Central Bank of Ireland, and KKR Credit Advisors (EMEA) LLP, which is authorized and regulated by the Financial Conduct Authority.

Employees of KKR Credit Advisors (US) LLC, and KKR Capital Markets LLC located in the United States are dual employees of Kohlberg Kravis Roberts & Co. L.P.

References to "assets under management" or "AUM" represent the assets under management that are reported by KKR & Co. Inc. (NYSE: KKR) as a public company. This definition of AUM includes assets managed or advised by KKR from which KKR is entitled to receive a fee or carried interest from fund investors and other investment vehicles, capital committed by KKR as a general partner to its funds, and a pro rata portion of the AUM of certain third-party managers based on KKR's ownership percentage in them. KKR's definition of AUM is not based on any definition of AUM that may be set forth in the agreements governing the investment funds, vehicles or accounts that KKR manages or calculated pursuant to any regulatory definitions.

References to "KKR Capstone" or "Capstone" are to all or any of KKR Capstone Americas LLC, KKR Capstone EMEA LLP, KKR Capstone EMEA (International) LLP, KKR Capstone Asia Limited and their Capstone-branded subsidiaries, which employ operating professionals dedicated to supporting KKR deal teams and portfolio companies. KKR acquired KKR Capstone effective January 1, 2020. References to operating executives, operating experts, or operating consultants are to such employees of KKR Capstone. In this document, views and other statements regarding the impact of initiatives in which KKR Capstone has been involved are based on KKR Capstone's internal analysis and information provided by the applicable portfolio company. Such views and statements are based on estimates regarding the impact of such initiatives that have not been verified by a third party and are not based on any established standards or protocols. They can also reflect the influence of external factors, such as macroeconomic or industry trends, that are unrelated to the initiative presented.

Without limiting the foregoing, prospective investors should note that the investment strategies, processes, procedures and personnel (including the committees, teams and other groups) described in this Presentation are not the performance of the Fund and is not an indication of how the Fund would have performed in the past or will performance in the future and intended solely to illustrate KKR's activities and approach in the past and KKR's expected activities and approach in the future, as applicable. The performance presented reflects the performance of accounts managed by KKR utilizing a strategy substantially similar to that which will be utilized for the Fund. The Fund's performance in the future will be different from the performance shown due to factors including, but not limited to, differences in cash flows, fees, expenses, performance calculation methods, and portfolio sizes and composition. Subject to the express terms of the governing documents of the applicable fund, KKR may or may not elect to continue any or all of the strategies, processes and procedures described in this Presentation, and may employ different or additional strategies, processes, procedures and personnel during some or all of the applicable fund's life and with respect to some or all of the applicable fund's investments and other activities.

General discussions contained within this Presentation regarding the market or market conditions represent the view of either the source cited or KKR. Nothing contained herein is intended to predict the performance of any investment. There can be no assurance that actual outcomes will match the assumptions or that actual returns will match any expected returns. The information contained herein is as of June 30, 2023, unless otherwise indicated, is subject to change, and KKR assumes no obligation to update the information herein. The delivery of this Presentation at any given time shall not give rise to any implication that there has been no change in the facts set forth in this Presentation since that date. Certain of the information contained herein, particularly in respect of market data, economic and other forecasts, and information regarding portfolio entities is from third party sources. While KKR generally considers these sources to be reliable, KKR does not represent that such information is accurate or complete, and KKR has not undertaken any independent review of such information.

Participation of personnel at KKR Private Equity, KKR Infrastructure, KKR Real Energy Assets, KKR Capstone, KKR Credit and KCM in the Fund's investment activities is subject to applicable law and inside information barrier policies and procedures, which may restrict or limit the involvement of such personnel in certain circumstances and the ability of KKR Real Estate to leverage such integration with KKR. Discussions with Senior Advisors, Executive Advisors, Industry Advisors, KKR Advisors and employees of KKR's managed portfolio entities are also subject to inside information barrier policies and procedures, which may restrict or limit discussions and/or collaborations with KKR Real Estate. No fees or remuneration in connection with services provided by KKR Credit and KCM will be shared with the Fund or offset or reduce any management fees payable by the Fund or carried interest distributions (or performance payments) payable to the General Partner or its affiliates in respect of the Fund.

Important Information (continued)

References to “Senior Advisors,” “Executive Advisors,” “Industry Advisors” and “Real Estate Consultants” refer to certain third-party consultants who provide, among other things, additional operational and strategic insights into KKR’s investments. While they are not employees of KKR, Senior Advisors, Executive Advisors, Real Estate Consultants and Industry Advisors could serve on the boards of portfolio entities, assist KKR in evaluating individual investment opportunities, and support the operations of KKR portfolio entities. Fees and expenses of Senior Advisors, Executive Advisors, Real Estate Consultants and Industry Advisors will be allocated to the Fund to the extent such services relate to the Fund’s investment strategy or to investments or potential investments of the Fund, and such fees will not be credited against the Fund’s management fees or carried interest distributions (or performance payments) payable to the General Partner or its affiliates in respect of the Fund. References to “KKR Advisors” are to individuals who were formerly employees of KKR and are engaged as consultants for KKR. KKR Advisors are not affiliates of KKR. Compensation of KKR Advisors will not be borne by the Fund, however, KKR Advisors could serve on the boards of portfolio entities and any fees paid to KKR Advisors by portfolio entities will not be credited against any other fees paid or payable by limited partners in the Fund.

On April 28, 2022 (the “KJRM Acquisition Date”), KKR acquired Mitsubishi Corp.-UBS Realty (“Mitsubishi Realty”), a Japanese real estate asset manager that now operates under the name KJR Management (“KJRM”). Prior to the KJRM Acquisition Date, KJRM formed and managed certain Japanese real estate investment trusts (the “KJRM J-REITS”) independently from KKR, and, following the KJRM Acquisition Date, the KJRM J-REITs are expected to be managed on a day-to-day basis by the KJRM investment team (the “KJRM Team”). For the avoidance of doubt, unless the context requires otherwise, references herein (if any) to the investment management and other activities of the KJRM Team prior to the KJRM Acquisition Date refer to the activities of the KJRM Team during its tenure at Mitsubishi Realty. Prospective investors should bear in mind that, to a significant degree, the experiences of the members of the KJRM Team reflect their prior experiences at Mitsubishi Realty and not KKR.

The Fund’s performance in the future will be different from the performance shown due to factors including, but not limited to, differences in cash flows, fees, expenses, performance calculation methods, and portfolio sizes and composition.

The target returns presented herein are hypothetical in nature and are shown for illustrative, informational purposes only. Such targeted returns are not intended to forecast or predict future events, but rather to indicate the returns that KKR’s real estate team (“KKR Real Estate” or the “Real Estate Team”) expects to seek to achieve on the Fund’s overall portfolio of investments. In addition, such target returns do not reflect the actual or expected returns of any portfolio strategy. Such target returns are based on KKR Real Estate’s belief about the returns that are achievable on investments that the Fund intends to pursue in light of the experience of KKR and KKR Real Estate with similar investments historically (in particular, investments of REPA I, REPA II and REPA III), their view of current market conditions in the Fund’s target jurisdictions, potential investment opportunities that KKR Real Estate is currently or has recently reviewed, projected cash flows and future valuations of target assets, availability of financing and certain assumptions about investing conditions (including interest rates and currency markets) and market fluctuation or recovery, anticipated contingencies and regulatory issues. Any targeted returns on specific investments are based on models, estimates and assumptions about performance believed to be reasonable under the circumstances. There is no guarantee that the facts on which such assumptions are based will materialize as anticipated, that market conditions will not deteriorate or that investment opportunities satisfying the Fund’s targeted returns will be available. Any changes in such assumptions, market conditions or availability of investments could have a material impact on the target returns presented. Actual events and conditions often will differ materially from those used to establish target returns. Any target return is hypothetical and is not a guarantee or prediction of future performance. There can be no assurance that investors will receive a return of capital or that the Fund will achieve its overall target return. Target gross and net returns for individual investments could be greater or less than the Fund’s overall target gross or net returns. Individual investments could be acquired that have an anticipated internal rate of return below or above the Fund’s overall targeted returns. Prospective investors should note that any targeted gross returns do not account for the effects of inflation and do not reflect the management fees, carried interest, taxes, borrowing and transaction costs and other expenses that will be borne by investors in the Fund, which will reduce returns and, in the aggregate, are expected to be substantial. Targeted returns are subject to significant economic, market and other uncertainties that can adversely affect the performance of any investments. Targeted returns might change over time and could go down as well as up. The timing of the realization of an asset (which could be required, for example, at the end of the life of the Fund) will materially impact the returns generated by such investment. Prospective investors are encouraged to contact representatives of KKR to discuss the procedures and methodologies (including assumptions) used to calculate targeted returns.

In establishing targeted returns for the Fund, KKR constructed a hypothetical investment portfolio comprised of certain of its base case assumptions about the structure and expected performance of the Fund’s investments based on KKR’s and its professionals’ experience with similar investments historically, as well as their experience relating to generally accepted market returns for opportunistic real estate equity returns in the U.S. Material assumptions used in establishing the hypothetical investment portfolio include, without limitation, that (i) the Fund will make investments of equal size with uniform deployment over a three- to four-year investment period, (ii) investments will have holding periods ranging from three to five years (with simplifying assumptions as to the ultimate realization of such investments at a gross IRR that KKR would expect to generate the desired target return over the life of the investment). In addition, although subject to unique circumstances that could make the following ranges not applicable (such as development opportunities), in opportunistic real estate equity investments in the U.S., the following additional assumptions would typically apply: (a) in respect of generating the target gross IRR, (i) average acquisition cap rate of approximately 3% - 7%, (ii) average disposition cap rate of approximately 4% - 8%, (iii) average Aggregate Investment Leverage Ratio (as defined in the Memorandum) of approximately 60% - 70% and an assumed annual borrowing rate of approximately 2.5% - 6.5%, and (iv) estimated annualized ongoing fund expenses consistent with the historical average annualized expense levels for the REPA Funds (which KKR considers to be de minimis and may not reflect the expenses ultimately borne by the Fund) and (b) additionally, in respect of generating the target net IRR, (i) Management Fees (as defined in the Memorandum) charged at a rate equal to the rate applied to Limited Partners with capital commitments of less than $100 million (exclusive of any fee discounts discussed in the Memorandum), (ii) carried interest distributed to the General Partner (based on the investment assumptions set forth above) in accordance with the distribution priorities set forth in the Memorandum and the Partnership Agreement and (iii) organizational expenses of $6 million.

Important Information (continued)

References to “Gross IRR” and “Gross MOIC” represent the aggregate, compound, annual internal rate of return or multiple of invested capital, respectively, calculated on the basis of cash flows to and from all partners, but disregarding the payment by limited partners (or, in the case of unrealized investments, accrual) of carried interest, management fees and organizational expenses payable by limited partners (whether actually paid or, including in respect of carried interest on unrealized investments, accrued), which will reduce returns and, in the aggregate, are expected to be substantial. With respect to individual investments, “NA” is used to reflect investments that were either too recently acquired to be meaningful or negative (in which case any such loss in value is reflected in the aggregate net and gross performance of the applicable fund as related cash flows have been included in the calculation of fund level Gross IRRs). Calculations of Gross IRR at the investment level use the date of the investment itself, without regard to whether the investment was initially funded by investor capital contributions or by an external subscription credit facility that was later repaid with investor capital contributions. The Gross IRR for any investment within one year of its closing has not been annualized. Calculations of Gross IRR at the fund level use the date of contribution by fund investors to the fund for the relevant investment (i.e., the due date for the relevant capital call notice). Generally, with respect to funds that borrow on a temporary basis prior to calling capital, if calculations of Gross IRR at the fund level used the dates of each investment rather than the dates of each contribution by fund investors, then the Gross IRR would be lower since internal rate of return calculations are time-weighted and the relevant calculations would incorporate longer periods of time during which capital is deployed. As of June 30, 2023, the fund level Gross IRR for REPA I calculated in this manner would be 15.6% (instead of 16.1%), the fund level Gross IRR for REPA II calculated in this manner would be 26.9% (instead of 26.9%) and the fund level Gross IRR for REPA III calculated in this manner would be -0.8% (instead of -0.8%). The calculations of Gross IRR at the fund level use the date of distribution from the fund to investors (i.e., the date the fund wires cash to investors or such cash is deemed distributed). For REPA I, calculations of Gross IRR at the investment level use the date indicated on the relevant distribution notice as the date on which funds are wired to the investor’s account by KKR. For REPA II and REPA III, the applicable “end” date in respect of an investment is the date the wire hits the fund’s bank account. In calculating Gross MOIC, KKR uses figures for the cost and total value of investments that have been rounded to the nearest $100,000.

References to “Net IRR” at the fund level in the “Total Net Performance” line are to the aggregate, compound, annualized (except as noted below) internal rate of return calculated on the basis of cash flows to and from the limited partners only, including the payment by limited partners of applicable carried interest (whether actually paid or, for unrealized investments, accrued), management fees and organizational expenses payable by limited partners (whether actually paid or, including in respect of carried interest on unrealized investments, accrued). Calculations of Net IRR at the fund level use the date of contribution by fund investors to the fund for the relevant investment (i.e., the due date for the capital call notice) and use the date of distribution from the fund to investors (i.e., the date the fund wires cash to investors). Generally, with respect to funds that borrow on a temporary basis prior to calling capital, if calculations of Net IRR at the fund level used the dates of each investment rather than the dates of each contribution by fund investors, then the Net IRR would be lower since internal rate of return calculations are time-weighted and the relevant calculations would incorporate longer periods of time during which capital is deployed. As of June 30, 2023, the fund level Net IRR for REPA I calculated in this manner would be 11.0% (instead of 11.3%), the fund level Net IRR for REPA II calculated in this manner would be 22.2% (instead of 22.2%) and the fund level Net IRR for REPA III calculated in this manner would be -3.7% (instead of -3.7%).

References to “Net MOIC” at the fund level in the “Total Net Performance” line are to the multiple of invested capital calculated on the basis of cash flows to and from the limited partners only, including the payment by limited partners of applicable carried interest (whether actually paid or, for unrealized investments, accrued), management fees and organizational expenses.

As carried interest, management fees and organizational expenses are borne at the fund level on a blended basis across all investments, it is not practicable to calculate the Net IRR and Net MOIC for an individual investment based on the cash flows related solely to such investment. Accordingly, (i) the Net IRR for each investment has been calculated by determining the basis point differential between the fund level Gross IRR and Net IRR for the relevant fund that made such investment and applying such basis point differential as a reduction to the Gross IRR for such investment and (ii) the Net MOIC for each investment has been calculated by determining the percentage that the fund level Net MOIC for the relevant fund that made such investment represents of the fund level Gross MOIC for such fund, and reducing the Gross MOIC for such investment by such percentage differential. As a result, the Net IRR and Net MOIC for each investment is hypothetical in nature and may not reflect the actual carried interest paid out of investment proceeds generated by such investment or the actual management fees payable in respect of such investment.

Where investment level Net IRRs and/or Net MOICs are presented on a standalone basis in the Presentation (i.e., independent from a track record for a given KKR fund) and one or more KKR funds participated in such investment, the Net IRR and/or Net MOIC for such investment has been determined by reference to (i) the Gross IRR and Net IRR spread differential and/or (ii) the Gross MOIC and Net MOIC percentage differentials for the most recently established flagship KKR fund that participated in such investment and, if applicable, that has an investment strategy that is closest to that pursued by the Fund.

Investors should note that the carried interest, management fee and organizational expense terms of the Fund may differ from those of any of the funds presented and, depending on the circumstances, may be higher (resulting in reduced net returns). Expenses (both investment-specific expenses and general fund expenses) are taken into account in the calculations of Gross IRR and Gross MOIC at the fund level given the impact that expenses have on Equity Cost Basis, Realized Value and Unrealized Value. Since these expenses are factored into gross returns, they do not impact the difference between gross and net returns at the fund level. Investors should note that the fund expense terms of the Fund could differ from those of the funds presented and, depending on the circumstances, could be higher (resulting in reduced returns). Certain recently established KKR funds, including REPA II and REPA III, require a return of all organizational expenses and management fees that have been contributed to date prior to paying any carried interest to the relevant general partner. As a result, in these more recent funds, a disproportionate amount of investment proceeds will be returned to limited partners earlier in the life of these funds. Consequently, the Net IRRs and Net MOICs for these funds will appear higher in the early years of their lives than if only an allocable portion of organizational expenses and management fees were returned prior to paying carried interest to the relevant general partner.

The carried interest and management fee rates are not consistent for all limited partners in each of the funds. Certain limited partners are subject to lower rates of carried interest and management fees than other limited partners in the same fund, depending on the size of the capital commitment of the relevant limited partner and/or the date such limited partner was admitted to the relevant fund. The Net IRR and Net MOIC presented at the fund level and investment level is calculated on the basis of cash flows to all limited partners in the relevant fund, and, as a result, does not reflect the “Net IRR” or “Net MOIC” for any individual limited partner. The fund and investment level Net IRR and Net MOIC for any individual limited partner would be higher or lower based on the carried interest and management fee rates applicable to such limited partner. Prospective investors should also note that the management fee, carried interest, and expense terms of REPA I, REPA II and REPA III differ from those of the Fund, and could be higher, depending on the circumstances (resulting in reduced returns for investors). In addition, returns are not net of taxes borne or to be borne by investors (including withholding taxes).

Important Information (continued)

As of June 30, 2023, the fund level Net IRR and Net MOIC of the limited partners that bear or bore carried interest and management fees at the highest applicable rates for each of REPA I, REPA II and REPA III are as follows: the fund level Net IRR and Net MOIC for REPA I calculated in this manner would be 10.4% (instead of 11.3%) and 1.3x (instead of 1.3x), respectively, the fund level Net IRR and Net MOIC for REPA II calculated in this manner would be 19.5% (instead of 22.2%) and 1.4x (instead of 1.5x), respectively, and the fund level Net IRR and Net MOIC for REPA III calculated in this manner would be -5.3% (instead of -3.7%) and 0.9x (instead of 1.0x), respectively.

Net IRRs and Net MOICs do not include the investment by the general partner of the relevant fund, which does not pay or otherwise bear management fees or carried interest (although “Equity Cost Basis,” “Unrealized Value” and “Realized Value” figures, at both the fund and investment level, include the amount invested by the general partner of the relevant fund, gross of any carried interest distributions). Net IRRs and Net MOICs do however include the investment by (i) affiliates of the general partner and proprietary limited partners, including affiliates funded in part through financing provided by one or more third parties and (ii) strategic partnerships and other limited partners that are party to multi-fund contractual relationships, such as those further described in the Memorandum. These investors often pay reduced and/or no management fees and carried interest at the fund level, and typically pay management fees and/or carried interest at the level of the relevant investor (i.e., “above” the fund). These “above the fund” fees and carry are not taken into account in calculating Net IRRs and Net MOICs of the relevant fund as they are not cash flows of the relevant fund. Inclusion of just the fund-level cash flows of these investors (which, with respect to more recent funds, comprise a significant proportion of the relevant fund) in the calculation of Net IRRs and Net MOICs has the general effect of increasing Net IRRs and Net MOICs since these metrics present average returns for all limited partners. Since Net IRRs and Net MOICs are average returns for all limited partners, they do not necessarily reflect the actual return of any particular investor.

Composite performance information regarding previous KKR investments described herein represents performance data from multiple investments across multiple funds. These investments were made during different economic cycles and any such performance reflects neither a specific fund nor a group of investments managed as a single portfolio. Such returns are provided for illustrative purposes only and no individual investor has received the investment performance indicated by such composite performance information. It should not be assumed that investments made in the future will be comparable in quality or performance to the investments described herein. No representation or warranty is made as to the reasonableness of the assumptions made in preparing the composite performance information described herein or that all assumptions used in achieving the returns have been stated or fully considered. Changes in the assumptions may have a material impact on the composite returns presented.

Prospective investors are encouraged to contact KKR representatives to discuss the procedures and methodologies used to calculate the investment returns and other information provided herein.

General expressions in this Presentation as to the “leading” (or similar) market status, position or reputation of a portfolio entity (or division thereof), operating partner or other entity represent the assessment or opinion only of KKR. Prospective investors should not rely on such expressions as statements of fact.

While KKR Real Estate determinations regarding the performance of unrealized investments and the unrealized portion of partially realized investments are based on assumptions that KKR Real Estate believes are reasonable under the circumstances, the actual realized returns on a fund’s unrealized investments will depend on, among other factors, future operating results, the value of the assets and market conditions at the time of disposition, any related transaction costs and the timing and manner of sale, all of which may differ from the assumptions on which the valuations used in the prior performance data contained herein are based. Accordingly, the actual realized return of these unrealized investments may differ materially from the returns indicated herein.

The information in this Presentation may be superseded by subsequent market events or for other reasons. To the best of KKR’s knowledge and belief this document is true and accurate at the date hereof. Nothing contained herein constitutes investment, legal, tax or other advice nor is it to be relied on in making an investment or other decision. This Presentation should not be viewed as a current or past recommendation or a solicitation of an offer to buy or sell any securities or to adopt any investment strategy.

Important Information – Risk Disclosures

As a global investment management firm, KKR sponsors and advises, and expects, in the future, to sponsor and advise, a broad range of investment funds, vehicles, and other accounts that make investments worldwide. KKR also makes investments for its own account, including, for example, through investment and co-investment vehicles established for KKR personnel, Senior Advisors, Executive Advisors, Industry Advisors, KKR Capstone and certain other associated persons of KKR, KKR Credit or any KKR affiliates. In addition, KKR and/or its affiliates may establish proprietary investment accounts invested directly or through various proprietary investment vehicles, including, without limitation, accounts through which it invests primarily for its own investment purposes and proprietary accounts established primarily for the purposes of developing, evaluating and testing potential investment strategies or products. Actual, potential or apparent conflicts of interest may arise as a result of the relationships between KKR and its affiliates and its investment funds and accounts, including KKR's proprietary accounts. Certain KKR investment vehicles and KKR accounts currently do and will in the future invest in securities, properties, and other assets in which KKR funds may invest and/or in other securities or interests issued by an issuer in which KKR funds may invest or otherwise do or may in the future have investment objectives, programs, strategies and positions that are similar to, or may conflict with or otherwise deviate from, those of KKR funds and may compete with, and have interests adverse to, the KKR funds. Investment committee members and other KKR professionals who participate in investment decisions made on behalf of the KKR funds and other KKR investment vehicles may be involved in the investment activities of KKR Accounts.

A summary of certain risks that may be relevant to the Fund are set out below. The Memorandum will contain a more detailed description of these risks and information on additional risks that are not referred to herein.

The information in this Presentation may contain projections or other forward-looking statements regarding future events, targets or expectations regarding the Fund, or the strategies described herein, and is only current as of the date indicated. There is no assurance that such events or targets will be achieved or targets will be achieved, and may be significantly different from that shown here. The information in this Presentation, including statements concerning financial market trends, is based on current market conditions, which will fluctuate and may be superseded by subsequent market events or for other reasons.

Certain information contained in this Presentation constitutes "forward-looking statements," which can be identified by the use of forward-looking terminology such as "may," "will," "should," "seek," "expect," "anticipate," "project," "estimate," "intend," "continue," "target," "plan," "believe," the negatives thereof, other variations thereon or comparable terminology. Due to various risks and uncertainties, actual events or results or the actual performance of any KKR investment fund or account may differ materially and adversely from those reflected or contemplated in such forward-looking statements. Certain information contained herein relating to KKR's private credit strategy targets, intentions, or expectations, including with respect to the structure and terms of investments and the size and type of individual investments (as applicable) is subject to change, and no assurance can be given that such targets, intentions or expectations will be met.

No assumption should be made that any investor will have an investment experience similar to that of any previous or existing investor or that any investor will achieve returns comparable to those shown. Further, individual investments presented herein may not be included in any future fund sponsored by KKR. High short-term returns for any period may be and likely were attributable to favorable market conditions during that period, which may not be repeated. Differences in fund size, timing of transactions and market conditions prevailing at the time of investment may lead to different results. Differences in the methodology used to calculate performance might also lead to difference performance results than those shown. KKR believes, however, that the performance shown is reasonable representative of its management style and is sufficiently relevant for consideration.

Investment in the Fund will involve potential conflicts of interest and a high degree of risk (including the possible loss of a substantial part, or even the entire amount, of such investment) due to, among other things, the nature of the Fund's investments and investment strategy, which Recipients should carefully consider before investing in the Interests. The following is a summary of only certain risks and potential conflicts of interest associated with an investment in the Fund and is qualified in its entirety by the more detailed considerations the "Risk Factors, Potential Conflicts of Interest, Certain Tax and Regulatory Considerations" of the Memorandum, which must be reviewed carefully prior to making an investment in the Fund:

Potential loss of investment – No guarantee or representation is made that the investment program used by KKR will be successful. The Fund represents a speculative investment and involves a high degree of risk. An investment in the Fund should be discretionary capital set aside strictly for speculative purposes. Investors must have the financial ability, sophistication/experience and willingness to bear the risks of an investment in the Fund. An investment in the Fund is not suitable for all investors. An investor could lose or a substantial portion of his/her/its investment. Only qualified eligible investors may invest in the Fund. Because of the nature of the trading activities, the results of the Fund's operations may be volatile from month to month and from period to period. Accordingly, investors should understand that past performance is not indicative of future results. Private funds typically represent that their returns have a low correlation to the major market indices. Investors should be aware that private equity funds may incur losses both when major indices are rising and falling.

Use of leverage – The Fund may utilize leverage and may also invest in forward contracts, options, swaps and over-the-counter derivative instruments, among others. Like other leveraged investments, trading in these securities may result in losses in excess of the amount invested.

Regulatory risk – The Fund is not registered under the Investment Company Act of 1940, as amended (the "1940 Act"). As a result, investors will not receive the protections of the 1940 Act afforded to investors in registered investment companies (i.e., "mutual funds"). The Fund's offering documents are not reviewed, recommended or approved by federal or state regulators and its privately placed interests are not federally or state registered. In addition, the Fund may engage in trading on non-U.S. exchanges and markets. These markets and exchanges may exercise less regulatory oversight and supervision over transactions and participants in transactions.

Valuations – The net asset value of the Fund may be determined by its administrator in consultation with its manager or advisor. Most portfolio assets are expected to be illiquid and without a readily ascertainable market value and accuracy of valuations of other managers may be difficult to verify. Since the value assigned to portfolio assets 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 assets may differ substantially from the value the Fund is able to realize. Instances of mispriced portfolios, due to fraud or negligence, have occurred in the industry.

Important Information – Risk Disclosures (continued)

Illiquid and long-term investment – An investment in the Fund will be illiquid requiring a long-term commitment, with no certainty of return. Interests may not be transferred without prior consent. There will be no liquid market for the Interests. Investors may not withdraw capital. Although certain investments by the Fund may generate current income, the return of capital and the realization of gains, if any, from an investment generally will occur only upon the partial or complete disposition of such investment, as to which there can be no certainty. Investors must be prepared to bear the risks of owning the investment for an extended period of time.

Fees, expenses and carried interest – Management fees and carried interest terms of the Fund will reduce any profits generated by its investments and may create an incentive for KKR to make investments that are riskier or more speculative than would be the case if such compensation arrangements were not in effect. Funds may be subject to substantial charges for management, advisory and brokerage fees. It may be necessary for those pools that are subject to these charges to make substantial trading profits to avoid depletion or exhaustion of their assets. Please refer to the Memorandum for a more complete description of risks and a comprehensive description of the fees and expenses to be charged the Fund.

Limited operating history – The Fund may have little or no operating history or performance and may use performance which may not reflect actual performance of the Fund and should be reviewed carefully. Investors should not place undue reliance on hypothetical, pro forma or predecessor performance. The Fund's actual performance may differ substantially and may be volatile.

Availability of suitable investments; limited number of investments; track record; geographical or sector concentration – The Fund has not yet commenced operations and therefore has no operating history upon which prospective investors may evaluate its performance. There can be no assurance that the Fund will be able to locate and complete suitable investments, or that such investments will be successful. The Fund may make a limited number of investments and, as a consequence, the aggregate return of the Fund may be adversely affected by the unfavorable performance of even a single investment. Its diversification by geographical region or infrastructure sector may be limited which may adversely affect the performance of the Fund if these regions or sectors experience an economic slowdown.

Reliance on key persons – The Fund's manager or advisor has total investment authority over the Fund and may be subject to various conflicts of interest. The success of the Fund will depend, in large part, upon the skill and expertise of certain KKR professionals. In the event of the death, disability or departure of any of the key KKR professionals, the business and the performance of the Fund may be adversely affected.

Counterparty and bankruptcy risk– Although KKR will attempt to limit its transactions to counterparties which are established, well-capitalized and creditworthy, the Fund will be subject to the risk of the inability of counterparties to perform with respect to transactions, whether due to insolvency, bankruptcy or other causes, which could subject the Fund to substantial losses.

Limited liquidity – An Investor's ability to transfer Interests will be limited and subject to certain restrictions and conditions under the applicable Partnership Agreement. No secondary public market for the sale of the Interests exists, nor is one likely to develop. In addition, the Interests will not be freely transferable.

Market and economic risks – The Fund and its portfolio entities may be materially affected by market, economic and political conditions globally and in the jurisdictions and sectors in which they invest or operate, including factors affecting interest rates, the availability of credit, currency exchange rates and trade barriers. These factors are outside the AIFM's and the General Partner's control and could adversely affect the liquidity and value of the Fund's investments and may reduce the ability of the Fund to make attractive new investments.

Tax risks – Investors in private equity funds such as the Fund are subject to pass-through tax treatment of their investment. Since profits could be reinvested in the Fund rather than distributed to investors, investors may incur tax liabilities during a year in which they have not received a distribution of any cash from the Fund. In addition, it is likely that the Fund will not prepare Schedule K-1s in time for investors to file their returns without requesting an extension of time to file.

Volatile markets – Market prices are difficult to predict and are influenced by many factors, including: changes in interest rates, weather conditions, government intervention and changes in national and international political and economic events. The price of equity securities fluctuates based on changes in a company's financial condition and overall market and economic conditions. Please refer to the Memorandum for a more comprehensive description of volatility factors.

Limitations of related performance — The performance shown herein is not an indication of how a fund would have performed in the past or will perform in the future. Each fund's performance in the future will be different from the performance shown due to factors including, but not limited to, differences in cash flows, fees, expenses, performance calculation methods, and portfolio sizes and composition.

Highly competitive market for investment opportunities – The strategy of the Fund is based, in part, upon the premise that investments will be available for purchase at prices that KKR considers favorable and which are commensurate with the Fund's investment programs. The activity of identifying, completing and realizing attractive investment opportunities is highly competitive and involves a significant degree of uncertainty. The Fund will compete for investment opportunities with other private investment vehicles, as well as the public debt markets, individuals and financial institutions, including investment banks, commercial banks and insurance companies, business development companies, strategic industry acquirers, hedge funds and other institutional investors. It is possible that competition for appropriate investment opportunities may increase and such supply-side competition may adversely affect the terms upon which investments can be made by the Fund. To the extent that current market conditions change or change more quickly than KKR currently anticipates, investment opportunities may cease to be available to the Fund.

Epidemics and other health risks — A pandemic, epidemic or other public health crisis could adversely impact KKR, the Fund, other KKR investment vehicles and their portfolio entities. Many countries have experienced outbreaks of infectious illnesses in recent decades, including swine flu, avian influenza, SARS and COVID-19. COVID-19 has resulted in numerous deaths and the imposition of both local and more widespread "work from home" and other quarantine measures, border closures and other travel restrictions, causing social unrest and commercial disruption on a global scale.

Important Information – Risk Disclosures (continued)

Russian Invasion of Ukraine — On February 24, 2022, Russian troops began a full-scale invasion of Ukraine, representing the largest mobilization since 2014, and, as of the date hereof, the countries remain in active armed conflict. Around the same time, the United States, the United Kingdom, the European Union, and several other nations announced a broad array of new or expanded sanctions, export controls, and other measures against Russia and certain entities and individuals in response to Russia's actions. The ongoing conflict and the rapidly evolving measures in response could be expected to have a negative impact on the economy and business activity globally, and therefore could adversely affect the performance of the Fund's investments. The severity and duration of the conflict and its impact on global economic and market conditions are impossible to predict, and as a result, present material uncertainty and risk with respect to the Fund and the performance of its investments and operations, and the ability of the Fund to achieve its investment objectives. Additionally, to the extent that portfolio entities, related customer bases, service providers, or certain other parties with which the Fund interacts have material operations or assets in Russia, Ukraine, Belarus or the immediately surrounding areas, they may suffer adverse consequences related to the ongoing conflict, which in turn would be expected to adversely affect the Fund and its returns.

The above summary is not a complete list of the risks, tax considerations and other important disclosures involved in investing in the Fund and is subject to the more complete disclosures in the Memorandum, which must be reviewed carefully prior to making an investment in the Fund.

Fidelity Institutional Asset Management

Mandate: Real Estate High Income **Hired:** 2015

Firm Information

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 with over $4.2 trillion in assets under management. The Johnson family owns 49% of the firm; Fidelity employees own the remainder.

Key Executives:
William Maclay, CFA, Portfolio Manager
Matthew Torchia, CFA, Portfolio Manager
Stephen Rosen, Portfolio Manager
Kristin Shofner, Senior Vice President
Melissa Moesman, Senior Account Executive

Investment Approach

Real Estate High Income (REHI): The REHI strategy is a real estate debt strategy that primarily invests in high yield commercial backed securities (CMBS).

The strategy targets inefficiencies in CMBS and real estate capital structures. The strategy is based on fundamental research focused on property valuation, credit analysis, and relative value.

The REHI portfolio is currently in ARMB's Fixed Income Asset Class.

Benchmark: Bloomberg Barclays CMBS ex-AAA Index

Total ARMB Mandate

Assets Under Management ($millions):

6/30/23	$196,751,443

Concerns: Strategy was placed on the watch list December 2021 for underperforming benchmark for trailing 6-year annualized period.

6/30/2023 Performance

	Last Quarter	1-Year	3-Years Annualized	6-Years Annualized	7.75-Years Annualized
Manager Gross	-.01%	-3.80%	3.19%	1.54%	2.14%
Fee	-.19%	-.77%	-.83%	-.81%	-.82%
Manager Net	-.20%	-4.57%	2.36%	.73%	1.32%
CMBS ex-AAA	-1.05%	-4.94%	-1.01%	.89%	1.58%
Bloomberg Aggregate	-.84%	-.94%	-3.96%	.57%	1.00%

Fidelity Real Estate High Income

September 15, 2023

Presentation to:
State of Alaska Retirement Systems

William Maclay, CFA
Portfolio Manager

Matthew Torchia, CFA
Portfolio Manager

Kristin Shofner
SVP, Business Development
561-546-1886
kristin.shofner@fmr.com

Table of Contents

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.

Fidelity Real Estate Debt Team

Team Members	Title	Years of Experience	Years with Fidelity	Education	Selected Prior Professional Experience
Stephen Rosen	Portfolio Manager	33	28	M.B.A., Columbia University	Heller Financial
William Maclay, CFA	Portfolio Manager	24	22	M.S.F., Boston College	Clarion Partners
Matthew Torchia, CFA	Portfolio Manager	16	2	B.A., Dickinson College	Blackstone
Fung Lin	Managing Director of Real Estate Originations	21	–	M.B.A., Cornell University	BlackRock
Marilyn Mawn	Managing Director of Real Estate Originations	26	–	B.S., Cornell University	J.P. Morgan
Janaki Stern	Director of Private Real Estate Debt	11	2	M.A., Harvard University	Santander Bank
Adam Eisenberg	Research Analyst	13	11	M.A., Brandeis University	John Hancock
Justin Lio	Research Analyst	5	4	B.A., Cornell University	MIG Real Estate
William Anderson	Research Analyst	11	–	B.A., Yale University	Goldman Sachs
Steven Silver, CFA	Research Analyst	11	–	B.S., University of Michigan	Eaton Vance/Morgan Stanley
Brian Day, CFA	CMBS Trader	11	11	B.A., Colgate University	Fidelity Investments
David Boyea	CMBS Trader	31	12	B.A., Western Michigan University	Mesirow Financial
Andrew Rubin, CFA	Institutional Portfolio Manager	20	13	M.B.A., Cornell University	Old Mutual Asset Management
James Croom Jr.	Managing Director of Research	29	2	A.B., Harvard University	Eaton Vance/Morgan Stanley

Formed in 1994—group manages $8.0 billion on behalf of institutional and retail investors.

Stable and highly seasoned team—portfolio managers average 24 years of commercial real estate investing experience.

Boutique-like structure with the benefit of Fidelity's vast resources.

Consistent investment approach with a focus on deep credit research and analysis.

As of 6/30/23.

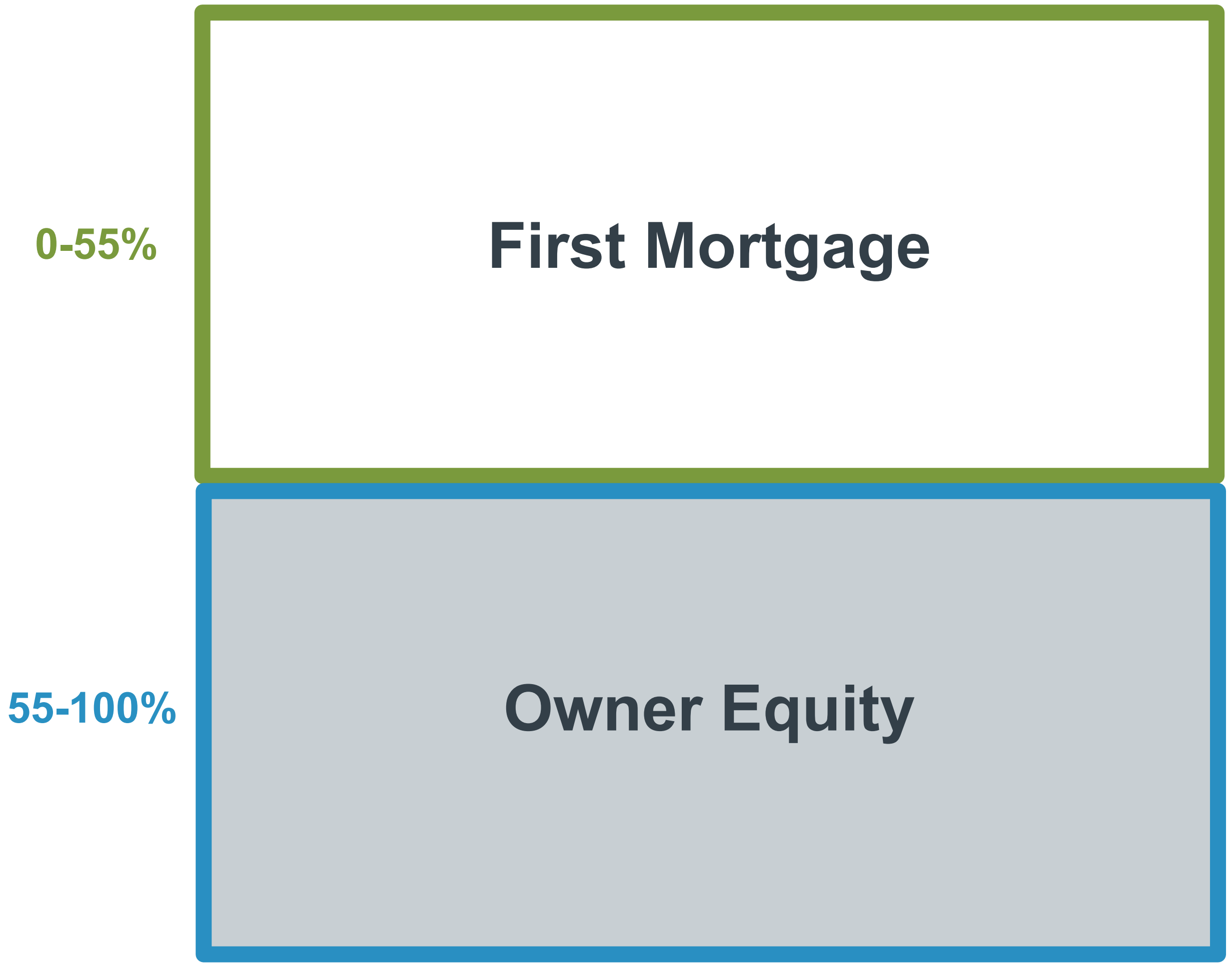
All figures are shown in USD.

For institutional use only.

202308-32149

Commercial Real Estate Property Capitalization

Commercial mortgage-backed securities (CMBS) are comprised of first mortgages

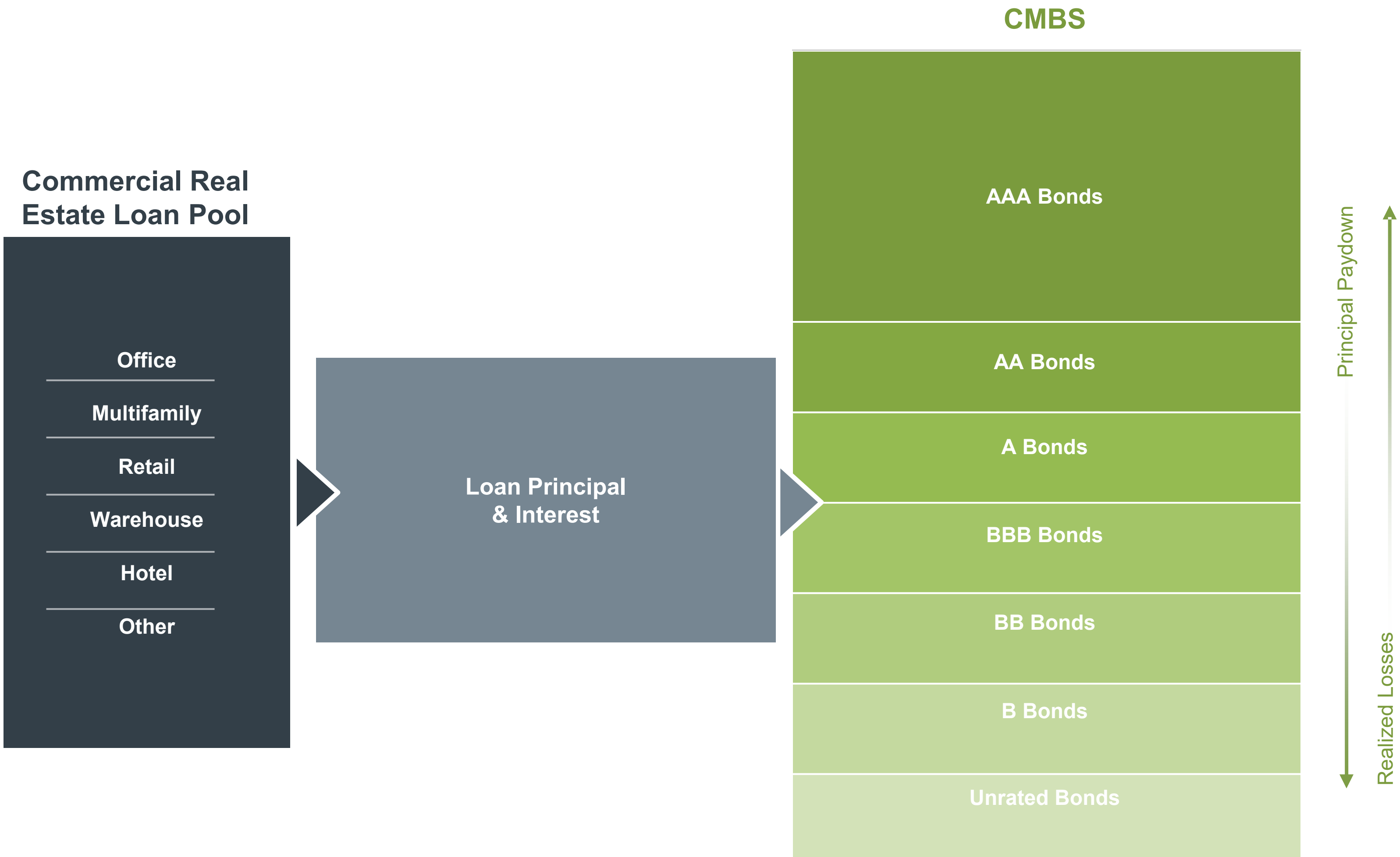


For illustrative purposes only.

For institutional use only.

Commercial Mortgage-Backed Securities

Securitization process



Investment Philosophy

We believe that **inefficiencies** in the commercial mortgage-backed securities market coupled with relative value opportunities that arise across the real estate capital structure can be exploited by an **opportunistic** investment strategy dedicated to **fundamental research** and may lead to strong long-term, **uncorrelated**, risk-adjusted returns.

Investment Process

Investment Choices	Property Valuation	Credit Analysis	Relative Value	Portfolio Construction	
Primary Investment Focus CMBS Other Real Estate Debt Securities	Site Visits Location Quality Tenant Mix Broker Contacts Sales and Rent Comps Capitalization Rates Cash Flow Analysis Supply and Demand	Debt Yield Loan to Value Debt Coverage Credit Support Loan Terms Vintage Year	Credit Risk Total Return Yield	Pricing Duration Diversification	Portfolio

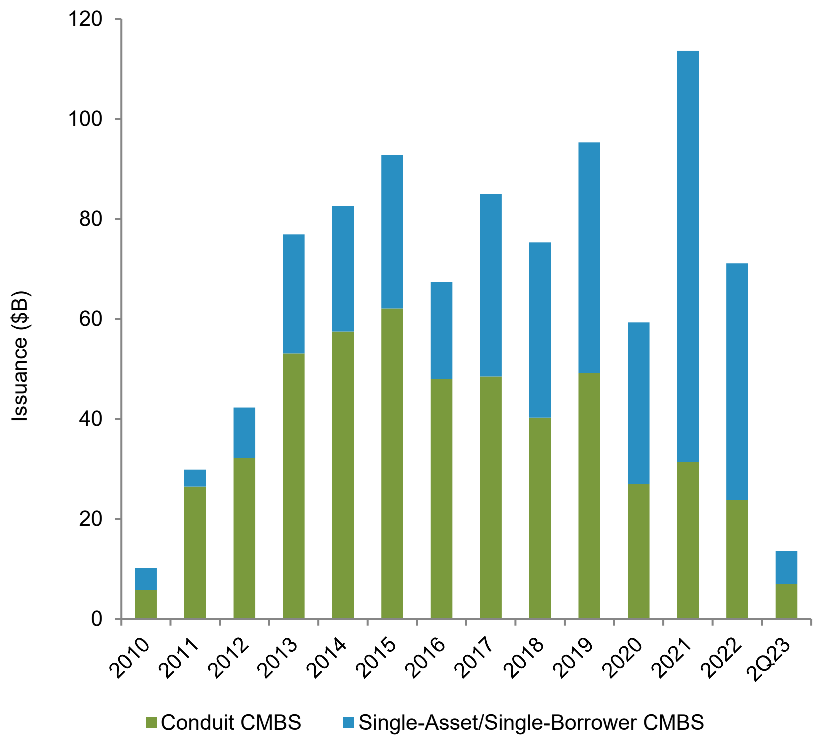
- Fundamental, bottom-up research process that entails loan-by-loan analysis
- Flexibility to move up and down capital structure based on risk/return characteristics and market conditions
- Comprehensive on-site property due diligence
- Consistent investment process applied for more than 25 years

As of 6/30/23.

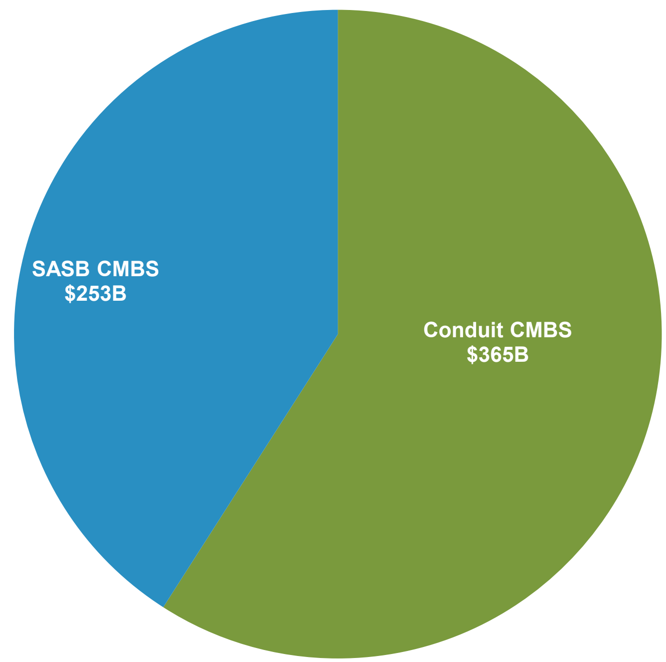
For illustrative purposes only.

CMBS Market Size

CMBS ISSUANCE



CMBS MARKET OUTSTANDING



As of 6/30/23.

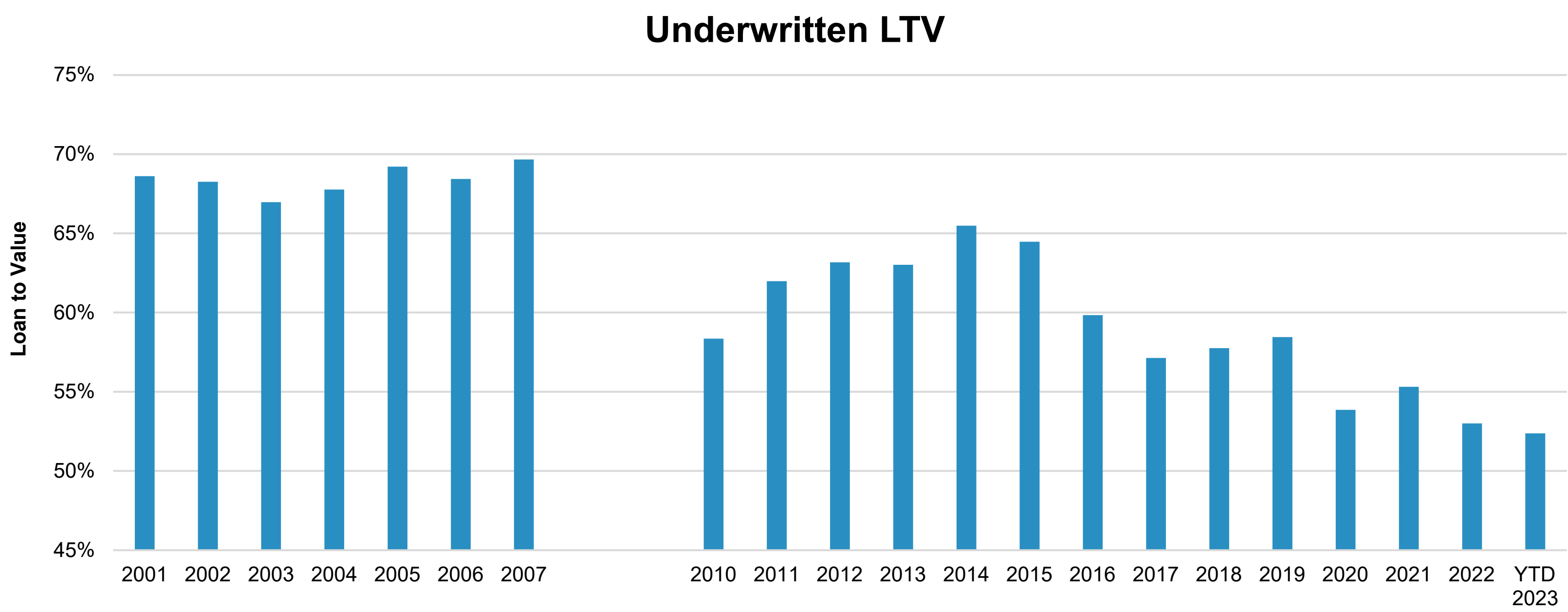
All figures are shown in USD.

Source: Trepp.

 For institutional use only.

202308-32149

Conduit CMBS Underwritten Loan-to-Value (LTV)



As of 6/30/23.

For illustrative purposes only.

Source: Trepp.

For institutional use only.

202308-32149

Three Primary Investment Themes

As of June 30, 2023

	Single-Asset/Single-Borrower (SASB) CMBS	Conduit CMBS	Seasoned Conduit CMBS
Fund Exposure	54% of fund assets | 108 deals | 144 line items	24% of fund assets | 82 deals | 96 line items	14% of fund assets | 27 deals | 51 line items
Average Credit Rating	B+	A	B+
Key Attributes	61% Loan-to-Value (LTV)	Originated since 2014	Originated 2013 and earlier

Client account information is shown.

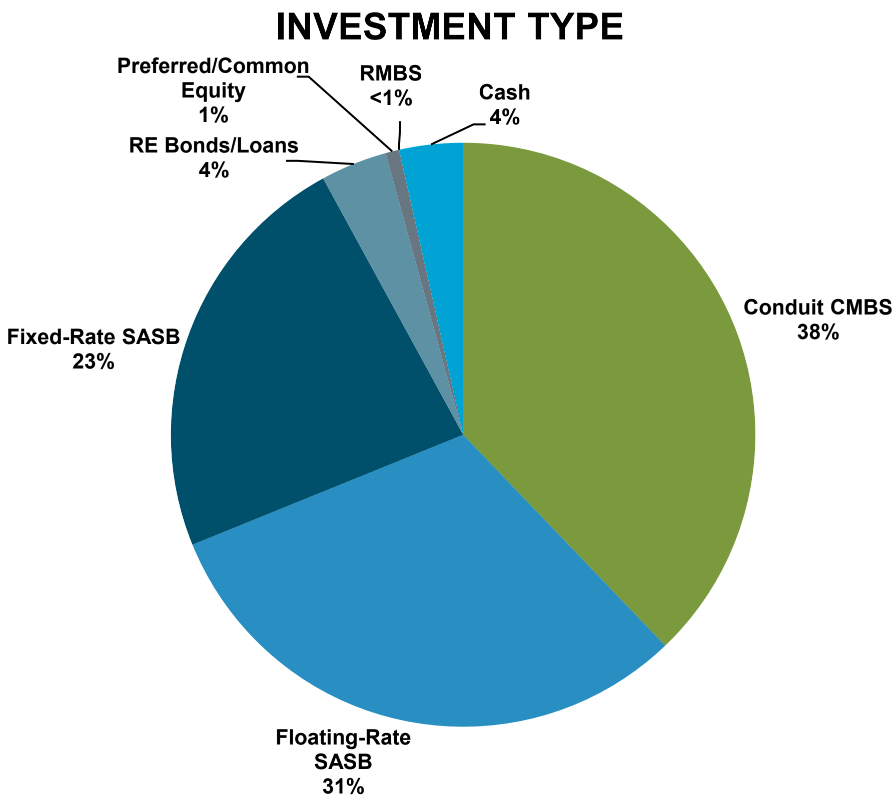
Past performance is no guarantee of future results.

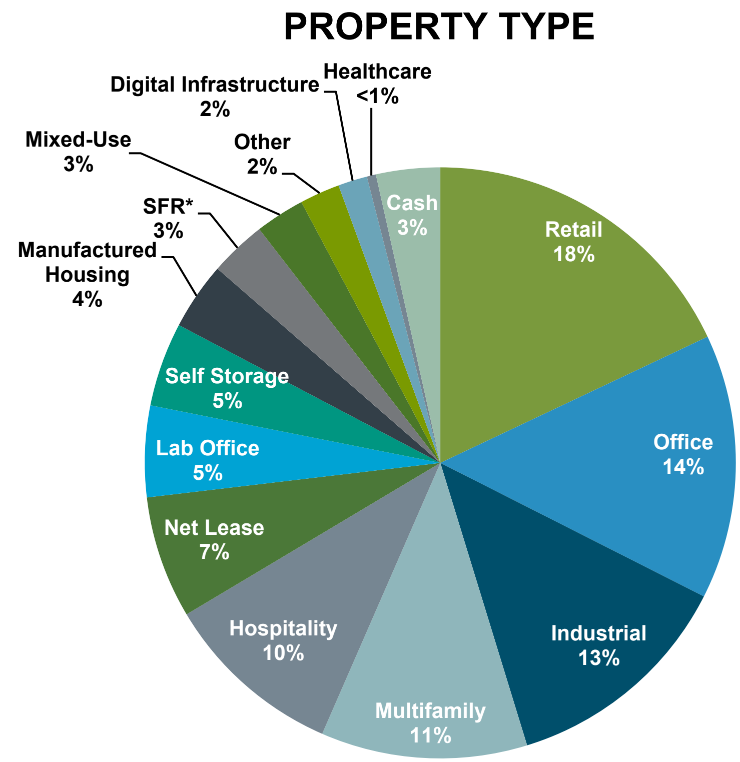
Source: Fidelity.

 For institutional use only.

Portfolio Characteristics

As of June 30, 2023





*Single Family Rental.

Other includes: 0.3% Corporate/Term, 0.8% SASB and 1.1% Conduit.

Client account information is shown.

Differences may amount due to rounding errors. Past performance is no guarantee of future results. Data is unaudited.

Sources: Fidelity, Trepp, FMR LLC.

For institutional use only.

202308-32149

Portfolio Characteristics

As of June 30, 2023

	REHI	Bloomberg CMBS Ex-AAA Index	ICE BofA HY Cash Pay Index*	Bloomberg US Agg Bond Index*
Spread	753	442	401	49
Duration	2.5 years	3.9 years	4.0 years	6.3 years
Yield	11.4%	9.0%	8.5%	4.8%
Average Price	$82.3	$83.5	$88.7	$89.8
Quality	BB	A+	B+	AA+

*The primary benchmark for this strategy is the Bloomberg CMBS ex-AAA Index. The ICE BofA US HY Cash Pay Index is shown for comparative purposes only. Data is unaudited.

All figures are shown in USD.

Client account information is shown.

Data is unaudited.

Past performance is no guarantee of future results.

 For institutional use only.

202308-32149

Investment Performance

As of July 31, 2023

	CUMULATIVE		ANNUALIZED					
	QTD	YTD	1-Year	3-Year	5-Year	10-Year	20-Year	Since Inception*
Real Estate High Income (Net)[1]	**0.57**	**(1.38)**	**(4.90)**	**1.92**	**0.30**	**2.63**	**4.75**	**7.48**
Bloomberg CMBS ex-AAA Index[2]	0.25	(0.64)	(6.44)	(1.93)	0.63	1.94	1.33	–
ICE BofA US HY Cash Pay Index[2]	1.43	6.84	4.15	2.09	3.26	4.29	6.62	6.85
Bloomberg US Aggregate Index[2]	(0.07)	2.02	(3.37)	(4.46)	0.75	1.50	3.18	4.62
Active Return (vs. Bloomberg)	*0.32*	*(0.74)*	*1.54*	*3.85*	*(0.33)*	*0.69*	*3.42*	–
Active Return (vs. ICE BofA)	*(0.86)*	*(8.22)*	*(9.05)*	*(0.17)*	*(2.96)*	*(1.66)*	*(1.87)*	*0.63*
Active Return (vs. BBg US Agg Bond)	*0.64*	*(3.40)*	*(1.53)*	*6.38*	*(0.45)*	*1.13*	*1.57*	*2.86*

Client account information is shown.

*Inception date was 1/5/95.

[1]Net performance is less the maximum advisory fee charged any client employing this strategy; other fees and expenses may reduce returns. Past performance is no guarantee of future results. Investment return and principal value of an investment will fluctuate. Current performance may be higher or lower than the performance stated.

[2]The primary benchmark for this strategy are the Bloomberg CMBS ex-AAA Index. The ICE BofA US HY Cash Pay Index and Bloomberg US Aggregate index is shown for comparative purposes only. Inception of the Bloomberg CMBS ex-AAA Index was 7/31/99, subsequent to the inception of the Fidelity Real Estate High Income Fund. As a result, there is no relative return for the index based upon the fund's inception date.

High Yield CMBS Investment Performance—Calendar Years

As of December 31, 2022

	Annual Returns													
	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Real Estate High Income (Net)	**(9.34)**	**8.12**	**(5.43)**	**9.52**	**2.88**	**5.79**	**2.52**	**2.84**	**9.45**	**5.95**	**18.41**	**8.40**	**25.71**	**28.75**
Bloomberg CMBS ex-AAA Index[1]	(13.65)	2.86	4.13	10.39	2.05	6.03	4.57	0.07	3.89	1.43	15.53	7.47	41.11	34.21
ICE BofA US High Yield Cash Pay Index*	(11.11)	5.29	6.20	14.40	(2.26)	7.48	17.34	(4.55)	2.45	7.38	15.44	4.50	15.24	56.28
Active Return (vs. BBg CMBS ex-AAA)	*4.31*	*5.26*	*(9.56)*	*(0.87)*	*0.83*	*(0.24)*	*(2.05)*	*2.77*	*5.56*	*4.52*	*2.88*	*0.93*	*(15.40)*	*(5.46)*
Active Return (vs. ICE BofA)	*1.77*	*2.83*	*(11.63)*	*(4.88)*	*5.14*	*(1.69)*	*(14.82)*	*7.39*	*7.00*	*(1.43)*	*2.97*	*3.90*	*10.47*	*(27.53)*

	Annual Returns													
	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995[2]
Real Estate High Income (Net)	**(36.68)**	**(3.59)**	**8.90**	**8.95**	**18.66**	**12.17**	**16.10**	**12.14**	**16.46**	**7.76**	**(1.01)**	**26.92**	**18.24**	**21.43**
Bloomberg CMBS ex-AAA Index[1]	(62.33)	(5.29)	8.18	4.73	8.58	5.24	19.40	10.13	17.60	–	–	–	–	–
ICE BofA US High Yield Cash Pay Index*	(26.21)	2.21	11.62	2.81	10.76	27.23	(1.14)	6.27	(3.85)	1.57	3.66	12.83	11.12	19.66
Active Return (vs. BBg CMBS ex-AAA)	*25.65*	*1.70*	*0.72*	*4.22*	*10.08*	*6.93*	*(3.30)*	*2.01*	*(1.14)*	–	–	–	–	–
Active Return (vs. ICE BofA)	*(10.47)*	*(5.80)*	*(2.72)*	*6.14*	*7.90*	*(15.06)*	*17.24*	*5.87*	*20.31*	*6.19*	*(4.67)*	*14.09*	*7.12*	*1.77*

*The primary benchmark for this strategy is the Bloomberg CMBS ex-AAA Index. The ICE BofA US High Yield Cash Pay Index and Bloomberg US Aggregate Index is shown for comparative purposes only.

Client account information is shown.

Net performance is less the maximum advisory fee charged any client employing this strategy; other fees and expenses may reduce returns. Past performance is no guarantee of future results. Investment return and principal value of an investment will fluctuate. Current performance may be higher or lower than the performance stated.

[1]Inception of the Bloomberg CMBS ex-AAA Index was 7/31/99, subsequent to the inception of the composite. As a result, calendar 2000 is the first full period of relative performance.

[2]Performance is shown for a partial period of 1/31/95–12/31/95. Inception date was 1/5/95.

Fidelity INVESTMENTS

Appendix

Portfolio Characteristics- Breakdown by Vintage Year

As of June 30, 2023

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Conduit CMBS	0.0%	3.2%	5.1%	6.1%	0.1%	1.0%	1.5%	3.6%	1.4%	3.4%	2.0%	1.6%	6.8%	2.1%	37.8%
Fixed-Rate SASB CMBS	0.3%	–	0.4%	0.0%	0.2%	1.9%	1.9%	0.2%	0.7%	6.6%	7.2%	2.3%	0.3%	1.0%	23.2%
Floating-Rate SASB CMBS	–	–	–	–	–	–	–	0.3%	0.5%	7.7%	0.4%	20.0%	2.2%	–	31.0%
RMBS															0.0%
RE Bonds/Loans															3.7%
Preferred/Common Equity															0.7%
Cash															3.5%
Total															**100.0%**

Client account information is shown.

Data is unaudited. Differences are due to rounding. Only data equal to or greater than 0.1% will show a value.

Source: Fidelity.

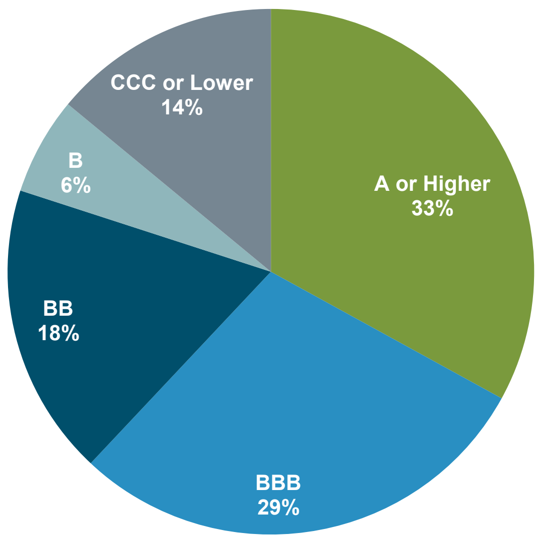
 For institutional use only.

202308-32149

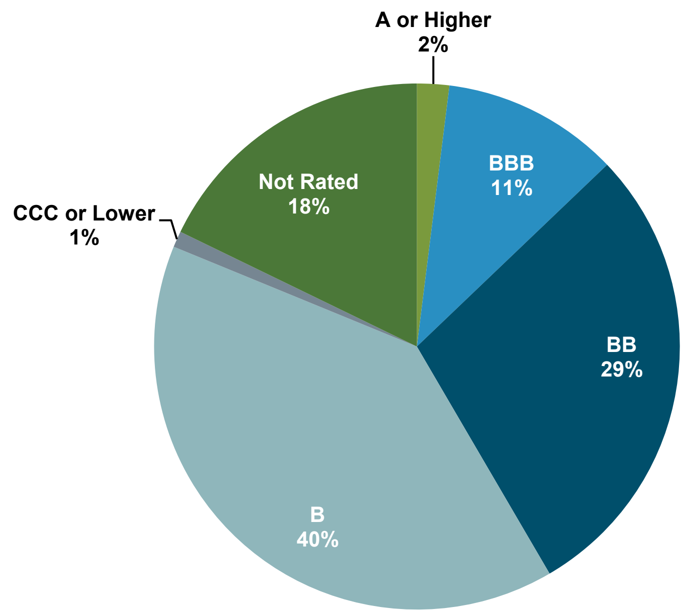
Portfolio Characteristics-Credit Rating by Investment Type

As of June 30, 2023

CONDUIT



SASB



Sources: Fidelity.

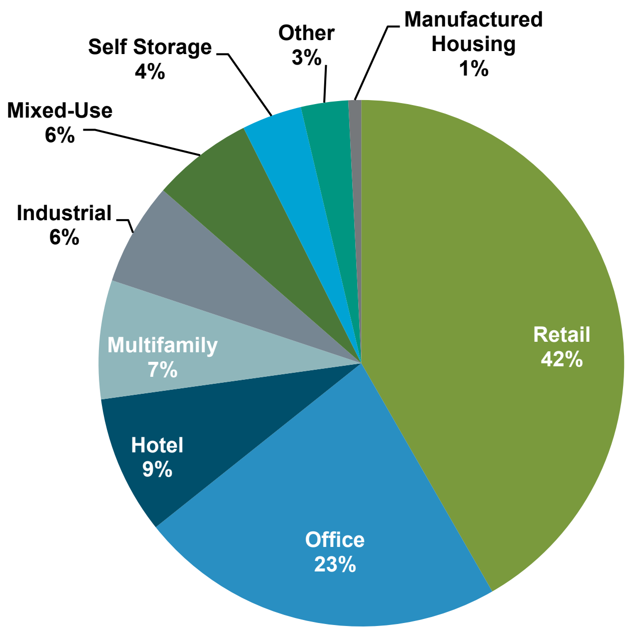
 For institutional use only.

202308-32149

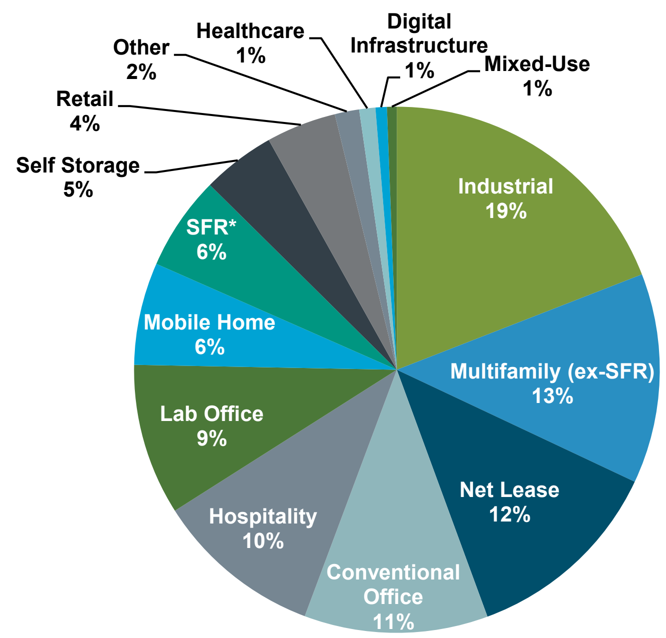
Portfolio Characteristics—Property Type Allocation

As of June 30, 2023

CONDUIT



SASB



*Single Family Rental.

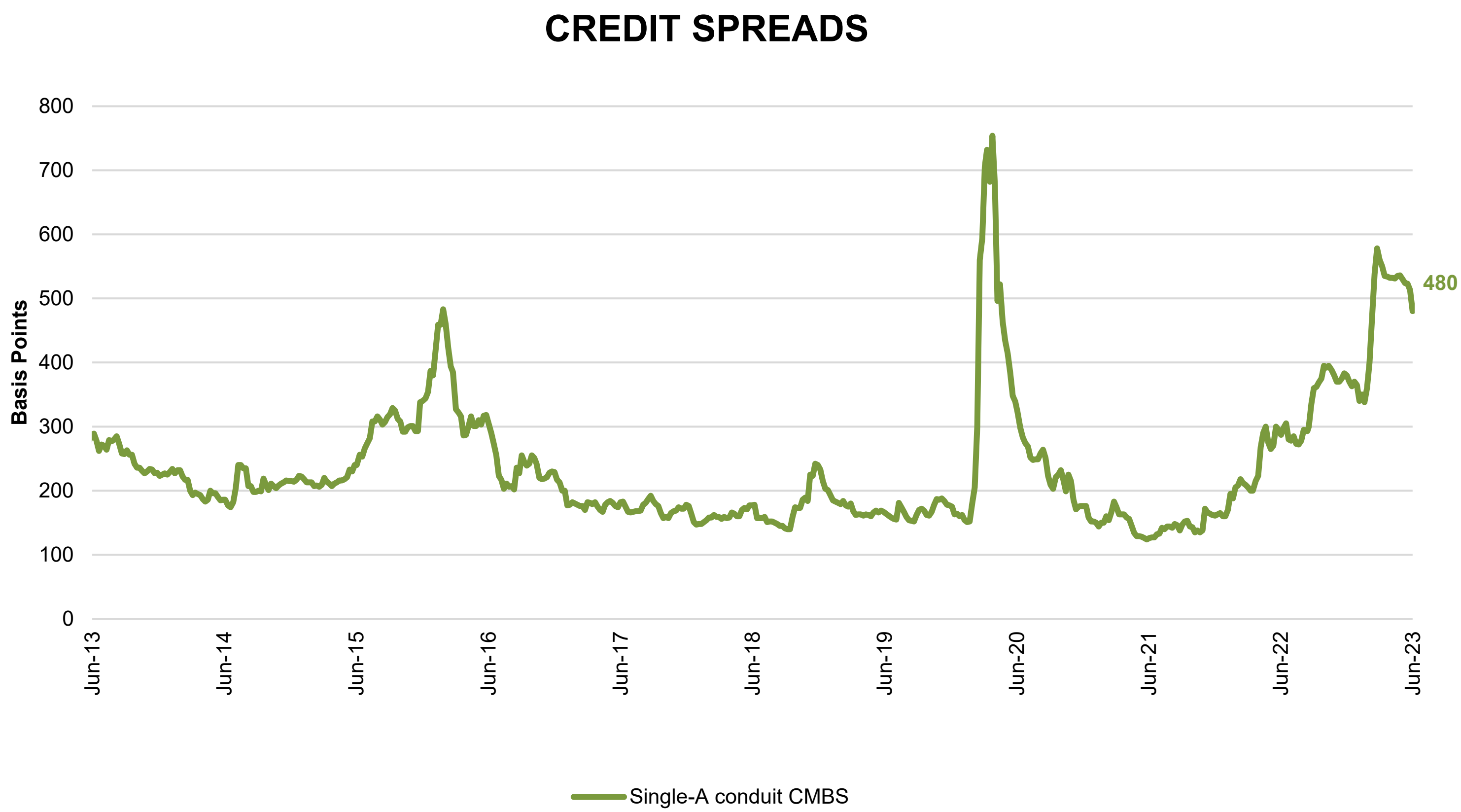
Sources: Trepp, FMR LLC.

 For institutional use only.

202308-32149

Conduit CMBS Credit Spreads

Conduit Single-A CMBS spreads are historically wide



As of 6/30/23.

Past performance is no guarantee of future results.

CMBS spreads representative of CMBS new issuance.

CMBS spreads are for conduit only.

HY Corporate index represents ICE BofA US Cash Pay High Yield Index

Sources: JP Morgan, Bloomberg.

For institutional use only.

202308-32149

Biographies

William Maclay, CFA
Portfolio Manager

William Maclay is a portfolio manager in the High Income and Alternatives 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.

In this role, Mr. Maclay co-manages Fidelity Real Estate Income Fund, Fidelity Real Estate Opportunistic Income Fund, and Fidelity Real Estate High Income Fund, as well as a portion of Fidelity Strategic Real Return Fund and Fidelity Total Bond Fund. He also manages numerous institutional accounts focused on real estate stock and bond investing.

Prior to assuming his current position in February 2019, Mr. Maclay was a research analyst covering various segments of the real estate markets at Fidelity from 2001 to 2019.

Prior to joining Fidelity in 2001, Mr. Maclay was an analyst at Clarion Partners. He has been in the financial industry since 1999.

Mr. Maclay earned his bachelor of arts in finance from the University of Washington and his master of science in finance from Boston College. He is also a CFA® charterholder.

Biographies

Matthew Torchia, CFA
Portfolio Manager

Matthew Torchia is a portfolio manager in the High Income and Alternatives 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.

In this role, Mr. Torchia co-manages Fidelity Real Estate High Income Fund. He also manages numerous institutional accounts focused on real estate stock and bond investing.

Previously, Mr. Torchia was responsible for sourcing and analyzing real estate securities across various markets and parts of the capital structure.

Prior to joining Fidelity in 2021, Mr. Torchia was a managing director at Blackstone. In this capacity, he helped to oversee day-to-day trading and portfolio management activities for the Liquid Real Estate Securities team. Previously, he was a vice president at Bank of America Merrill Lynch, where he was a secondary market trader involved in trading high-yield commercial mortgage-backed securities. He has been in the financial industry since 2007.

Mr. Torchia earned his bachelor of arts degree in international business and management from Dickinson 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.

Important Information

Please read this information carefully. Speak with your relationship manager if you have any questions.

Information provided in, and presentation of, this document are for informational and educational purposes only and are not a recommendation to take any particular action, or any action at all, nor an offer or solicitation to buy or sell any securities or services presented. It is not investment advice. Fidelity does not provide legal or tax advice.

Before making any investment decisions, you should consult with your own professional advisers and take into account all of the particular facts and circumstances of your individual situation. Fidelity and its representatives may have a conflict of interest in the products or services mentioned in these materials because they have a financial interest in them, and receive compensation, directly or indirectly, in connection with the management, distribution, and/or servicing of these products or services, including Fidelity funds, certain third-party funds and products, and certain investment services.

Risks
Past performance is no guarantee of future results. An investment may be risky and may not be suitable for an investor's goals, objectives and risk tolerance. Investors should be aware that an investment's value may be volatile and any investment involves the risk that you may lose money. Performance for individual accounts will differ from performance for composites and representative accounts due to factors, including but not limited to, portfolio size, trading restrictions, account objectives and restrictions, fees and expenses, and factors specific to a particular investment structure. Representative account information is based on an account in that strategy's composite that generally reflects that strategy's management and is not based on performance of that account.

The value of a strategy's investments will vary in response to many factors, including adverse issuer, political, regulatory, market or economic developments. The value of an individual security or a particular type of security can be more volatile than and perform differently from the market as a whole. Nearly all accounts are subject to volatility in non-U.S. markets, either through direct exposure or indirect effects on U.S. markets from events abroad, including fluctuations in foreign currency exchanges rates and, in the case of less developed markets, currency illiquidity. Developments that disrupt global economies and financial markets, such as war, acts of terrorism, the spread of infectious illness or other public health issues, recessions or other events may magnify factors that affect performance. In addition, some countries experience low or negative interest rates, from time to time, which may magnify interest rate risk for the markets as a whole and for the funds or accounts. The discontinuation and replacement of LIBOR (an indicative measure of the average interest rate at which major global banks could borrow from one another) and other benchmark rates may have a significant impact on the financial markets and may adversely impact fund or account performance. Additionally, funds or accounts that pursue debt investments are subject to risks of prepayment or default, as well as changes to bankruptcy or debtor relief laws, which may impede collection efforts or alter timing and amount of collections.

The performance of fixed income strategies will change daily based on changes in interest rates and market conditions and in response to other economic, political, or financial developments. Debt securities are sensitive to changes in interest rates depending on their maturity, and may involve the risk that their prices may decline if interest rates rise or, conversely, if interest rates decline, their prices may increase. Debt securities carry the risk of default, prepayment risk, and inflation risk. Changes specific to an issuer, such as its financial condition or its economic environment, can affect the credit quality or value of an issuer's securities. Lower-quality debt securities (those rated or considered below investment-grade quality, also referred to as high-yield debt securities) and certain types of other securities are more volatile, speculative and involve greater risk due to increased sensitivity to adverse issuer, political, regulatory, and market developments, especially in periods of general economic difficulty. The value of mortgage securities may change due to shifts in the market's perception of issuers and changes in interest rates, regulatory, or tax changes.

Derivatives may be volatile and involve significant risk, including but not limited to credit risk, currency risk, leverage risk, counterparty risk, leverage risk, valuation risk, and liquidity risk. Using derivatives can disproportionately increase losses and reduce opportunities for gains in certain circumstances. Derivatives involve leverage because they can provide investment exposure in an amount exceeding the initial investment. Leverage can magnify investment risks and cause losses to be realized more quickly. A small change in the underlying asset, instrument, or index can lead to a significant loss. Assets segregated to cover these transactions may decline in value and are not available to meet redemptions. Government legislation or regulation could affect the use of these transactions and could limit the ability to pursue such investment strategies.

The real estate industry is particularly sensitive to economic downturns. The value of investments in real estate or securities of issuers in the real estate industry can be affected by changes in real estate values and rental income, property taxes, interest rates, tax, and regulatory requirements, overbuilding, extended vacancies of properties, and the issuer's management skill. As a consequence, investments related to real estate may be more volatile than other investments and the possibility of partial or total loss of capital exists. This risk may be amplified for strategies that narrowly focus on a single sector, such as data centers, or geographic region. Mortgage-backed securities are subject to the risk that mortgagors may not meet their payment obligations and/or to prepayment risk. Each investment also has its unique interest rate and payment priority characteristics and risks.

These materials contain statements that are "forward-looking statements," which are based on certain assumptions of future events. FIAM and its affiliated advisory entities do not assume any duty to update any forward-looking statement. Actual events may differ from those assumed. There can be no assurance that forward-looking statements, including any projected returns, will materialize or that actual market conditions and/or performance results will not be materially different or worse than those presented.

Important Information, continued

Performance Data
Gross composite returns do not reflect the deduction of investment advisory ("IA"), performance, administrative or custodial fees, but do include trading expenses. Net composite return are calculated by deducting the highest advisory fee applicable to any account employing this strategy during the time period shown and applicable performance fee (if any), exclusive of minimum fee arrangements. Other fees and expenses may reduce returns. See the GIPS Composite Report for performance figures that are net of the highest advisory fee (including performance fee, if any) applicable to any account in the Composite, which includes accounts managed by FIAM LLC and its affiliated advisory entities, as permitted, including Fidelity Diversifying Solutions LLC (FDS). Historical performance shown may have been achieved by a different investment adviser in the GIPS Firm definition than the investment adviser presenting the performance, and the investment team responsible for the performance shown may have changed over the course of the composite's performance time period shown. See FIAM LLC's Form ADV for more information about advisory fees if FIAM LLC is the investment manager for the account. See FDS' Form ADV for more information about advisory fees if FDS is the investment manager for the account. For additional information about advisory fees related to other affiliated advisory entities of FIAM LLC, speak with your relationship manager. All results reflect realized and unrealized appreciation and the reinvestment of dividends and investment income, if applicable. Taxes have not been deducted. FIAM LLC and its affiliated advisory entities claim compliance with the Global Investment Performance Standards (GIPS) as part of the Fidelity Investments firm.

* * * *

Fidelity Institutional Asset Management (FIAM) includes the following entities that provide investment services: Fidelity Institutional Asset Management Trust Company, a New Hampshire trust company (FIAM TC), and FIAM LLC, a U.S. registered investment adviser. Fidelity Asset Management Solutions (FAMS) includes Fidelity Diversifying Solutions LLC (FDS), a U.S. registered investment adviser, commodity pool operator and commodity trading advisor. FAMS provides a broad array of investment solutions with its Global Institutional Solutions (GIS), Global Asset Allocation (GAA), and institutional equity, fixed income, high income, and alternative asset management teams through FIAM LLC, FIAM TC and FDS.

"Fidelity Investments" and/or "Fidelity" refers collectively to FMR LLC, a U.S. company, and its subsidiaries, including but not limited to Fidelity Management & Research Company LLC (FMR), FIAM LLC and FIAM TC.

Certain data and other information in this presentation have been supplied by outside sources and are believed to be reliable and current. Data and information from third-party databases, such as eVestment Alliance, Callan, and Morningstar are self-reported by firms that generally pay a subscription fee to use such databases, and the database sponsors do not guarantee or audit the accuracy, timeliness, or completeness of the data and information provided, including any rankings. Rankings or similar data reflect information at the time rankings were retrieved from a third-party database, and such rankings may vary significantly as additional data from managers is reported. Rankings may include a variety of product structures, including some in which certain clients may not be eligible to invest. FIAM and its affiliated advisory entities cannot verify the accuracy of information from outside sources, and potential investors should be aware that such information is subject to change without notice.

FIAM has prepared this presentation for, and only intends to provide it to, institutional, sophisticated, and/or qualified investors in one-on-one or comparable presentations. Do not distribute or reproduce this report.

Professional Designations
The Chartered Financial Analyst (CFA) designation is offered by the CFA Institute. To obtain the CFA charter, candidates must pass three exams demonstrating their competence, integrity, and extensive knowledge in accounting, ethical and professional standards, economics, portfolio management, and security analysis, and must also have at least 4,000 hours of qualifying work experience completed in a minimum of 36 months, among other requirements. CFA® is a trademark owned by CFA Institute.

Not FDIC Insured · No Bank Guarantee · May Lose Value

909141.25.0
FIAM-IA
EXPIRES: 9/22/23

Alaska Retirement Management Board

Real Assets
Fiscal Year 2024 Annual Investment Plan

September 2023

Steve Sikes, CFA, CPA
Director of Real Assets

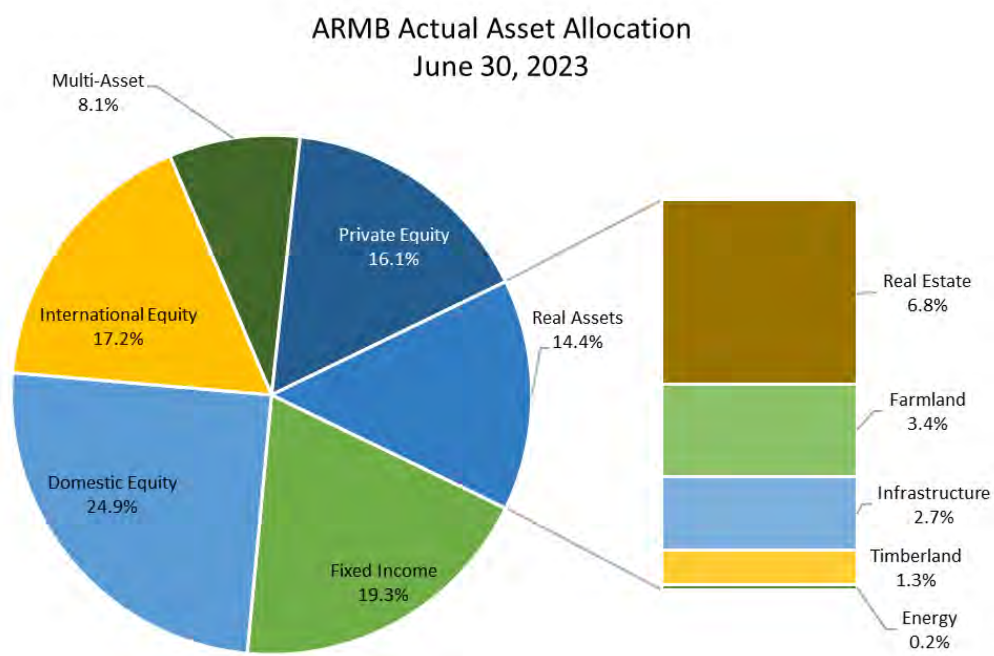
Robyn Mesdag, CFA
State Investment Officer

Agenda

- Review portfolio and performance
- Establish Fiscal Year 2024 target allocations
- Review each portfolio sector:
  - Where can we increase returns without exceeding risk tolerance?
  - Where can we decrease risk without compromising returns?
- Make recommendations to ARMB

The Role of Real Assets Portfolio Role

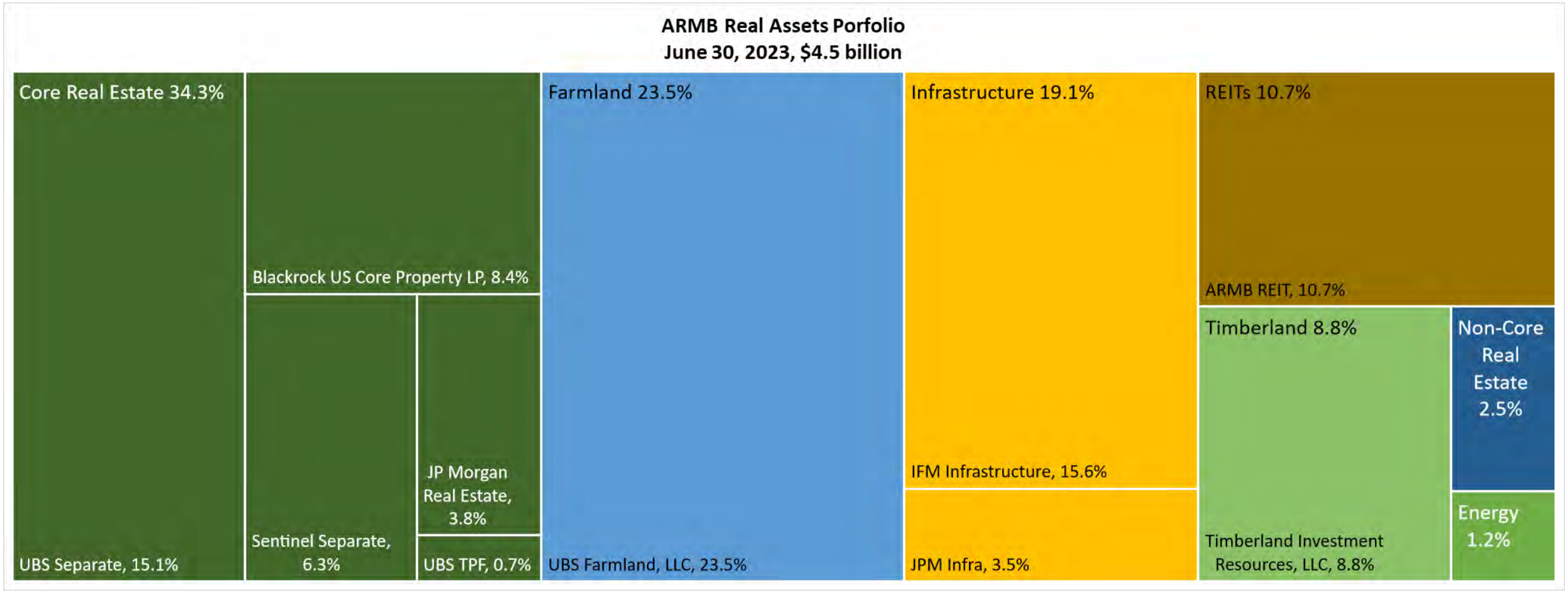
- Returns between stocks and bonds
- Diversification
- Inflation hedge
- Current income



Portfolio Construction

- Real Assets sector exposures approximate current targets

as of June 30, 2023	Actual	Target	Difference
Core Real Estate	34.3%	35%	-0.7%
Non-Core Real Estate	2.5%	0%	2.5%
REITS	10.7%	15%	-4.3%
Farmland	23.5%	25%	-1.5%
Infrastructure	19.1%	15%	4.1%
Timberland	8.8%	10%	-1.2%
Energy	1.2%	0%	1.2%
Total Real Assets	14.4%	14%	0.4%



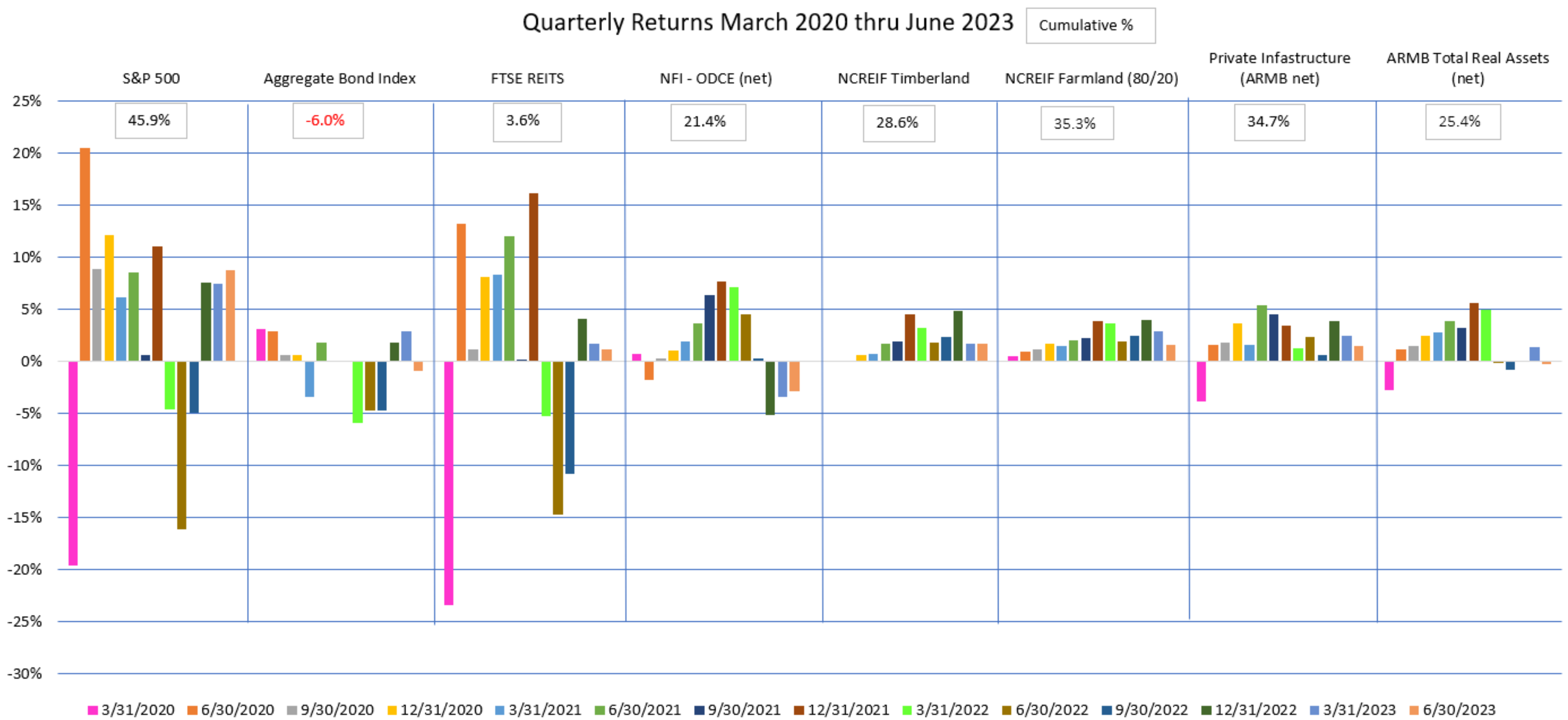
Performance

- The Real Assets portfolio returned 0.41% net in Fiscal Year 2023 compared to the target return of -0.37%.
- Real Estate returns turned negative during the year reflecting higher interest rates and fundamental challenges in some sectors. Longer-term results consistent with objectives.
- Farmland, Timberland, and Infrastructure demonstrated differentiated return drivers posting strong returns for the year.
- Performance has met objectives of providing diversification and producing returns between public equities and fixed income.

as of June 30, 2023 (net of fees)	Qtr	1yr	6yr	10yr
Core	-2.65%	-9.34%	7.20%	8.33%
NCREIF ODCE	-2.88%	-10.73%	5.88%	7.77%
Non-Core	-1.55%	-5.62%	5.31%	8.86%
NCREIF ODCE +1.5%	-2.47%	-9.23%	7.39%	9.28%
REIT	1.19%	-4.32%	4.76%	6.77%
FTSE NAREIT All Equity	1.20%	-4.39%	4.81%	6.81%
Farmland	0.46%	10.88%	6.04%	5.94%
NCREIF Farmland (80/20 Blend)	1.64%	11.36%	7.56%	7.47%
Timberland	0.16%	8.74%	4.96%	4.76%
NCREIF Timberland	1.71%	11.13%	5.43%	5.90%
Infrastructure	2.43%	9.72%	11.28%	-
CPI+4%	2.04%	6.97%	7.73%	-
Energy	-1.83%	-11.04%	0.61%	-3.14%
CPI+4%	2.04%	6.97%	7.73%	7.68%
ARMB Real Assets	-0.29%	0.41%	6.30%	6.60%
ARMB Real Assets Target	-0.15%	-0.37%	5.79%	6.81%
Russell 3000	8.39%	18.95%	11.95%	12.34%
Bloomberg Barclays Aggregate	-0.84%	-0.94%	0.57%	1.52%
CPI	1.08%	2.97%	3.73%	2.71%

Source: Callan Real Assets Quarterly Report June 30, 2023, Callan PEP

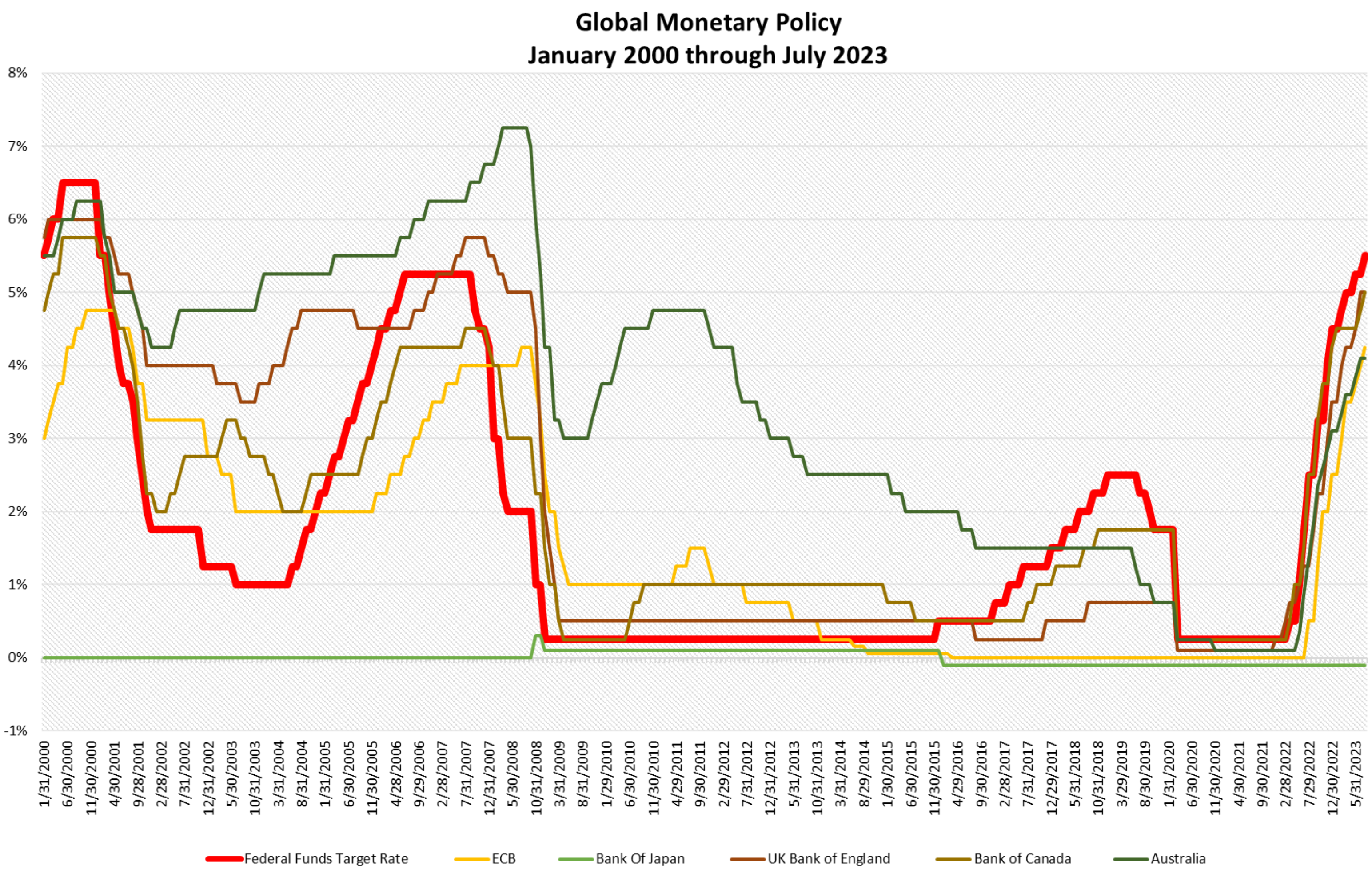
Post COVID Performance by Market



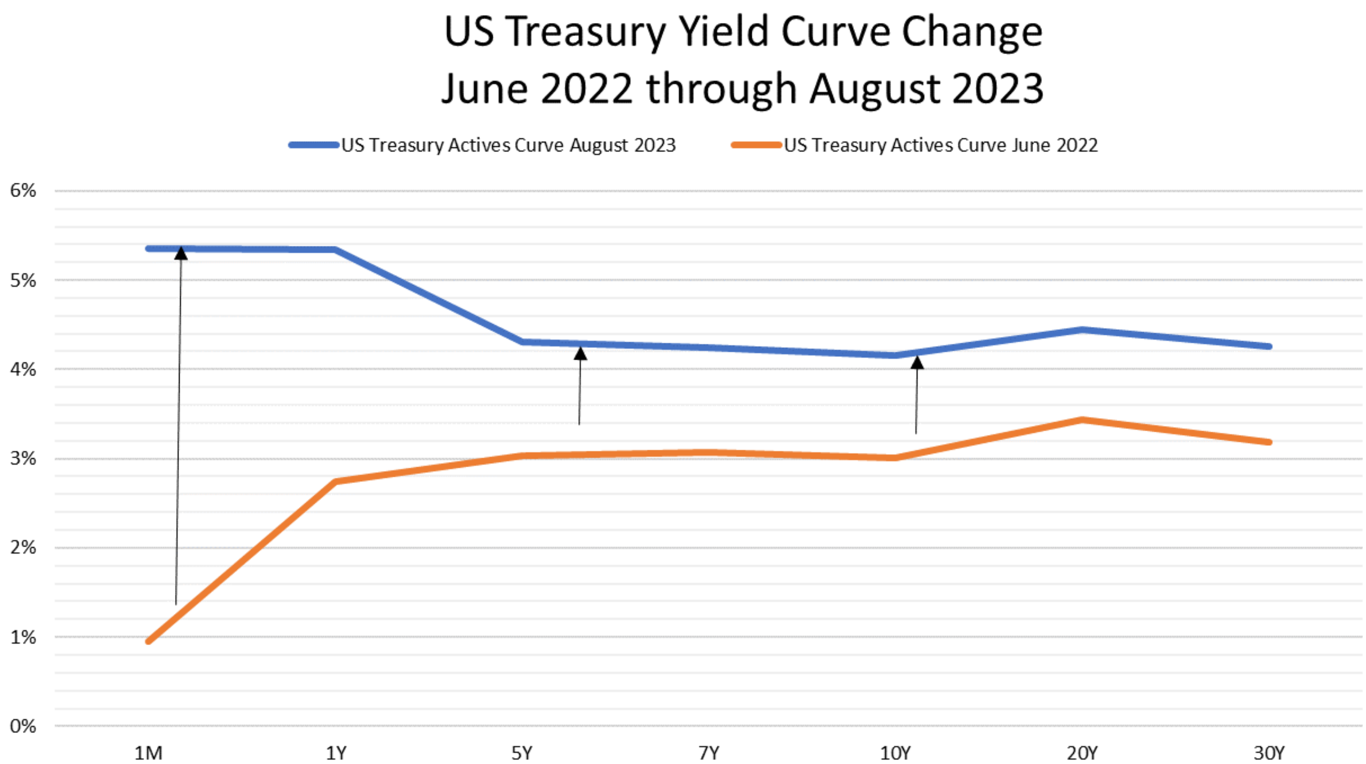
COVID

First Fed Hike

Monetary Policy



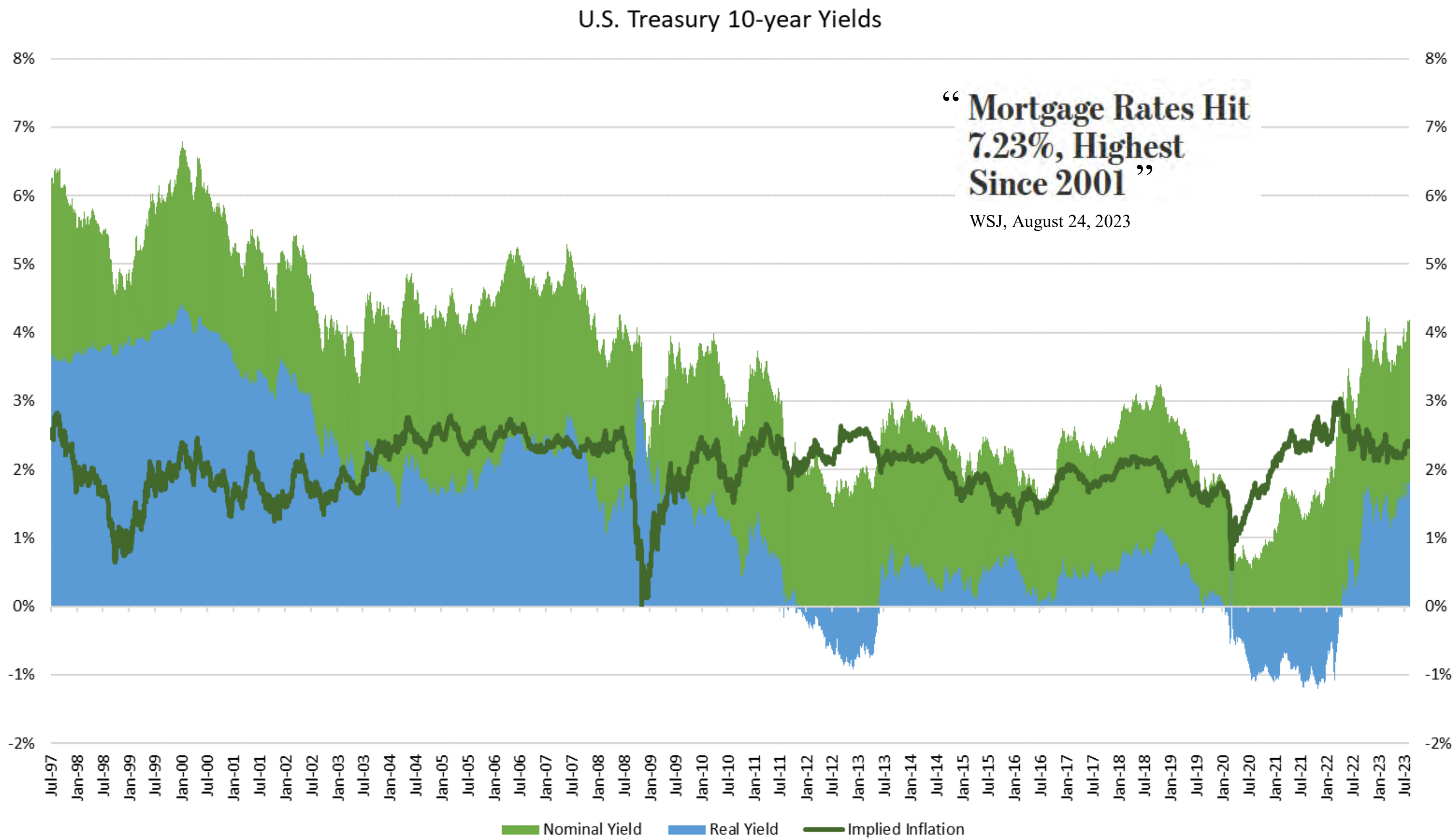
Risk Free Rates are Higher Across the Curve



- The Fed began raising rates in January 2022 from a starting rate of 0% to 0.25%

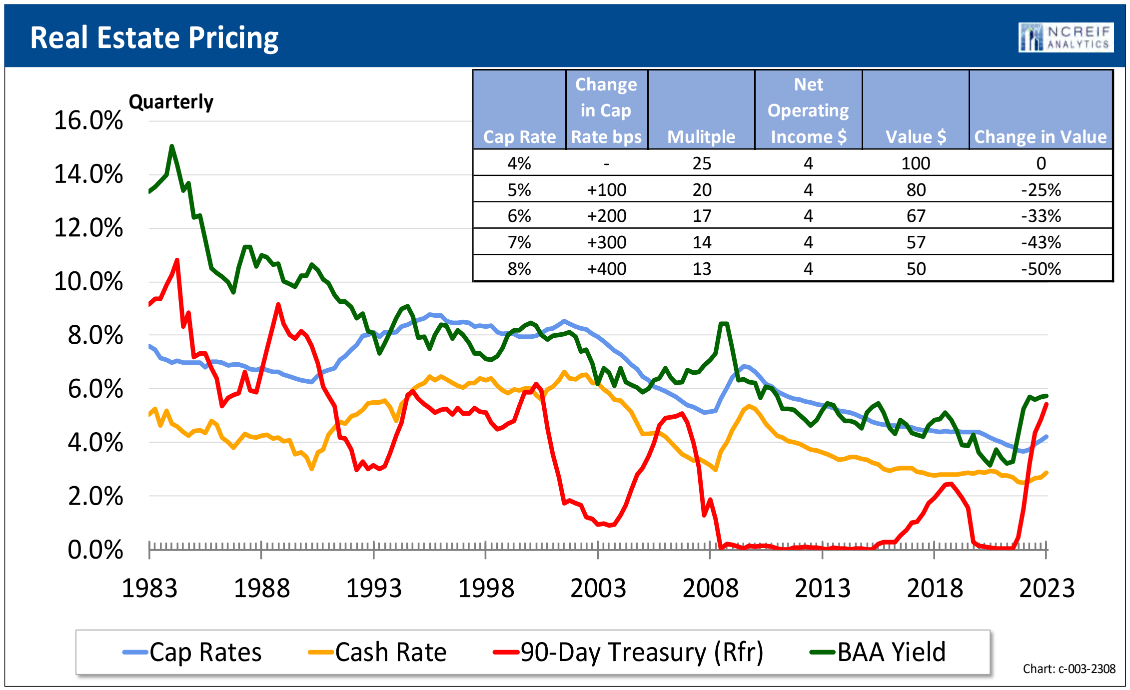
Tenor	US Treasury Actives Curve June 2022	US Treasury Actives Curve August 2023	Change in Yield
1M	0.9%	5.4%	4.4%
1Y	2.7%	5.3%	2.6%
5Y	3.0%	4.3%	1.3%
7Y	3.1%	4.2%	1.2%
10Y	3.0%	4.2%	1.1%
20Y	3.4%	4.4%	1.0%
30Y	3.2%	4.3%	1.1%

Back to "Normal" or Temporary Spike Higher?



Historical Rate Relationships, Sensitivity, Forecast

- Higher rates likely to continue pressuring returns.



Cap Rate	Change in Cap Rate bps	Mulitple	Net Operating Income $	Value $	Change in Value
4%	-	25	4	100	0
5%	+100	20	4	80	-25%
6%	+200	17	4	67	-33%
7%	+300	14	4	57	-43%
8%	+400	13	4	50	-50%

3Yr NPI Total Return Forecast (unlevered)

Sector	Current Cap Rate		Dividend Pay-Out Ratio		Dividend Yield		NOI Growth		Cap Rate Shift Effect		Total Return	Exit Cap Rate
Ind	3.1	x	87.6	=	2.7	+	8.0	+	-10.7	=	0.0	4.4
Apt	3.6	x	83.4	=	3.0	+	3.3	+	-8.1	=	-1.9	4.7
Ret	4.9	x	82.6	=	4.1	+	-0.1	+	-6.6	=	-2.6	6.1
Off	4.4	x	68.4	=	3.1	+	0.3	+	-14.5	=	-11.1	7.3
NPI	3.9	x	81.7	=	3.1	+	4.1	+	-10.3	=	-3.1	5.2

BlackRock, May 2023

Fiscal Year 2024 Target Allocations

Callan Real Asset Capital Market Assumptions

Real Asset Components - 2023 Capital Market Assumptions

Real Assets Only

Asset Class	1-Year Arithmetic	10-Year Geometric Return	Annualized Standard Deviation	Projected Yield	Sharpe Ratio
Real Estate	6.60%	5.75%	14.20%	4.40%	0.21
Non-Core Real Estate	8.35%	7.30%	16.20%	2.95%	0.28
Real Estate Debt	5.80%	5.70%	6.20%	4.85%	0.48
REITs	8.85%	6.90%	20.90%	4.65%	0.20
Timber	6.45%	5.40%	15.60%	3.70%	0.17
Farmland	6.65%	5.55%	15.95%	4.25%	0.18
Private Infrastructure	7.15%	6.15%	15.45%	4.60%	0.22

Projection set includes current ARMB real assets, plus Real Estate Debt and Non-Core Real Estate

Modeling Real Estate Debt and Non-Core Real Estate is more art than science. Neither asset class has meaningful peer groups or benchmarks; projections are based on informed judgement and experience.

Real Estate Debt is modeled to include Securitized Mortgages, Real Estate Equity and Private Credit. Sharpe ratio is substantially higher than other asset classes.

Non-Core Real Estate is modeled to reflect a blend of value-add and opportunistic strategies. The return and risk represent a blend of core real estate and private equity.

Optimal Real Assets Mix

- ARMB Fiscal Year 2024 plan level asset allocation assumes 7.00% arithmetic return, 6.35% 10-year geometric return, and 13.10% standard deviation for Real Assets. Recommended 2024 mix is consistent with plan level calibration.

- Real Estate Debt and Non-Core Real Estate are attractive to the model. Allocations constrained based on risk tolerance and practical limitations.

	Current Real Assets Target	Recommended FY 2024 Real Assets Target	Change
Core Real Estate	35%	30%	-5%
Non-Core Real Estate	0%	5%	5%
Real Estate Debt	0%	5%	5%
REITs	15%	10%	-5%
Timberland	10%	10%	0%
Farmland	25%	20%	-5%
Infrastructure	15%	20%	5%
Energy	0%	0%	0%
Total	100%	100%	0%
Projected Arithmetic Return	7.02%	6.98%	-0.04%
10-year Geometric Mean Return	6.34%	6.34%	0.00%
Projected Standard Deviation	13.10%	12.75%	-0.35%

Source: Callan

Target Allocation Changes and Implementation

(% targets)	Current Target	Proposed FY24 Target	Target Change
Core Real Estate	35%	30%	-5%
Non-Core Real Estate	0%	5%	5%
Real Estate Debt	0%	5%	5%
REITS	15%	10%	-5%
Timber	10%	10%	0%
Farmland	25%	20%	-5%
Private Infrastructure	15%	20%	5%
Energy	0%	0%	0%
Plan level Total	14%	14%	0%

($ millions)	Actual NAV 6/30/2023	Proposed FY24 Target $	Change $
Core Real Estate	1,551	1,323	(228)
Non-Core Real Estate	111	220	110
Real Estate Debt	-	220	220
REITS	483	441	(42)
Timber	400	441	41
Farmland	1,064	882	(182)
Private Infrastructure	863	882	19
Energy	54	-	(54)
Total	4,526	4,410	(116)

- Largest decreases are Core Real Estate and Farmland.
- Largest increases are Real Estate Debt and Non-Core Real Estate.
- Total Real Estate exposure is unchanged at 50% (core + non-core + debt + REIT).
- Infrastructure +5%, and REITs -5%, already close to new targets.
- Implementation will be slow, likely a multi-year transition.

Real Asset Sector Review

- Where can we <u>increase returns</u> without exceeding risk tolerance?
- Where can we <u>decrease risk</u> without compromising returns?

Real Estate Overview

- Two core separate account managers make investments on a discretionary basis within the parameters defined by ARMB's guidelines and annual investment plan up to approved allocations. These investments represent 45% of the real estate portfolio and are currently comprised of 17 assets within the apartment, industrial, office, and retail sectors across the U.S. ARMB owns 100% interest in these assets.

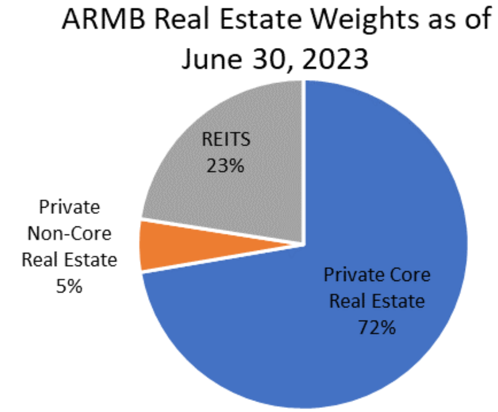
- Three core open-end commingled funds make investments on a discretionary basis according to each fund's strategy. These funds represent 27% of the real estate portfolio and offer well diversified exposure across asset types, markets, and size. ARMB owns units in these funds along with other institutional investors.

- Fund investments with three non-core commingled fund managers represent the majority of non-core real estate strategies. Non-core funds represent 5% of the real estate portfolio.

- The remaining 23% of the real estate portfolio is a passive publicly traded REIT equity portfolio invested internally by staff.

Real Estate Portfolio
June 30, 2023

- Net Asset Value: $2.1 billion
- Number of Assets: 17 + commingled fund interests
- Core Structure: 2 separate accounts, 3 open-end funds
- Non-Core Structure: 11 commingled funds
- U.S. Domestic REITs – FTSE NAREIT All Equity

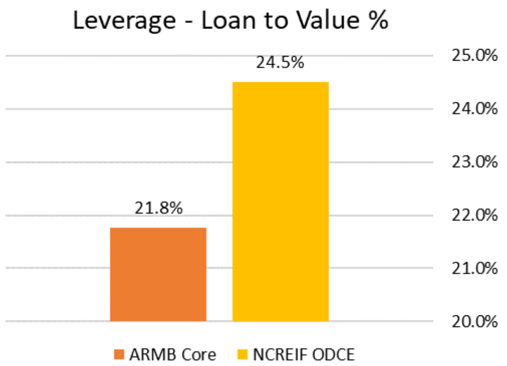


Core Real Estate Performance

as of June 30, 2023	ARMB NAV $millions	Core Weight	1 Year Income	1 Year Total	5 year Income	5 year Total	10 year Income	10 year Total	1 Year (1 year ago) as of June 30, 2022
UBS Separate Account (net)	683	44%	4.32%	-8.52%	4.40%	8.59%	4.42%	10.84%	29.77%
Sentinal Separate Account (net)	284	18%	2.78%	-7.67%	4.29%	9.32%	4.53%	9.81%	36.09%
BlackRock Core Property Fund (net)	379	24%	2.47%	-10.61%	3.29%	5.99%	3.51%	8.19%	26.54%
JPM Strategic Property Fund (net)	172	11%	2.07%	-11.11%	2.57%	4.80%	3.24%	7.31%	27.48%
UBS Trumbull Property Fund (net)	33	2%	2.79%	-15.57%	3.17%	0.45%	3.50%	4.31%	23.50%
ARMB Total Core Real Estate (net)	1,551	100%	3.33%	-9.34%	3.72%	7.02%	3.95%	8.33%	29.40%
NCREIF ODCE Value Wt (net)				-10.73%		5.56%		7.77%	28.31%

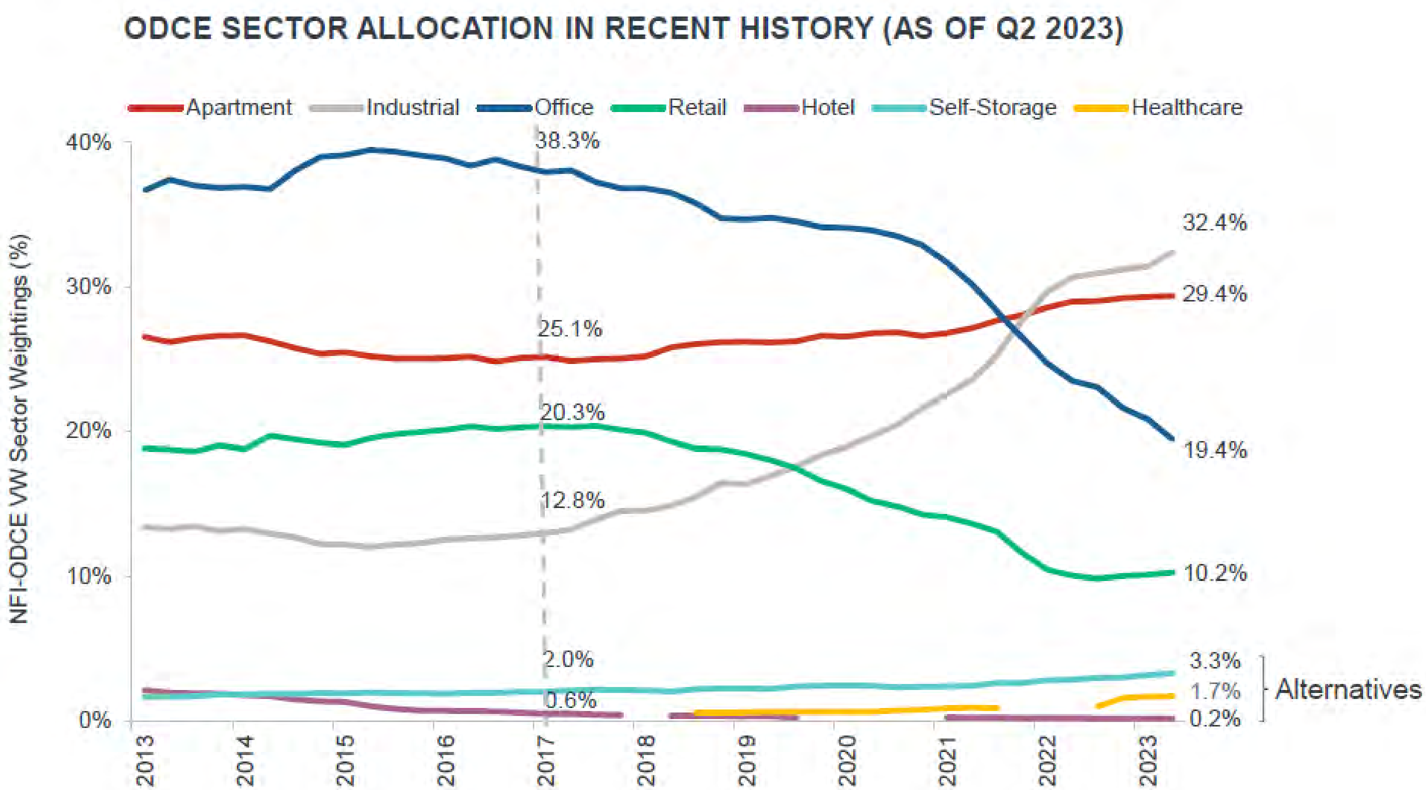
Source: Callan and BlackRock (10r BlackRock numbers reflect general fund returns and not ARMB results)

	Retail	Office	Apartment	Industrial	Other
ARMB	9.0%	14.9%	42.0%	33.8%	0.2%
NCREIF ODCE	10.2%	19.4%	29.4%	32.4%	8.6%



Change in NCREIF ODCE weights

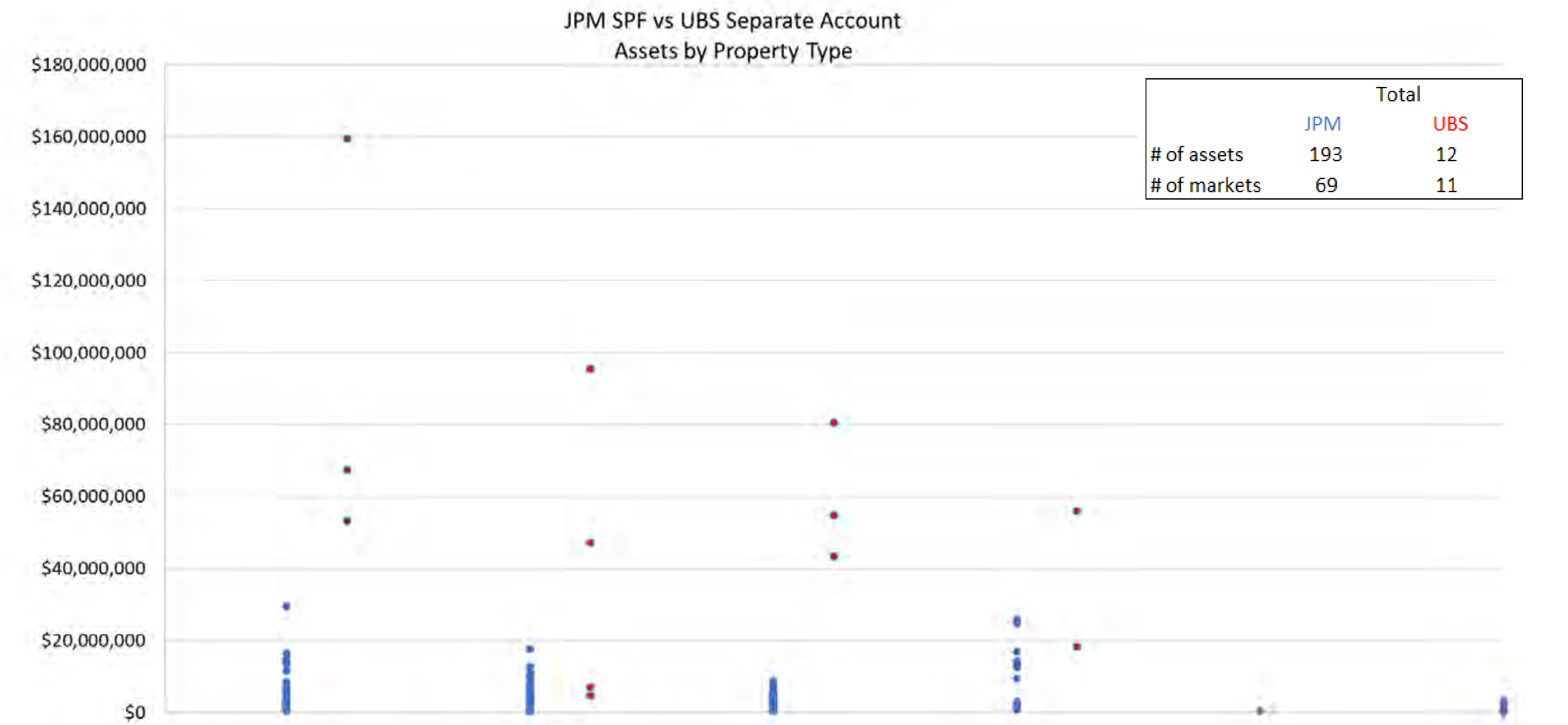
- Technology has had, and will continue to have, an enormous impact on real estate investing. Diversification is critical.



Source: NCREIF, Clarion Partners Investment Research, Q2 2023.
Note: ODCE = NCREIF Open-End Diversified Core Equity Index. Past performance is not indicative of future results. Please see the important disclosures at the end of this presentation.

Core Real Estate

- Asset size concentration and market diversification can be improved by moving assets from separate accounts to open-end funds.



	Industrial		Office		Residential		Retail		Self Storgage		Land	
	JPM	UBS	JPM	UBS	JPM	UBS	JPM	UBS	JPM	UBS	JPM	UBS
# of asset	70	3	28	4	77	3	11	2	1	0	6	0
# of markets	28	3	15	4	44	3	11	2	1	0	4	0

Core Real Estate

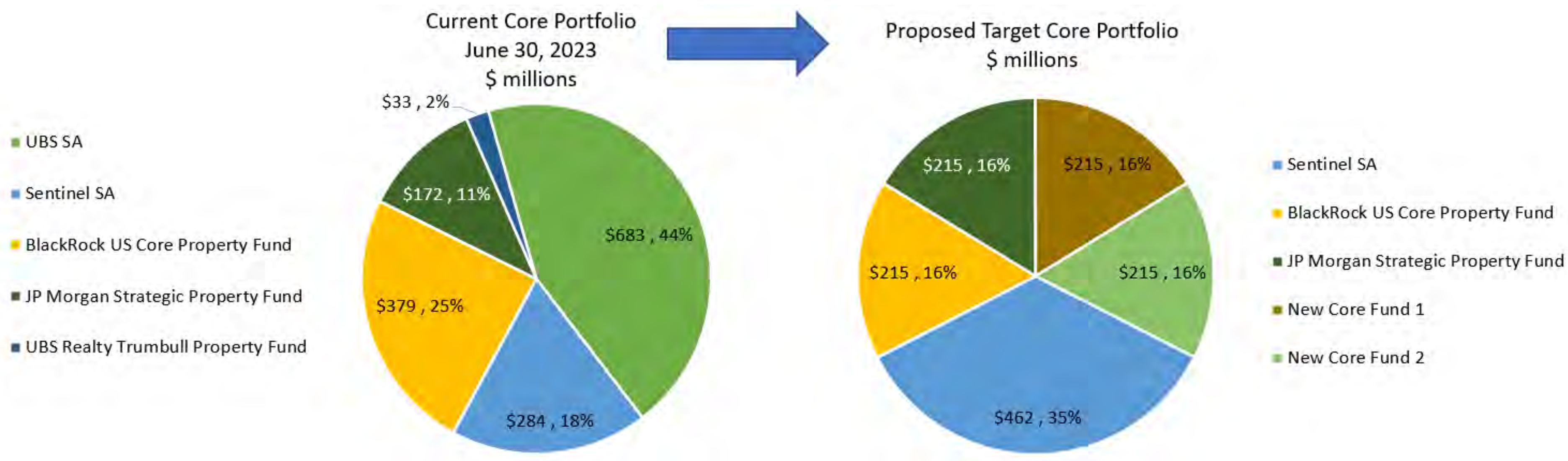
- Maintain expected returns, reduce risk.

- Wind down UBS separate account and invest in two new core open-end fund mandates.

  - Transfer three UBS apartment properties to the Sentinel separate account. Liquidate remaining UBS holdings if in-kind contributions to new funds are not an option.

  - Engage Callan to perform search to hire two new open-end funds that compliment existing ARMB funds.

  - Rebalance fund positions to optimal mix.



Core Real Estate Structure Considerations

- Open-end fund structure compared to separate account structure.

Factor	Open-end vs. Separate Account	Comment
Diversification	Higher	Funds offer far superior diversification on asset, market, and property type basis.
Strategy Depth and Breadth	Higher	Funds include alternative property types, like self storage and student housing that help improve returns and diversification.
Strategy Evolution	Higher	The size of open-end funds can provide a greater opportunity to maintain exposure to new investments. Funds more actively consider relative value repositioning and ways to enhance returns.
Staff Management Intensity	Lower	Separate accounts require significantly more staff time to manage.
Liquidity	Higher/Lower	Funds are designed to offer quarterly liquidity but can lock up during periods of high redemptions. Separate accounts can buy and sell any time but are exposed to same market liquidity factors as open-end funds.
Strategy Control	Lower	Investment strategy and guidelines are established in the fund documents.
Fees	Higher	Higher than separate account fees but high competition ensures market rates prevail.

Non-Core Real Estate

- Implement formal pacing model to maintain risk/return exposure at target allocation.

- Proposed Fiscal Year 2024 Real Asset sector allocations establish 5% target weight to non-core real estate strategies. This is an 84/16 ratio between core and non-core strategies.

- ARMB has been investing in non-core strategies for many years, most recently in KKR and Almanac funds. Proposed FY24 target allocation increases weight and establishes formal pacing approach to commitments similar to private equity. While not intended to be a timing call, upcoming vintage years are expected to be good.

ARMB Real Estate Commitment Pacing

- To reach and maintain the 5% target non-core real estate allocation (0.7% Total Plan target), ARMB will need to commit $60 - $70 million per year over the next 10 fiscal years.
- The pacing plan projects annual $70 million allocations in the first two years, followed by several years of $60 million annual allocations.
- Pacing plan to be reviewed annually or periodically as they are projections and subject to change.

Vintage Year	Commitment ($million)	Fund Commitments
FY2024	$70	2-3
FY2025	$70	2-3
FY2026	$60	2-3
FY2027	$60	2-3
FY2028	$60	2-3
FY2029	$60	2-3
FY2030	$60	2-3
FY2031	$70	2-3
FY2032	$60	2-3
FY2033	$70	2-3

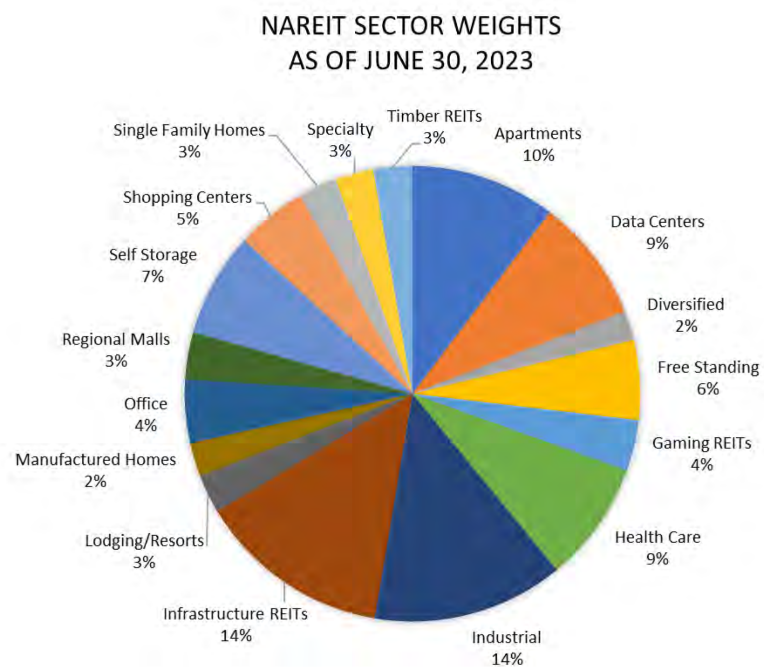
Source: Callan

REITs

- No strategy changes are being recommended.

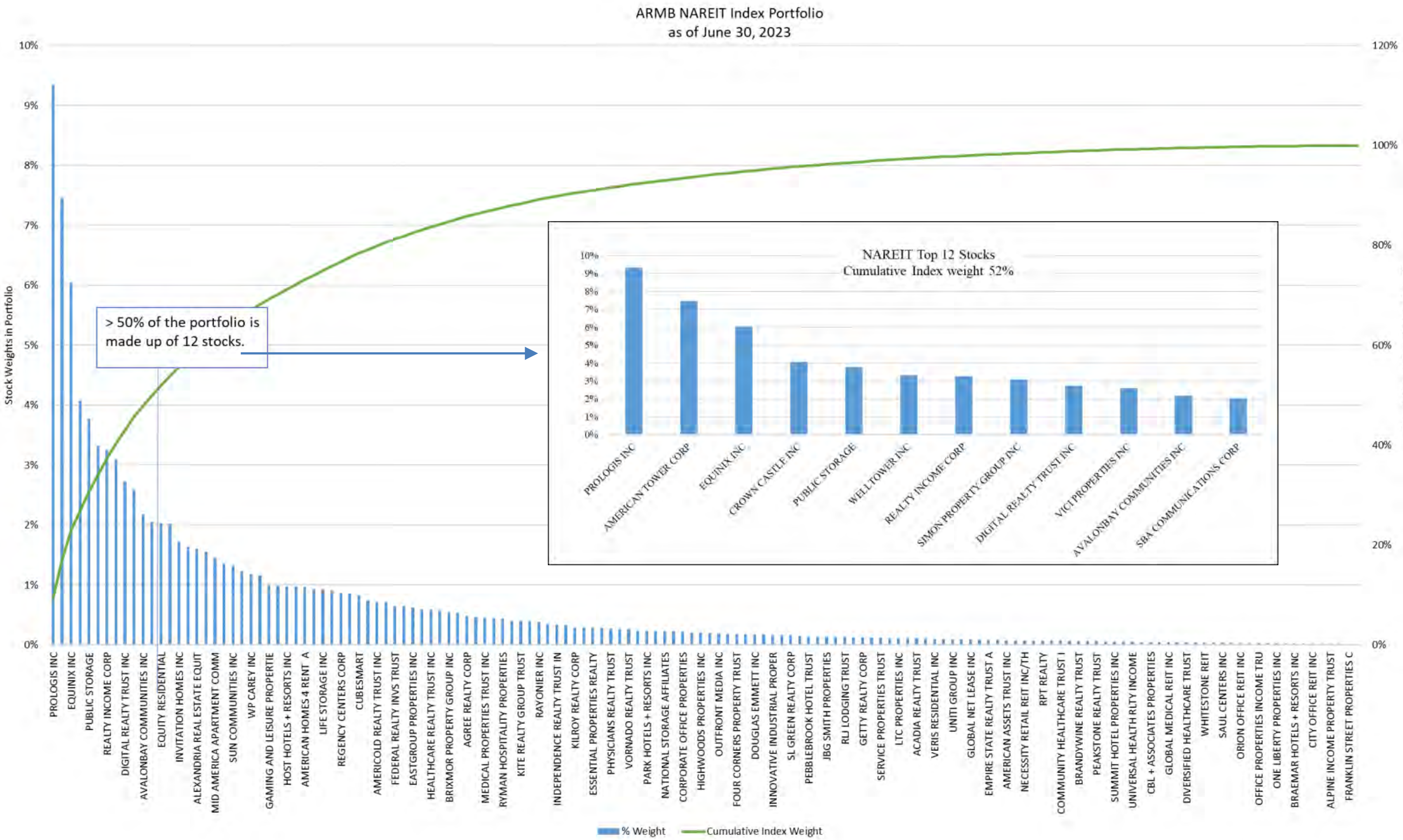
- ARMB currently invests passively in the NAREIT All Equity index. Proposed Fiscal Year 2024 Real Asset sector allocations reduces target weight from 15% to 10%, approximating its current weight of ~$480 million.

- The REIT market provides liquid exposure to some of the best real estate companies in the world and provides diversification through alternative sectors like data centers, self storage, and single family home rentals.



REITs

- The NAREIT All Equity Index holds ~150 stocks with a market cap of $1.2 trillion, but is concentrated.



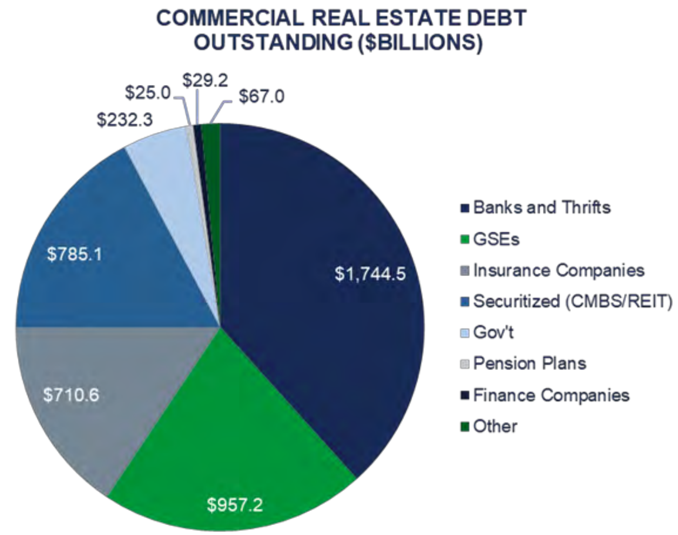
Real Estate Debt

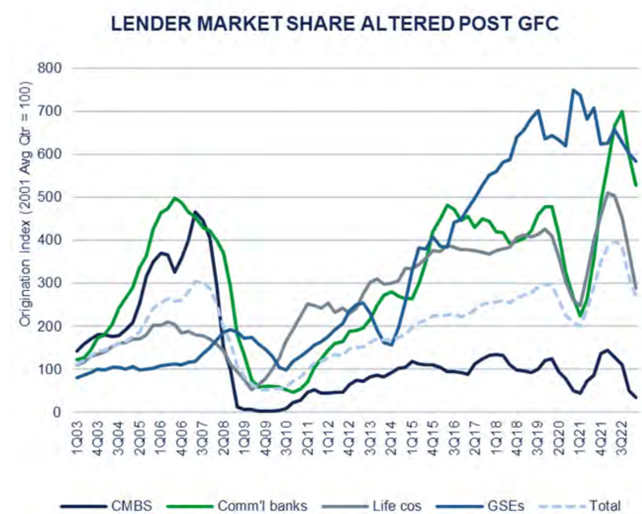
- Add Real Estate Debt to the Real Assets portfolio to increase diversity.

- Proposed Fiscal Year 2024 Real Asset sector allocations establish 5% target weight to real estate debt strategies. Callan's model suggests it offers the highest Sharpe Ratio among Real Asset sectors. Staff has a good fixed income background which will facilitate implementation.

- Initially, fund strategy by transferring the Fidelity Real Estate High Income strategy from fixed income to Real Assets which will approximate the new 5% target. This sector focused strategy has not been a perfect fit in fixed income since it is less liquid and has a lower duration compared to the benchmark. Its higher yields and real asset base make it a good fit for the Real Assets asset class.

- Engage Callan to perform search for one to two private debt strategies. Rebalance portfolio over time as private strategies are funded.

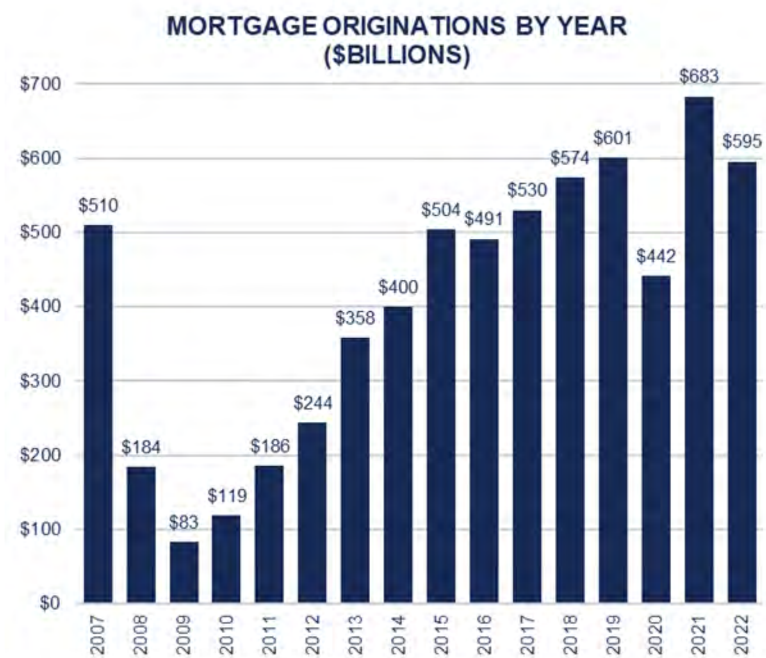


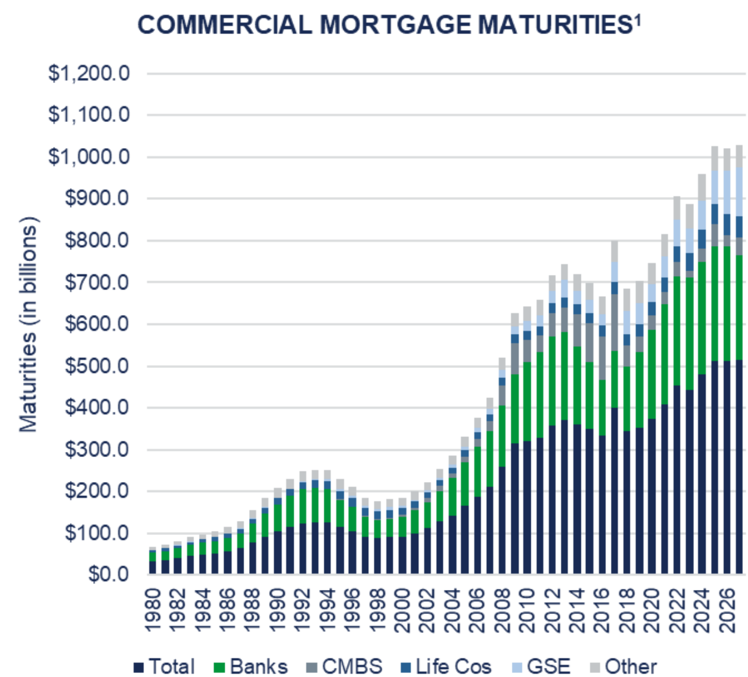


Source: Barings Real Estate Research, Mortgage Bankers Association, Federal Reserve, Trepp. As of March 31, 2023.

Real Estate Debt

- Banks have been the dominant real estate lender. Regional banks are under liquidity and balance sheet pressure that will likely constrain future lending activity.
- The combination of higher base rates, spreads, and more constrained lending creates a good entry point into the sector which generates high current income which is an objective of the Real Assets portfolio.
- The addition of private investment funds will expand the portfolio opportunity set beyond CMBS.





Source: Barings Real Estate Research, Mortgage Bankers Association, Federal Reserve, Trepp. As of March 31, 2023.

1. As of March 31, 2022.

Farmland Overview

- Investment manager makes investments on a discretionary basis within the parameters defined by the ARMB's guidelines and annual investment plan up to approved allocations.
- Portfolio is composed of U.S. farmland. Strategy is a leased-based approach targeting both row crops and permanent crops. ARMB owns 100% of the assets.
- The farmland portfolio target benchmark is the NCREIF Farmland Index reweighted to reflect 80% row crops and 20% permanent crops.

Farmland Portfolio
June 30, 2023

- Total Net Asset Value: $1.1 billion
- Number of Assets: 89
- Total acres: 145,417
- Number of states where investments are located: 16
- Row/Permanent Crop Distribution by MV: 88%/12%

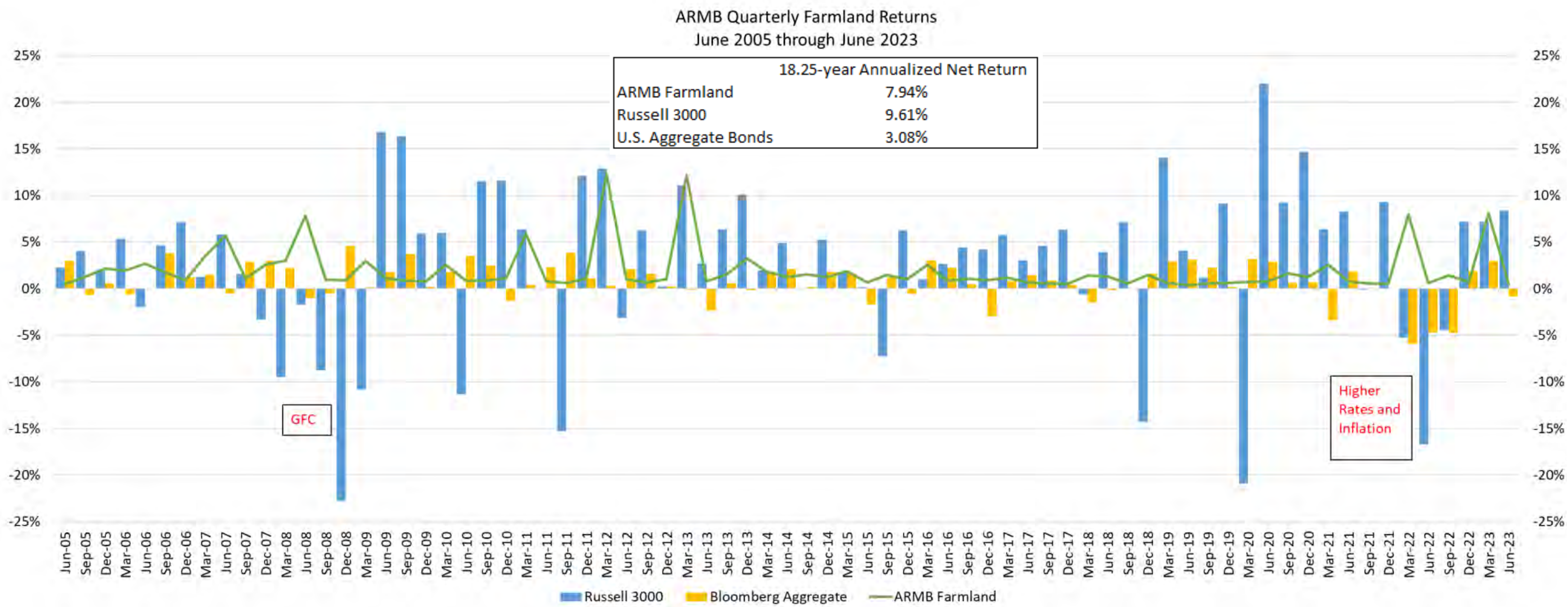

Apples, Washington


Corn, Illinois

Farmland Performance

- Historical returns have been remarkably stable. No negative quarters over 18 years.

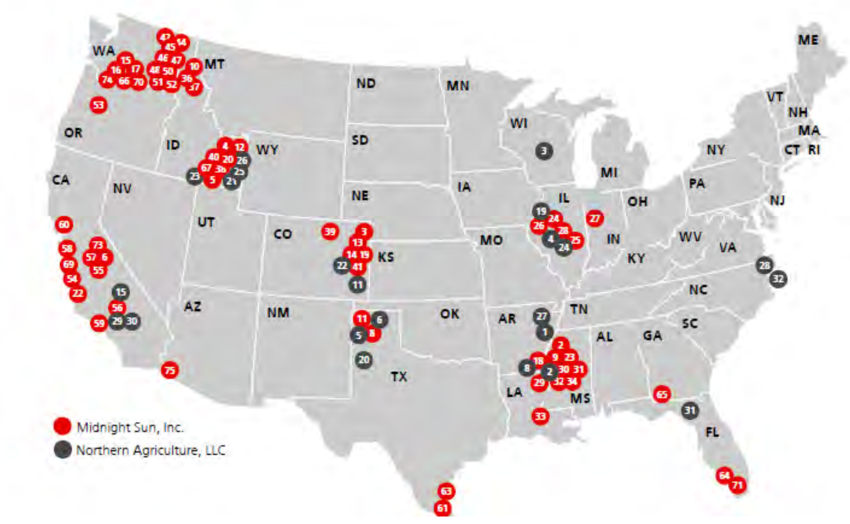
- No leverage is used in portfolio construction.



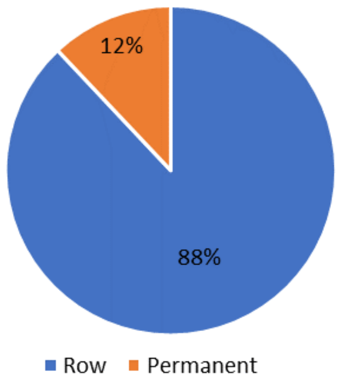
Farmland Portfolio

- No strategy changes are being recommended.
- Portfolio is performing well and is diversified.
- Lower target allocation represents opportunity to optimize portfolio holdings and bring closer to 80%/20% target.

Midnight Sun property location map
(Unaudited)



ARMB Portfolio by Crop Type
as of June 30, 2023



Timberland Overview

- Investment managers makes investments on a discretionary basis within the parameters defined by ARMB's guidelines and annual investment plan up to approved allocations.

- ARMB allocation is fully invested at current size.

- Portfolios are composed of U.S. timberland. ARMB owns 100% of the assets.

- ARMB portfolio is diversified and well positioned to benefit from building product demand with 68% of portfolio in the U.S. South.

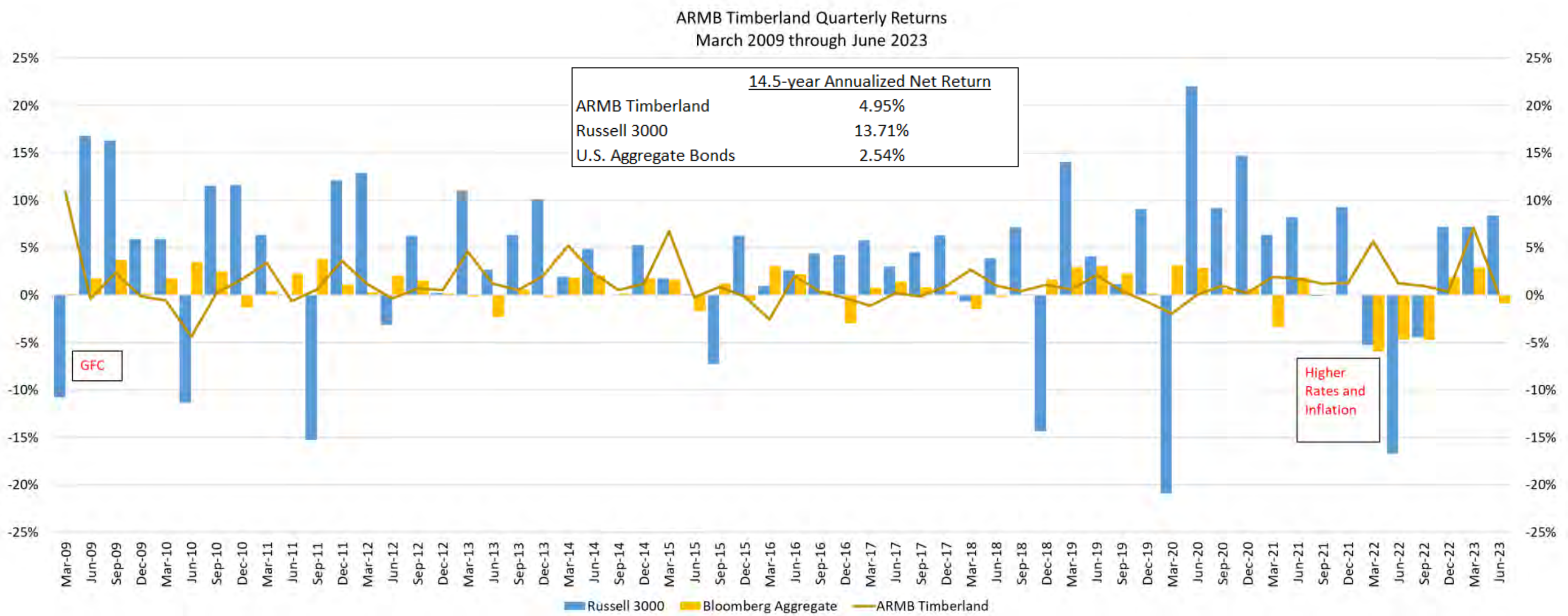
Timberland Portfolio
June 30, 2023

- Total Net Asset Value: $399 million
- Number of Assets: 17
- Total acres: 152,153
- Number of States where investments are located: 11

Timberland Performance

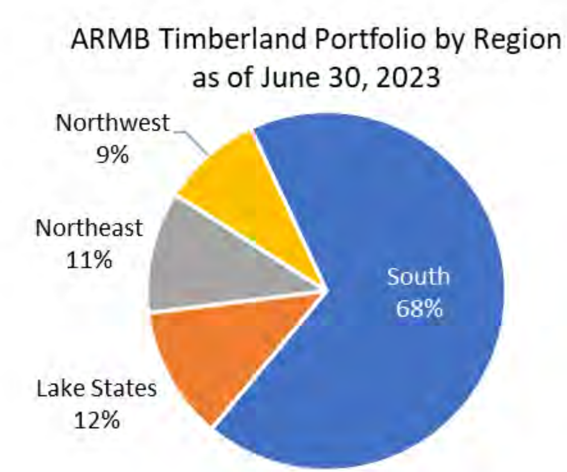
- Historical returns have been lower than expected but generally positive and different that stocks and bonds. More recently demonstrated unique inflation hedge properties and benefits from optionality. Shallow drawdown experience.

- No leverage is used in portfolio construction.



Timberland Portfolio

- No strategy changes are being recommended.
- Portfolio is performing well and is diversified.



Infrastructure Overview

- ARMB is invested in two open-end private investment funds, sponsored by J.P. Morgan and Industry Funds Management (IFM).
- Investments are focused on essential core public infrastructure that are both regulated and unregulated. Assets include regulated water, regulated electricity, airports, pipelines, toll roads, and ports. Target return is 8 – 12% net with a high cash yield.
- Portfolio is well diversified with a mix of GDP sensitive assets and regulated or contractually based assets which often include inflation pass-through features.

Infrastructure Portfolio Profile
June 30, 2023

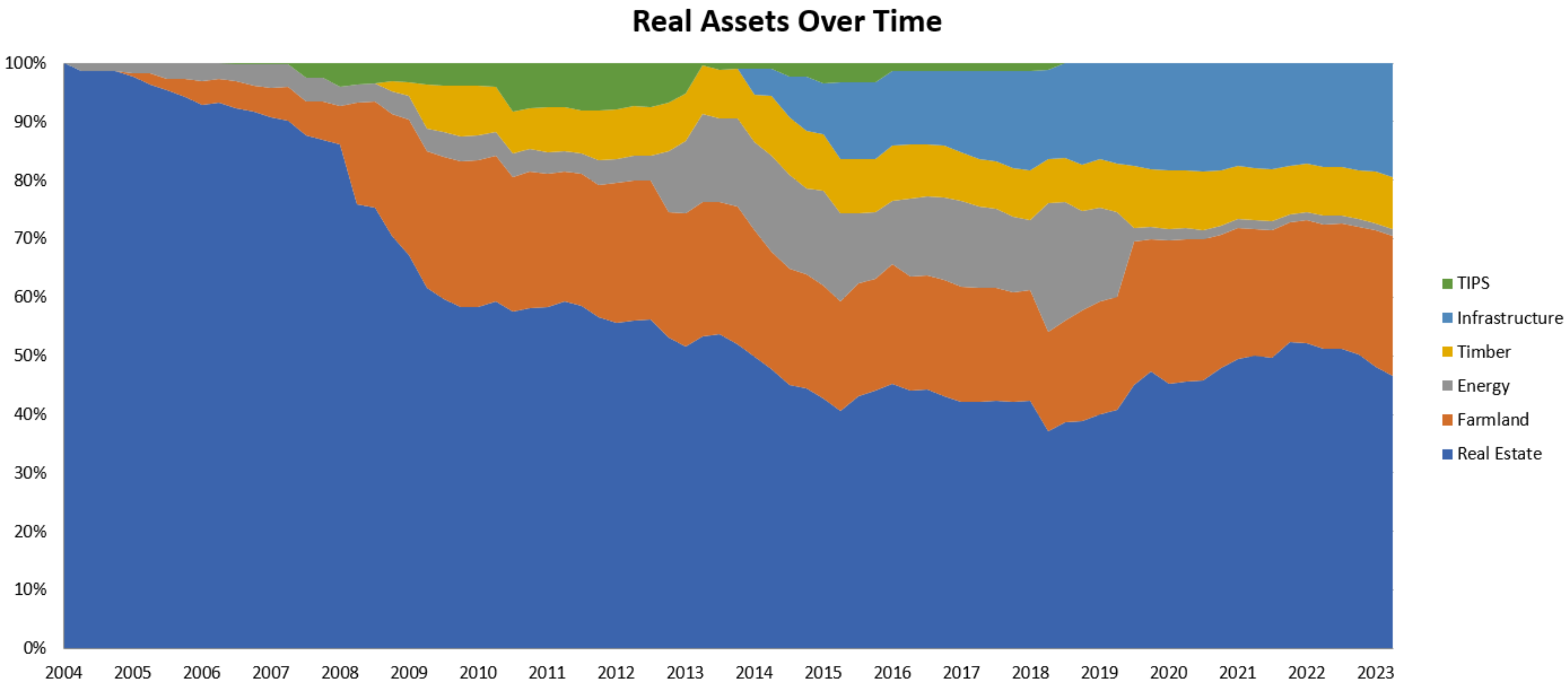
- Total Net Asset Value: $863.4 million
- Number of Company Investments: 45
- Total Combined Fund NAV (all investors): $88.8 billion

Switch, Inc., IFM


Indiana Toll Road, IFM


Nieuport Aviation, JPM

Real Asset Portfolio Evolution



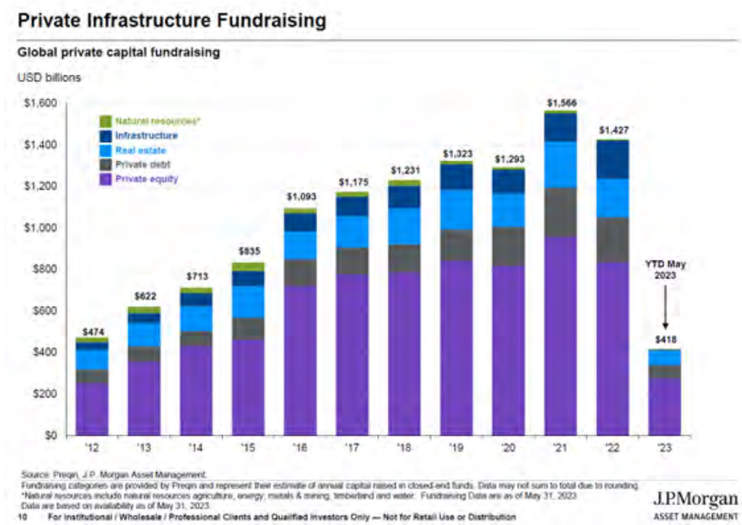
- Infrastructure was added to the portfolio in 2014.
- Managers were identified through a Callan search process.

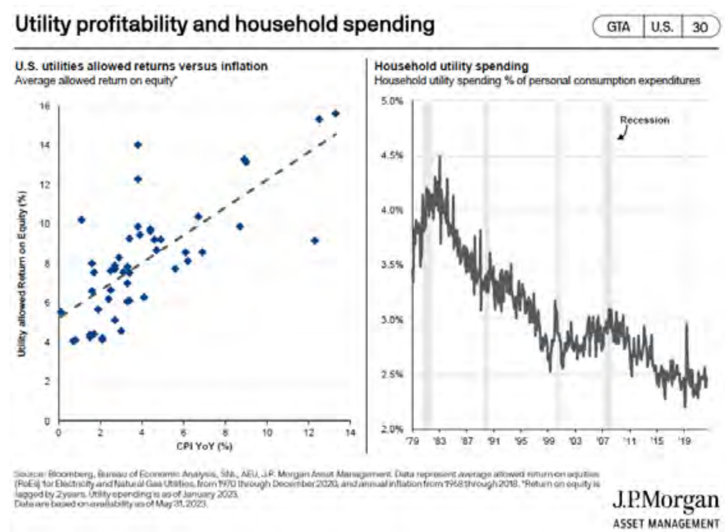
What is Infrastructure?

- Infrastructure investing offers access to long-lived assets which are hard to replicate. ARMB would probably not be able to invest in these assets privately if it were not for commingled vehicles as the single asset size would be too big from a diversification standpoint.

- Infrastructure investments include essential services that often operate on a monopolistic basis and provide diversification, inflation and yield benefits.

- Infrastructure return profile includes a growing income component and appreciation.

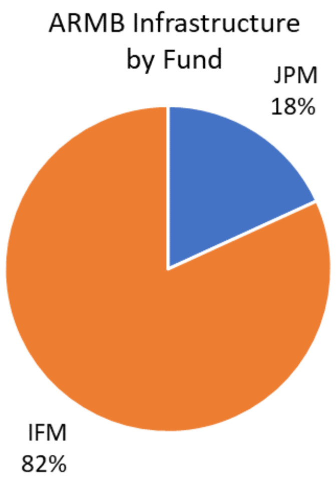




Sydney Airport, IFM

Infrastructure Portfolio Structure

- ARMB is invested in two open-end private investment funds, sponsored by J.P. Morgan and Industry Funds Management (IFM).
- Liquidity:
  - JPM - semi-annual
  - IFM - quarterly
- ARMB receives cash distributions.
- Both funds currency hedge to USD.
- Benchmarked to CPI + 4%.
- Both funds have experienced large growth:
  - J.P. Morgan fund size in 2014: \$3.3 billion. In 2023: \$34.3 billion.
  - IFM fund size in 2014: \$5.4 billion. In 2023: \$52.0 billion

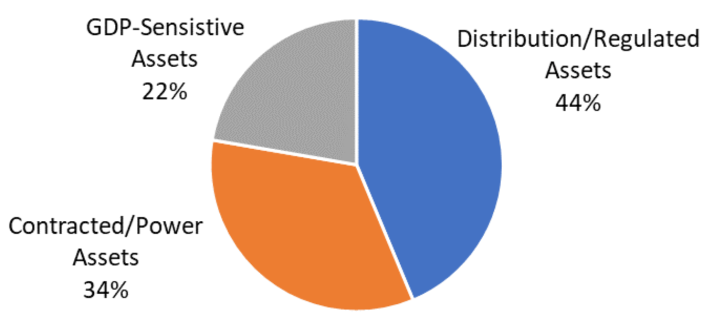


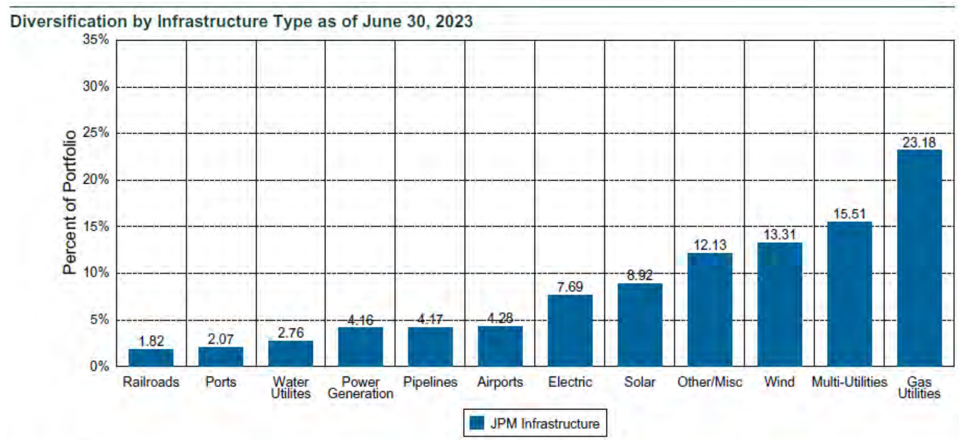
ARMB Investment as of June 30, 2023, \$ millions	
J.P. Morgan	\$156.8
IFM	\$706.6
Total	\$863.4

Infrastructure Fund Comparison

- J.P. Morgan and IFM have different risk and return profiles due to the underlying assets.

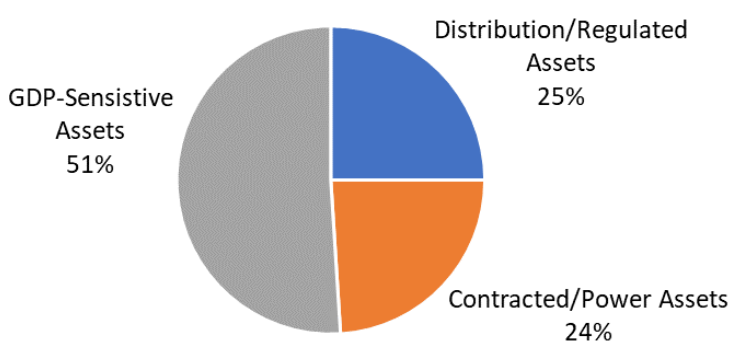
J.P. Morgan

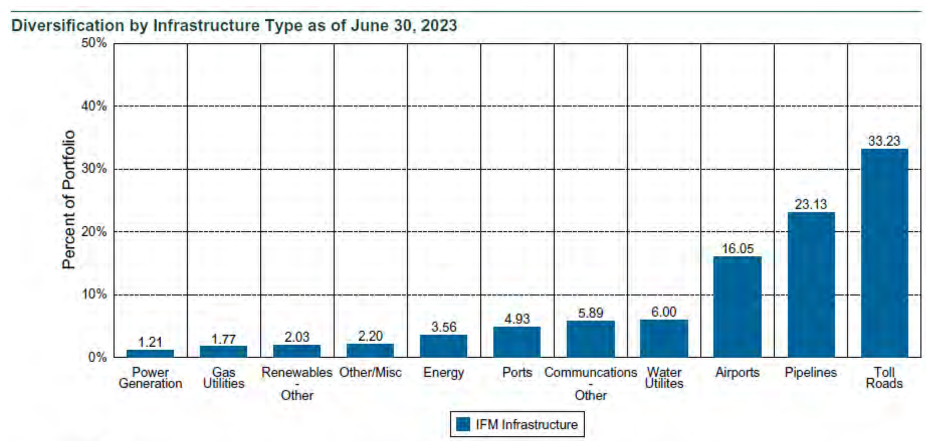




JPM Infrastructure	1.82%	2.07%	2.76%	4.16%	4.17%	4.28%	7.69%	8.92%	12.13%	13.31%	15.51%	23.18%

IFM





IFM Infrastructure	1.21%	1.77%	2.03%	2.20%	3.56%	4.93%	5.89%	6.00%	16.05%	23.13%	33.23%

Source: Callan

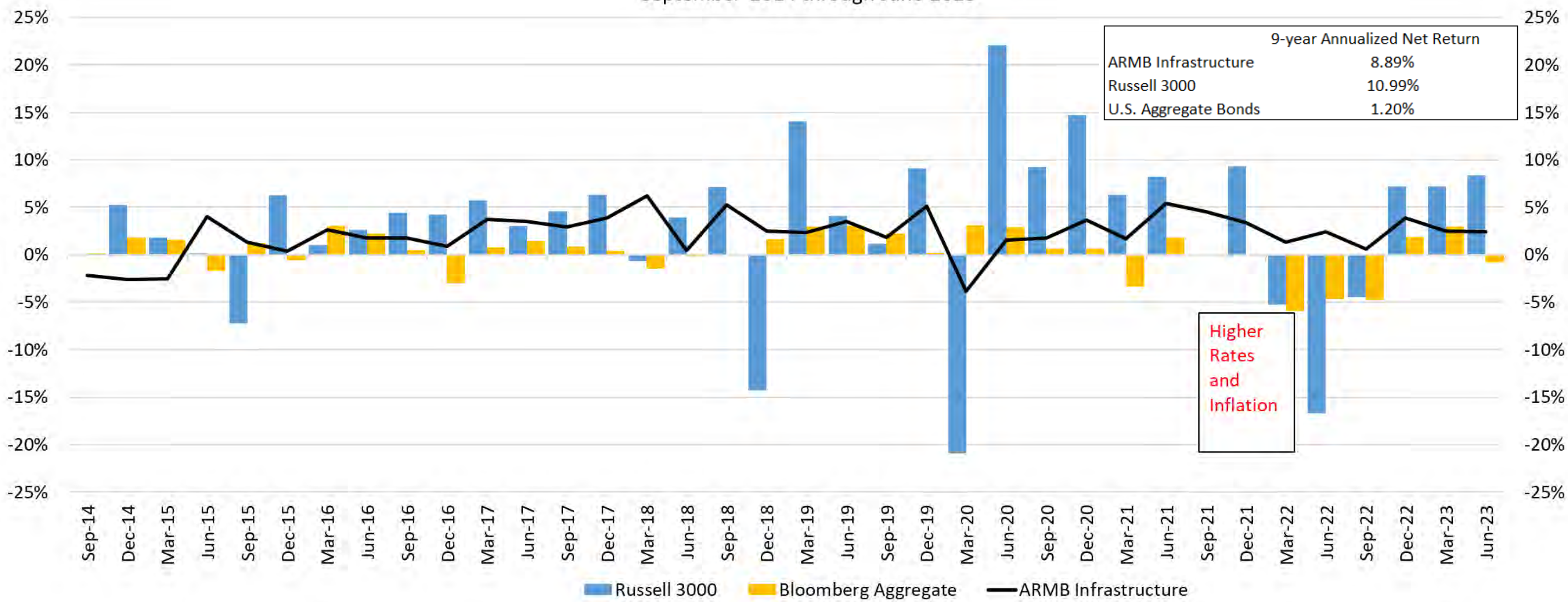
Infrastructure Performance

- Infrastructure has produced steady, generally positive returns.

Returns for Periods Ended June 30, 2023	Last Quarter	Last Year	Last 3 Years	Last 6 Years	ITD 9 Years	IFM ITD 8.25 Years	JPM ITD 9 Years
IFM (net)	2.52%	9.58%	12.38%	12.21%	-	11.52%	-
J.P. Morgan (net)	2.01%	10.34%	8.54%	7.71%	-	-	5.68%
ARMB Infrastructure (net)	2.43%	9.72%	11.65%	11.28%	8.89%	-	-
CPI+4%	2.04%	6.97%	9.78%	7.73%	6.79%	7.16%	6.79%

Source: Callan PEP
Annualized returns for periods longer than Last Quarter

ARMB Infrastructure Quarterly Returns
September 2014 through June 2023



Infrastructure Summary

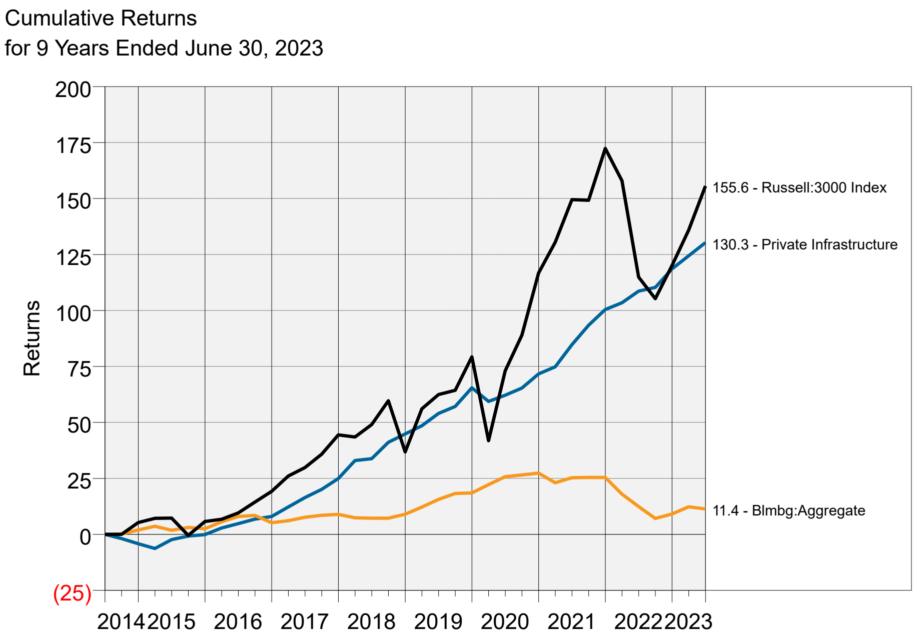
- Reduce risk and increase return by rebalancing current positions and adding complimentary, higher return strategies.

- Infrastructure has been a good investment for the ARMB. Portfolio performance has met expectations. Both funds have benefitted from focus on cash yield and organic growth opportunities from existing companies in the portfolio.

- Current portfolio discount rates are attractive compared to risk free rates. They have not compressed like other asset sectors. The current weighted average discount rate for assets in the portfolios is approximately 10%.

- Diversification can be improved by moving toward a more balanced exposure across existing open-end funds.

- Infrastructure has exceeded expectations which provides confidence in adding higher risk/return strategies to the portfolio.



Source: Callan

Real Assets Fiscal Year 2024 Investment Plan

Asset Class	• Adopt new sector target allocations: Core Real Estate 30%----------- Non-core Real Estate 5% Real Estate Debt 5% US REITs 10% ------------------ Timberland 10% ----------------- Farmland 20% ------------------- Infrastructure 20% --------------	<u>Policy Benchmark:</u> 40% NCREIF ODCE Index 10% NAREIT All Equity Index 10% NCREIF Timberland Index 20% NCREIF Farmland (80/20) 20% CPI+4%	<u>Implementation:</u> Effective Date: 10/1/23 Supersedes Real Assets policy established in Resolutions 2023-02 and 2023-03, relating to plan level asset allocation, on effective date.
Real Estate	• Wind down UBS Separate Account. Transfer apartment assets to Sentinel. Utilize Callan search process to fund two new core ODCE fund managers with complementary strategies to existing ARMB real estate investments. • Rebalance core fund exposures over time to optimal weights consistent with total core target. • Implement non-core pacing model and raise exposure to target level consistent with new sector targets. • Add debt investments to portfolio initially by transferring Fidelity REHI strategy from fixed income to Real Assets. Utilize Callan search to identify one to two private debt investment funds to compliment existing CMBS portfolio.		
Farmland	• No strategy changes recommended.		
Timberland	• No strategy changes recommended.		
Infrastructure	• Gradually rebalance existing open-end exposures to optimal weights over time. • Add best-in-class higher return strategies as opportunities present.		

Callan

September 2023

Alaska Retirement Management Board

FY 2024 Real Assets Strategic Plan Review

Jonathan Gould, CAIA
Senior Vice President

Avery Robinson, CAIA
Co-Manager – Real Assets Consulting

Jay Kloepfer
Director – Capital Market Research

ARMB Real Assets Strategic Plan Review

ARMB – Real Assets Role, Structure and Objectives

ARMB Real Assets: Portfolio Role & Objective

- **Role / Objective**: ARMB maintains an overall target of 14% to Real Assets, with the goal of providing the portfolio with diversification and attaining the optimum return on the portfolio, consistent with the assumption of prudent risk and safety of principal.
  - Additional potential benefits of the Real Assets allocation include:
    - *Risk reduction via lower correlation with other asset classes;*
    - *Hedge against inflation;*
    - *Stable, reliable income streams; and*
    - *Potential for growth and return enhancement via appreciation of underlying assets*
- **Structure**: The ARMB Real Assets portfolio includes a diversified mix of public and private real estate, infrastructure, farmland, timberland and legacy energy assets.
  - The portfolio invests in these asset classes via separately-managed accounts, open- and closed- end commingled funds and, in the case of public REITs, an internally-managed portfolio.
- **Return Expectations**: Over rolling six- year periods, the ARMB real assets investment portfolio is expected to generate a net-of-fee total return between public equities and fixed-income.
  - *Since July 1, 2021, ARMB has utilized the following Real Assets Return Benchmark:*
    - *35% - NCREIF NFI-ODCE Value Weight Net;*
    - *25% - NCREIF Farmland Index (80/20 blend)*
    - *15% CPI + 4%*
    - *15% FTSE NAREIT All Equity Index; and*
    - *10% NCREIF Timberland Index.*

ARMB Real Assets Portfolio Composition & Performance

ARMB Real Assets Allocation

ARMB Real Assets Portfolio Allocation vs. Current Target – June 30, 2023

	Target Weight	Exposure ($million)	Current Weight	Variance	Percent of Overall Portfolio
Core Real Estate	35.00%	$1,551	34.3%	-0.7%	4.9%
Non-Core Real Estate	-	$111	2.4%	+2.4%	0.4%
REITs	15.00%	$483	10.7%	-4.3%	1.5%
Private Infrastructure	15.00%	$863	19.1%	+4.1%	2.7%
Farmland	25.00%	$1,064	23.5%	-1.5%	3.4%
Timber	10.00%	$399	8.8%	-1.2%	1.3%
Energy	-	$54	1.2%	+1.2%	0.2%
Total Real Assets	***14.0%***	***$4,526***		***+0.4%***	***14.4%***
Total Fund		**$31,519**			

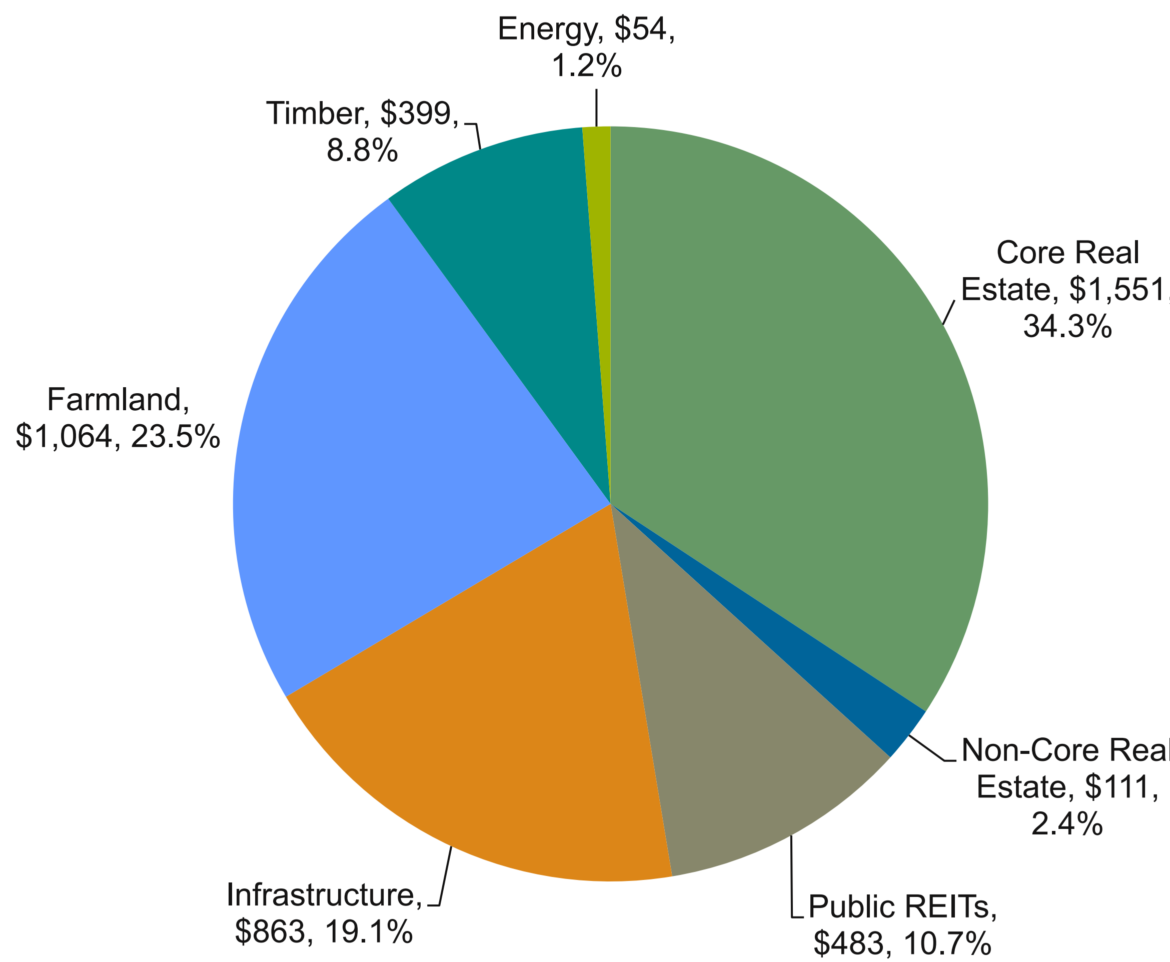
Implementation Considerations:

- The Real Assets target was increased from 13% to 14% in 2021. At June 30, 2023, the plan remained overweight to Real Assets due to outperformance of Real Assets relative other asset classes in the portfolio in recent periods.
- The underweight to public **REITS** expanded over from a -3.8% underweight at June 30, 2022 to -4.3% at June 30, 2023.
- ARMB is modestly overweight to **Private Infrastructure** (+4.1%). The dividend reinvestment options for both Private Infrastructure positions have been turned off, which modestly limits the ability for the overall position to grow.
- The portfolio has a modest underweight to Farmland; capital deployment in Farmland can be lumpy and take years to fully fund.
- **Energy** and **Non-Core Real Estate** are not formal targets for ARMB's Real Assets portfolio and are therefore inherently overweight.
  - The Energy and Non-Core real estate allocations are entirely in illiquid, closed-end funds, and as such will take a few years to fully wind down.
  - Non-core real estate was eliminated from the target allocation in 2019; however, re-ups with existing managers are considered on a select basis.
  - As detailed later, ARMB Staff and Callan are proposing to re-introduce non-core real estate as a formal target for ARMB's Real Assets portfolio.

ARMB Real Assets Portfolio Summary

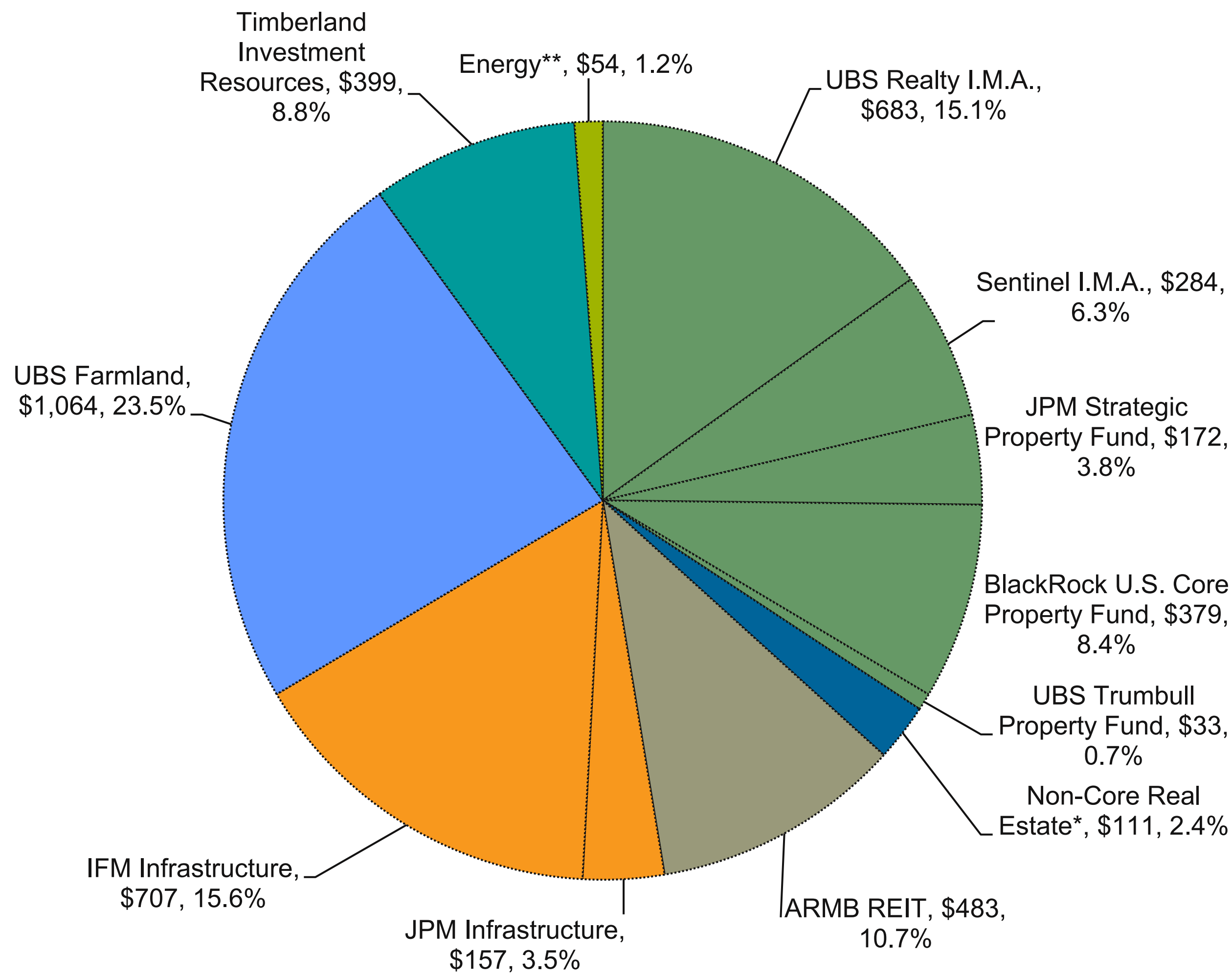
ARMB Real Assets Portfolio Overview, as of June 30, 2023

- The ARMB Real Assets portfolio was valued at approximately **$4.53 billion** at June 30, 2023.
- Real Estate accounted for slightly less than half of the Real Assets portfolio, with private core real estate comprising 34.3% of the portfolio followed by public REITs at 10.7%. Non-core real estate is a smaller component at just 2.4% of the Real Assets portfolio.
- Farmland and Infrastructure are also key components of the ARMB Real Assets portfolio, while Timber remains a relatively modest position. Private Energy is no longer a strategic allocation but still accounts for 1.2% of the Real Assets portfolio.



ARMB Real Assets Portfolio Summary

ARMB Real Assets Manager Distribution, as of June 30, 2023

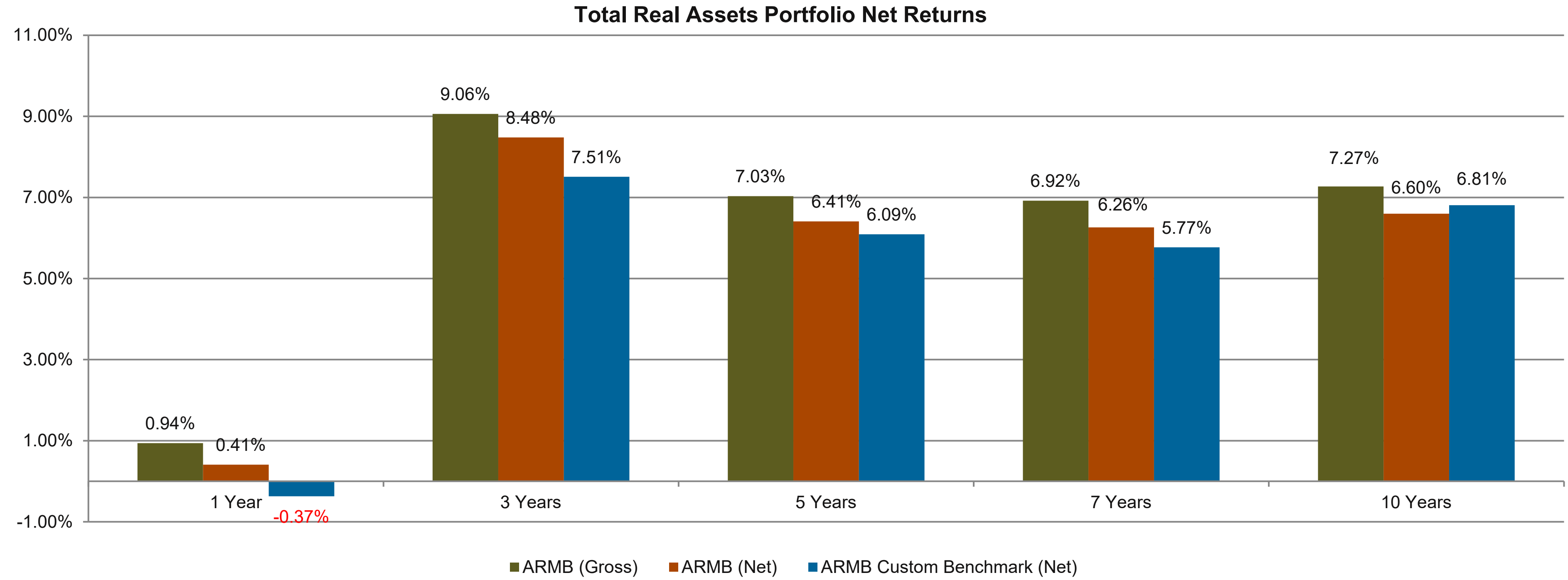


* Non-Core RE portfolio includes Almanac (1.44%), KKR (0.80%), Clarion (0.15%) and Silverpeak (0.04%).

** Energy includes EIG (1.19%)

ARMB Real Assets Portfolio – Total Returns

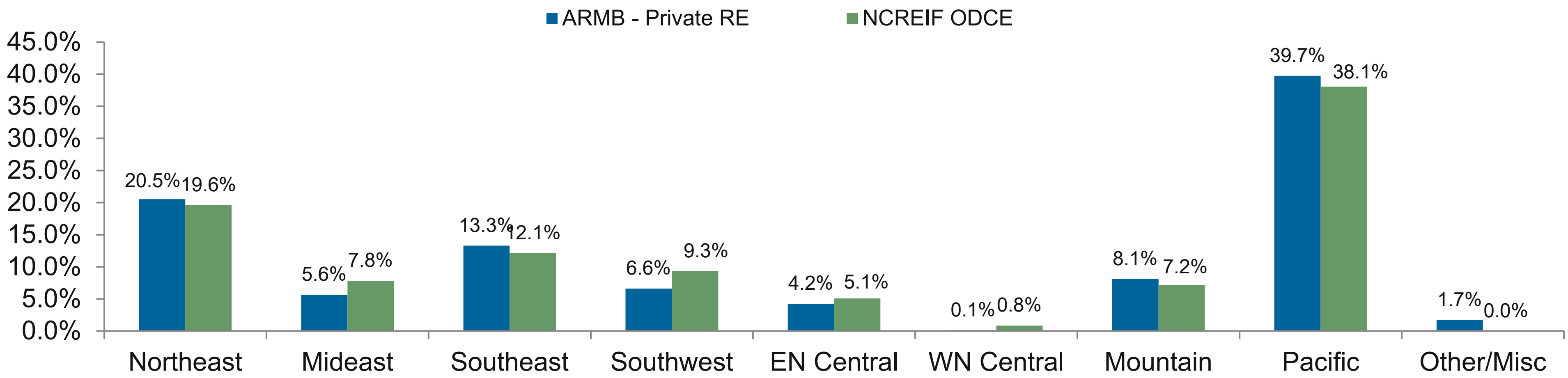
For Period Ended June 30, 2022

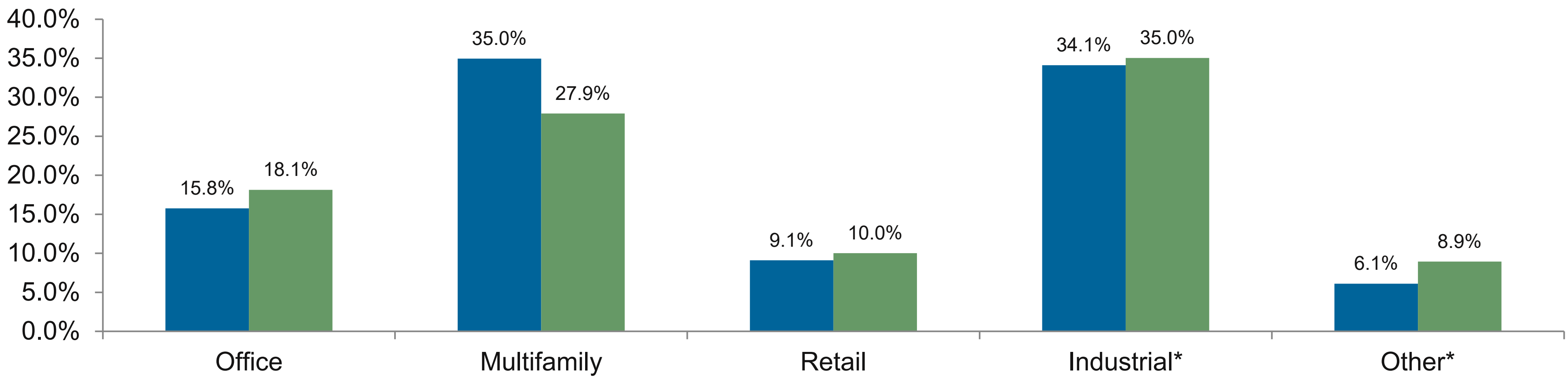


ARMB Real Assets	1 Year	3 Years	5 Years	7 Years	10 Years
Total Real Assets Gross	0.94%	9.06%	7.03%	6.92%	7.27%
Total Real Assets Net	**0.41%**	**8.48%**	**6.41%**	**6.26%**	**6.60%**
ARMB Real Assets Benchmark*	-0.37%	7.51%	6.09%	5.77%	6.81%
Net Excess Return	*0.78%*	*0.97%*	*0.32%*	*0.49%*	*-0.21%*

* Starting 07/01/2021 (3Q21), the Real Assets Benchmark is 35% NCREIF ODCE Value Wt Net Index, 15% FTSE NAREIT All Equity Index, 25% NCREIF Farmland Index, 10% NCREIF Timberland Index, and 15% CPI + 4%

ARMB Real Assets Portfolio – Private Real Estate Diversification

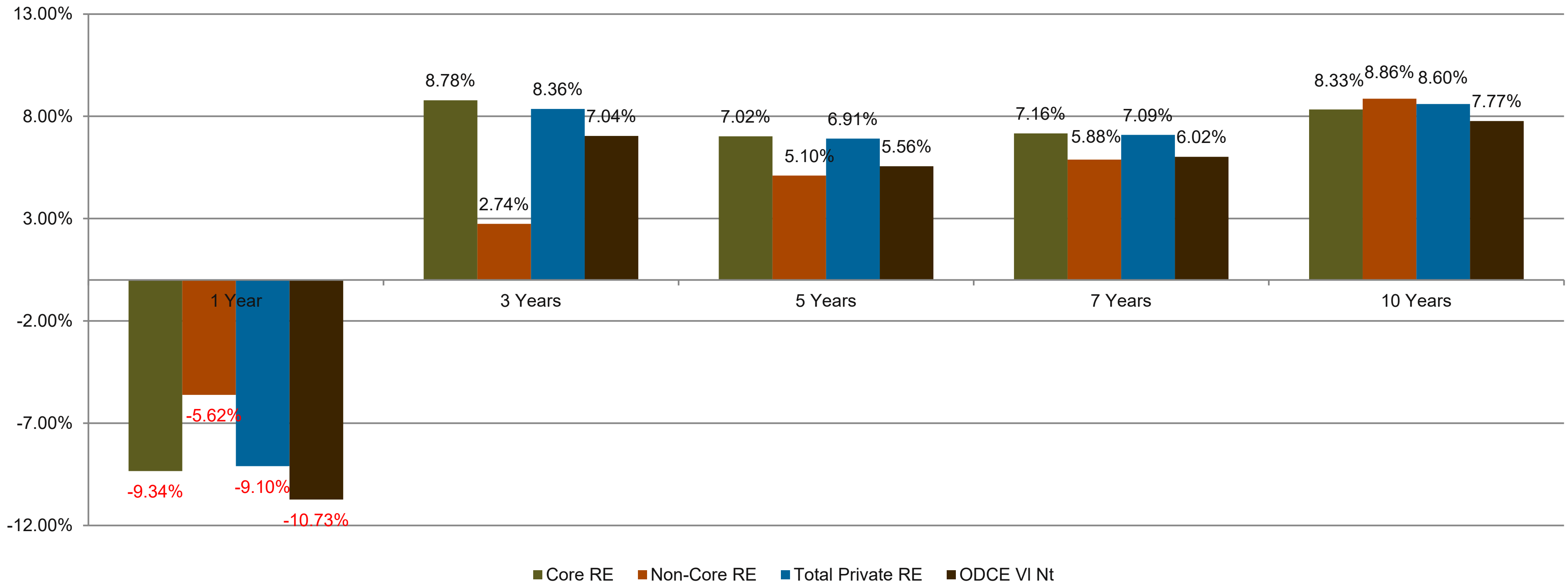




* Includes Hotels, Mixed-Use, Self-Storage, For Sale Residential, Senior Housing, Student Housing and Land.

- ARMB's private real estate portfolio is well diversified and well-positioned by market and property type for the current real estate environment.

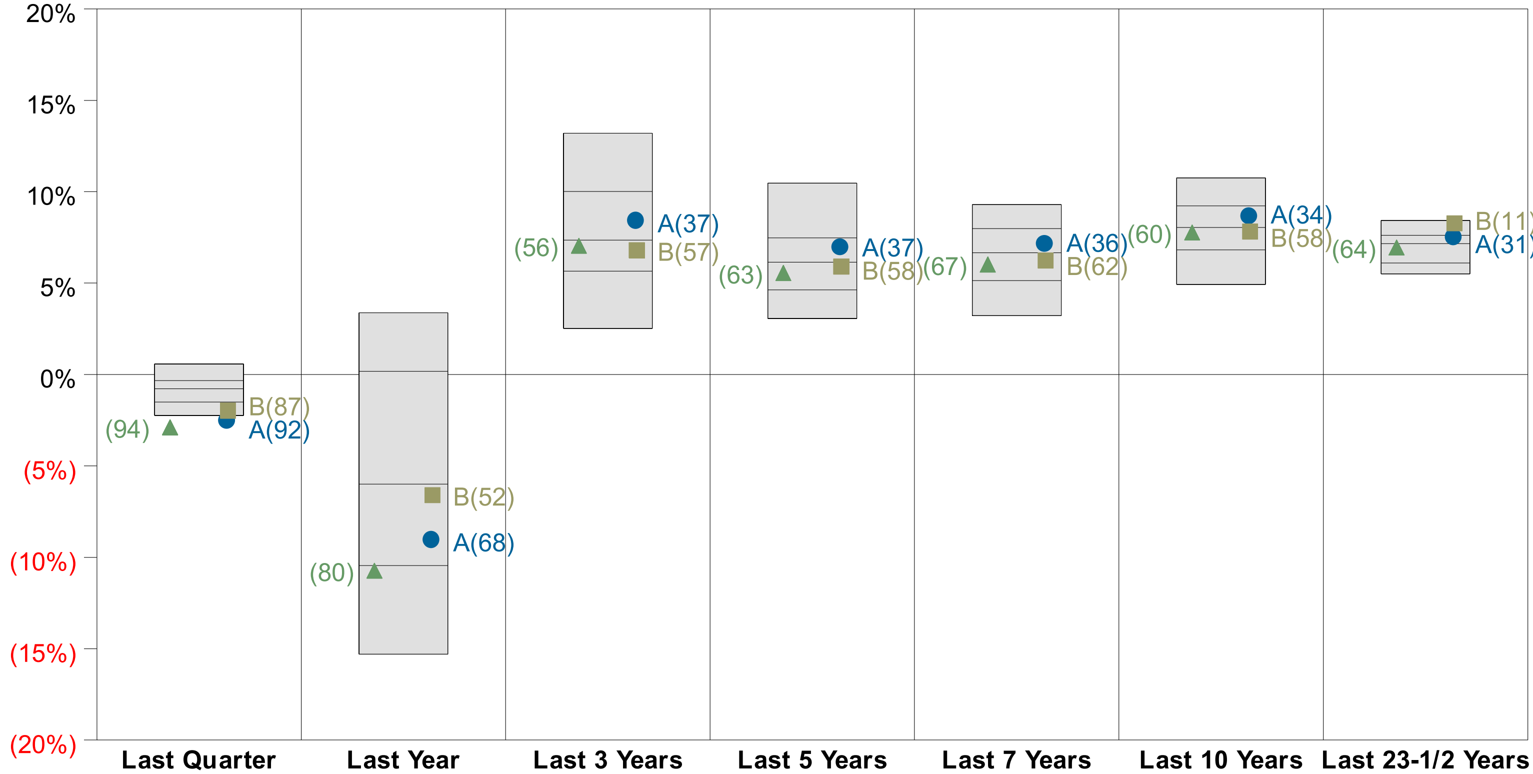
ARMB Private Real Estate Performance – Core vs. Non-Core



Sub-Sector Returns	1 Year	3 Years	5 Years	7 Years	10 Years
Core Real Estate	-9.34%	8.78%	7.02%	7.16%	8.33%
Non-Core Real Estate	-5.62%	2.74%	5.10%	5.88%	8.86%
Total Private Real Estate	**-9.10%**	**8.36%**	**6.91%**	**7.09%**	**8.60%**
NCREIF NFI-ODCE Val Wt Nt	*-10.73%*	*7.04%*	*5.56%*	*6.02%*	*7.77%*
NCREIF NFI-ODCE Val Wt Nt + 1.5%	*-9.23%*	*8.56%*	*7.07%*	*7.53%*	*9.28%*

ARMB Private Real Estate Performance – Private Real Estate

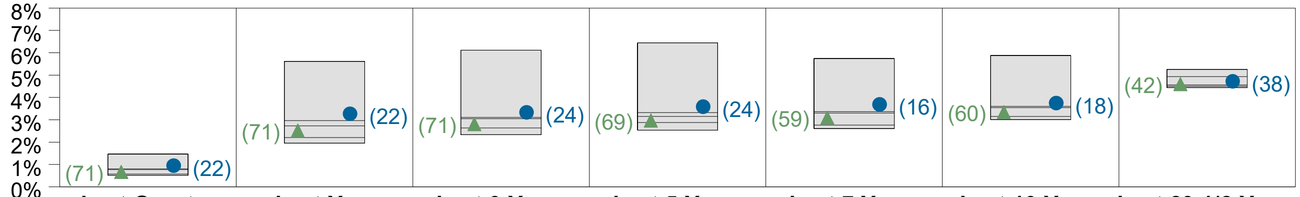
Performance vs Callan Total Domestic Real Estate DB



		Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years	Last 23-1/2 Years
10th Percentile		0.57	3.38	13.20	10.47	9.29	10.76	8.43
25th Percentile		(0.33)	0.17	10.01	7.48	7.98	9.22	7.62
Median		(0.78)	(6.00)	7.35	6.14	6.67	8.05	7.17
75th Percentile		(1.50)	(10.46)	5.66	4.63	5.14	6.82	6.11
90th Percentile		(2.24)	(15.30)	2.52	3.06	3.22	4.93	5.50
Private Real Estate Portfolio	● A	(2.58)	(9.10)	8.36	6.91	7.09	8.60	7.45
NCREIF Total Index	■ B	(1.98)	(6.60)	6.79	5.90	6.24	7.82	8.27
NCREIF NFI-ODCE Val Wt Nt	▲	(2.88)	(10.73)	7.04	5.56	6.02	7.77	6.95

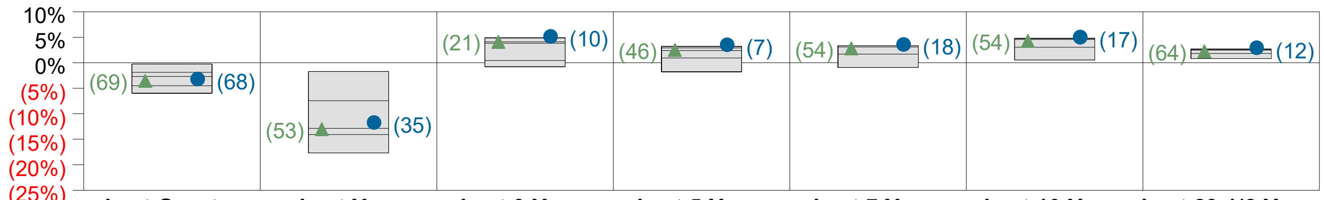
ARMB Private Real Estate Performance – Income vs. Appreciation

Income Rankings vs Callan Real Estate Core
Periods ended June 30, 2023



	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years	Last 23-1/2 Years
10th Percentile	1.47	5.61	6.12	6.45	5.74	5.88	5.26
25th Percentile	0.81	2.96	3.10	3.32	3.37	3.61	4.93
Median	0.77	2.73	3.05	3.15	3.30	3.54	4.57
75th Percentile	0.57	2.21	2.64	2.87	2.77	3.15	4.51
90th Percentile	0.51	1.95	2.33	2.54	2.61	3.01	4.44
Private Real Estate Portfolio ●	0.90	3.21	3.28	3.53	3.63	3.69	4.67
NCREIF NFI-ODCE Val Wt Nt ▲	0.67	2.52	2.81	2.97	3.10	3.35	4.60

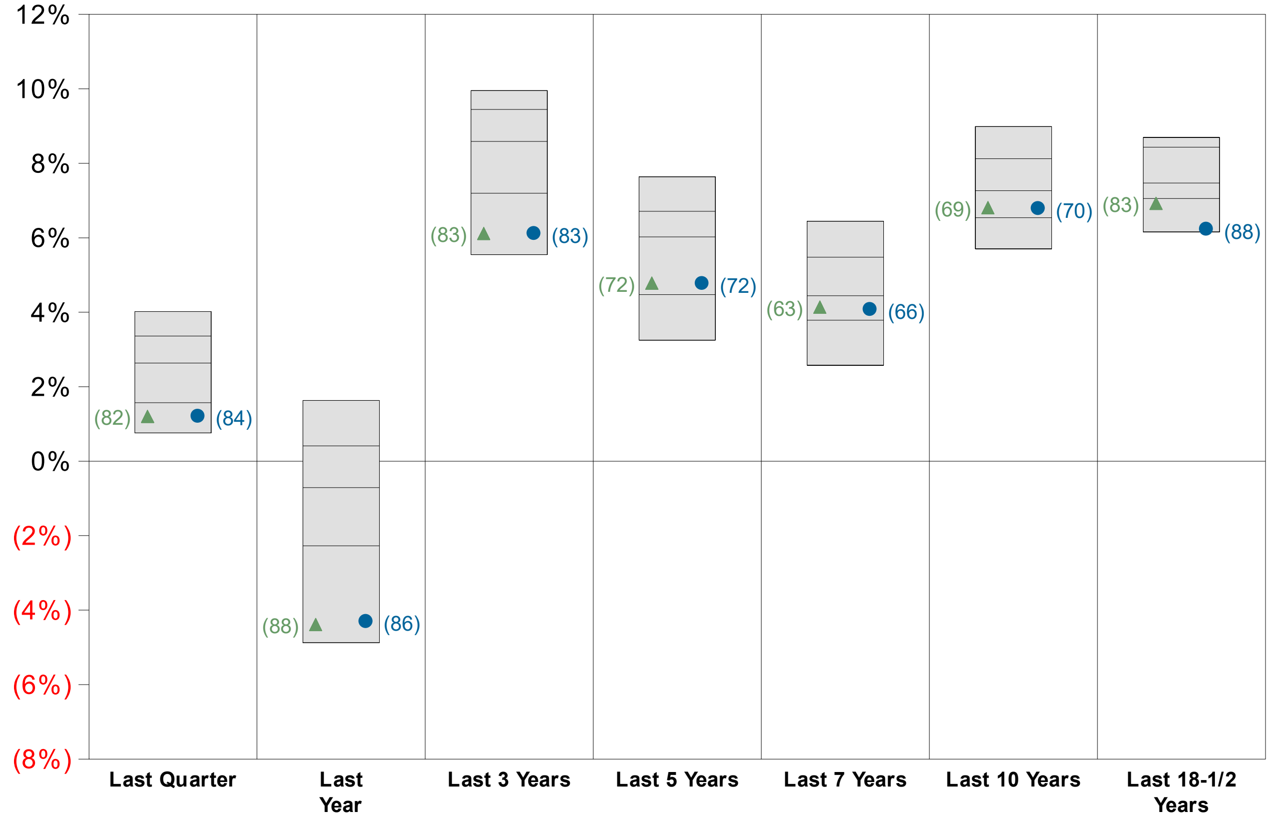
Appreciation Rankings vs Callan Real Estate Core
Periods ended June 30, 2023



	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years	Last 23-1/2 Years
10th Percentile	(0.22)	(1.73)	4.91	3.21	3.36	4.86	2.71
25th Percentile	(1.87)	(7.44)	4.12	2.92	3.35	4.73	2.56
Median	(2.68)	(12.87)	3.85	2.37	3.09	4.56	2.48
75th Percentile	(4.50)	(14.10)	0.43	0.94	1.71	3.05	1.83
90th Percentile	(5.96)	(17.67)	(0.79)	(1.79)	(0.94)	0.57	0.82
Private Real Estate Portfolio ●	(3.46)	(11.97)	4.92	3.28	3.36	4.77	2.69
NCREIF NFI-ODCE Val Wt Nt ▲	(3.55)	(13.00)	4.15	2.54	2.86	4.32	2.27

ARMB Real Assets Portfolio Performance – Public Real Estate

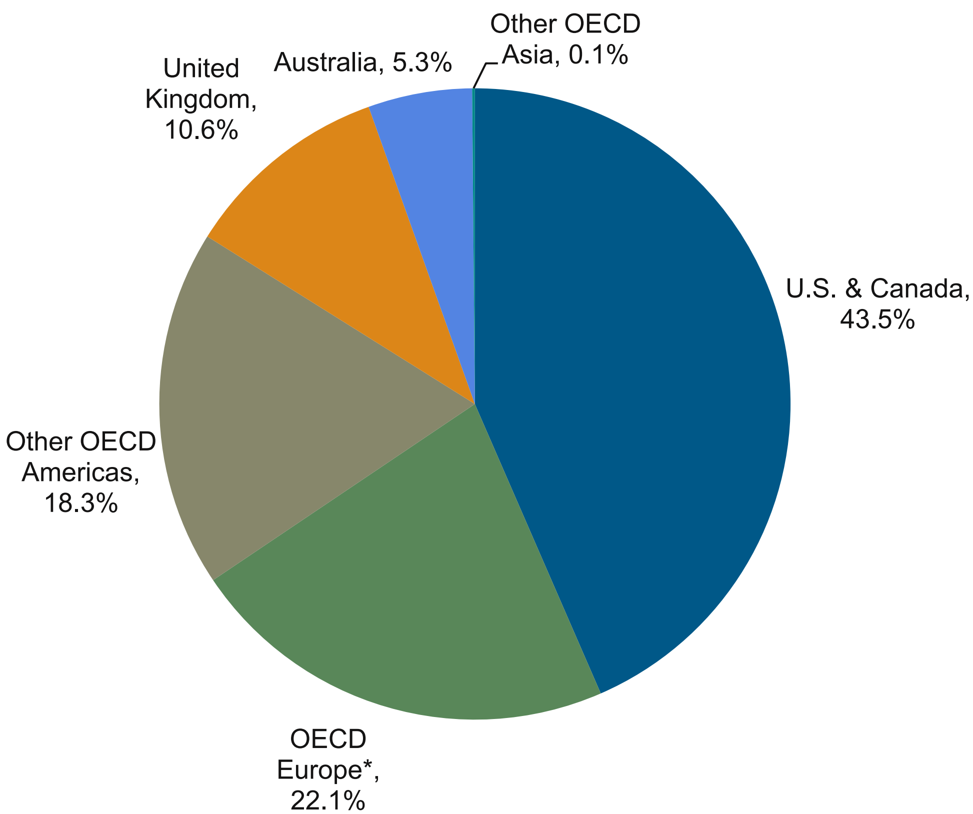
Performance vs Callan Real Estate REIT (Gross)

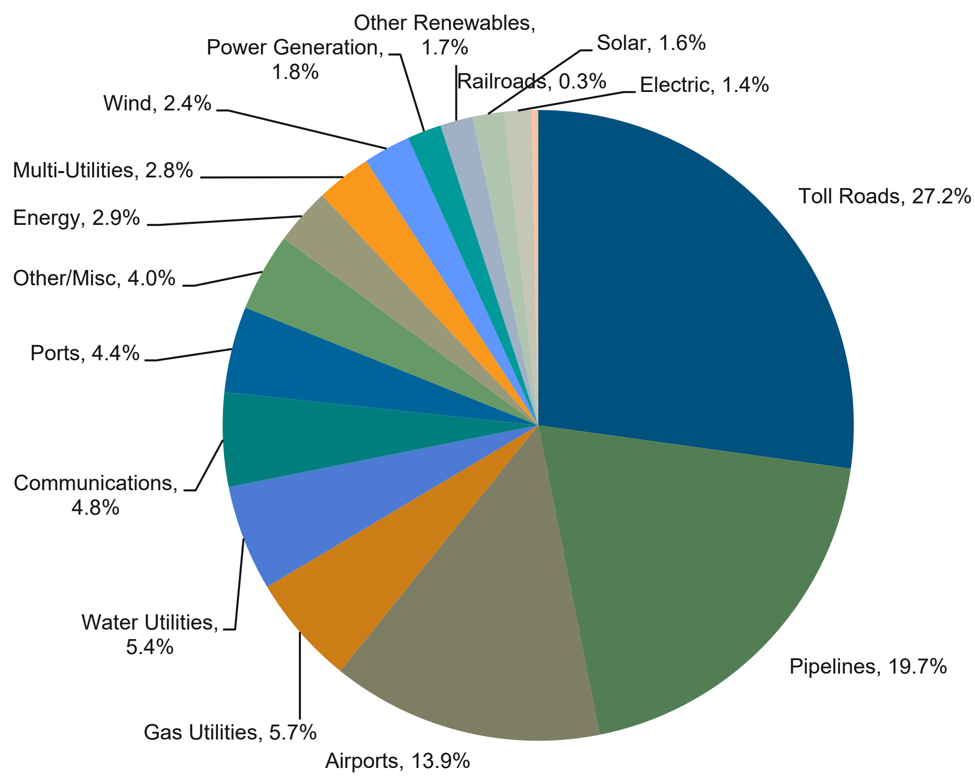


	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years	Last 18-1/2 Years
10th Percentile	4.02	1.63	9.95	7.64	6.45	8.99	8.69
25th Percentile	3.36	0.41	9.44	6.71	5.48	8.12	8.43
Median	2.64	(0.71)	8.59	6.02	4.44	7.26	7.47
75th Percentile	1.57	(2.27)	7.20	4.48	3.79	6.54	7.06
90th Percentile	0.76	(4.88)	5.55	3.25	2.57	5.70	6.16
ARMB REIT ●	1.19	(4.32)	6.10	4.76	4.06	6.77	6.21
FTSE NAREIT All Eq Index ▲	1.20	(4.39)	6.12	4.78	4.14	6.81	6.93

ARMB Real Assets Portfolio – Infrastructure Portfolio

- ARMB's Private Infrastructure portfolio is predominately invested in stabilized assets in the primary infrastructure sectors, which are expected to continue generating reliable cash flows over longer time periods.
- The portfolio also provides a global exposure, though almost exclusively in mature, stable markets.

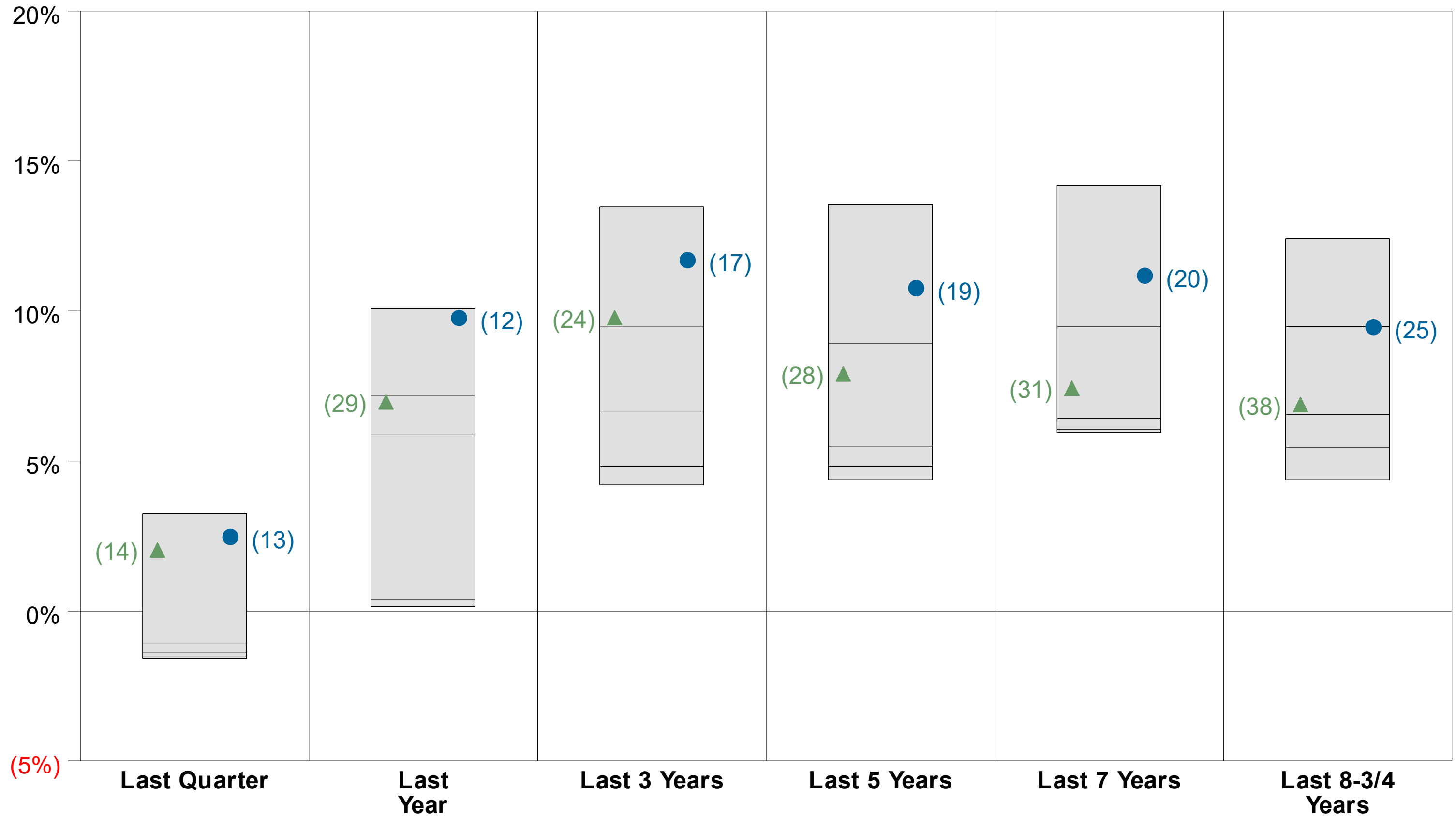




* Excludes U.K..

ARMB Real Assets Portfolio Performance – Infrastructure

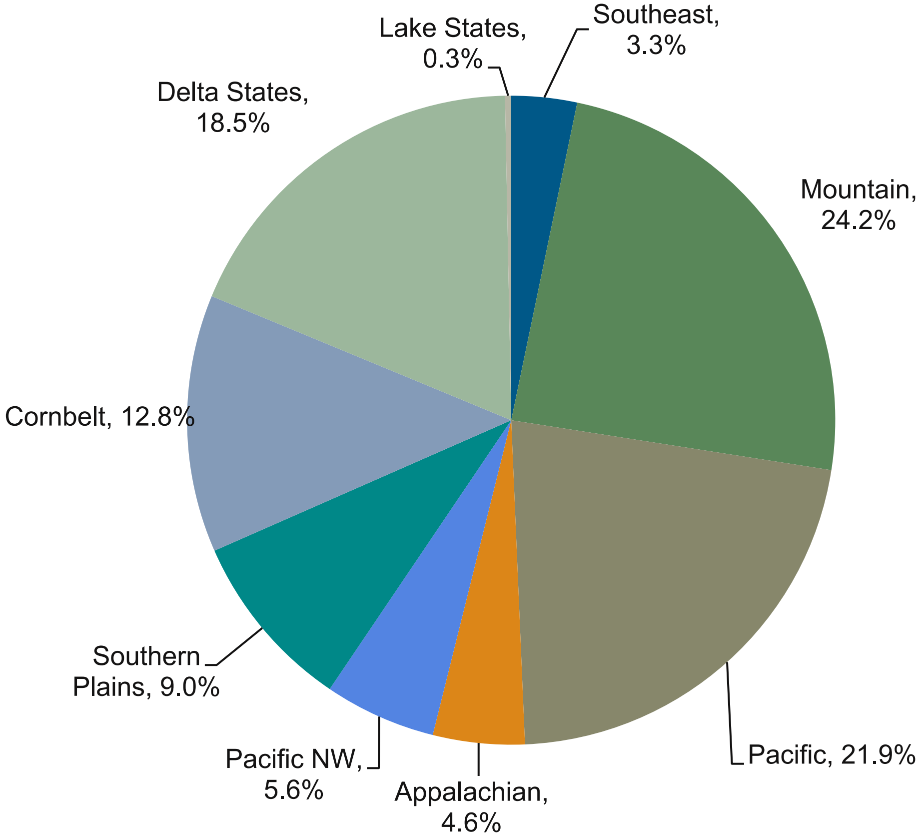
Performance vs Callan Real Estate Pvt Infrastructure (Net)

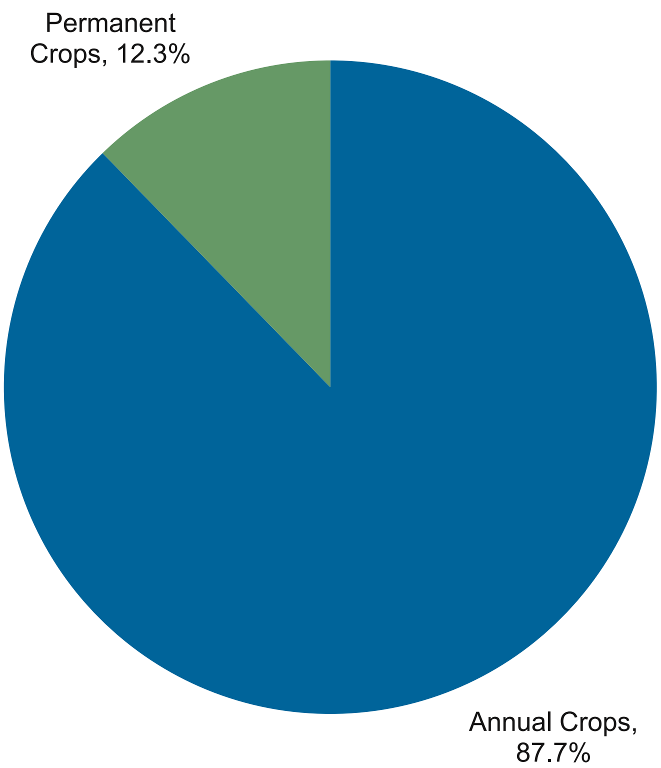


	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 8-3/4 Years
10th Percentile	3.24	10.08	13.47	13.54	14.19	12.41
25th Percentile	(1.07)	7.19	9.47	8.93	9.47	9.48
Median	(1.37)	5.90	6.66	5.50	6.42	6.55
75th Percentile	(1.52)	0.37	4.83	4.83	6.05	5.46
90th Percentile	(1.59)	0.16	4.20	4.38	5.95	4.38
Private Infrastructure ●	2.43	9.72	11.65	10.72	11.13	9.43
CPIU + 4% ▲	2.04	6.97	9.78	7.90	7.43	6.88

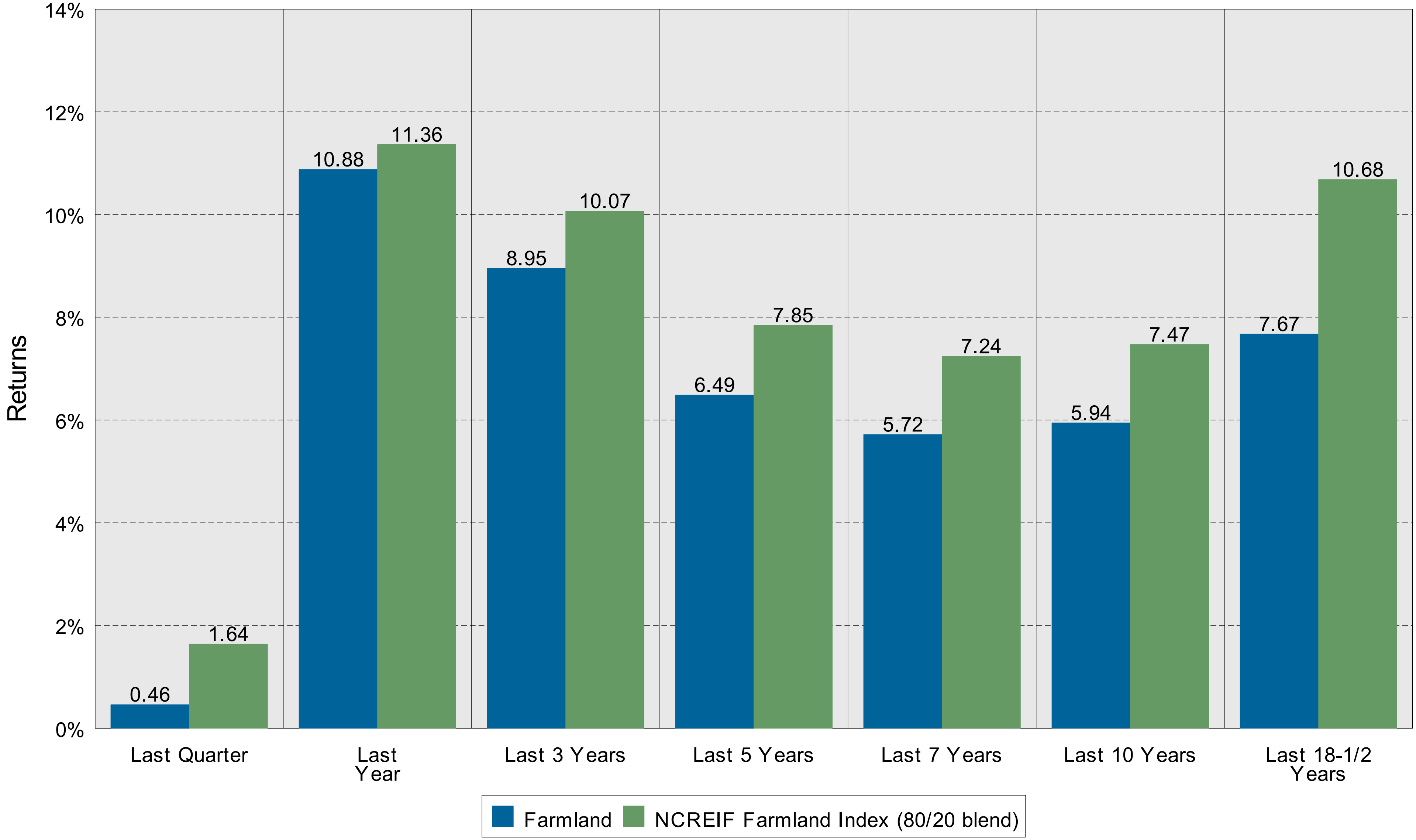
ARMB Real Assets Portfolio – Farmland Diversification

- ARMB's Farmland portfolio is heavily tilted toward annual row crops, which over time are generally expected to provide more stable income yields and better track core inflation.
- The Farmland portfolio is purely U.S.-based but is well-diversified across the major agricultural regions.





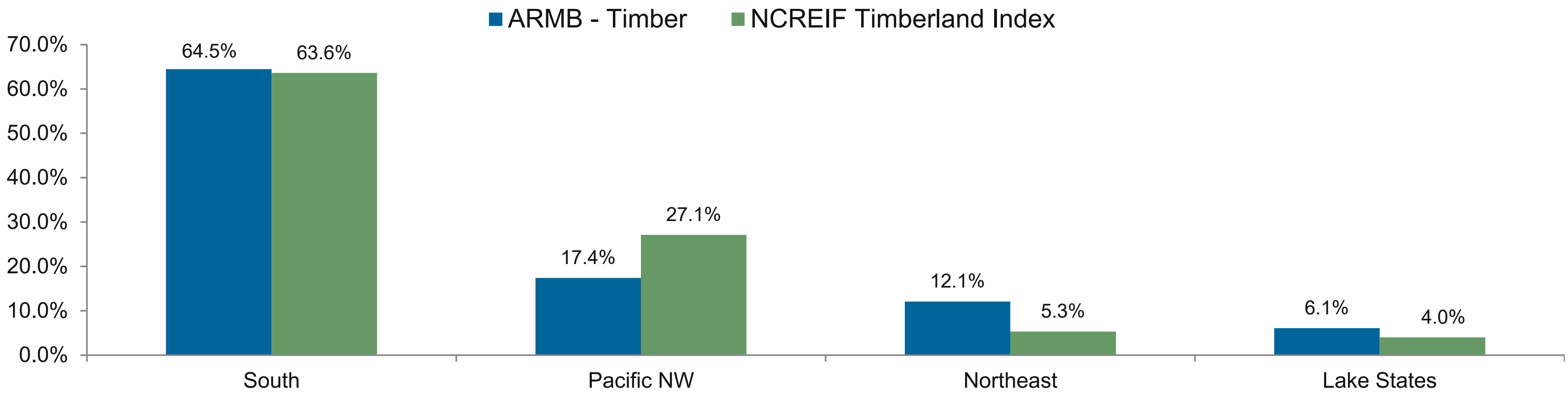
ARMB Real Assets Portfolio Performance – Farmland

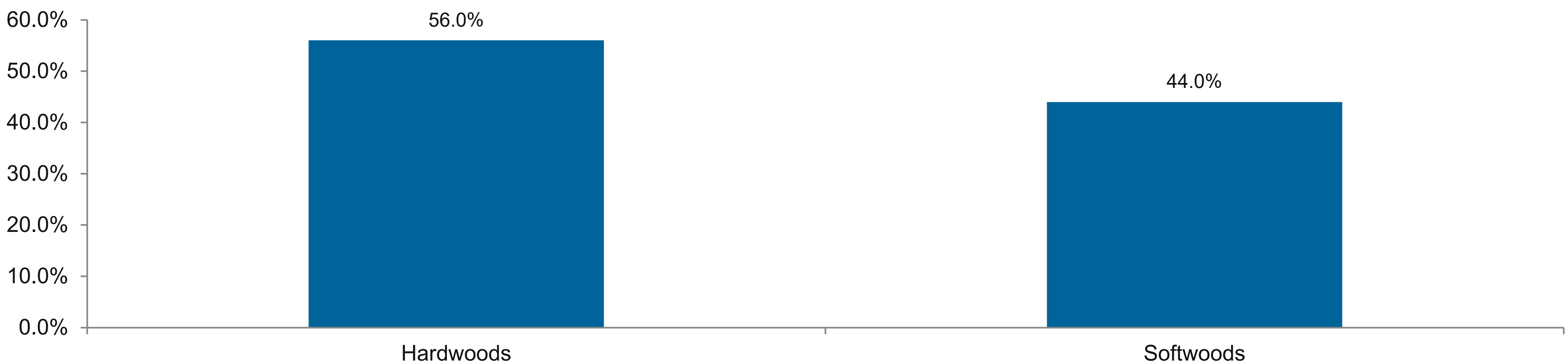


ARMB Real Assets Portfolio – Timber Diversification

- ARMB's Timber portfolio has a large allocation to the South at 64.5%; however, this is consistent with the NCREIF Timberland Index's weighting. The portfolio has slight over-weights to the Northeast and Lake States relative to the index.

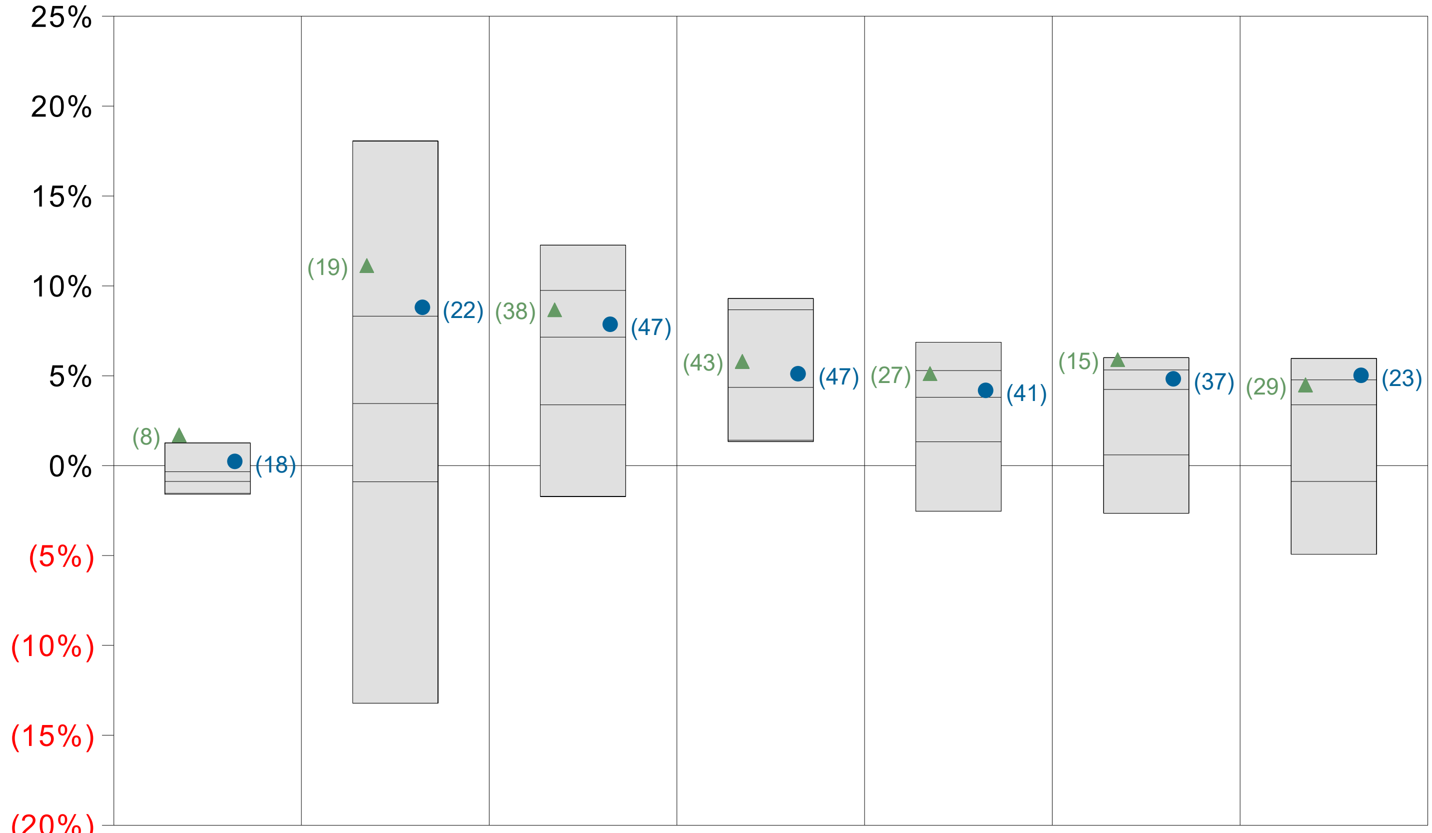
- The portfolio is also well-balanced between hardwoods and softwoods, which diversifies the end use of timber product.





ARMB Real Assets Portfolio Performance – Timber

Performance vs Callan Real Estate Timber



	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years	Last 14-1/2 Years
10th Percentile	1.27	18.06	12.26	9.30	6.87	6.02	5.97
25th Percentile	(0.34)	8.32	9.75	8.67	5.29	5.33	4.78
Median	(0.88)	3.46	7.15	4.36	3.80	4.24	3.39
75th Percentile	(1.54)	(0.89)	3.39	1.41	1.33	0.60	(0.87)
90th Percentile	(1.59)	(13.21)	(1.71)	1.34	(2.53)	(2.64)	(4.93)
Timber ●	0.16	8.74	7.79	5.04	4.12	4.76	4.95
NCREIF Timberland Index ▲	1.71	11.13	8.67	5.80	5.13	5.90	4.50

Callan

ARMB Real Assets - Fiscal Year 2024 Strategic Plan

FY 2024 ARMB Real Assets Strategic Plan Recommendation – Target Allocations

ARMB Target Real Assets Mix: Background

- Following an asset allocation study in 2019, ARMB adopted the current Real Assets targets mix. While Callan and staff re-visit the asset mix on an annual basis, there have been no changes to the target mix since its adoption.
- In 2023, Callan conducted another asset allocation study to determine whether changes should be made to the target mix of Real Assets sub-components, as well as if any new components should be considered.
- For both AA studies, Callan utilized AssetMax to identify the optimal mix of Real Assets sub-components that help achieve the role of Real Assets while taking into account practicality and implementation constraints.
  - *ARMB utilizes the same exercise and model for determining target weights at the total plan level.*
  - *The AssetMax model evaluates asset mixes of the Real Assets portfolio within the context of ARMB's total portfolio and therefore takes into account the risk/return assumptions of the plan's targets to public equities, fixed income, etc.*
- Callan and Staff identified two potential new components for inclusion: Non-Core Real Estate & Real Estate Debt
- The AssetMax model relies on risk/return assumptions of the various sub-components, which are shown in the table below.

Portfolio Component	1-Year Arithmetic Return	10-Year Geometric Return	Annualized Std. Deviation	Projected Yield	Sharpe Ratio
Core Real Estate	6.60%	5.57%	14.20%	4.40%	0.21
Non-Core Real Estate	8.35%	7.30%	16.20%	2.95%	0.28
Real Estate Debt	5.80%	5.70%	6.20%	4.85%	0.48
REITs	8.85%	6.90%	20.90%	4.65%	0.20
Timber	6.45%	5.40%	15.60%	3.70%	0.17
Farmland	6.65%	5.55%	15.95%	4.25%	0.18
Private Infrastructure	7.15%	6.15%	15.45%	4.60%	0.22

FY 2024 Real Assets Strategic Plan Recommendation – Proposed Asset Mix

- **FY 2024 Real Assets Target Allocations**
  - Adjustments to the target asset allocations within the Real Assets portfolio, which includes the introduction of Real Estate Debt and the re-introduction of Non-Core Real Estate as formal targets, as follows:

	Current Real Assets Target (2019 – Present)	Proposed FY2024 Real Assets Mix	Target Change	Actual NAV (6/30/2023)	Proposed FY2024 Target ($)	Change ($)
Core Real Estate	35%	30%	-5%	$1,551	$1,324	- $227
Non-Core Real Estate	0%	5%	+5%	$111	$221	+ $110
Real Estate Debt	0%	5%	+5%	-	$221	+ $221
REITs	15%	10%	-5%	$483	$441	- $42
Timber	10%	10%	-	$399	$441	+ $42
Farmland	25%	20%	-5%	$1,064	$883	- $182
Private Infrastructure	15%	20%	+5%	$863	$883	+ $19
Energy	0%	0%	-	$54	-	- $54
Total	***100%***	***100%***	**-**	***$4,526***	***$4,413***	***- $113***
Projected Arithmetic Return	***7.02%***	***6.98%***				
10 Year Geometric Mean Return	***6.34%***	***6.34%***				
Projected Standard Deviation	***13.10%***	***12.75%***				

- The proposed FY2024 target mix includes modest 5% decreases from Core Real Estate, REITS and Farmland in order to fund a modest 5% increase to infrastructure and new 5% allocations to each of Real Estate Debt and Non-Core Real Estate.
- The overall exposure to real estate would remain unchanged and account for 50% of the portfolio.
- Current weightings to Private Infrastructure and REITs are already close to the proposed new target weightings.
- Maintain REIT investment in passive, diversified approach and use as asset class rebalancing tool.

FY 2024 Real Assets Strategic Plan Recommendation – Continued

Callan and ARMB Staff have proposed the following additional recommendations for the FY 2024 ARMB Real Assets Strategic Plan:

Real Assets Sector	Recommendations / Action Items
Core Real Estate	o Wind down UBS Separate Account. • Transfer apartment assets to Sentinel; • Utilize Callan search process to fund two new core ODCE fund managers with complementary strategies to existing ARMB funds; and • Re-balance core fund exposures over time consistent with core target.
Non-Core Real Estate	*Should the 5% target allocation to None-Core Real Estate be approved:* o Implement Non-Core Real Estate pacing model and raise exposure to target level.
Real Estate Debt	*Should the 5% target allocation to Real Estate Debt be approved:* o As an initial funding, transfer Fidelity REHI strategy from fixed income to Real Assets; o Utilized Callan to conduct search for 1-2 real estate debt opportunities, which will eventually become the anchor to the Real Estate Debt Portfolio; and o Consider additional private investments going forward to further diversify portfolio and enhance return.
REITS	o No strategy changes recommended.
Farmland	o No strategy changes recommended.
Timber	o No strategy changes recommended.
Infrastructure	o Re-balance existing open-end exposures over time. o Work with Callan to add best-in-class higher return closed-end funds over time.

- Callan has reviewed the FY 2024 Strategic Plan recommendation and concurs with the proposed recommendations. There are no additional recommendations that Callan would put forth to be included in the plan.

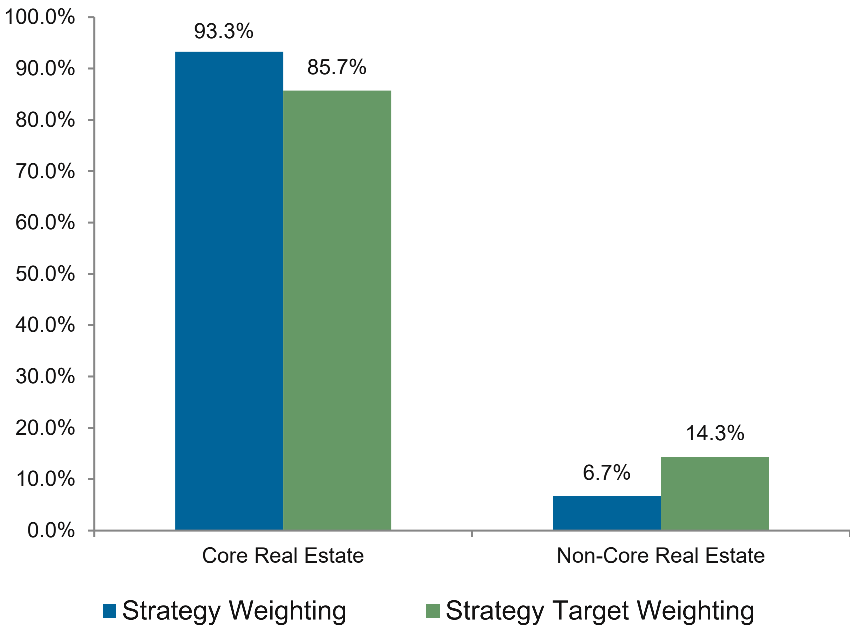
Callan

ARMB Real Assets - Fiscal Year 2024 Strategic Plan

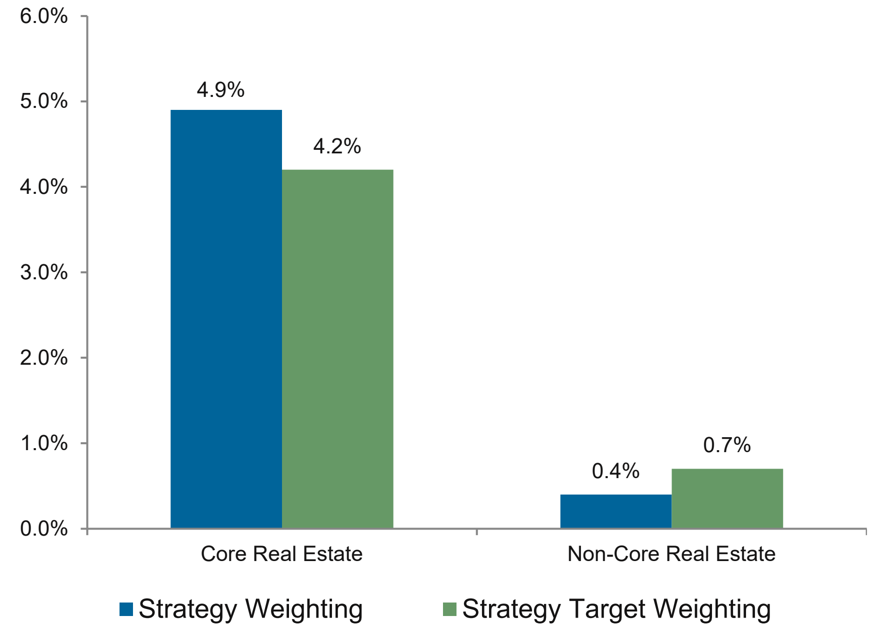
Non-Core Real Estate Pacing

Current Portfolio Strategy Breakdown

Core vs. Non-Core Weightings (Real Assets Portfolio)



Core vs. Non-Core Weightings (vs. Total Plan)



- Should ARMB approve the proposed asset allocation (5% target to Non-Core Real Estate; reduction of Core Real Estate from 35% to 30%), ARMB's total private real estate target would not change and remain at 35% of the Real Assets portfolio and 4.9% of the Total Plan.
- However, the private real estate portfolio would have a target strategy mix of ~86% Core Real Estate and ~14% Non-Core Real Estate, or 4.2% Core and 0.4% Non-Core in Total Plan terms.
- As such, ARMB would be over-allocated to Core Real Estate at 37.7% of the Real Assets portfolio and 4.9% of the Total Plan portfolio.

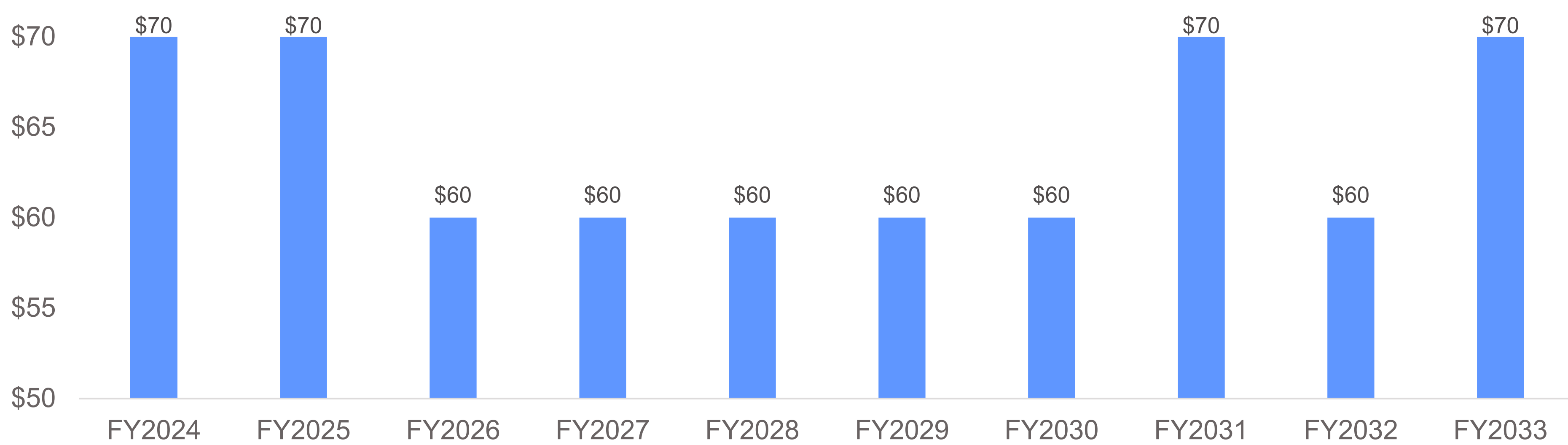
Commitment Pacing Model Assumptions

- Total Plan Assumptions
  - Total Plan Market Value as of 6/30/2023: $31.52 billion
  - Projected Total Plan Net Growth Rate: 1%
- The following return assumptions were utilized for existing and future real estate commitments:
  - ***Core Real Estate***: 6.60% Total Return, with 4.4% income (dividend) and 2.2% appreciation (NAV Growth)
    - *J.P. Morgan Strategic Property Fund, UBS IMA, Sentinel IMA, BlackRock Core Property Fund and UBS Trumbull Property Fund (Liquidating)*
  - ***Non-Core***: 10% Net IRR / 1.4x Net Equity Multiple
    - *Almanac Realty Securities IX, KKR Real Estate Partners Americas III and Future Commitments*
- Core Real Estate Assumptions
  - Given overweight to real estate and future funding needs, no dividends from any core funds or accounts are reinvested
  - Existing redemption request to UBS Trumbull Property Fund is fulfilled over a four-year period (assumed continued core returns from UBS position are accounted for during this time).
  - Additional redemptions from other core positions to reduce overweight.
- Non-Core Real Estate Assumptions
  - Model assumes 95% of capital is called for each commitment (Existing & Future)
  - Capital is called over a four-year period, with investment gains and principal returned over a ten-year period
  - Certain adjustments were made to existing funds in the ARMB portfolio, as follows:
    - *Almanac Realty Securities IX ($6.5 million / 13.8% called) – Remaining ~$41.0 million of commitment capital called over three years*
    - *KKR Real Estate Partners Americas III ($29.8 million / 62.6% called) – Remaining ~$17.7 million of committed capital called over two years*
    - *Legacy Funds (Existing fund commitments made prior to 2020) – 10% of prevailing NAV (~$8.1 million) called over one year*

ARMB Real Estate Commitment Pacing

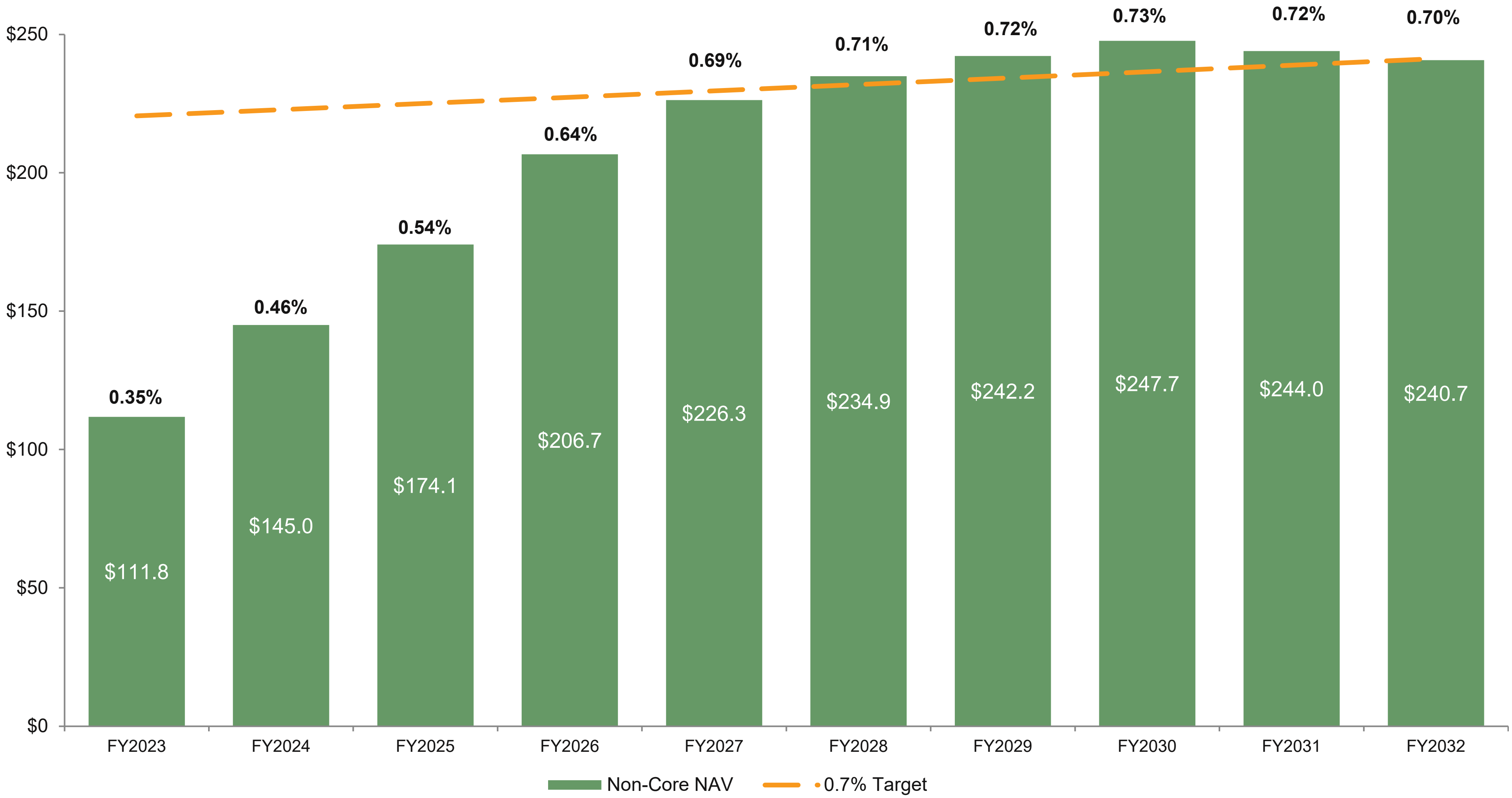
- To reach and maintain the 5% target non-core real estate allocation (0.7% Total Plan target), ARMB will need to commit $60 - $70 million per year over the next 10 fiscal years.
- The pacing plan projects annual $70 million allocations in the first two years, followed by several years of $60 million annual allocations.
- Pacing plan to be reviewed annually or periodically as they are projections and subject to change.

Vintage Year	Commitment ($million)	Fund Commitments
FY2024	$70	2-3
FY2025	$70	2-3
FY2026	$60	2-3
FY2027	$60	2-3
FY2028	$60	2-3
FY2029	$60	2-3
FY2030	$60	2-3
FY2031	$70	2-3
FY2032	$60	2-3
FY2033	$70	2-3



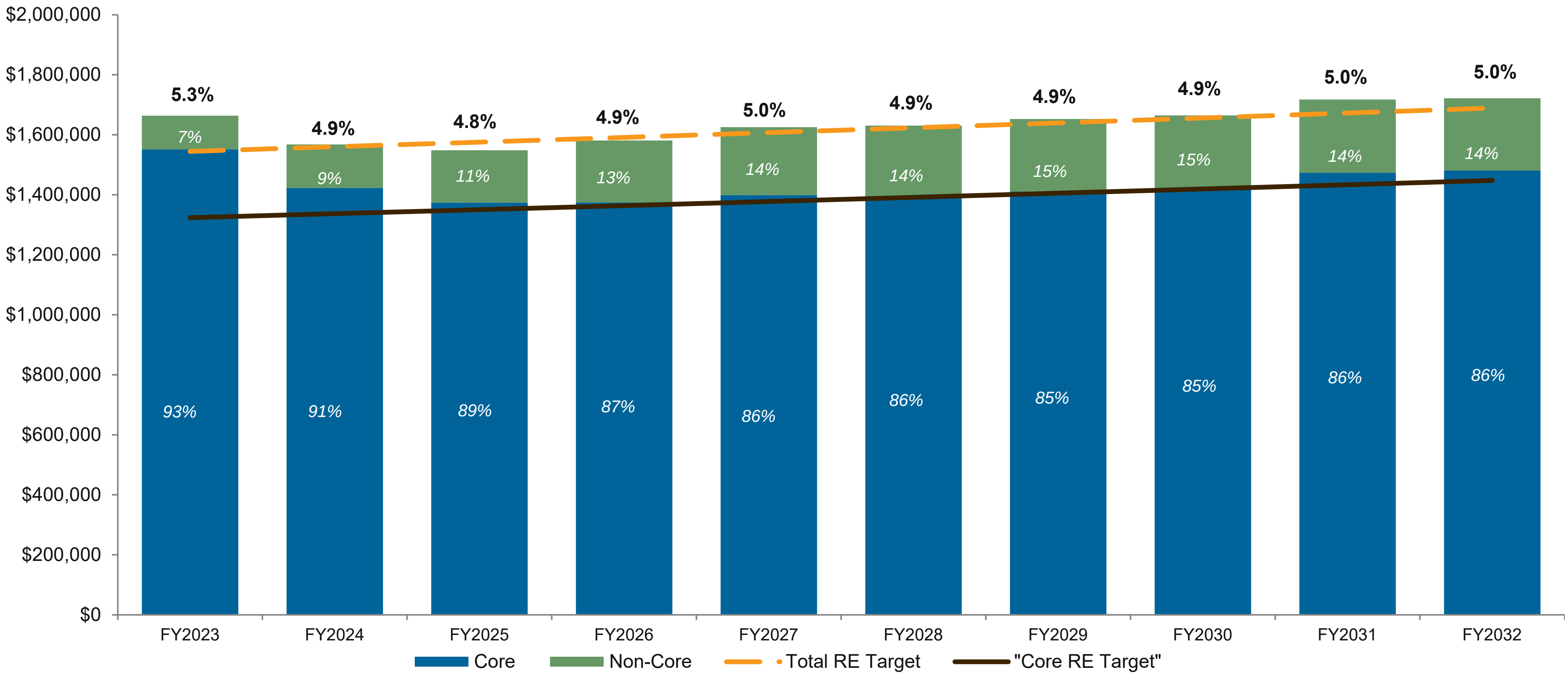
Projected Pacing of Non-Core Real Estate Portfolio

Non-Core Real Estate Portfolio Ramp-Up



- The Non-Core RE portfolio is projected to reach its invested status by the end of FY2028, with a modest overweight for three years.
- It is common for private equity portfolios to overshoot their targets for a brief period during the ramp-up stage.

Projected Portfolio With Pacing Schedule

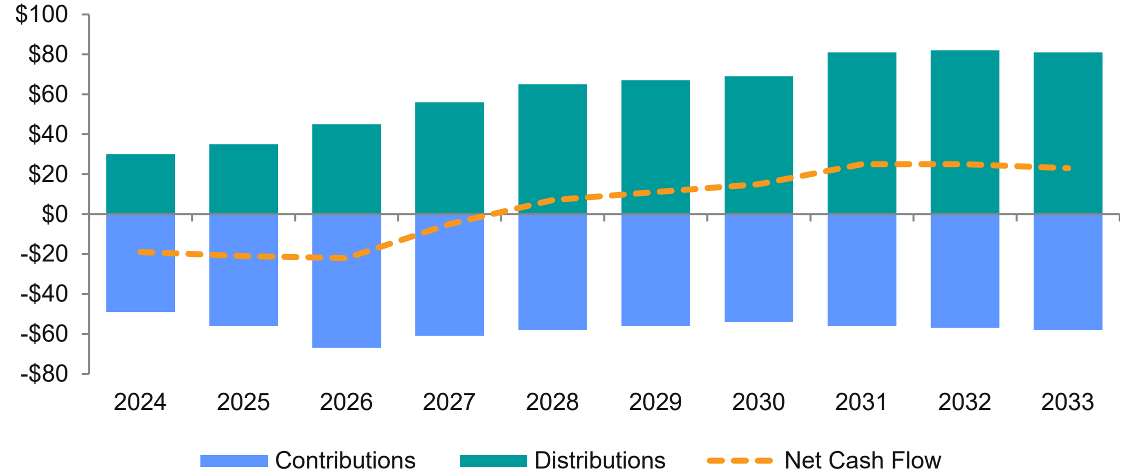


- ARMB is expected to remain close to its 4.9% total private real estate target allocation through FY 2032, though the portfolio is projected to be overweight to Core and underweight to Non-Core in the early years of the ramp-up period.
- The pacing plan assumes ~$25 to ~$80 million of annual redemptions from Core Real Estate from FY2024 to FY2029 to reduce / prevent Core overweight. However, broader market movements may significantly affect the level of redemptions necessary.
  - From FY2024 - FY2028, ~$6.5 - $8 million of the redemptions are projected to come from UBS TPF, while balance would need to come from other positions.

Real Estate Portfolio Development – Cash Flows

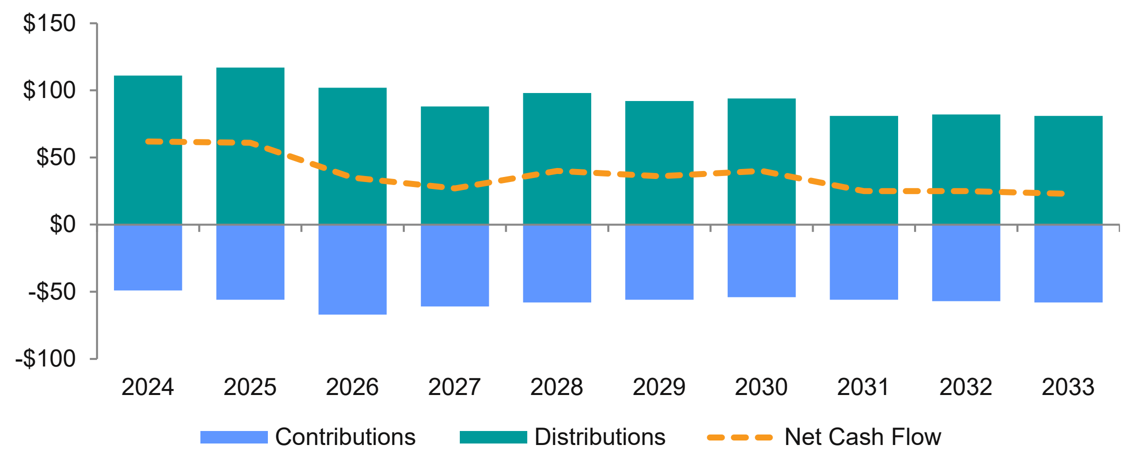
- Contributions are expected to outpace distributions in the early years of pacing plan as the portfolio reaches its 5% target.
- Starting in FY2028, distributions received from existing partnerships are expected to fund future contributions.

Projected Annual Cash Flow – Non-Core RE Portfolio ($ million)



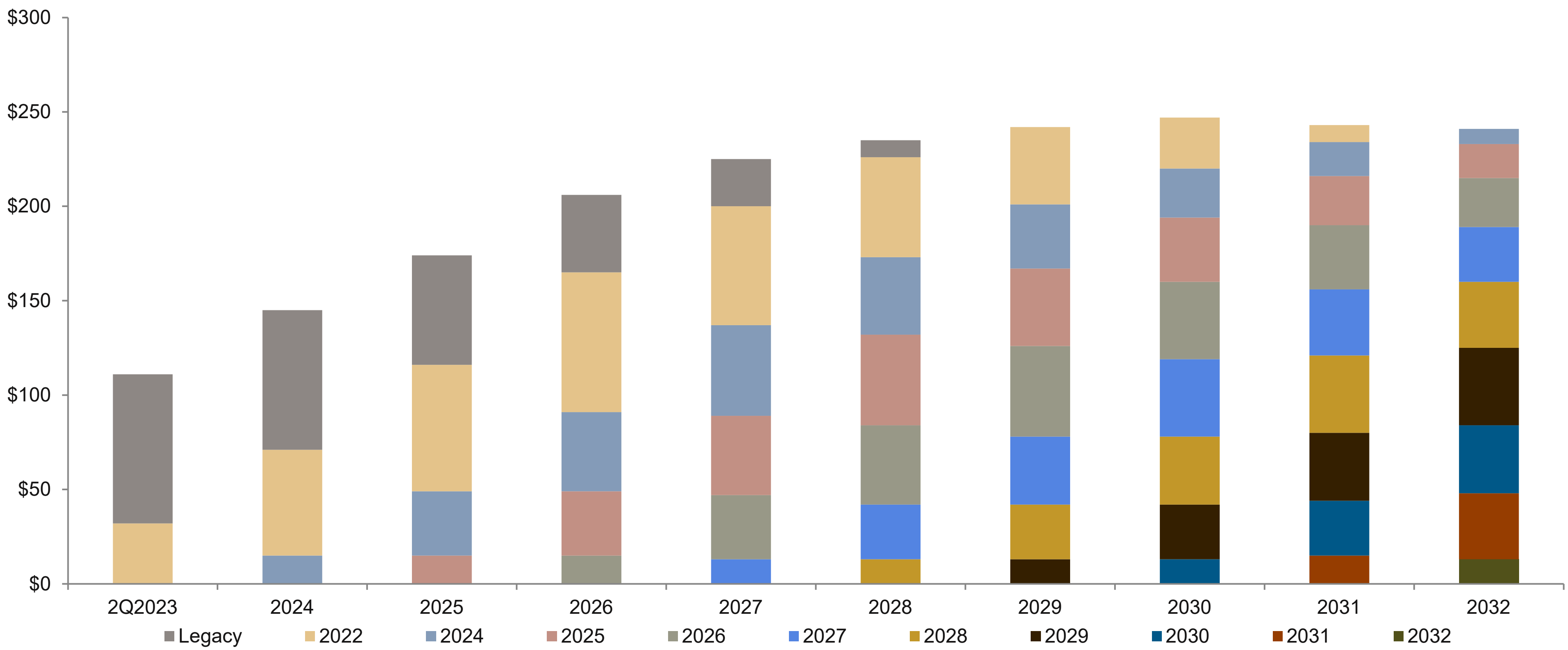
- If we account for the redemptions from Core Real Estate, the total private real estate portfolio will remain cash flow positive and will not need to draw from other asset classes to build the portfolio.

Projected Annual Cash Flow – Total RE Portfolio ($ million)



Real Estate Portfolio Development – VY Diversification

Vintage Year Diversification*



*Represents Vintage Year diversification of the non-core real estate portfolio only

- The non-core real estate portfolio will have low to moderate vintage year diversification in early years of the program but is expected to achieve sufficient vintage year diversification by 2028.
- The legacy portfolio includes a modest level of vintage year diversification; however, the underlying positions are small and burning off, and significant investment gaps exist for periods where few or no commitments were made.

Appendix

2023 vs. 2022 Risk and Returns Assumptions

Summary of Callan's Long-Term Capital Markets Assumptions (2023–2032)

		Projected Return			Projected Risk	2022–2031			vs. 2022	
Asset Class	**Index**	1-Year Arithmetic	10-Year Geometric*	**Real**	Standard Deviation	1-Year Arithmetic	10-Year Geometric*	Standard Deviation	Geometric* Delta	Std Dev Delta
Equities										
Broad U.S. Equity	Russell 3000	8.75%	7.35%	4.85%	18.05%	8.00%	6.60%	17.95%	0.75%	0.10%
Large Cap U.S. Equity	S&P 500	8.60%	7.25%	4.75%	17.75%	7.85%	6.50%	17.70%	0.75%	0.05%
Smid Cap U.S. Equity	Russell 2500	9.60%	7.45%	4.95%	22.15%	8.75%	6.70%	21.30%	0.75%	0.85%
Global ex-U.S. Equity	MSCI ACWI ex USA	9.45%	7.45%	4.95%	21.25%	8.70%	6.80%	20.70%	0.65%	0.55%
Developed ex-U.S. Equity	MSCI World ex USA	9.00%	7.25%	4.75%	20.15%	8.25%	6.50%	19.90%	0.75%	0.25%
Emerging Market Equity	MSCI Emerging Markets	10.45%	7.45%	4.95%	25.70%	9.80%	6.90%	25.15%	0.55%	0.55%
Fixed Income										
Short Duration Gov/Credit	Bloomberg 1-3 Year Gov/Credit	3.75%	3.80%	1.30%	2.30%	1.50%	1.50%	2.00%	2.30%	0.30%
Core U.S. Fixed	Bloomberg Aggregate	4.25%	4.25%	1.75%	4.10%	1.80%	1.75%	3.75%	2.50%	0.35%
Long Government	Bloomberg Long Gov	4.55%	3.70%	1.20%	13.50%	1.85%	1.10%	12.50%	2.60%	1.00%
Long Credit	Bloomberg Long Credit	5.75%	5.20%	2.70%	11.75%	2.60%	2.10%	10.50%	3.10%	1.25%
Long Government/Credit	Bloomberg Long Gov/Credit	5.25%	4.75%	2.25%	11.35%	2.30%	1.80%	10.40%	2.95%	0.95%
TIPS	Bloomberg TIPS	4.10%	4.00%	1.50%	5.30%	1.35%	1.25%	5.05%	2.75%	0.25%
High Yield	Bloomberg High Yield	6.75%	6.25%	3.75%	11.75%	4.40%	3.90%	10.75%	2.35%	1.00%
Global ex-U.S. Fixed	Bloomberg Global Agg ex US	2.70%	2.25%	-0.25%	9.80%	1.20%	0.80%	9.20%	1.45%	0.60%
Emerging Market Sov Debt	EMBI Global Diversified	6.25%	5.85%	3.35%	10.65%	4.00%	3.60%	9.50%	2.25%	1.15%
Alternatives										
Core Real Estate	NCREIF ODCE	6.60%	5.75%	3.25%	14.20%	6.60%	5.75%	14.20%	0.00%	0.00%
Private Infrastructure	MSCI Gl Infra/FTSE Dev Core 50/50	7.15%	6.15%	3.65%	15.45%	7.10%	6.10%	15.45%	0.05%	0.00%
Private Equity	Cambridge Private Equity	11.95%	8.50%	6.00%	27.60%	11.45%	8.00%	27.60%	0.50%	0.00%
Private Credit	N/A	8.00%	7.00%	4.50%	15.50%	6.40%	5.50%	14.60%	1.50%	0.90%
Hedge Funds	Callan Hedge FOF Database	5.80%	5.55%	3.05%	8.45%	4.35%	4.10%	8.20%	1.45%	0.25%
Commodities	Bloomberg Commodity	5.05%	3.50%	1.00%	18.00%	4.05%	2.50%	18.00%	1.00%	0.00%
Cash Equivalents	90-Day T-Bill	2.75%	2.75%	0.25%	0.90%	1.20%	1.20%	0.90%	1.55%	0.00%
Inflation	CPI-U		2.50%		1.60%		2.25%	1.60%	0.25%	0.00%

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

Source: Callan

2023–2032 Callan Capital Markets Assumptions Correlations

	Large Cap	Smid Cap	Dev	Em Mkts	Short Dur	Core Fixed	Long Gov	Long Credit	TIPS	High Yield	Global ex-US Fixed	EM	Core Real Estate	Private Infra	Private Equity	Private Credit	Hedge Funds	Comm	Cash Equiv	Inflation
Large Cap U.S. Equity	1.00																			
Smid Cap U.S. Equity	0.88	1.00																		
Dev ex-U.S. Equity	0.73	0.79	1.00																	
Em Market Equity	0.79	0.83	0.89	1.00																
Short Dur Gov/Credit	0.05	0.01	0.04	-0.01	1.00															
Core U.S. Fixed	0.02	-0.02	0.00	-0.04	0.80	1.00														
Long Government	-0.05	-0.06	-0.03	-0.06	0.67	0.83	1.00													
Long Credit	0.45	0.40	0.40	0.40	0.64	0.80	0.65	1.00												
TIPS	-0.07	-0.08	-0.09	-0.11	0.56	0.70	0.50	0.52	1.00											
High Yield	0.75	0.74	0.73	0.75	0.10	0.09	0.00	0.45	0.02	1.00										
Global ex-U.S. Fixed	0.10	0.07	0.13	0.12	0.50	0.60	0.50	0.55	0.45	0.18	1.00									
EM Sovereign Debt	0.65	0.65	0.65	0.69	0.16	0.19	0.10	0.47	0.08	0.62	0.21	1.00								
Core Real Estate	0.44	0.42	0.42	0.41	0.16	0.14	0.05	0.30	0.09	0.31	0.16	0.29	1.00							
Private Infrastructure	0.48	0.47	0.46	0.46	0.14	0.15	0.10	0.33	0.08	0.34	0.18	0.32	0.76	1.00						
Private Equity	0.79	0.77	0.76	0.75	-0.01	-0.09	-0.13	0.30	-0.11	0.61	0.08	0.51	0.55	0.60	1.00					
Private Credit	0.69	0.68	0.65	0.68	0.11	0.00	-0.05	0.33	-0.12	0.63	0.12	0.50	0.25	0.27	0.67	1.00				
Hedge Funds	0.67	0.63	0.63	0.63	0.23	0.29	0.20	0.55	0.20	0.60	0.25	0.54	0.28	0.30	0.48	0.51	1.00			
Commodities	0.20	0.20	0.20	0.20	-0.05	-0.04	-0.10	0.05	0.00	0.20	0.10	0.15	0.18	0.15	0.20	0.17	0.23	1.00		
Cash Equivalents	-0.06	-0.08	-0.10	-0.10	0.30	0.15	0.12	0.00	0.12	-0.09	0.05	-0.06	0.00	-0.04	0.00	-0.04	-0.04	-0.02	1.00	
Inflation	-0.02	0.02	0.00	0.03	-0.21	-0.23	-0.30	-0.20	0.25	0.00	-0.15	-0.04	0.20	0.10	0.06	-0.05	0.05	0.35	0.05	1.00

Source: Callan

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%
REITs	2.10%	8.85%	6.90%	20.90%	4.65%
Timber	1.40%	6.45%	5.40%	15.60%	3.70%
Farmland	3.50%	6.65%	5.55%	15.95%	4.25%
Private Infrastructure	2.1%	7.15%	6.15%	15.45%	4.60%
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

Real Asset Components - 2023 Capital Market Assumptions

Real Assets Only

Asset Class	1-Year Arithmetic	10-Year Geometric Return	Annualized Standard Deviation	Projected Yield	Sharpe Ratio
Real Estate	6.60%	5.75%	14.20%	4.40%	0.21
Non-Core Real Estate	8.35%	7.30%	16.20%	2.95%	0.28
Real Estate Debt	5.80%	5.70%	6.20%	4.85%	0.48
REITs	8.85%	6.90%	20.90%	4.65%	0.20
Timber	6.45%	5.40%	15.60%	3.70%	0.17
Farmland	6.65%	5.55%	15.95%	4.25%	0.18
Private Infrastructure	7.15%	6.15%	15.45%	4.60%	0.22

Projection set includes current ARMB real assets, plus Real Estate Debt and Non-Core Real Estate

Modeling Real Estate Debt and Non-Core Real Estate is more art than science. Neither asset class has meaningful peer groups or benchmarks; projections are based on informed judgement and experience.

Real Estate Debt is modeled to include Securitized Mortgages, Real Estate Equity and Private Credit. Sharpe ratio is substantially higher than other asset classes.

Non-Core Real Estate is modeled to reflect a blend of value-add and opportunistic strategies. The return and risk represent a blend of core real estate and private equity.

Source: Callan LLC

Real Asset Portfolio Optimization Using 2023 Capital Market Assumptions

Current Real Assets Only

Asset Class	Target 2023 real	Mix 1	Mix 2	Mix 3	Mix 4	Mix 5
Core Real Estate	35.0%	38.8%	31.9%	24.9%	17.9%	11.0%
US REITs	15.0%	6.6%	14.8%	23.1%	31.3%	39.6%
Timber	10.0%	19.2%	14.9%	10.6%	6.3%	2.0%
Farmland	25.0%	21.2%	18.3%	15.4%	12.6%	9.7%
Private Infrastructure	15.0%	14.2%	20.1%	26.0%	31.9%	37.7%
Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Projected Arithmetic Return	7.02%	6.81%	7.03%	7.25%	7.48%	7.70%
10 Yr. Geometric Mean Return	6.34%	6.14%	6.36%	6.55%	6.72%	6.86%
Projected Standard Deviation	13.10%	12.98%	13.08%	13.37%	13.85%	14.49%

Projection set optimized around current ARMB real asset portfolio:

Optimizing real assets in isolation gives very different results than optimizing with the rest of the portfolio

In the absence of the rest of the portfolio, the optimizer wants equity in the form of REITs. We selected this range of return, since it brackets the current real assets portfolio, with a standalone return of 7.0%

These portfolios are optimized for return and risk relative to each other, and not with respect to the total portfolio nor to inflation

Source: Callan LLC

Real Asset Portfolio Optimization Using 2023 Capital Market Assumptions

Optimization Using Current Broad Asset Classes and Real Asset Components

Asset Class	Target 2023	Mix 1	Mix 2	Mix 3	Mix 4	Mix 5
Broad US Equity	27.0%	23.8%	27.7%	31.7%	35.6%	39.6%
Global ex-US Equity	18.0%	16.1%	18.8%	21.4%	24.1%	26.7%
ARMB Fixed Income	19.0%	40.1%	30.3%	20.4%	10.5%	0.5%
Multi-Asset	8.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Private Equity	14.0%	10.0%	11.6%	13.3%	14.9%	16.6%
Real Assets II	14.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Core Real Estate	0.0%	8.0%	9.3%	10.6%	11.9%	13.3%
US REITs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Timber	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Farmland	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Private Infrastructure	0.0%	2.0%	2.3%	2.6%	3.0%	3.3%
Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Projected Arithmetic Return	8.1%	7.1%	7.6%	8.1%	8.6%	9.1%
10 Yr. Geometric Mean Return	7.3%	6.8%	7.1%	7.4%	7.6%	7.8%
Projected Standard Deviation	14.0%	10.7%	12.3%	14.1%	15.8%	17.5%
real assets	14.0%	10.0%	11.6%	13.2%	14.9%	16.6%

Projection set optimized around current ARMB total portfolio:

Model does not allocate to timber, farmland or REITs and prefers allocations to core real estate and infrastructure, for a given level of return.

Model does not capture all of the potential benefits to including the separate components of real assets, such as implementation and potential performance in surprise inflationary environments.

Source: Callan LLC

Real Asset Portfolio Optimization Using 2023 Capital Market Assumptions

Current Real Assets Plus Real Estate Debt and Non-Core Real Estate

Asset Class	Target 2023 real	Mix 1	Mix 2	Mix 3	Mix 4	Mix 5
Core Real Estate	35.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Non Core RE	0.0%	25.9%	32.7%	39.5%	46.3%	53.0%
RE Debt	0.0%	62.4%	54.1%	45.7%	37.3%	28.9%
US REITs	15.0%	11.6%	13.2%	14.8%	16.4%	18.1%
Timber	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Farmland	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Private Infrastructure	15.0%	0.1%	0.0%	0.0%	0.0%	0.0%
Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Projected Arithmetic Return	7.02%	6.80%	7.03%	7.25%	7.48%	7.70%
10 Yr. Geometric Mean Return	6.34%	6.51%	6.66%	6.80%	6.93%	7.05%
Projected Standard Deviation	13.10%	9.65%	10.51%	11.38%	12.27%	13.17%

Projection set optimized around current ARMB real assets plus Real Estate Debt and Non-Core Real Estate

Optimizing real assets in isolation gives very different results than optimizing with the rest of the portfolio

In the absence of the rest of the portfolio, the optimizer wants equity in the form of REITs and Non-Core Real Estate. The optimizer also allocates to Real Estate Debt, with its superior Sharpe ratio. Both RE Debt and Non-Core RE have return/risk assumptions that may represent expected results for each asset class, but the allocations must be constrained.

These portfolios are optimized for return and risk relative to each other, and not with respect to the total portfolio nor to inflation

Source: Callan LLC

Real Asset Portfolio Optimization Using 2023 Capital Market Assumptions

Current Broad Asset Classes and Real Asset Components Plus RE Debt and Non-Core RE

Asset Class	Target 2023	Mix 1	Mix 2	Mix 3	Mix 4	Mix 5
Broad US Equity	27.0%	22.4%	26.3%	30.1%	33.9%	37.4%
Global ex-US Equity	18.0%	15.3%	17.9%	20.5%	23.1%	28.3%
ARMB Fixed Income	19.0%	36.5%	26.5%	16.6%	6.6%	0.0%
Multi-Asset	8.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Private Equity	14.0%	9.4%	11.1%	12.7%	14.3%	16.4%
Real Assets II	14.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Core Real Estate	0.0%	7.6%	8.8%	10.1%	11.4%	8.0%
Non Core RE	0.0%	1.9%	2.2%	2.5%	2.9%	2.0%
RE Debt	0.0%	5.0%	5.0%	5.0%	5.0%	4.6%
US REITs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Timber	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Farmland	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Private Infrastructure	0.0%	1.9%	2.2%	2.5%	2.8%	3.3%
Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Projected Arithmetic Return	8.1%	7.1%	7.6%	8.1%	8.6%	9.1%
10 Yr. Geometric Mean Return	7.3%	6.8%	7.1%	7.4%	7.6%	7.9%
Projected Standard Deviation	14.0%	10.6%	12.3%	14.0%	15.7%	17.5%
real assets	14.0%	16.4%	18.2%	20.1%	22.1%	17.9%

Projection set optimized around current ARMB total portfolio:

Model does not allocate to timber, farmland or REITS and prefers allocations to core real estate and infrastructure, for a given level of return. Non-Core Real Estate is constrained to be no more than 25% of Core Real Estate, and Real Estate Debt is constrained to be 5% across all asset mixes. Model does not capture all of the potential benefits to including the separate components of real assets, such as implementation and potential performance in surprise inflationary environments.

Source: Callan LLC

Real Asset Portfolio Optimization Using 2023 Capital Market Assumptions

Current Real Assets Plus Real Estate Debt and Opportunistic Real Estate (constrained – version 1)

Asset Class	Target 2023 real	Mix 1	Mix 2	Mix 3	Mix 4	Mix 5
Core Real Estate	35.0%	35.0%	27.9%	20.2%	17.1%	12.7%
Non Core RE	0.0%	0.0%	0.0%	5.0%	4.3%	3.2%
RE Debt	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%
US REITs	15.0%	7.7%	16.1%	21.0%	30.2%	39.9%
Timber	10.0%	17.3%	13.0%	9.4%	3.4%	0.0%
Farmland	25.0%	19.9%	17.0%	14.6%	10.8%	5.7%
Private Infrastructure	15.0%	15.1%	21.0%	24.8%	29.2%	33.5%
Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Projected Arithmetic Return	7.02%	6.80%	7.03%	7.25%	7.48%	7.70%
10 Yr. Geometric Mean Return	6.34%	6.18%	6.39%	6.59%	6.76%	6.89%
Projected Standard Deviation	13.10%	12.58%	12.73%	13.07%	13.58%	14.28%

Projection set optimized around current ARMB real assets plus Real Estate Debt and Non-Core Real Estate

- Real Estate Debt constrained to 5% of Real Assets; Non-Core Real Estate constrained to 25% of Core Real Estate

In the absence of the rest of the portfolio, the optimizer wants equity in the form of REITs and Private Infrastructure.

These portfolios are optimized for return and risk relative to each other, and not with respect to the total portfolio nor to inflation

Core RE, Timber and Farmland are crowded out by REITs and Infrastructure in this isolated optimization

Source: Callan LLC

Real Asset Portfolio Optimization Using 2023 Capital Market Assumptions

Current Real Assets Plus Real Estate Debt and Opportunistic Real Estate (constrained – version 2)

Asset Class	Target 2023 real	Mix 1	Mix 2	Mix 3	Mix 4	Mix 5
Core Real Estate	35.0%	36.1%	29.6%	23.1%	16.5%	10.0%
Non Core RE	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%
RE Debt	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
US REITs	15.0%	5.3%	13.0%	20.7%	28.5%	36.2%
Timber	10.0%	18.8%	14.8%	10.8%	6.8%	2.8%
Farmland	25.0%	21.1%	18.4%	15.7%	13.0%	10.3%
Private Infrastructure	15.0%	13.7%	19.2%	24.7%	30.2%	35.7%
Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Projected Arithmetic Return	7.02%	6.86%	7.07%	7.28%	7.49%	7.70%
10 Yr. Geometric Mean Return	6.34%	6.18%	6.39%	6.58%	6.74%	6.88%
Projected Standard Deviation	13.10%	13.07%	13.16%	13.42%	13.83%	14.40%

Projection set optimized around current ARMB real assets plus Real Estate Debt and Non-Core Real Estate

- Real Estate Debt constrained to 0% of Real Assets; Non-Core Real Estate constrained to 5%
- In the absence of the rest of the portfolio, the optimizer wants equity in the form of REITs and Private Infrastructure.

These portfolios are optimized for return and risk relative to each other, and not with respect to the total portfolio nor to inflation

Core RE, Timber and Farmland are crowded out by REITs and Infrastructure in this isolated optimization

Source: Callan LLC

Real Asset Portfolio Optimization Using 2023 Capital Market Assumptions

Current Real Assets Plus Real Estate Debt and Opportunistic Real Estate (constrained – version 3)

Asset Class	Target 2023 real	Mix 1	Mix 2	Mix 3	Mix 4	Mix 5
Core Real Estate	35.0%	33.9%	26.9%	19.9%	12.9%	5.9%
Non Core RE	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%
RE Debt	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%
US REITs	15.0%	4.6%	12.9%	21.1%	29.4%	37.7%
Timber	10.0%	18.0%	13.7%	9.4%	5.1%	0.8%
Farmland	25.0%	20.4%	17.5%	14.6%	11.8%	8.9%
Private Infrastructure	15.0%	13.1%	19.0%	25.0%	30.8%	36.7%
Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Projected Arithmetic Return	7.02%	6.81%	7.03%	7.25%	7.48%	7.70%
10 Yr. Geometric Mean Return	6.34%	6.17%	6.39%	6.59%	6.76%	6.90%
Projected Standard Deviation	13.10%	12.67%	12.78%	13.08%	13.57%	14.23%

Projection set optimized around current ARMB real assets plus Real Estate Debt and Non-Core Real Estate

- Real Estate Debt and Non-Core Real Estate constrained to 5% of Real Assets
- In the absence of the rest of the portfolio, the optimizer wants equity in the form of REITs and Private Infrastructure.

These portfolios are optimized for return and risk relative to each other, and not with respect to the total portfolio nor to inflation

Core RE, Timber and Farmland are crowded out by REITs and Infrastructure in this isolated optimization

Source: Callan LLC

Disclaimers

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

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

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

Past performance is no guarantee of future results.

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

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	Fiscal Year 2024 Real Assets Annual Investment Plan and Guidelines	ACTION:	X
DATE:	September 14-15, 2023	INFORMATION:	

BACKGROUND

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

STATUS

Staff, with the assistance of Callan, has developed the Real Assets Annual Investment Plan for Fiscal Year 2024. The Real Assets Annual Investment Plan includes a presentation of the Fiscal Year 2024 investment strategy and makes the following recommendations:

Asset Class	• Adopt new sector target allocations: Core Real Estate 30%----------- Non-core Real Estate 5% Real Estate Debt 5% US REITs 10% ------------------ Timberland 10% ----------------- Farmland 20% ------------------- Infrastructure 20% --------------	Policy Benchmark: 40% NCREIF ODCE Index 10% NAREIT All Equity Index 10% NCREIF Timberland Index 20% NCREIF Farmland (80/20) 20% CPI+4%	Implementation: Effective Date: 10/1/23 Supersedes Real Assets policy established in Resolutions 2023-02 and 2023-03, relating to plan level asset allocation, on effective date.
Real Estate	• Wind down UBS Separate Account. Transfer apartment assets to Sentinel. Utilize Callan search process to fund two new core ODCE fund managers with complementary strategies to existing ARMB real estate investments. • Rebalance core fund exposures over time to optimal weights consistent with total core target. • Implement non-core pacing model and raise exposure to target level consistent with new sector targets. • Add debt investments to portfolio initially by transferring Fidelity REHI strategy from fixed income to Real Assets. Utilize Callan search to identify one to two private debt investment funds to compliment existing CMBS portfolio.		
Farmland	• No strategy changes recommended.		
Timberland	• No strategy changes recommended.		
Infrastructure	• Gradually rebalance existing open-end exposures to optimal weights over time. • Add best-in-class higher return strategies as opportunities present.		

RECOMMENDATION

The ARMB approve Resolution 2023-12 which adopts the Real Assets Annual Investment Plan for Fiscal Year 2024.

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

Resolution 2023-12

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

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

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

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

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

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

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

NOW THEREFORE BE IT RESOLVED THAT THE ALASKA RETIREMENT MANAGEMENT BOARD adopt the Real Assets Annual Investment Plan for Fiscal Year 2024, attached hereto and made a part hereof.

DATED at Anchorage, Alaska this ___ day of September, 2023.

____
Chair

ATTEST:

____
Secretary

ALASKA RETIREMENT MANAGEMENT BOARD

SUBJECT:	Real Assets Investment Guidelines Policies, Procedures and Guidelines	ACTION:	X
DATE:	September 14-15, 2023	INFORMATION:	

BACKGROUND

The Real Assets' Policies, Procedures and Guidelines (Guidelines) are to be reviewed no less than annually and revised as appropriate. There are a total of four Guidelines – one each for Real Estate, Farmland, Timberland, and Infrastructure. As part of the annual planning process for Real Assets, proposed changes to the Guidelines are recommended by staff.

STATUS

The following revisions are being proposed:

Real Estate:

The real estate target index is being revised to 80%/20% NFI-ODCE/NAREIT All Equity Index from 70%/30% to reflect the new Real Asset target weights of 40% NFI-ODCE/10% NAREIT All Equity.

Farmland, Timberland, Infrastructure:

No revisions were made to the Farmland, Timberland, or Infrastructure Guidelines.

RECOMMENDATION

The ARMB approve:

Resolution 2023-13 which adopts the revised Real Estate Investment Guidelines;

Resolution 2023-14 which adopts the revised Farmland Investment Guidelines;

Resolution 2023-15 which adopts the revised Timberland Investment Guidelines; and,

Resolution 2023-16 which adopts the revised Infrastructure Investment Guidelines.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
Relating to Real Estate Investment Guidelines

Resolution 2023-13

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

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

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

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

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

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

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

NOW THEREFORE, BE IT RESOLVED THAT THE ALASKA RETIREMENT MANAGEMENT BOARD adopts the revised Real Estate Investment Guidelines, attached hereto and made a part hereof. This resolution repeals and replaces Resolution 2022-12.

DATED at Anchorage, Alaska this _____ day of September, 2023.

____
Chair

ATTEST:

____
Secretary

ALASKA RETIREMENT MANAGEMENT BOARD
REAL ESTATE INVESTMENT
POLICIES, PROCEDURES AND GUIDELINES

TABLE OF CONTENTS

Page #

ATTACHMENTS

ALASKA RETIREMENT MANAGEMENT BOARD

REAL ESTATE INVESTMENT

POLICIES, PROCEDURES AND GUIDELINES

I. INVESTMENT OBJECTIVES

A. Investments in Real Estate and Other Real Estate Related Assets

The Alaska Retirement Management Board (ARMB) will invest in real estate with the goals of portfolio diversification and attaining the optimum return on the portfolio, consistent with the assumption of prudent risk and safety of principal. ARMB recognizes the need to use active investment management in order to obtain the highest attainable total investment return (measured as income plus appreciation) within ARMB's framework of prudence and managed risk.

ARMB will select Real Estate Investment Managers who have the discretion to invest in publicly traded equity, privately placed debt, and/or privately placed equity sectors, subject to ARMB's approval of an Annual Strategic/Tactical Plan and an Annual Investment Plan. In order for real estate investments to be considered, the Investment Manager must demonstrate that it is able to: add value through its real estate knowledge, experience and strategy; underwrite the risks of the investment which is contemplated; and at the time of investment, comply with the intent of the Real Estate Investment Policies, Procedures and Guidelines **(Guidelines)**.

Single property and multi property strategies will be considered as well as "pooled/commingled" fund investment vehicles.

B. Asset Allocation

The ARMB allocation to real estate investments shall be determined by the Board of Trustees and reviewed annually. Allocated capital to Investment Managers will be defined as invested capital based on ARMB's cost.

C. Portfolio Return Objective

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

2. **Income Return**
   Income, which is defined as cash distributed to ARMB, is expected to produce 50-60% of the total return over rolling five-year periods.

3. **Index**

   The overall portfolio is expected to exceed the target index. The target index is composed of 80~~70~~% NFI-ODCE and 20~~30~~% NAREIT All Equity Index.

II. PROGRAM RISK MANAGEMENT AND IMPLEMENTATION

The selection and management of assets in the real estate portfolio of the ARMB will be guided by the principles of preserving investment capital, attaining the optimum return on the portfolio consistent with the assumption of prudent risk, generating current income, being sensitive to inflation, maintaining diversification of assets and diversification of management responsibility.

In real estate investment, there is an inherent risk that the actual income and return of capital will vary from the amounts expected. The ARMB will manage the investment risk associated with real estate in several ways**:**

A. Institutional Quality

All assets must be of institutional investment quality as evidenced by a precedent of institutional investment in similar properties; expert analysis which supports the economic viability of the market; high quality construction and design features; and a potential competitive position within the property's immediate market area**.**

B. Diversification

The real estate portfolio will be diversified as to style group, property type, industry sector, life cycle, economic driver, investment manager and geographical location. Diversification reduces the impact on the portfolio of any one investment or any single manager's investment style to the extent that an adversity affecting any one particular area will not impact a disproportionate share of the total portfolio. Portfolios for core investment managers and non-core or value added investment managers will carry the diversification characteristics set forth in the allocations and definitions set out below. Diversification compliance will be monitored on a quarterly basis for compliance with ARMB's Guidelines by staff and the real estate consultant.

For purposes of calculating diversification compliance, the overall real estate portfolio size will be considered the product of the greater of projected or target real estate allocation times the projected fiscal year-end overall plan assets as established in the Annual Investment Plan. The projected fiscal year-end overall plan assets will take into account the target allocations and projected returns of all asset classes in which plan assets are invested, and estimated net pay-outs to plan beneficiaries. Unless exceptional circumstances justify a deviation, the maximum percentage of the real estate portfolio investment for each of the identified categories is as follows:

Non-Controlled Investments: (ARMB cannot liquidate within 180 days)	50%
Non-Core Investments (See definition below):	50%
Single Manager Limit: *(value of both Separate Account and Commingled Fund combined, if applicable)*	45 %

Geographic:

ARMB will avoid over-concentration in areas of similar real estate performance. The consultant will monitor ARMB's concentrations in this area, considering indicators such as NCREIF sub-region, metropolitan areas and economic drivers. The consultant will report its conclusions regarding the acceptability of ARMB's concentration limits quarterly.

Outside United States:	20 %
Single Property Investment: *(acquisition cost plus projected capital additions and improvements)*	5 %
Single-Tenant (any one firm):	10 %
Property Type:	50 %

Manager Allocation – It is understood that Separate Account Investment Managers may exceed their Board-approved allocations by up to 5% for the purposes of capital improvements on existing assets and/or for the completion of an acquisition. A core Separate Account Investment Manager's portfolio may be invested up to 15% in core-plus style properties to assemble a core portfolio. A value-added Separate Account Investment Manager's portfolio shall include 70%-100% in value-added style properties, and may include up to 30% in opportunistic style properties.

Subject to CIO approval, upon the sale of a property held by a Separate Account Investment Manager in which the net sales proceeds are in excess of the property's cumulative basis, the advisor's allocation will increase in an amount equal to the lesser of the excess of the net sales proceeds over the property's cumulative basis or the aggregate portfolio net asset value over the aggregate portfolio cumulative basis adjusted to reflect actual sale proceeds. The CIO will also consider whether an allocation increase should be adjusted for any past realized losses incurred by the Separate Account Investment Manager. The intent of this provision is to allow a Separate Account Investment Manager to reinvest realized gains but only to the extent gains are greater than losses which have been experienced in other property investments in the Separate Account Investment Manager’s portfolio.

Exceptional circumstances justifying a deviation – When circumstances arise of a temporary nature, such as an unexpected re-valuation of assets, a transfer of assets among managers, or an event in which it would be in the fiduciary interest of the ARMB to do so, the limits set forth in paragraph II.B of ARMB Policies may be exceeded provided that ARMB concurs.

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

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

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

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

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

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

Definitions

Core Investments

Primary Characteristics:

- Fully or substantially leased (85% occupancy or greater)
- Inconsequential turnover near term
- Inconsequential physical issues or renovation required
- Credit tenants
- Primary markets
- Quality property
- Income produces 50% or more of expected return
- Typically longer term holds
- Properties in markets with stable or improving economic conditions

Core-plus Investments

Primary Characteristics:

- Limited renovation, primarily deferred maintenance, limited physical issues or repositioning needed
- Modest near term lease roll over; modest vacant lease up
- Expected growth through increasing rents
- Poor prior management
- A- to B- quality
- Income produces 50% or more of expected return

Non-Core Investments

Value-Added Investments

Primary Characteristics:

- Asset renovation – lobbies, corridors, deferred maintenance
- Intermediate term (6-9 months) physical issues
- Current vacancies or rent loss
- Near term roll over exposure
- Repositioning, re-tenanting
- Distressed prior management
- Purchase of adjacent land to develop
- Alternative, turnaround markets and property types
- Income produces 50% or less of total return

Opportunistic Investments – These investments involve significant redevelopment risk, high leasing risk, and high development risk.

Primary Characteristics:

- Empty Buildings
- High near term turnover
- New development – spec or limited pre-leasing
- Significant rehabilitation and leasing, redevelopment into alternative uses
- Capital displacement in maligned markets: lack of investment capital due to level of risk
- Non-traditional asset type (mezzanine debt, land, etc.)
- Wide ranging investment structures

- Investing in non-performing notes
- Cross-border investing
- Holding periods typically 1 to 5 years
- Income produces less than 50% of total return

Note: *Properties within a multi-property investment will be categorized as either core or non-core.*

C. Implementation Approach

All allocation of funds to a manager (including additional investment with existing accounts) and investment strategy must be recommended to ARMB by Staff and the Real Estate Consultant and be accompanied by an investment report which, at a minimum, includes the following: market information; investment alternatives; fee structure and comparison to other alternatives; demonstration of compliance with Guidelines and the then current Annual Investment Plan; historical performance of Separate Account Investment Manager (cash–based internal rates of return and industry standard); projected returns (income and appreciation); and positive and negative attributes of the investment strategy.

On a selective basis, a member of ARMB may visit the site of a real estate investment for the purpose of rendering a report to ARMB supplementing reports provided by Staff, the Real Estate Consultant, or others**.**

D. Prudent Leverage

Separate account investment managers may place leverage on properties up to a maximum of 65% at the property level and 30% at the portfolio level, measured at the time the financing is established. All debt shall be non-recourse to ARMB. Property encumbered by debt at the time of purchase, if justified on a risk-return basis by the Separate Account Investment Manager, may be acquired subject to the aforementioned leverage constraints.

The total amount of fund level leverage, at the time of investment, will not exceed 35% for core commingled funds investing in a core equity diversified asset strategy. The total amount of fund level leverage, at the time of investment, will not exceed 65% for non-core commingled funds investing in a value-add or opportunistic diversified asset strategy.

E. Lease Structure

Multi-tenant and single tenant properties will be considered. When acquiring single tenant properties, consideration will be given to avoid multiple single-tenant exposure to any firm if those single tenant properties constitute more than 10% of the portfolio. A staggered lease structure for commercial properties will be emphasized.

F. Separate Account Investment Manager Business Plan; Annual

Strategic/Tactical Plan; Disposition/Exit Strategy

A Business Plan (including property operating budgets) will be completed by each Separate Account manager for each asset under its management. The Business Plan will identify the current and anticipated competitive position for each property in order to set tactical and strategic objectives and will prescribe in appropriate detail a disposition and exit strategy respecting the particular investments. Part of this process is to evaluate the potential timing of dispositions. A property is considered for sale when it is believed that the equity in the existing investment can achieve a higher return in another real estate investment of similar risk. The Annual Strategic/Tactical Plan will describe the expectation of the manager with respect to acquisitions and dispositions.

G. Fee Structure

Involvement in any venture will be done on a fee basis that is competitive. The preferred method of calculating manager fees will be based upon a formula, which considers both 1) the cost basis of assets under management and 2) investment performance. All fee structures will be approved by ARMB. For core managers, the return-based portion of a fee will emphasize actual cash available for distribution to ARMB.

H. Single Asset Ownership Structure (Applies to Separate Accounts Only)

Provided that the goals of these guidelines are followed, ARMB may invest in separate, specific real estate assets. However, such investments will be undertaken in a fashion structured to limit ARMB's liability to the amount of its investment.

I. Reporting System

Staff and the Real Estate Consultant will develop and implement a comprehensive and responsive reporting and monitoring system for the entire portfolio, individual investments and individual managers. The reporting and monitoring system will endeavor to identify under-performing investments, controlled portfolio diversification deficiencies and inherent conflicts of interest, thereby facilitating active portfolio management. A cash-based internal rate of return (IRR) will be used when evaluating the long-term performance of an investment. Time- weighted returns will be used to measure comparative performance.

J. Distribution of Current Income

All separate account income will be distributed immediately to ARMB or its designee and not automatically reinvested in the account.

K. Lines of Responsibility

Well defined lines of responsibility and accountability will be required of all participants in ARMB's real estate investment program. Participants are identified as:

ARMB – The fiduciaries appointed by the Governor to represent the beneficiaries' interest which shall retain final authority over all real estate investment decisions.

Staff – Investment professionals on the staff of the Department of Revenue and assigned ARMB responsibilities who will assist in the Real Estate equity investment program's design, policy implementation and administration.

Real Estate Consultant – Professionals retained to support Staff and ARMB through the provision of expert real estate strategic planning, implementation and performance monitoring support.

Separate Account Investment Managers – Qualified entities who provide institutional real estate investment management services and maintain a discretionary relationship with ARMB subject to Staff's approval of Annual Business Plans and Annual Strategic/Tactical plans, prepared by Separate Account Investment Managers, and ARMB's approval of the Annual Investment Plan.

Commingled Fund Managers – Qualified entities who provide institutional real estate investment management services through open-end and closed-end real estate pools and other pooled/commingled vehicles.

III. CONFLICTS OF INTEREST

In real estate investment, separate and distinct from other asset classes, the Manager of a Separate Account or Commingled Fund may have direct or significant control over the operations of the assets. This inherent or potential conflict of interest if openly described and regulated may contribute to the lower volatility associated with the asset class, but it also creates a need for a higher oversight standard by the plan sponsor. Staff and ARMB will maintain this oversight in at least the following ways:

A. Property Valuation

The Separate Account Investment Manager will provide ARMB with annual appraisal valuations for all properties for which it has asset management responsibility as of the quarter ending March 31. Unless otherwise directed by ARMB, the appraisal will be prepared by a qualified independent third party entity in accordance with industry standards. Staff may waive the appraisal requirement for recent acquisitions or pending dispositions following a recommendation by the Separate Account Investment Manager that such appraisal would not be a cost effective exercise. For development assets, appraisals are to be conducted in the manner described above after substantial completion payment by ARMB is made. In addition, the Separate Account Investment Manager will mark each asset to market each quarter based on asset conditions and leasing, operations and capital market conditions for comparable properties in that market.

B. Property Management

The selection of on-site property management will generally be left to the discretion of the Separate Account Investment Manager. It is expected that the Separate Account Investment Manager will retain the highest caliber, market rate property management service either through a third party fee manager or the Separate Account Investment Manager's affiliated property management division. This business relationship will be periodically reviewed by Staff, the Real Estate Consultant and ARMB.

IV. INSURANCE COVERAGE

The Separate Account Investment Manager will obtain insurance for the physical properties and assets under its control. The coverage will be in such amounts and against such risks as, in the Separate Account Investment Manager's professional judgment, shall be in accordance with sound institutional practices applicable to such properties or assets in the specific geographic area. It is expected that such insurance will include, but not be limited to, casualty loss, including where deemed appropriate by the Separate Account Investment Manager, earthquake, flood and any other disaster-type insurance coverage; comprehensive general liability; and title insurance. Separate Account Investment Managers will provide proof of insurance to Staff annually.

V. UNRELATED BUSINESS INCOME TAX

Prior to entering into any transaction, the Manager will assess whether income generated from the property under consideration could qualify as unrelated business taxable income. If this risk exists, the Manager will provide ARMB with an opinion of counsel satisfactory to ARMB that the transaction will not generate unrelated business taxable income under the federal income tax law or any other tax provisions that could affect ARMB's tax-exempt status existing at the time. The Manager shall investigate as to whether ARMB shall be entitled to any property tax exemptions. Managers will provide letters of opinion on UBIT and property tax exemptions to Staff.

VI. ENVIRONMENTAL EVALUATIONS

As a standard procedure during the pre-acquisition analysis, the Separate Account Investment Manager will initiate a formal evaluation for each property through the selection of an environmental consultant. In carrying out the review, appropriate procedures based on standards of the locale and conditions known to exist in the locale shall be undertaken and such procedures should at a minimum include:

- Appointment of an environmental consultant with specific experience in testing and removal of asbestos and other environmental hazards.
- A site survey will be conducted to determine from the available evidence whether hazardous chemicals or environmentally dangerous materials exist or have existed on the subject property, including, at a minimum, a Phase I report.

ARMB may invest in properties, which contain asbestos and other toxic substances, only if the following conditions are met:

- The substance and potential risks are thoroughly disclosed.
- The property is not in violation of any federal, state or local law, ordinance, or regulation relating to the property's environmental condition.
- The estimated cost of the removal or containment programs will be reflected in the purchase assumptions.
- The substance can be properly contained or removed in accordance with the then current Environmental Protection Agency Standards.
- The leasing rollover pattern in the property will accommodate a removal program in the future.

Separate Account Investment Managers will provide the environmental evaluation reports to staff

VII. PROCEDURES FOR INVESTMENT

A. Delegation of Responsibilities

The real estate investment program will be implemented and monitored through the coordinated efforts of the ARMB, Staff, the Real Estate Consultant, and the qualified Manager(s). Delegation of responsibilities for each participant is described in the following sections: A summary of the delegation is attached:

1. ARMB

ARMB will retain final authority over all real estate investment strategy decisions except for Business Plan variances as set forth in the Guidelines Section VIII; approve the Guidelines, the Annual Investment Plan and any periodic revisions to these documents which ARMB deems to be appropriate and prudent for the investment of ARMB assets; retain qualified investment managers and real estate consultants; and set investment limits.

2. Staff

Staff will coordinate program compliance among all participants and communicate the investment policies, objectives and performance criteria to the Separate Account Investment Managers and monitor diversification compliance on a quarterly basis. Staff will also coordinate the receipt and distribution of capital. Staff, in cooperation with the Real Estate Consultant, will periodically review the Separate Account Investment Managers' and portfolio's performance in relation to target returns; review and approve the Separate Account Investment Manager's Annual Business Plan and Annual Strategic/Tactical Plan; review and recommend investments in commingled vehicles; prepare and recommend an Annual Investment Plan; and recommend revisions to the Real Estate Investment Policy Procedures and Guidelines. Staff will also review and approve the detailed property operating budgets prior to the start of each fiscal year and revisions to the property operating budgets in accordance with Section VIII of these Guidelines.

3. Real Estate Consultant

In cooperation with Staff and as deemed appropriate by ARMB, the Real Estate Consultant will ensure program compliance; assist in the implementation of a multiple manager program; review all program documentation and management relationships; conduct manager searches when requested; provide performance measurement analysis of the portfolio; review the Annual Investment Plan as set forth in the Investment Procedures outlined below; and provide special project research pertaining to technical real estate issues.

The Real Estate Consultant will, as requested by ARMB, provide periodic reports for the real estate program including a performance evaluation of the total portfolio to include both ARMB's commingled fund investments and ARMB's separate account investments. The analysis will include both income and capital accounting; comparison to industry performance benchmarks (such as NCREIF); Manager reviews, and effects of "Pooled Leverage" on the real estate portfolio. The Real

Estate Consultant will prepare a quarterly performance analysis report which will provide after-fee realized and unrealized gains/losses; monitor and report quarterly diversification compliance and the geographic concentration limits; time weighted returns including both current quarter returns and annualized returns since portfolio inception; and internal rates of return since inception based on actual cash flow from and to ARMB.

Additional responsibilities may include developing selection criteria in manager search efforts, coordinating/conducting manager searches, conducting manager reviews, and other special projects.

4. Managers

Separate Account Investment Managers will acquire and manage real estate investments on behalf of ARMB and in accordance with the then current and approved Annual Business, Annual Strategic/Tactical Plans, and the objectives set forth in the Annual Investment Plan and the Guidelines. Managers will prepare Annual Business (including property operating budgets) and Annual Strategic/Tactical Plans for Staff review and approval.

Commingled fund investment managers will acquire and manage real estate investments on behalf of ARMB and in accordance with the terms of any and all agreements between each respective Manager and ARMB.

B. Investment Procedure

Real estate investments, in compliance with ARMB's Policies, shall be acquired through the following process:

1. Separate Accounts:

Annually, Staff will prepare an Investment Plan after reviewing the Annual Business and Strategic/Tactical Plans of the Separate Account Investment Managers. This document will recommend, as appropriate, revisions to the ARMB Guidelines, additional allocations to existing managers, and revisions to the Annual Business and Strategic/Tactical Plans of each respective Separate Account Investment Manager. Any searches that may be recommended will be outlined. The Investment Plan will then be reviewed by the consultant and submitted to ARMB for final approval. Staff and the Real Estate Consultant shall review the Separate Account Investment Manager's Annual Business Plans and Annual Strategic/Tactical Plans for consistency with the Annual Investment Plan. Staff will approve all Plans prepared by Separate Account Investment Managers.

Investments will be made on a discretionary basis by Separate Account Investment Managers in accordance with their approved Annual Business and Strategic/Tactical Plans. Separate Account Investment Managers must provide staff with copies of their internal "Investment Committee" reports for each asset purchased on ARMB's behalf.

2. Commingled Funds:

Investments in commingled funds will be recommended by Staff and the Real Estate Consultant on an individual fund basis in accordance with the Annual Investment Plan and the ARMB Guidelines.

VIII. DELEGATION OF AUTHORITY

ARMB shall delegate authority to Staff to approve the following:

- Each Separate Account Investment Manager's detailed property operating budgets for each fiscal year;
- Annual Business Plans and Annual Tactical/Strategic Plans prepared by ARMB's Separate Account Investment Managers;
- Revised property operating budgets and variances in approved Annual Business Plans for unanticipated, significant leasing activity; and
- Line item variances in approved capital expenditure budgets in amounts up to $300,000 with a cumulative fiscal year maximum of $3,000,000 per Separate Account Investment Manager for other capital expenditures not related to leasing activity (such as repairs for building damage or defects).

IX. CONFIDENTIALITY

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

Those portions of reports provided pursuant to Part II section I (Reporting System) of these Guidelines shall be considered confidential pursuant to 15 AAC 112.770 to the extent that information is reasonably designated by Manager(s) as being confidential or proprietary, or to the extent the disclosure of which would unfairly prejudice the ability of Manager(s) or ARMB to manage, lease, market or sell such property or Assets.

X. REVISIONS

This document replaces and consolidates the policies, procedures, and guidelines as of September 16, 2022 ~~18, 2020~~. This document is to be reviewed no less than annually and revised as appropriate.

XI. REAL ESTATE SEPARATE ACCOUNT INVESTMENT MANAGERS

The following investment managers acquire institutional-grade properties on a discretionary basis for the Alaska Retirement Management Board:

UBS Realty Investors LLC
Property type – Core/apartments, industrial, retail and office
Contact - Jeffrey G. Maguire
Managing Director
10 State House Square
Hartford, CT 06103-3604
Telephone: 860-616-9086
Fax: 860-616-9104
E-mail: jeffrey.maguire@ubs.com
Web site: www.ubs.com

Sentinel Realty Advisors Corp.
Property type – Core/apartments only
Contact – George Tietjen
Managing Director
1251 Avenue of the Americas
New York, NY 10020
Telephone: 212-408-2929
Fax: 212-603-5961
E-mail: tietjen@sentinelcorp.com
Web site: www. sentinelcorp.com

XII. REAL ESTATE COMMINGLED ACCOUNT INVESTMENT MANAGERS

UBS Realty Investors LLC
Contact: Thomas J. O'Shea,
Managing Director
10 State House Square
Hartford, CT 06103-3604
Telephone: 860-616-9128;
Facsimile: 860-616-9104
E-mail: thomas.oshea@ubs.com

J.P. Morgan Asset Management
Contact: Ann Cole, Managing Director Portfolio Manager; Kimberly Adams, Managing Director Portfolio Manager, Strategic Property Fund
270 Park Avenue, 7th Floor
New York, NY 10017
Telephone: (AC) 212-648-2152
Telephone: (KA) 312-732-6366
Facsimile: 917-464-7449
ann.e.cole@jpmorgan.com
kimberly.a.adams@jpmorgan.com

Clarion Partners
Contact: Richard Schaupp
Director
230 Park Avenue
New York, NY 10169
Telephone: 212-883-2716
Facsimile: 212-883-2806
*E-mail:*richard.schaupp@clarionpartners.com

Silverpeak Legacy Partners
Contact: Colleen Fennerty
Managing Director
40 West 57th Street, 29th Floor
New York, NY 10019
Telephone: 212-716-2064
Facsimile: (646) 285-9271
E-mail: investorrelations@silverpeakre.com

~~**Tishman Speyer Properties**~~
~~*Contact*: Julie Lurie~~
~~45 Rockefeller Plaza, 7th Floor~~
~~New York, NY 10020~~
~~*Telephone:* 212-715-0329~~
~~*Facsimile:* 212-895-0129~~
~~*E-mail:* JRLurie@tishmanspeyer.com~~

BlackRock, Inc.
Contact: Ted Koros, Managing Director
50 California Street, Suite 300
San Francisco, CA 94111
Telephone: 415-670-6210
Facsimile: 646-521-4982
E-mail: theodore.koros@blackrock.com

Almanac Realty Investors, LLC
Contact: Matt Kaplan, Managing Partner
1140 Avenue of the Americas, 17th Floor New York, NY 10036
Telephone: 212-403-3522
Facsimile: 212-403-3520
E-mail: matthew.kaplan@almanacrealty.com

~~**ColonyCapital, LLC**~~
~~*Contact:* Andrea Nicholas~~
~~515 S. Flower Street, 44th Floor~~
~~Los Angeles, CA 90071~~
~~*Telephone*: 310-552-7191~~
~~*Facsimile*: 310-407-7391~~
~~*E-mail:* ANicholas@colonyinc.com~~

KKR & Co. L.P.
Contact: Lawrence Ou, Director
555 California Street
San Francisco, CA 94101
Telephone: 415-315-3627
E-mail: Lawrence.ou@kkr.com

Attachment 1

REAL ESTATE INVESTMENT POLICY and PROCEDURES - Delegation of Responsibilities Attachment					
	Frequency	**Separate Account Investment Managers**	**Consultant**	**Staff**	**Board**
Real Estate Investment Policy, Procedures, and Guidelines			R	P&R	A
Review and Revise	Annually		R	R	A
Separate Account Investment **Manager Selection**	Periodically		G&R	G&R	A
Request For Proposal (RFP)			P&R	P&R	A
Real Estate **Consultant Selection**	Tri-Annually			G&R	A
Request For Proposal (RFP)				P&R	A
Commingled Fund Selection**	Periodically		R	R	A
Real Estate Investment Plan**	Annually		R	P&R	A
Separate Account Business Plan**	Annually	P	R	R&A	
Detailed Property Operating Budget	Annually	P	R	R&A	
Separate Account Strategic/Tactical Plan**	Annually	P	R	R&A	RT
Quarterly Performance	Quarterly		P	RT	RT
Portfolio/Property Diversification Compliance	Quarterly		M	M	
Geographic Concentration Limit	Quarterly		M	RT	

A = Approves
G = Grade
P = Prepares
R = Recommends

RT = Reported To
M = Monitor

* Grade Semi-finalists only
** Investment Decision (Shaded)

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

Resolution 2023-14

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

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

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

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

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

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

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

NOW THEREFORE, BE IT RESOLVED THAT THE ALASKA RETIREMENT MANAGEMENT BOARD adopts the revised Farmland Investment Guidelines, attached hereto and made a part hereof. This resolution repeals and replaces Resolution 2022-13.

DATED at Anchorage, Alaska this _____ day of September, 2023.

____
Chair

ATTEST:

____
Secretary

APPENDIX E

ALASKA RETIREMENT MANAGEMENT BOARD
FARMLAND INVESTMENT
POLICIES, PROCEDURES AND GUIDELINES

TABLE OF CONTENTS

ALASKA RETIREMENT MANAGEMENT BOARD
FARMLAND INVESTMENT
POLICIES, PROCEDURES AND GUIDELINES

I. INVESTMENT OBJECTIVES

A. Investments in Farmland and Other Farmland Related Assets

The Alaska Retirement Management Board (ARMB) will invest in Farmland with the goals of portfolio diversification and attaining the optimum return on the portfolio, consistent with the assumption of prudent risk and safety of principal. ARMB recognizes the need to use active investment management in order to obtain the highest attainable total investment return (measured as income plus appreciation) within ARMB's framework of prudence and managed risk.

ARMB will select Separate Account Investment Managers **(Managers)** who have the discretion to invest in Farmland, subject to ARMB's approval of an Annual Strategic/Tactical Plan and an Annual Investment Plan. In order for Farmland investments to be considered, the Manager must demonstrate that it is able to: add value through its Farmland knowledge, experience and strategy; underwrite the risks of the investment which is contemplated; and comply with the intent of the Farmland Investment Policies, Procedures and Guidelines **(Guidelines)**.

Single property and multi property strategies will be considered.

B. Asset Allocation

The ARMB allocation to Farmland investments shall be determined by the Board of Trustees and reviewed annually.

Farmland Investments will be allocated 80% to row crops and 20% to permanent crops, +/- ten (10%) percent

Allocated capital to Managers will be defined as invested capital based on ARMB's cost.

C. Portfolio Return Objective

1. **Total Return**
   Over rolling 6 year periods, the equity Farmland investment portfolio is expected to generate a net-of-fee total return between public equities and fixed income using a time-weighted rate of return calculation.

2. **Income Return**
   Income, which is defined as cash distributed to ARMB, is expected to produce 4.0% returns over rolling five-year periods with a minimum of 3.0% distributed income after fees and projected capital expenditures.

II. PROGRAM RISK MANAGEMENT AND IMPLEMENTATION

The selection and management of assets in the Farmland portfolio of the ARMB will be guided by the principles of preserving investment capital, attaining the optimum return on the portfolio consistent with the assumption of prudent risk, generating current income, being sensitive to inflation, maintaining diversification of assets and diversification of management responsibility.

In Farmland investment, there is an inherent risk that the actual income and return of capital will vary from the amounts expected. The ARMB will manage the investment risk associated with Farmland in several ways**:**

A. Institutional Quality

All assets must be of institutional investment quality as evidenced by a precedent of institutional investment in similar properties; i.e., properties that have high percentage of Class I & II soils or other soil types appropriate for the production of the targeted commodity, adequate sources of water for irrigation (if applicable) at reasonable costs, located in well established agricultural regions.

"Eligible Properties" mean real property in which ownership in fee vests in ARMB or an ARMB Title Holding Entity. Subsurface, water or other property rights will be acquired and/or retained consistent with use of the property for Farmland, and the terms of acquisition shall include the most favorable rights and terms accorded to any other participant in any controlling or overriding master lease or utilization type agreement which might be applicable to the use of the property (for example, if the ARMB property is a portion of a larger agricultural unit). For purposes of this definition, real property includes any property treated as real property either by local law or state law or for federal income tax purposes.

Investments will be located in the United States of America. International investments are not permitted.

B. Diversification

The Farmland portfolio will be diversified as to crop type, property type and geographical location. Diversification reduces the impact on the portfolio of any one investment. Diversification compliance will be monitored on a quarterly basis for compliance with ARMB's Guidelines by staff.

For purposes of calculating diversification compliance, the overall Farmland portfolio size will be considered the allocation to Farmland. Unless exceptional circumstances justify a deviation, the maximum percentage of the Farmland portfolio investment for each of the identified categories is as follows:

Controlled Investments:	100 %
(ARMB can liquidate within 180 days –targeted, not guaranteed))	
Non-Controlled Investments:	50%
(ARMB cannot liquidate within 180 days)	

Public Equity:	0 %
Public Debt:	0 %
Private Equity:	100 %
Private Debt:	0 %

Geographic:

ARMB will avoid over-concentration in areas of similar Farmland performance. The consultant will monitor ARMB's concentrations in this area. The consultant will report its conclusions regarding the acceptability of ARMB's concentration limits quarterly.

Properties Within the Same NCREIF Farmland Region	40%
Single Property Investment:* *(acquisition cost plus projected capital additions and improvements)*	15%
Single-Tenant/Sub-Tenant (any one firm):	15%
Crop Type (with a band of +/- 10%)	
Row Crop	80%
Permanent Crop	20%
Properties Producing the Same Commodity	30%

Exceptional circumstances justifying a deviation – When circumstances arise of a temporary nature, such as an unexpected re-valuation of assets, a transfer of assets among managers, or an event in which it would be in the fiduciary interest of the ARMB to do so, the limits set forth in paragraph II.B of ARMB Policies may be exceeded provided that ARMB concurs.

* Exception for high cost markets shall be approved annually by the ARMB through its Annual Investment Plan.

Reinvestment of allocation by the investment manager shall require approval by the Chief Investment Officer (CIO). The CIO has discretion in determining the reinvestment amount to authorize. Amounts may reflect the original allocation or may recognize some portion of any realized gains or losses.

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

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

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

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

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

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

C. Implementation Approach

The ARMB will endeavor to allocate specific funds to qualified managers on a separate account basis. Selected managers will seek Farmland investment opportunities in privately-placed equity sectors. Investments will be made on a discretionary basis subject to ARMB Staff approval of the Annual Strategic/Tactical Plans prepared by Managers and Staff's approval of the Annual Investment Plan.

All allocation of funds to a manager (including additional investment with existing accounts) and investment strategy must be recommended to Staff and be accompanied by an investment report which, at a minimum, includes the following: market information; investment alternatives; fee structure and comparison to other alternatives; demonstration of compliance with the Guidelines and the then current Annual Investment Plan; historical performance of Manager (cash–based internal rates of return and industry standard); projected returns (income and appreciation); and positive and negative attributes of the investment strategy.

On a selective basis, a member of ARMB may visit the site of a Farmland investment for the purpose of rendering a report to ARMB supplementing reports provided by Staff or others.

D. Prudent Leverage

The total amount of leverage placed on the aggregate Separate Account assets will not exceed ten percent (10%) of the total market value of the Farmland separate account portfolio. Directly-owned properties will not be leveraged by the separate account investment manager unless, with approval from the Chief Investment Officer, the property was encumbered by debt at the time of purchase and leaving the debt in place can be justified on a risk-return basis. With authorization by the ARMB, the Chief Investment

Officer may place leverage on a pool of existing core Farmland assets held in ARMB's separate account portfolio in a manner consistent with the ARMB's Guidelines.

E. Directly Operated Agriculture Properties

Directly operated agriculture properties are permitted. Managers will select operators for agricultural properties who have relevant experience and who have demonstrated expertise in operating that property's crop type.

F. Lease Structure

All leases must be of institutional investment quality with a precedent of institutional investment in similar properties; Leases will be structured with fixed cash rents, or participating rents calculated as a percentage of gross income. A lease structure incorporating both fixed cash rent and participating rent is also acceptable.

G. Manager Business Plan; Annual Strategic/Tactical Plan; Disposition/Exit Strategy

A Business Plan (including property operating budgets) will be completed by each manager for each asset under its management. The Business Plan will identify the current and anticipated competitive position for each property in order to set tactical and strategic objectives and will prescribe in appropriate detail a disposition and exit strategy respecting the particular investments. Part of this process is to evaluate the potential timing of dispositions. The Annual Strategic/Tactical Plan will describe the expectation of the manager with respect to acquisitions and dispositions.

H. Fee Structure

Involvement in any venture will be done on a fee basis that is competitive. The preferred method of calculating manager fees will be based upon a formula, which considers 1) the cost basis of assets under management and 2) market value of the assets under management. All fee structures will be approved by ARMB.

I. Single Asset Ownership Structure (Applies to Separate Accounts Only)

Provided that the goals of these guidelines are followed, ARMB may invest in separate, specific Farmland assets. However, such investments will be undertaken in a fashion structured to limit ARMB's liability to the amount of its investment.

J. Reporting System

Staff will develop and implement a comprehensive and responsive reporting and monitoring system for the entire portfolio, individual investments and individual managers. The reporting and monitoring system will endeavor to identify under-performing investments, control portfolio diversification deficiencies and inherent conflicts of interest, thereby facilitating active portfolio management. A cash-based internal rate of return (IRR) will be used when evaluating the long-term performance of an investment. Time-weighted returns will be used to measure comparative performance.

K. Distribution of Current Income

All separate account income less expenses and prudent operating reserves will be distributed to ARMB or its designee on a quarterly basis and not automatically reinvested in the Account.

L. Lines of Responsibility

Well defined lines of responsibility and accountability will be required of all participants in ARMB's Farmland investment program. Participants are identified as:

ARMB – The fiduciaries appointed by the Governor to represent the beneficiaries' interest which shall retain final authority over all Farmland investment decisions.

Staff – Investment professionals on the staff of the Department of Revenue and assigned ARMB responsibilities who will assist in the Farmland equity investment program's design, policy implementation and administration.

Separate Account Managers – Qualified entities that provide institutional Farmland investment management services and maintain a discretionary relationship with ARMB subject to Staff's approval of Annual Business Plans and Annual Strategic/Tactical plans, prepared by Managers.

III. CONFLICTS OF INTEREST

In Farmland investment, separate and distinct from other asset classes, the Manager of a Separate Account or Commingled Fund may have direct or significant control over the operations of the assets. Additionally, Managers may now or in the future maintain or manage properties and provide discretionary or non-discretionary advisory services for a number of other accounts and clients, including accounts affiliated with the Manager. These inherent or potential conflicts of interest if openly described and regulated may contribute to the lower volatility associated with the asset class, but it also creates a need for a higher oversight standard by the plan sponsor. Staff and ARMB will maintain this oversight in at least the following ways:

A. Property Valuation

The following valuation procedures shall be applied to all farmland assets managed in separate accounts for the Alaska Retirement Management Board:

1) All assets shall be appraised at the time of acquisition.

2) All assets shall be appraised annually during the quarter ending March 31 unless the property was acquired during the preceding twelve months in which case, based on a recommendation from the advisor, staff may allow an appraisal update or waive the appraisal requirement if such appraisal would not be a cost effective exercise.

3) All property valuations shall be reviewed internally by advisors for the quarters ending in June, September, and December. If changes in market conditions, expected cash flows, or other factors suggest a property valuation has likely changed by more than 3% to 5% the advisor shall prepare a documented internal valuation and record the resulting value in the financial statements.

4) Appraisals will be prepared by a qualified independent third party entity in accordance with industry standards. Appraisers shall be selected by the advisor in a manner that achieves a high quality appraisal at a reasonable cost.

5) Advisor shall attempt to rotate appraisers on each property every three years.

B. Property Management

The selection of on-site property management will generally be left to the discretion of the Manager. It is expected that the Manager will retain the highest caliber, market rate property management service either through a third party fee manager or the Manager's affiliated property management division. This business relationship will be periodically reviewed by Staff and ARMB.

IV. INSURANCE COVERAGE

The Manager will obtain insurance for the physical properties and assets under its control. The coverage will be in such amounts and against such risks as, in the Manager's professional judgment, shall be in accordance with sound institutional practices applicable to such properties or assets in the specific geographic area. It is expected that such insurance will include, but not be limited to, casualty loss, including where deemed appropriate by the Manager, disaster-type insurance coverage; comprehensive general liability; and title insurance.

V. UNRELATED BUSINESS INCOME TAX

The Manager will provide ARMB with an opinion of counsel satisfactory to ARMB that the standard lease or subsequent revisions to the standard lease used to lease Account Property will not generate unrelated business taxable income under the federal income tax law or any other tax provisions that could affect ARMB's tax-exempt status existing at the time. The Manager shall investigate as to whether ARMB shall be entitled to any property tax exemptions.

VI. ENVIRONMENTAL EVALUATIONS

As a standard procedure during the pre-acquisition analysis, the Manager will initiate a formal evaluation for each property though the selection of an environmental consultant. In carrying out the review, appropriate procedures based on standards of the locale and conditions known to exist in the locale shall be undertaken and such procedures should at a minimum include:

- Appointment of an environmental consultant with specific experience in testing and removal of asbestos and other environmental hazards.
- A site survey will be conducted to determine from the available evidence whether hazardous chemicals or environmentally dangerous materials exist or have existed on the subject property, including, at a minimum, a Phase I report.

ARMB may invest in properties, which contain asbestos and other toxic substances, only if the following conditions are met:

- The substance and potential risks are thoroughly disclosed.
- The property is not in violation of any federal, state or local law, ordinance, or regulation relating to the property's environmental condition.
- The estimated cost of the removal or containment programs will be reflected in the purchase assumptions.
- The substance can be properly contained or removed in accordance with the then current Environmental Protection Agency Standards.
- The leasing rollover pattern in the property will accommodate a removal program in the future.

VII. PROCEDURES FOR INVESTMENT

A. Delegation of Responsibilities

The Farmland investment program will be implemented and monitored through the coordinated efforts of the ARMB; Staff and; the qualified Manager(s). Delegation of responsibilities for each participant is described in the following sections: A summary of the delegation is attached:

1. ARMB

ARMB will retain final authority over all Farmland investment strategy decisions except for Business Plan variances as set forth in the Guidelines Section VIII; approve the Guidelines, the Annual Investment Plan and any periodic revisions to these documents which ARMB deems to be appropriate and prudent for the investment of ARMB assets; retain qualified investment managers and Farmland consultants; and set investment limits.

2. Staff

Staff will coordinate program compliance among all participants and communicate the investment policies, objectives and performance criteria to the Managers and monitor diversification compliance on a quarterly basis. Staff will also coordinate the receipt and distribution of capital. Staff will periodically review the Managers' and portfolio's performance in relation to target returns; review and approve the Manager's Annual Business Plan and Annual Strategic/Tactical Plan; review and recommend an Annual Investment Plan; and recommend revisions to the Farmland Investment Policy Procedures and Guidelines. Staff will also review and approve the detailed property operating budgets prior to the start of each fiscal year and revisions to the property operating budgets in accordance with Section VIII of these Guidelines.

3. Managers

Separate account investment managers will acquire and manage Farmland investments on behalf of ARMB and in accordance with the then current and approved Annual Business, Annual Strategic/Tactical Plans, and the objectives set forth in the Annual Investment Plan and the Guidelines. Managers will prepare Annual Business (including property operating budgets) and Annual Strategic/Tactical Plans for Staff review and approval.

B. Investment Procedure

Farmland investments, in compliance with ARMB's Policies, shall be acquired through the following process:

Separate Accounts:

Annually, Staff will prepare an Investment Plan after reviewing the Annual Business and Strategic/Tactical Plans of the separate account investment managers. This document will recommend, as appropriate, revisions to the ARMB Guidelines, additional allocations to existing managers, and revisions to the Annual Business and Strategic/Tactical Plans of each respective separate account investment manager. Staff shall review the Manager's Annual Business Plans and Annual Strategic/Tactical Plans for consistency with the Annual Investment Plan. Staff will approve all Plans prepared by the Managers.

Investments will be made on a discretionary basis by separate account investment managers in accordance with their approved Annual Business and Strategic/Tactical Plans. Investments will be approved in accordance with Managers' standard internal investment approval process, which may involve levels of authority delegated to senior officers and/or one or more investment committees. Upon the request of ARMB, separate account investment managers will provide copies of their internal Investment Committee reports for each asset purchased.

VIII. DELEGATION OF AUTHORITY

ARMB shall delegate authority to Staff to approve the following:

- Each separate account Manager's detailed property operating budgets for each fiscal year;
- Annual Business Plans and Annual Tactical/Strategic Plans prepared by ARMB's separate account Managers;
- Revised property operating budgets and variances in approved Annual Business Plans for unanticipated, significant leasing activity; and
- Line item variances in approved capital expenditure budgets in amounts up to $500,000 with a cumulative fiscal year maximum of $3,000,000 per Investment Manager for other capital expenditures not related to leasing activity (such as repairs for building damage or defects).

IX. CONFIDENTIALITY

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

Those portions of reports provided pursuant to Part II section I (Reporting System) of these Guidelines shall be considered confidential pursuant to 15 AAC 112.770 to the extent that information is reasonably designated by Manager(s) as being confidential or proprietary, or to the extent the disclosure of which would unfairly prejudice the ability of Manager(s) or ARMB to manage, lease, market or sell such property or Assets.

X. REVISIONS

This document is to be reviewed no less than annually and revised as appropriate.

XI. FARMLAND SEPARATE ACCOUNT INVESTMENT MANAGERS

The following investment managers will acquire institutional-grade farmland properties on a discretionary basis for the Alaska Retirement Management Board:

UBS Farmland Investors LLC
James B. McCandless
10 State House Square, 15th Floor
Hartford, CT 06103-3604
Telephone: 860-616-9200
Fax: 860-616-9204
E-mail: james.mccandless@ubs.com
Web site: www.ubs.com

Attachment 1

FARMLAND INVESTMENT POLICIES, PROCEDURES AND GUIDELINES - Delegation of Responsibilities "Attachment 1"					
	Frequency	**Separate Account Investment Managers**	**Consultant**	**Staff**	**Board**
Farmland Investment Policies Procedures and Guidelines Review and Revise	Annually			P, R	A
Separate Account Investment Manager Selection Request for Proposals (RFP)	Periodically		P, G, R	P, G, R	A
Farmland Investment Plan	Annually			P, R	A
Separate Account Business Plan and Strategic/Tactical Plan	Annually	P, R		A	
Quarterly Performance	Quarterly		P		
Portfolio/Property Diversification Compliance	Quarterly	P		M	
Geographic Concentration Limit	Quarterly	P		M	
A = Approve R = Recommend G = Grade M = Monitor P = Prepare					

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

Resolution 2023-15

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

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

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

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

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

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

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

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

This resolution repeals and replaces Resolution 2022-14.

DATED at Anchorage, Alaska this ___ day of September, 2023.

____
Chair

ATTEST:

____
Secretary

Timberland

ARMB Investment Guidelines

Section 1. Investment Objective

To develop a diversified portfolio of Timberland Investments with a focus on total return which will seek to produce a net-of-fee total return between public equities and fixed income over rolling six-year periods. Portfolio risk shall reflect, in each ARMB Timberland Advisor's (as defined in Section 2 below) judgment, the lowest expected risk profile required to achieve the return objectives. Each ARMB Timberland Advisor will place an emphasis on the preservation of capital and diversify the Timberland Investments to minimize risk. To the extent return objectives can be met, current income shall be given preference over appreciation.

Section 2. ARMB Timberland Advisor Selection

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

Each ARMB Timberland Advisor will provide services according to an agreed upon investment management agreement (contract) and the ARMB Investment Guidelines. ARMB will endeavor to allocate specific funds to each ARMB Timberland Advisor on a separate account basis (each a "Separate Account"). ARMB Timberland Advisors will invest funds on a discretionary basis in Timberland Investment opportunities to the extent of its specific allocation and Separate Account.

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

Section 3. Allocation

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

Reinvestment of allocation by the investment manager shall require approval by the Chief Investment Officer (CIO). The CIO has discretion in determining the reinvestment amount to authorize. Amounts may reflect the original allocation or may recognize some portion of any realized gains or losses.

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

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

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

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

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

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

Section 4. Advisor Performance Benchmark

NCREIF Timberland Index

Section 5. Investment Constraints

(a) Each property underlying a Timberland Investment will be commercial timberland in accordance with the standards and customs of the region in which the property is located. Although commercial attributes vary significantly across regions and among forest types, generally, properties will be characterized by adequate timber stocking, sufficient productivity, established timber markets, and ready access.

(b) Location: Timberland Investments will be located inside the United States of America.

(c) Diversification and Concentration: Each ARMB Timberland Advisor will undertake to ensure that the Timberland Investments under its control are adequately diversified. While each ARMB Timberland Advisor will seek to invest across the primary timberland regions of the United States as defined by the National Council of Real Estate Investment Fiduciaries (NCREIF) Timberland Index, geographic diversification will ultimately depend on the availability of attractive investment opportunities, as well as potential diversification by species, age classes of trees and suitability for a variety of end products.

(d) Leverage: The total amount of leverage placed on the aggregate Separate Accounts allocated to all ARMB Timberland Advisors for investment will not exceed ten percent (10%) of the total market value of all such Timberland Investments at the time such leverage is incurred. The purchase or refinance of Timberland Investments with debt and borrowing against Timberland Investments shall be permitted only with the prior consent of ARMB's Chief Investment Officer. The Advisor will not cause the Account to incur indebtedness without ARMB's prior consent.

(e) Allocation: Each ARMB Timberland Advisor may exceed its Separate Account Allocation by up to 5% for the purposes of capital expenditures on existing assets and/or the completion of an acquisition.

(f) Non-Routine Activity: Each ARMB Timberland Advisor will seek the prior approval of ARMB's Chief Investment Officer before entering into any arrangements which provide ancillary income activity from the Timberland which are not routinely associated with Timberland Investments. Examples include mining, wind farms, and utility infrastructure.

Section 6. ARMB Timberland Advisor Annual Portfolio Review

Annually, each ARMB Timberland Advisor will submit an annual portfolio review to ARMB staff ("Staff") which shall include an annual business plan addressing each Timberland Investment in the portfolio in its Separate Account and an annual portfolio level strategic plan. The objective of this effort is to facilitate Staff's monitoring of the Timberland Investments to ensure existing investments and future strategy are consistent with ARMB's objectives and to recognize any program changes, which may require ARMB approval, to facilitate the efficient operation of the investment program. Each ARMB Timberland Advisor will collaborate with Staff to identify the specific content of the business plan and strategic plan for the Timberland Investments in its Separate Account, but should consider the following:

Annual business plans will focus on past performance and future performance expectations for existing assets in the portfolio. Information should include performance analysis, hold/sell analysis, and investment budgets including explanations for future capital budget items.

Annual portfolio level strategic plans will focus on overall portfolio and market performance, portfolio diversification, market conditions, and strategy for acquisitions and disposition for the upcoming year. The strategic plan should also include any recommendations to improve the ARMB Investment Guidelines and/or ARMB's Timberland investment strategy.

Section 7. Ownership Structure

Timberland Investments will be owned in a structure designed to limit ARMB's liability to the amount of its capital commitment to such Timberland Investment and, where feasible, to recognize and preserve tax-exempt status.

Section 8. Reporting System

Staff will develop and implement a comprehensive and responsive reporting and monitoring system for all Timberland Investments and each ARMB Timberland Advisor. In order to facilitate active portfolio management, Staff will develop a reporting and monitoring system which will endeavor to identify under-performing investments, control portfolio diversification deficiencies and manage inherent conflicts of interest. A cash-based internal rate of return (IRR) will be used when evaluating the long-term performance of a Timberland Investment. Time-weighted returns will be used to measure comparative performance.

Section 9. Lines of Responsibility

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

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

Staff - Investment professionals on staff at the Department of Revenue assigned to ARMB Timberland Investments, who will assist in the Timberland investment program's design, policy implementation, and administration. Staff coordinates program and guidelines compliance among all participants and communicates the investment policies, objectives, and performance criteria to the ARMB Timberland Advisors; monitors diversification compliance on a quarterly basis; and coordinates the receipt and distribution of capital. Staff will review and approve each ARMB Timberland Advisor's annual business plan, including revisions to the investment budgets in accordance with Section 13 hereof, and annual portfolio level strategic plan. Staff will recommend, to ARMB, revisions to the Timberland Investment Guidelines as may be necessary from time to time.

Annually, Staff will prepare an Annual Investment Plan after reviewing the annual business and annual portfolio level strategic plan prepared by the ARMB Timberland Advisors. This document will recommend, as appropriate, revisions to the overall Timberland Investment strategy, revisions to the Timberland Investment Guidelines, and make recommendations for additional allocations to the ARMB Timberland Advisors as may be desirable.

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

Section 10. Property Management

The selection of on-site property management will generally be left to the discretion of the applicable ARMB Timberland Advisor. It is expected the ARMB Timberland Advisor will retain the highly qualified, market rate property management service either through a third party fee manager or the ARMB Timberland Advisor's affiliated property management division. This business relationship will be periodically reviewed by Staff and ARMB.

Section 11. Insurance Coverage

Each ARMB Timberland Advisor shall obtain insurance coverage with respect to the Timberland and the Timberland Investments in such amounts and against such risks as, in such ARMB Timberland Advisor's professional judgment, are in accordance with sound institutional practices applicable to Timberland Investments.

Section 12. Environmental Evaluations

As part of the pre-acquisition analysis for all prospective new Timberland Investments, each ARMB Timberland Advisor shall conduct a Phase 1 Environmental Site Assessment to identify the presence or likely presence of hazardous substances or petroleum products under conditions that indicate an imminent, existing or past release, or a material threat of a release into structures, or into the ground, groundwater or surface water.

Section 13. Delegation of Authority

ARMB shall delegate authority to Staff to approve the following:

- Annual business plans and annual portfolio strategic plans prepared by the ARMB Timberland Advisors;
- Revised investment budgets and variances in approved annual business plans for unanticipated activity; and
- Line item variances in approved capital expenditure budgets in amounts up to $500,000 with a cumulative fiscal year maximum of $3,000,000 per Advisor.

Section 14. Confidentiality

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

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

Section 15. Unrelated Business Income Tax

Each ARMB Timberland Advisor will manage its respective Separate Account with a view toward minimizing the recognition of unrelated business taxable income ("UBTI") to the extent consistent with the Investment Objective set forth in Section 1 above. Each ARMB Timberland Advisor will consult with ARMB prior to entering into any transaction that could reasonably be expected to result in the recognition of significant amounts of UBTI.

Section 16. Revisions

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

Section 17. ARMB Timberland Advisors

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

Timberland Investment Resources, LLC

115 Perimeter Center Place, Suite 940

Atlanta, GA 30346

Telephone: 404-848-2000

Fax: 404-848-2006

www.tirllc.com

Section 18. Definitions

(a) "Timber" means trees growing on Timberland, or trees which have been cut but not removed from Timberland.

(b) "Timberland" means real property which is to be planted with Timber or real property on which Timber is growing.

(c) "Timberland Investment" means, in general, all interests (including fee ownership, leasehold interests or management rights) in Timberland; timber deeds, timber cutting contracts and other rights, contracts or agreements relating to the ownership, cutting and/or use of Timber; options to acquire or sell Timber or Timberland or interests therein; mineral rights (including oil and gas rights), biomass or carbon credits attendant to the ownership of Timberland; and personal property, both tangible and intangible, directly associated or connected with the use of Timberland.

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

Resolution 2023-16

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

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

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

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

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

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

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

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

This resolution repeals and replaces Resolution 2022-15.

DATED at Anchorage, Alaska this _____ day of September, 2023.

____
Chair

ATTEST:

____
Secretary

Infrastructure

ARMB Investment Guidelines

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

Section 1. Investment Objective

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

Section 2. ARMB Infrastructure Advisor Selection

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

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

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

Section 3. Allocation

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

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

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

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

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

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

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

Section 4. Performance Benchmark

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

Section 5. Investment Constraints

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

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

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

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

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

Section 6. Ownership Structure

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

Section 7. Reporting System

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

Section 8. Lines of Responsibility

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

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

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

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

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

Section 9. Confidentiality

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

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

Section 10. Revisions

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

Section 11. ARMB Infrastructure Advisors

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

IFM Investors 114 West 47th Street New York, NY 10036 Phone: 212-784-2260 www.ifminvestors.com	
JPMorgan Asset Management 270 Park Avenue, 7th Floor, NY1-K141 New York, NY 10017 Phone: 212-648-2219 www.jpmorgan.com	

PUBLIC COMMENT

Thursday, September 14, 2023

1. Wendy Wolfe, Retired Public Employees of Alaska (oral)
2. Doug Woodby, 350Juneau (oral)
3. James Simard, 350Juneau (oral)

Friday, September 15, 2023

No requests to testify.

APPENDIX

TABLE of CONTENTS

The materials listed above are also contained in the September 13, 2023 Actuarial Committee Packet.

BUCK
A Gallagher Company

State of Alaska Retirement Systems

Presentation to ARMB Actuarial Committee

Updated JRS June 30, 2022 Valuation Results

September 13, 2023

Updated JRS June 30, 2022 Valuation Results
($000's)

	Original	Updated
Salary Increase Assumption	0% thru FY24, 3% thereafter	5% for FY23, 3% thereafter
Pension Benefit Increase Assumption	0% thru FY24, 3% thereafter	5% for FY23, 3% thereafter
Actuarial Accrued Liability / Funded Ratio		
- Pension	$ 211,705 / 109.0%	$ 227,228 / 101.6%
- Healthcare	$ 18,036 / 226.5%	$ 17,864 / 228.7%
FY25 Contribution Rate – Pension		
- Employer Normal Cost Rate	33.59%	35.32%
- Past Service Rate	10.62%	17.17%
- Total Rate	44.21%	52.49%
FY25 Contribution Rate – Healthcare	7.32%	6.75%

Note: Although healthcare benefits are not tied to salaries, the allocation of liabilities to past and future periods under the Entry Age Normal actuarial cost method changes when the salary assumption changes. The healthcare contribution rate is Normal Cost only since the healthcare total unfunded liability amortization amount is negative in both cases. Funded ratio is based on the Actuarial Value of Assets.

Actuarial Certification

The purpose of this presentation is to provide the ARMB Actuarial Committee with updated JRS June 30, 2022 valuation results due to changes in the salary and pension benefit increase assumptions that were requested by the plan sponsor. All calculations are based on the data, assumptions, methods, and plan provisions described in the updated JRS June 30, 2022 actuarial valuation report dated August 15, 2023.

Please see the updated JRS June 30, 2022 actuarial valuation report for a detailed description of (i) Buck's valuation models (ASOP 56), (ii) risk factors related to future funding of the plan (ASOP 51), and (iii) the assumption-setting process (ASOP 27 and ASOP 35).

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.

The results were prepared under the direction of David Kershner and Bob Besenhofer, both of whom meet 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

Robert Besenhofer
ASA, MAAA, FCA
Director, Health

BUCK

A Gallagher Company

Alaska Retirement Management Board

Actuarial Review of the Judicial Retirement System Pension and Health Plans

Actuarial Review of the National Guard and Naval Militia Retirement System Pension Plan

August 25, 2023

GRS

P: 720.274.7270 | www.grsconsulting.com

August 25, 2023

Mr. Zach Hanna
Chief Investment Officer
Department of Revenue, Treasury Division
Alaska Retirement Management Board
P.O. Box 110405
Juneau, AK 99811-0405

Subject: **Actuarial Review of June 30, 2022 valuations for the State of Alaska Judicial Retirement System (JRS) and National Guard and Naval Militia Retirement System (NGNMRS)**

Dear Zach:

We have performed an actuarial review of the June 30, 2022 Actuarial Valuations for JRS and NGNMRS.

This report includes a review of:

- Pension Assumptions and Benefits
- Actuarial Valuation Methods and Procedures
- Contribution Rate Determination
- Actuarial Valuation Report
- Potential Areas for Future Review

This report should be considered supplemental to the Actuarial Review of Pension and Post-Employment Healthcare Plans for PERS and TRS dated March 7, 2023. Only items unique to these plans were reviewed and discussed in this report.

A major part of our review is a thorough analysis of the test lives provided by Buck. We have included exhibits in our report that summarize the detailed analysis of these sample test cases for JRS and NGNMRS, as well as a comparison of the results between Buck and GRS. We wish to thank the staff of the State of Alaska Treasury Division and Buck, without whose willing cooperation this review could not have been completed.

Sincerely,

Gabriel, Roeder, Smith & Company

Paul Wood, ASA, FCA, MAAA
Senior Consultant

Bill Detweiler, ASA, EA, FCA, MAAA
Consultant

cc: Ms. Pamela Leary
Ms. Alysia Jones

Table of Contents

SECTION 1

EXECUTIVE SUMMARY

Executive Summary

Gabriel, Roeder, Smith & Co. was engaged by the Alaska Retirement Management Board (ARMB) to review the June 30, 2022 Actuarial Valuations of the State of Alaska Judicial Retirement System (JRS) and the National Guard and Naval Militia Retirement System (NGNMRS).

This report presents our findings in the following areas:

- General Approach
- Review of Assumptions
- Review of Actuarial Valuation Methods and Procedures (including the test lives review)
- Review of Contribution Rate Determination
- Review of Actuarial Valuation Report
- Potential Areas for Future Review
- Summary and Conclusions

In general, we found that the Buck's actuarial results and reports were reasonable and find the assumptions consistent with generally accepted actuarial practice.

Monthly conference calls conducted between Buck and GRS were made this year and contributed greatly to resolving issues more quickly and thoroughly. Those issues, even if resolved, are highlighted in this report.

Key Findings From The Audit Of The June 30, 2022 Valuations

- We recommend Buck continue to carefully monitor the newly adopted assumptions going forward to determine if they are working as intended.
- We recommend Buck review with the Board whether to implement a new entrant assumption for the JRS plan.
- We recommend Buck continue to disclose the nature and impact of all programming changes included in the valuation.
- We recommend consideration of a longer period over which to amortize the NGNMRS surpluses. This could help manage rate volatility, which could be especially useful in a plan exhibiting data quality and volatility issues.

Buck's Implementation of Recommendations From prior Review Report

As part of the June 30, 2020 actuarial review, we made some recommendations that were implemented by Buck in the June 30, 2022 valuation. These recommendations included the following:

- We recommend Buck clarify and disclose the actuarial assumptions used for JRS ERFs in the appropriate section of the JRS report.
- Buck is currently assuming the death benefit for NGNMRS retirees is being valued using a $1,200 annual benefit for everyone, including those who have an annual benefit amount other than the standard $1,200, such as the test life we received. We provided this finding to Buck and they agreed it should be updated.

Summary Of Test Life Review

We have included as a part of this report a detailed test life results summary.

- We matched the present value of benefits closely in total on all test lives submitted. We have included exhibits in Section 6 of the report that summarize the differences in calculations by decrement for the test lives analyzed. Differences between actuarial firms will always occur due to system differences and other nuances in the calculations.
- We discovered an inconsistency in how Buck was applying salary and benefit increases for revised results with a new assumption. Buck updated these revised results and provided us with additional detail showing the salary and benefit increases are now being applied consistently.

SECTION 2

GENERAL APPROACH

General Approach

Gabriel, Roeder, Smith & Co. was charged with reviewing the actuarial assumptions of the pension actuarial valuations of JRS and NGNMRS and the health care actuarial valuation of JRS.

We requested a number of items from Buck Consultants in order to perform the actuarial review and health cost assumption review:

1. We received the initial draft report for JRS in April of 2023, and subsequent revised reports in July and August of 2023. We received the initial test lives in April of 2023 for pension and retiree health, and subsequent revised test lives in August of 2023.
2. We received the draft report for NGNMRS in May of 2023. We received the pension test lives in May of 2023.
3. Monthly conference calls between Buck and GRS occurred, with the agenda items including timing of deliverables and the discussion of audit matters.

In performing our review, we:

4. Reviewed actuarial assumptions – we checked to see if they were consistent, comprehensive, and appeared reasonable.
5. Reviewed the actuarial valuation reports as of June 30, 2022, for completeness and a review of financial determinations.
6. Reviewed, in detail, the sample members provided us – This provided us with a perspective on the actuarial process utilized by Buck with respect to the plan and allowed us to review the valuation methods and procedures.
7. Reviewed the health care plan cost assumptions and trend for JRS.

KEY ACTUARIAL CONCEPTS

An actuarial valuation is a detailed statistical simulation of the future operation of a retirement system using the set of actuarial assumptions adopted by the Board. It is designed to simulate all of the dynamics of such a system for each current system member including:

1. Earning future service and making contributions,
2. Receiving changes in compensation,
3. Leaving the system through job change, disablement, death, or retirement, and
4. Determination of and payment of benefits from the System.

This simulated dynamic is applied to each active member of the System. It results in a set of expected future benefit payments to that member. Bringing those expected payments to present value, at the assumed rate of investment return, produces the Actuarial Present Value ("APV") of future benefits for that member. In like manner, an APV of future salaries is determined.

The actuarial present value of future benefits and the actuarial present value of future salaries for the entire System are the total of these values across all members. The remainder of the actuarial valuation process depends upon these building blocks.

Once the basic results are derived, an actuarial method is applied in order to develop information on contribution levels and funding status. An actuarial method splits the APV of future benefits into two components:

1. Present Value of Future Normal Costs, and
2. Actuarial Accrued Liability ("AAL")

The actuarial method in use by the State of Alaska is known as the Entry Age Normal (EAN) method. Under entry age normal funding method, the Normal Cost for a member is that portion of the Actuarial Present Value of the increase in the value of that member's benefit for service during the upcoming year. The actuarial accrued liability is the difference between the total actuarial present value and the present value of all future normal costs.

For JRS and NGNMRS, the present value of future benefits applies to the following benefits:

- Retirement benefits
- Withdrawal benefits
- Disability benefits
- Death benefits
- Return of contributions
- Medical benefits (JRS only)

The retiree medical benefits are based on potential future health care benefits, while the others are a type of post-employment income replacement benefit, based on salary. For the medical benefits, estimates must be made of the future health care costs. This is done by determining current per capita health care claim costs by age of retiree, and projecting them into the future based on anticipated future health care inflation. Per capita claims used were those used in the PERS and TRS valuations as of June 30, 2022 and the methodology used to determine those claims was found to be appropriate in the audit of those plans. Please refer to the PERS and TRS audit report for further information pertaining to the claims cost development.

SECTION 3

REVIEW OF GAINS AND LOSSES

Review of Gains and Losses

As a part of the annual audit, we take a historical look at the gains and losses on the accrued liability. Gains and losses may measure "how closely" experience matches the actuarial assumption. Recurring gains or losses may indicate an assumption that is not meeting the actual experience for this population. In the tables below, we detail the historical gains and losses for each plan. In addition, we have shown the gain or loss as a percent of the beginning of year (BOY) accrued liability (AL).

JRS Pension Gains and (Losses) by Source (000's)

Source	2022 Valuation	2020 Valuation	2018 Valuation
Retirement	$ (941)	$ (1,596)	$ 1,239
Termination	(328)	535	(790)
Mortality	(972)	1,467	(889)
Disability	8	8	7
New Entrants	(991)	(2,857)	(998)
Other	948	(879)	485
Salary	(29)	(392)	4,581
COLA	(322)	(361)	8,482
Total G/L	**$ (2,627)**	**$ (4,075)**	**$ 12,117**
Total AL at BOY	**$ 211,742**	**$ 226,560**	**$ 205,548**
G/L as a % of AL	**-1.24%**	**-1.80%**	**5.89%**

The $2.6 million loss in the most recent valuation is predominantly made up of new entrants, less deaths than expected, and more retirements than expected. There were also less terminations than expected and COLA was higher than expected.

Buck does not make any assumption for new active members entering the plan, so there will always be new entrant losses. We recommend Buck review with the Board whether to implement a new entrant assumption for this plan.

The other gains and losses will need to be continuously and carefully monitored going forward to determine if the current assumptions are working as intended.

JRS Healthcare Gains and (Losses) by Source (000's)

Source	2022 Valuation	2020 Valuation	2018 Valuation
Retirement	$ 20	$ 342	$ (188)
Termination	(29)	(4)	(2)
Mortality	(107)	421	27
Disability	14	10	7
New Entrants	(213)	(271)	(317)
Other	(496)	(488)	319
Medical Claims	1,363	2,287	1,843
Modified Part B Assumption	5	9	(41)
Cadillac Tax	0	234	(233)
Total	**$ 557**	**$ 2,540**	**$ 1,415**
Total AL at BOY	**$ 16,764**	**$ 16,847**	**$ 15,731**
G/L as a % of AL	**3.32%**	**15.08%**	**8.99%**

Overall, there was a $600 thousand gain on the JRS DB Healthcare results. This is mostly due to positive experience on the medical claims and is consistent with the experience from the PERS and TRS healthcare plans. The gain from claims is offset by new entrant losses and less deaths than expected. All of our discussion and recommendations on the retiree healthcare plans from the PERS and TRS report holds for the JRS retiree healthcare plan as well.

NGNMRS Pension Gains and (Losses) by Source (000's)

Buck does not show gain/loss detail for NGNMRS. As shown on page 6 of the NGNMRS valuation report, the plan experienced a $1 million liability loss during fiscal year 2022. Buck did note there was a $27 thousand gain attributable to programming changes, which was made based on comments from GRS during the June 30, 2020 actuarial review.

Buck should continue to monitor the gains/loss for this plan to make sure the assumptions are working as intended and show more detail if necessary.

Summary of recommendations Resulting from a Review of Gains and Losses

Based on our review above, we recommend the following be considered by Buck:

- Continue to carefully monitor the current assumptions going forward to determine if they are working as intended.
- Disclose the nature and impact of all programming changes included in the valuation.
- Discuss with the Board whether to include a new entrant assumption for the JRS plan.

SECTION 4

REVIEW OF ASSUMPTIONS

Review of Actuarial Assumptions

Buck released an experience study in 2022 and the Board approved a new assumption set to be used beginning with the actuarial valuations as of June 30, 2022. GRS issued a supplemental report that reviewed this new experience study and the adopted assumptions. General conclusions for the new assumptions are included in this report.

Although this audit examines many assumptions and methods, not all of them are equal in terms of their ultimate impact on contribution rates. It is not the intention of this audit to imply that all proposed changes would have a similar impact on the liabilities. For example, the investment return assumption may be the greatest lever in influencing contribution rates. Thus, where options exist for spending time and resources studying assumptions, we recommend studying those with the largest impact first.

Economic Assumptions

General

These assumptions simulate the impact of economic forces on the amounts and values of future benefits. Key economic assumptions are the assumed rate of investment return and assumed rates of future salary increase.

Economic assumptions are normally defined by an underlying inflation assumption. Buck has cited 2.50% as the inflation assumption. In recent years, long-term inflation forecasts have been declining, but are now starting to rise again. We do find the assumption to be reasonable at this time, but expect a significant amount of scrutiny to be paid to this particular assumption over the short term.

Investment Return Assumption

The nominal investment return assumption for JRS is 7.25%, which is the same as PERS and TRS. Our discussion on this assumption from that review report holds for JRS as well.

The nominal investment return assumption for NGNMRS is 5.75%. We find this assumption to be reasonable, based on the different, more conservative asset allocation for this particular plan.

Member Pay Increase Assumption

The pay increase assumption for JRS is 5.00% for FY23 and 3.00% per year thereafter. The long-term assumption of 3.00% was lowered from 3.62% during the most recent experience study. This assumption should be carefully monitored going forward to make sure it is reasonable.

COLA

We find the 3.00% assumption for JRS to be reasonable. The rate is directly tied to pay increases.

Healthy mortality during active service and after termination

For JRS, the Pub-2010 General Employee tables with MP-2021 generational improvement are reasonable.

For NGNMRS, the Pub-2010 Safety Employee tables with MP-2021 generational improvement are reasonable.

Healthy mortality after retirement

For JRS, the Pub-2010 General Retiree tables with MP-2021 generational improvement are reasonable.

For NGNMRS, the Pub-2010 Safety Retiree tables with MP-2021 generational improvement are reasonable.

For beneficiaries, the Pub-2010 Contingent Survivor tables with MP-2021 generational improvement are also reasonable.

Disabled mortality

For JRS, the Pub-2010 Non-Safety Disabled Retiree tables with MP-2021 generational improvement are reasonable.

For NGNMRS, the Pub-2010 Safety Disabled Retiree tables with MP-2021 generational improvement are reasonable.

Withdrawal from service before retirement (termination)

The rates look reasonable based on the data presented in the experience study report.

Retirement

The rates look reasonable based on the data presented in the experience study report.

Disability

The rates look reasonable based on the data presented in the experience study report.

Form of Payment

The form of payment assumptions for NGNMRS look reasonable based on the data presented in the experience study report. The assumption for the percentage of actives and terminated vested members assuming to elect a lump sum was lowered from 70% to 50%.

Payroll Growth

Contribution rates are based on a percent of total payroll for JRS. The assumption used in the valuation is that payroll will grow at a rate of 2.75 percent per year. This is comprised of 2.50 percent for inflation and 0.25 percent for productivity.

Payroll growth is significant because the unfunded accrued liability (UAL) is amortized as a level percentage of pay. That is the same as expecting all future amortization payments to grow at the same rate as total payroll. When payroll does not grow as assumed then the UAL is not going to be paid off as assumed. In order for the UAL to be paid off according to the current amortization schedule, payroll must grow at the assumed payroll growth rate. If payroll does not grow at that rate, as was the case for the past couple years, there will be upward pressure on the contribution rate because contributions that are less than anticipated are flowing in the plan.

Data

Buck spends a significant amount of time and effort reconciling the NGNMRS data and has to make a series of assumptions regarding the data due to its quality. The major assumptions related to the NGNMRS data were to assume that the status for Air Guard members as of June 30, 2021 was the same as of June 30, 2022, and each Air Guard active member's service was increased by one year as of June 30, 2021. In light of the difficulties in collecting actual data, these assumptions are reasonable.

We would recommend that Buck include some additional detail showing proportion of data that has imputed elements.

Healthcare Cost Assumptions

The health care cost assumptions for JRS are the same as PERS and TRS. Our discussion on these assumptions from that review report holds for JRS as well.

SUMMARY

With this being the first valuation of experience under the new assumptions, it is too soon to ascertain their effectiveness, although we can start to monitor any developing trends. Based on the experience study data presented, the assumptions and methods are reasonable. We will continue to monitor the results to track the effectiveness of the assumptions with regards to valuing plan costs.

SECTION 5

REVIEW OF ACTUARIAL VALUATION METHODS AND PROCEDURES

Review of Actuarial Valuation Methods and Procedures

I. Background

An actuarial valuation is a detailed statistical simulation of the future operation of a retirement system using the set of actuarial assumptions adopted by the Board.

The actuarial values generated from this process are based not only on these assumptions, but also on the additional assumptions built into each actuarial firm's pension valuation software.

Our scope for performing the review did not include a complete replication of the valuation results as determined by Buck at June 30, 2022. Rather, we reviewed a number of sample test lives from Buck in great detail, and made our determinations as to whether the methods and assumptions being employed were being done so properly. We also reviewed the report in order to examine the aggregate results and conclusions of this actuarial valuation.

Though this approach is not intended to meet the rigors of a full scale replication of results – it still serves as a strong indicator of the appropriateness of the assumptions and methods being used to value the liabilities and determine the costs for these plans.

II. Process:

Our review process can be summarized as follows:

Computation: Valuation Liabilities

We analyzed test cases to compare the Actuarial Liability under the EAN funding method for the test cases of the JRS and NGNMRS Systems. As a starting point, we first replicate Buck test case liabilities by using their assumptions and methods to ensure that the computations were in sync with the descriptions listed in the valuation report.

When conducting an actuarial audit, and reviewing the testlives, we look at the projected benefits at each age for each decrement type. We also look at the component of the benefit (final average earnings and years of service). This is critical to understanding what the valuation system is actually valuing and making sure that the valuation is not "right for the wrong reasons", (meaning, errors could occur in two different directions making total liabilities approximate a correct value.)

We also review the construction of the commutation functions- the varying probabilities for each decrement and the discounting to the valuation date.

A more detailed analysis of the test lives we reviewed and our findings is shown in the next section.

Tying Test Lives to Total Liabilities

The basis of the audit is that the test lives reviewed tie directly to the liabilities being submitted in the valuation. As a result of learning of a discrepancy discovered a few years ago, we now request that Buck also supply a list of every member with their total liability. We check that the total liability on the test life matches that from the larger group, and the larger group matches the total in the valuation report. That way we can be certain that the test life we review is directly tied to the final liabilities.

Actuarial Method:

Findings:

An actuarial cost method is a mathematical process for allocating the dollar amount of the total present value of plan benefits (PVB) between future normal costs and actuarial accrued liability (AAL). The retained actuary uses the Entry Age Normal actuarial cost method (EAN Method), characterized by:

(1) Normal Cost – the level percent of payroll contribution for JRS and level dollar contribution for NGNMRS, paid from each participant's date of hire to date of retirement, which will accumulate enough assets at retirement to fund the participant's projected benefits from retirement to death.

(2) Actuarial Accrued Liability – the assets which would have accumulated to date had contributions been made at the level of the normal cost since the date of the first benefit accrual, if all actuarial assumptions had been exactly realized, and there had been no benefit changes.

The EAN Method is the most prevalent funding method in the public sector. It is appropriate for the public sector because it produces costs that remain stable, either as a percentage of payroll or as a level dollar amount, over time, resulting in intergenerational equity for taxpayers and budget predictability. The recent Public Fund Survey included 199 retirement systems (mostly statewide). Over 82% of the plans reported using the EAN Method. Therefore, the retained actuary's stated funding methods for JRS and NGNMRS are certainly in line with national trends.

Application of Cost Method

In order to determine the normal cost as a level percentage of pay for JRS, the valuation must first determine the future compensation that each individual member is expected to receive over the course of their career (which is also the compensation used to generate contributions). The projection of the future compensation should be based on the salary that the participant is expected to receive according to the timing of the expected departures from active service (or, decrements). For NGNMRS, the method is similar, but based on a level dollar amount.

Conclusion:

For JRS, the level percent of pay method for both amortization of the unfunded accrued liability and the normal cost are both appropriate as a funding policy, considering that the payroll is not closed. For NGNMRS, the level dollar method for both amortization of the unfunded accrued liability and the normal cost are both appropriate as a funding policy since the benefits are not pay related.

SECTION 6

SAMPLE LIFE REVIEW

Sample Life Review

BACKGROUND

We reviewed sample test cases used for the June 30, 2022 valuation draft reports. In order to perform the review, we requested a number of sample cases from Buck. We combined this with our understanding of the plan provisions and reviewed the liability values produced by Buck for these sample cases only.

Note that the active test lives analyzed are not necessarily exposed to all of the possible benefits under the plans (i.e. already beyond the eligibility period for certain benefits, or not eligible for particular benefits). Therefore, findings may occur for these other benefits in future audits depending on the set of test lives chosen for review at that time. However, the vast majority of the liability for each plan is due to the retirement benefits (included for all active test lives), and retirement-related withdrawal benefits (one active test life included per plan), so any future findings are also expected to be de minimus. Also, the impact for any one test life may not be representative of the impact on the total plan.

When employing Buck's methods and assumptions, we matched the present value of benefits in total closely for the test cases submitted under the Pension plans for JRS and NGNMRS, and present value of retirement benefits under the JRS Retiree Health plan. In addition, we have analyzed the calculations of the ancillary benefits and have provided a summary of this detailed analysis at the end of this section. These exhibits provide a comparison of the calculations by decrement provided to us from Buck against our replication of those benefits as we interpret them from the plan provisions and assumptions.

In matching the present value of benefits, it is being determined that all benefits are being valued, and that the valuation of the liability for those benefits is consistent with the stated assumptions and methods.

FINDINGS

<u>Pension Plan - JRS</u>

The initial test lives provided to us in April assumed the salary and benefit increases would be 0% through FY24 and 3% per year thereafter. We matched these test lives closely and were comfortable with the results. In July, Buck informed us that the JRS results needed to be revised after learning from Alaska staff that all JRS members would receive a 5% salary and benefit increase in 2023, and the assumption of 3% per year thereafter would remain reasonable. When we received the revised test lives reflecting this new assumption, we discovered an inconsistency between the timing of salary increases and benefit increases. After discussing with Buck and them following-up with Alaska staff, Buck revised these new results further to value the timing of this new assumption consistently between salary increases and benefit increases. They also provided us with additional detail explaining the timing being used and an additional active test life that helped show those calculations. We are now comfortable with the final results using this additional information.

The final test life PVB match was within 0.0% on the active test case shown. The retiree matches to within 0.0%. The deferred vested member matches to within 0.2%. This is considered a reasonable overall match for purposes of the valuation.

Retiree Health Plan – JRS

For JRS retiree health, the test life PVB match on the active test case was within 0.1%. The retiree matches to within 3.3%. The deferred vested member matches to within 0.4%. This is considered a reasonable overall match for purposes of the valuation.

We have surmised there are no significant issues to report for the Retiree Health Plan under JRS.

Pension Plan - NGNMRS

For NGNMRS pension, the test life PVB match was within 0.0% on the active test case shown. The retiree matches to within 0.0%. The deferred vested member matches to within 0.6%. For all three of the cases, this would be considered as an overall match for purposes of the valuation.

NOTE

Ancillary or non-retirement benefits such as death and disability tend to be low probability events (and hence low liability) and they also tend to have many “bells and whistles” which can be valued in different ways by different actuaries. When looking at the test life results, it may be most informative to review the decrement (retirement, termination, disability, death) totals rather than each particular segment of the decrement (married non-occupational death, etc.). For all ancillary benefits comprising less than 0.1% of the total PVB for that individual, we checked the amounts for reasonableness, but did not always replicate.

Comparison of Present Value of Benefits - **JRS**

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	416,796.46	416,796.28	0.0%
Early Retirement Benefit	130,844.72	130,844.75	0.0%
Total Retirement PVB	**547,641.18**	**547,641.03**	**0.0%**
Disability:			
Disability Benefit	7,423.52	7,423.54	0.0%
Disability Benefit < 2	6.04	6.04	0.0%
Total Disability PVB	**7,429.56**	**7,429.58**	**0.0%**
Death:			
Married and Eligible	1,043.33	1,043.28	0.0%
Married and Not Eligible	4,367.81	4,367.52	0.0%
Single	460.74	456.48	0.9%
Death Benefit < 2	7.69	7.69	0.0%
Total Death PVB	**5,879.57**	**5,874.97**	**0.1%**
Withdrawal:			
Nonvested	4,632.78	4,632.78	0.0%
Normal DV Benefit	122,866.94	122,867.38	0.0%
Normal DV Death Benefit	484.10	484.25	0.0%
Total Withdrawal PVB	**127,983.82**	**127,984.41**	**0.0%**
GRAND TOTAL PVB	**688,934.13**	**688,929.99**	**0.0%**
	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 - Pension	910,635.78	910,636.00	0.0%
Retiree - Health	93,761.42	96,986.00	-3.3%
Deferred Vested - Pension	697,378.02	698,753.00	-0.2%
Deferred Vested - Health	317,413.68	318,651.00	-0.4%
Total Retirement PVB	**2,019,188.90**	**2,025,026.00**	**-0.3%**

** GRS' audit of Buck's calculation includes review of the benefit amounts, annuity values, assumptions and other factors related to the PVB calculation at each projected age. Differences may exist due to different interpretations of the statutes, as well as additional items as discussed throughout this audit report.*

Comparison of Present Value of Benefits - JRS Pension & Health

JRS - Pension

Benefits - Buck Valuation Terminology	Description*
Retirement:	
Normal Retirement Benefit	Normal Retirement (base) Benefit
Early Retirement Benefit	Early Retirement (base) Benefit
Disability:	
Disability Benefit	Disability Benefit
Disability Benefit < 2	Disability Benefit for Employees With Less Than Two Years of Service
Death:	
Married and Eligible	Death Benefit for Married Participants Who are Eligible for Unreduced Benefits
Married and Not Eligible	Death Benefit for Married Participants Who are Not Eligible for Unreduced Benefits
Single	Refund of Contributions for Participants With no Beneficiary
Death Benefit < 2	Death (base) Benefit for Employees With Less Than Two Years of Service
Withdrawal:	
Nonvested	Nonvested Term Benefit
Normal DV Benefit	Normal Deferred Vested Benefit
Normal DV Death Benefit	Normal Deferred Vested Death benefit for Married Employees

JRS - Health

Benefits - Buck Valuation Terminology	Description*
Retirement:	
Pre 65 <Member>	Base Benefit Paid to Employee While Employee is Under 65
Pre 65 <Spouse>	Base Benefit Paid to Spouse While Employee is Under 65
Post 65 <Member>	Base Benefit Paid to Employee While Employee is at Least 65
Post 65 <Spouse>	Base Benefit Paid to Spouse While Employee is at Least 65
Post 65 Part D <Member>	Employee Post-Age 65 Medicare Part D Reimbursement
Post 65 Part D <Spouse>	Spouse Post-Age 65 Medicare Part D Reimbursement
Disability:	
Pre 65 <Member>	Base Benefit Paid to Disabled Employee While Employee is Under 65
Pre 65 <Spouse>	Base Benefit Paid to Spouse of Disabled Employee While Employee is Under 65
Pre 65 Contribution <Member>	Member Contributions Made While Employee is Under 65
Pre 65 Contribution <Spouse>	Spouse Contributions Made While Employee is Under 65
Post 65 <Member>	Base Benefit Paid to Disabled Employee While Employee is at Least 65
Post 65 <Spouse>	Base Benefit Paid to Spouse of Disabled Employee While Employee is at Least 65
Post 65 Contribution <Member>	Member Contributions Made While Employee is at Least 65
Post 65 Contribution <Spouse>	Spouse Contributions Made While Employee is at Least 65
Post 65 Part D <Member>	Disabled Employee Post-Age 65 Medicare Part D Reimbursement
Post 65 Part D <Spouse>	Spouse of Disabled Employee Post-Age 65 Medicare Part D Reimbursement
Post 65 Part D Contribution <Member>	Member Reimbursement for Medicare Part D
Post 65 Part D Contribution <Spouse>	Spouse Reimbursement for Medicare Part D
Death:	
Pre 65	Base Benefit Paid to Spouse While Employee would have been Under 65
Post 65	Base Benefit Paid to Spouse While Employee would have been at Least 65
Post 65 Part D	Spouse Post-Age 65 Medicare Part D Reimbursement
Withdrawal:	
Pre 65 <Member>	Base Benefit Paid to Terminated Employee While Employee is Under 65
Pre 65 <Spouse>	Base Benefit Paid to Spouse of Terminated Employee While Employee is Under 65
Post 65 <Member>	Base Benefit Paid to Terminated Employee While Employee is at Least 65
Post 65 <Spouse>	Base Benefit Paid to Spouse of Terminated Employee While Employee is at Least 65
Post 65 Part D <Member>	Terminated Employee Post-Age 65 Medicare Part D Reimbursement
Post 65 Part D <Spouse>	Spouse of Terminated Employee Post-Age 65 Medicare Part D Reimbursement

ALASKA RETIREMENT MANAGEMENT BOARD
Actuarial Review of Pension Plans - June 30, 2022

Comparison of Present Value of Benefits - **NGNMRS**

Actives	**Test Case 1**			
Basic Data:				
Sex	Female			
Current Age	38.46			
Current Credited Service	0.00			

Present Value of Benefits (PVB)	**GRS**	**Buck**	**% Diff**	**Description***
Retirement:				*Retirement:*
Normal Retirement Benefit - LS	621.03	621.03	0.0%	Normal Retirement (base) Benefit Payable if Lump Sum Elected
Normal Retirement Benefit - Annuity	602.07	602.07	0.0%	Normal Retirement (base) Benefit Payable if Annuity Elected
Normal Retirement Benefit - Annuity - Death	28.57	28.57	0.0%	Base Benefit Payable to the Spouse if the Participant Elects the Annuity and Dies
Total Retirement PVB	**1,251.67**	**1,251.67**	**0.0%**	
Disability:				*Disability:*
Disability Benefit - LS	4.60	4.60	0.0%	Disability Retirement Benefit Payable to the Participant if Lump Sum Elected
Disability Benefit - Annuity	4.39	4.39	0.0%	Disability Retirement Benefit Payable to the Participant if Annuity Elected
Disability Benefit - Annuity - Death	0.32	0.32	0.0%	Disability Benefit Payable to the Spouse if the Participant Elects the Annuity and Dies
Total Disability PVB	**9.31**	**9.31**	**0.0%**	
Death:				*Death:*
Death Benefit	25.07	25.07	0.0%	Benefit Payable if the Participant Dies Before Retirement
Total Death PVB	**25.07**	**25.07**	**0.0%**	
Withdrawal:				*Withdrawal:*
Term Benefit	-	-		Termination Benefit Payable to the Participant at Retirement
Total Withdrawal PVB	**-**	**-**	**0.0%**	
GRAND TOTAL PVB	**1,286.05**	**1,286.05**	**0.0%**	

Inactives - PVB	**GRS**	**Buck**	**% Diff**
Retiree	5,679	5,679	0.0%
Deferred Vested	12,595	12,670	-0.6%

** GRS' audit of Buck's calculation includes review of the benefit amounts, annuity values, assumptions and other factors related to the PVB calculation at each projected age. Differences may exist due to different interpretations of the statutes, as well as additional items as discussed throughout this audit report.*

SECTION 7

REVIEW OF CONTRIBUTION RATE DETERMINATION

Review of Contribution Rate Determination

GRS was to analyze the funding method being used and verify its computation (as shown in page 8 of the JRS valuation report and page 5 of the NGNMRS valuation report). The goal here is to start with the Actuarial Accrued Liabilities and the Normal Costs that are developed from the data and valuation software and compare this to the assets in the system. The difference between the two, the Unfunded Actuarial Accrued Liability (UAAL) in conjunction with the Normal Cost forms the basis of the contributions that the actuary recommends the system make in order to ensure that benefits can be provided for current and future retirees.

FINDINGS

The calculations were reasonable and consistent with actuarial practice.

We recommend consideration of a longer period over which to amortize surpluses for NGNMRS. This could help manage rate volatility, which could be especially useful in a plan exhibiting data quality and volatility issues. However, we understand this will not have any impact on the total contribution amount as long as the plan remains significantly overfunded.

SECTION 8

REVIEW OF ACTUARIAL VALUATION REPORT

Review of Actuarial Valuation Report

GRS reviewed the June 30, 2022 valuation reports for scope as well as content to determine if actuarial statistics were being reflected fairly and if the details of the plan were being correctly communicated. GRS did not review GASB 67/68/74/75 Accounting information, which was provided in a separate report.

In general, we consider the scope and content of Buck's report to be effective in communicating the financial position and contribution requirements of JRS and NGNMRS.

State of Alaska Judicial Retirement System

Actuarial Valuation Report
as of June 30, 2022

August 2023

August 15, 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 (updated)[1]

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%.

[1] This report is an update to the valuation report dated July 31, 2023, reflecting a change in the timing of the pensioner benefit increases to the beginning of each fiscal year. Previously, the increases were assumed to be effective at the end of each fiscal year.

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. For the June 30, 2022 valuation, the salary increase and pensioner benefit increase assumptions were further modified to be 5.00% for FY23, and 3.00% per year thereafter to better reflect expected short-term 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, A Gallagher Company

Brett Hunter, ASA, EA, MAAA
Senior Consultant
Buck, A Gallagher Company

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.

Robert Besenhofer, ASA, MAAA, FCA
Director
Buck, A Gallagher Company

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	$ 227,227,808
b.	Valuation Assets	194,788,043	230,801,847
c.	Unfunded Actuarial Accrued Liability, (a) - (b)	$ 16,954,000	$ (3,574,039)
d.	Funded Ratio based on Valuation Assets, (b) ÷ (a)	92.0%	101.6%
e.	Fair Value of Assets	$ 189,844,025	$ 227,181,866
f.	Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	89.7%	100.0%

Funded Status as of June 30	2020	2022
Healthcare		
a. Actuarial Accrued Liability	$ 16,763,770	$ 17,864,257
b. Valuation Assets	34,805,639	40,855,819
c. Unfunded Actuarial Accrued Liability, (a) - (b)	$ (18,041,869)	$ (22,991,562)
d. Funded Ratio based on Valuation Assets, (b) ÷ (a)	207.6%	228.7%
e. Fair Value of Assets	$ 34,036,503	$ 40,267,620
f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	203.0%	225.4%

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. For the June 30, 2022 valuation, the salary increase and pensioner benefit increase assumptions were further modified to be 5.00% for FY23, and 3.00% per year thereafter to better reflect expected short-term experience. The effect of the new assumptions was to decrease the Actuarial Accrued Liability as of June 30, 2022 by approximately $1.2 million (pension) and $0.8 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.

---

[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%	35.32%
b.	Past Service Cost Rate	24.74%	17.17%
c.	Total Employer/State Contribution Rate, (a) + (b), not less than (a)	63.59%	52.49%
Healthcare			
a.	Normal Cost Rate	6.49%	6.75%
b.	Past Service Cost Rate	(8.24%)	(10.19%)
c.	Total Employer/State Contribution Rate, (a) + (b), not less than (a)	6.49%	6.75%
Total			
a.	Normal Cost Rate Net of Member Contributions	45.34%	42.07%
b.	Past Service Cost Rate	24.74%	17.17%
c.	Total Employer/State Contribution Rate, (a) + (b)	70.08%	59.24%

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	(4.04%)	(0.86%)
	f. Plan Changes	0.00%	(0.08%)
	g. Total Change, (a) + (b) + (c) + (d) + (e) + (f)	(6.21%)	0.21%
5.	Total Employer/State Contribution Rate as of June 30, 2022, (3) + (4)(g)	52.49%	6.75%

[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)
New Salary/Pensioner Benefit Increase Assumptions	15,522,714	(171,985)
Total	$ (1,189,628)	$ (802,844)

[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	$ 84,099,215	$ 47,091,634
Disability Benefits	172,547	801
Death Benefits	871,084	283,602
Termination Benefits[1]	3,382,002	83,400
Medical and Prescription Drug Benefits	15,266,645	6,910,882
Medicare Part D Subsidy	(2,363,068)	(1,142,717)
Subtotal	$ 101,428,425	$ 53,227,602
Benefit Recipients		
Retiree Benefits	$ 162,117,792	$ 162,117,792
Survivor Benefits	16,840,350	16,840,350
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	$ 190,729,749	$ 190,729,749
Vested Terminations		
Deferred Retirement Benefits	$ 698,753	$ 698,753
Medical and Prescription Drug Benefits	363,030	363,030
Medicare Part D Subsidy	(38,545)	(38,545)
Subtotal	$ 1,023,238	$ 1,023,238
Non-Vested Terminations	$ 111,476	$ 111,476
Total	**$ 293,292,888**	**$ 245,092,065**
Total Pension	**$ 268,293,219**	**$ 227,227,808**
Total Medical, Net of Part D Subsidy	**$ 24,999,669**	**$ 17,864,257**
Total Medical, Gross of Part D Subsidy	**$ 30,154,129**	**$ 21,798,366**

[1] Includes return of contributions.

As of June 30, 2022		Normal Cost
Active Members		
Retirement Benefits	$	5,294,324
Disability Benefits		19,573
Death Benefits		85,792
Termination Benefits[1]		346,367
Medical and Prescription Drug Benefits		1,074,309
Medicare Part D Subsidy		(161,624)
Administrative Expenses (Pension)		102,000
Administrative Expenses (Medical)		34,000
Total	**$**	**6,794,741**
Total Pension	**$**	**5,848,056**
Total Medical, Net of Part D Subsidy	**$**	**946,685**
Total Medical, Gross of Part D Subsidy	**$**	**1,108,309**

[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	$ 5,848,056	$ 946,685
2. Base Salaries for Upcoming Fiscal Year	14,035,020	14,035,020
3. Normal Cost Rate, (1) ÷ (2)	41.67%	6.75%
4. Average Member Contribution Rate	6.35%	0.00%
5. Employer Normal Cost Rate, (3) - (4)	35.32%	6.75%

Past Service Rate	Pension	Healthcare
1. Actuarial Accrued Liability	$ 227,227,808	$ 17,864,257
2. Valuation Assets	230,801,847	40,855,819
3. Unfunded Actuarial Accrued Liability, (1) - (2)	$ (3,574,039)	$ (22,991,562)
4. Funded Ratio, (2) ÷ (1)	101.6%	228.7%
5. Past Service Cost Amortization Payment	2,410,004	(1,429,646)
6. Base Salaries for Upcoming Fiscal Year	14,035,020	14,035,020
7. Past Service Rate, (5) ÷ (6)	17.17%	(10.19%)
Total Employer / State Contribution Rate, not less than Normal Cost Rate	**52.49%**	**6.75%**

Schedule of Past Service Cost Amortizations - Pension

Layer	Amortization Period		Balances		
	Date Created	Years Remaining	Initial	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	(1,189,628)	(1,189,628)	(75,911)
FY22 Gain	6/30/2022	25	(2,902,472)	(2,902,472)	(185,209)
Total				**$ (3,574,039)**	**$ 2,410,004**

[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: Date Created	Amortization Period: Years Remaining	Balances: Initial	Balances: Outstanding	Beginning-of-Year Payment
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	(802,844)	(802,844)	(51,230)
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				**$(22,991,562)**	**$ (1,429,646)**

[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	(1,189,628)	(802,844)
i. Expected Actuarial Accrued Liability as of June 30, 2022 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h)	$ 224,600,461	$ 18,421,435
2. Actual Actuarial Accrued Liability as of June 30, 2022	227,227,808	17,864,257
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	(1,189,628)	(802,844)
i. Expected Change in Unfunded Liability During FY22 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h)	$ (6,834,805)	$ (1,993,748)
2. Expected 2022 Unfunded Liability, (1) + (1)(i)	$ (3,758,543)	$ (21,957,269)
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)	$ (3,574,039)	$ (22,991,562)

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	227,227,808	230,801,847	101.6%	(3,574,039)

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	17,864,257	40,855,819	228.7%	(22,991,562)

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

	Active Members	Inactive Members: Due a Refund	Inactive Members: Deferred Benefits	Inactive Members: 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

		Inactive Members				
	Active 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.

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 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. For the June 30, 2022 valuation, the salary increase and pensioner benefit increase assumptions were further modified to be 5.00% for FY23, and 3.00% per year thereafter to better reflect expected short-term experience.

Investment Return

7.25% per year, net of investment expenses.

Salary Scale

5.00% for FY23, 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 5.00% for FY23, and 3.00% per year thereafter. Increases are assumed to be effective at the beginning of each fiscal year.

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. For the June 30, 2022 valuation, the salary increase and pensioner benefit increase assumptions were further modified to be 5.00% for FY23, and 3.00% per year thereafter to better reflect expected short-term experience.

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.

---

[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	$ 178,958,142
2. Total Accrued Liability	$ 226,559,580	$ 211,742,043	$ 227,227,808
3. Ratio, (1) ÷ (2)	69.1%	77.7%	78.8%

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	$ 14,035,020
3. Asset to Payroll Ratio, (1) ÷ (2)	1,320.1%	1,442.9%	1,618.7%
4. Accrued Liability	$ 226,559,580	$ 211,742,043	$ 227,227,808
5. Liability to Payroll Ratio, (4) ÷ (2)	1,691.6%	1,609.3%	1,619.0%

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%.

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

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.

---

[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

	Actuarial Value		Fair Value	
Year Ending	Annual	Cumulative*	Annual	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	Age	Male	Female
< 30	9.53%	9.94%	45	6.83%	7.13%
30	9.43%	9.84%	46	6.51%	6.79%
31	9.33%	9.74%	47	6.06%	6.32%
32	9.23%	9.63%	48	5.49%	5.73%
33	9.12%	9.51%	49	4.82%	5.03%
34	8.98%	9.37%	50	4.16%	4.33%
35	8.81%	9.20%	51	3.63%	3.79%
36	8.63%	9.00%	52	3.26%	3.40%
37	8.41%	8.77%	53	2.98%	3.12%
38	8.18%	8.53%	54	2.78%	2.91%
39	7.95%	8.29%	55	2.64%	2.75%
40	7.73%	8.06%	56	2.57%	2.67%
41	7.54%	7.87%	57	2.58%	2.69%
42	7.38%	7.70%	58	2.64%	2.76%
43	7.23%	7.55%	59	2.78%	2.90%
44	7.06%	7.37%	60	2.88%	3.00%

Table 2: Disability Rates

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 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.

BUCK
A Gallagher Company

State of Alaska Retirement Systems

Presentation to ARMB Actuarial Committee

Development of FY25 Contribution Rates and Additional State Contributions FY25-FY39 Projections for PERS and TRS

September 13, 2023

Contents

Development of FY25 Contribution Rates and Additional State Contributions

Background

- Alaska Statutes
  - AS 39.35.255(a) – Each non-State PERS employer contributes 22% of total base salaries.
  - AS 39.35.255(h) – The State-as-an-Employer contributes the PERS Actuarially Determined Contribution rate applied to total base salaries of its employees.
  - AS 14.25.070(a) – Each TRS employer contributes 12.56% of total base salaries.

- The FY25 contributions are based on the June 30, 2022 valuation results.
  - Liabilities are rolled forward two years from June 30, 2022 to June 30, 2024.
  - Assets as of June 30, 2023 are rolled forward one year to June 30, 2024 and smoothed.

Background (cont'd)

- The Actuarially Determined Contribution consists of two components:
    - o Normal Cost (the cost of active members' benefit accruals in the upcoming year), and
    - o 25-year layered amortizations of the unfunded liability, not less than zero.

- These components are projected to June 30, 2024 (the beginning of FY25) and divided by projected total (DB/DCR) FY25 payroll. The result is the Actuarially Determined Contribution rate.

- The Actuarially Determined Contribution rate not contributed by the employers is paid by the State via Additional State Contributions.

FY25 Contribution Rates – DB (Baseline)

($000's)		PERS Pension	PERS Healthcare	TRS Pension	TRS Healthcare
1)	Total Normal Cost	$ 98,092	$ 47,841	$ 38,452	$ 16,196
2)	Employee Contributions*	45,101	0	21,470	0
3)	Employer Normal Cost [1 - 2]	$ 52,991	$ 47,841	$ 16,982	$ 16,196
4)	25-year Layered Amortizations, not < 0	432,996	0	146,390	0
5)	FY25 DB Contribution Amount [3 + 4]	$ 485,987	$ 47,841	$ 163,372	$ 16,196
6)	FY25 DB/DCR Payroll	$ 2,464,560	$ 2,464,560	$ 769,543	$ 769,543
7)	**FY25 DB Contribution Rate as % of DB/DCR Pay [5 / 6]**	**19.72%**	**1.94%**	**21.23%**	**2.10%**

* Excludes indebtedness contributions.

Amounts may not add due to rounding.

FY25 Contribution Rates – PERS DCR (Baseline)

($000's)		ODD	RM	DC	HRA	Total
1)	Employer Normal Cost	$ 5,101	$ 13,708	$ 82,267	$ 49,360	$ 150,436
2)	25-year Layered Amortizations, not < 0	0	0	n/a	n/a	0
3)	DCR Contribution Amount [1 + 2]	$ 5,101	$ 13,708	$ 82,267	$ 49,360	$ 150,436
4)	FY23 DCR Payroll	$ 1,645,341	$ 1,645,341	$ 1,645,341	$ 1,645,341	$ 1,645,341
5)	DCR Contribution Rate as % of DCR Pay [3 / 4]	0.31%	0.83%	5.00%	3.00%	9.14%
6)	FY25 DCR Payroll	$ 1,815,216	$ 1,815,216	$ 1,815,216	$ 1,815,216	$ 1,815,216
7)	FY25 DCR Contribution Amount [5 x 6]	$ 5,627	$ 15,066	$ 90,761	$ 54,456	$ 165,910
8)	FY25 DB/DCR Payroll	$ 2,464,560	$ 2,464,560	$ 2,464,560	$ 2,464,560	$ 2,464,560
9)	**FY25 DCR Contribution Rate as % of DB/DCR Pay [7 / 8]**	**0.23%**	**0.61%**	**3.68%**	**2.21%**	**6.73%**

Amounts may not add due to rounding.

FY25 Contribution Rates – TRS DCR (Baseline)

($000's)		ODD	RM	DC	HRA	Total
1)	Employer Normal Cost	$ 348	$ 3,107	$ 31,915	$ 13,678	$ 49,048
2)	25-year Layered Amortizations, not < 0	0	0	n/a	n/a	0
3)	DCR Contribution Amount [1 + 2]	$ 348	$ 3,107	$ 31,915	$ 13,678	$ 49,048
4)	FY23 DCR Payroll	$ 455,927	$ 455,927	$ 455,927	$ 455,927	$ 455,927
5)	DCR Contribution Rate as % of DCR Pay [3 / 4]	0.08%	0.68%	7.00%	3.00%	10.76%
6)	FY25 DCR Payroll	$ 521,222	$ 521,222	$ 521,222	$ 521,222	$ 521,222
7)	FY25 DCR Contribution Amount [5 x 6]	$ 417	$ 3,544	$ 36,486	$ 15,637	$ 56,084
8)	FY25 DB/DCR Payroll	$ 769,543	$ 769,543	$ 769,543	$ 769,543	$ 769,543
9)	**FY25 DCR Contribution Rate as % of DB/DCR Pay [7 / 8]**	**0.05%**	**0.46%**	**4.74%**	**2.03%**	**7.29%**

Amounts may not add due to rounding.

FY25 Additional State Contributions (Baseline)

($000’s)		PERS	TRS
1)	FY25 DB Contribution Rate	21.66%	23.33%
2)	FY25 DCR Contribution Rate	6.73%	7.29%
3)	FY25 DB/DCR Contribution Rate [1 + 2]	28.39%	30.62%
4)	Statutory Employer Contribution Rate	22.00%*	12.56%
5)	FY25 Additional State Contribution Rate [3 - 4]	6.39%	18.06%
6)	FY25 DB/DCR Payroll	$ 1,242,631*	$ 769,543
7)	**FY25 Additional State Contribution [5 x 6]**	**$ 79,404 ***	**$ 138,979**

* Applies to non-State PERS employers only.

Amounts may not add due to rounding.

BUCK
A Gallagher Company

FY25 Contribution Alternative Scenarios

FY25 Contribution Alternative Scenarios

	Baseline	Alternative 1	Alternative 1A	Alternative 1B	Alternative 1C
% of Healthcare Normal Cost to Healthcare Trust	100%	0%	0%	0%	0%
"Extra" State Contributions (see note)					
• Amount	n/a	n/a	$50M	$50M	n/a
• Frequency	n/a	n/a	FY25 only	FY25-FY39	n/a
Unfunded Liability Amortization Method	Layered	Layered	Layered	Layered	Single Base

Note: As shown on slide 15, the 0% healthcare Normal Cost contribution to the healthcare trust (Alternative 1) reduces the Baseline FY25 State contribution by $64M. In Alternative 1A, we have illustrated the impact if $50M of this $64M reduction is deposited to the pension trust as an "extra" State contribution in FY25. In Alternative 1B, we have illustrated the impact if an "extra" $50M is contributed each year through FY39.

Notes

- Alternative 1 is consistent with what the ARMB adopted for FY23 and FY24.

- Under each of the alternatives, the healthcare Normal Cost rates are added to the pension past service rates to maintain the statutory employer contribution rates of 22% (PERS non-State employers) and 12.56% (TRS).

- The “extra” $50M State contributions were allocated $41M to PERS and $9M to TRS, where $9M is the minimum amount needed to reach a 100% funded ratio in FY39 for the TRS pension trust.

- Under Alternative 1C, a single amortization base would be established so that the June 30, 2039 pension unfunded liability is zero. The remaining amortization period for the single base in FY25 is 15 years.

Observations

- By contributing 0% healthcare Normal Cost to the healthcare trust each year:
  - The pension actuarial rate remains the same, but there is a *shifting* of pension contributions from the State to the employers.
  - This is why we see a reduction in projected Additional State Contributions in Alternative 1 vs Baseline.

- Making "extra" State contributions is like prepaying the principal on a home mortgage. The debt is paid off faster and less interest accumulates.

- If we revert to a single amortization base (Alternative 1C), the State could face significantly higher contribution volatility if the plans were to incur adverse experience in the last few years of amortization. For example, if there is a large asset loss in 2037, the entire loss would be amortized (funded) over just 3 years. Layered amortization was introduced in 2018 to avoid this potential contribution volatility.

- The projections are based on the June 30, 2022 valuation assumptions and assume all future experience matches the valuation assumptions (other than FY23 asset experience). The projection figures would be different if the plans were to experience future gains or losses.

Summary of Projection Figures

Summary of Projection Figures – State Contributions
(in $millions)

State Contributions for FY25	Baseline	Alternative 1	Alternative 1A	Alternative 1B	Alternative 1C
Additional State Contributions (PERS non-State employers and TRS)	$ 218.4	$ 178.1	$ 228.1	$ 228.1	$ 182.5
State-as-an-Employer Contributions (PERS)	264.7	241.0	241.0	241.0	244.8
Total	$ 483.1	$ 419.1	$ 469.1	$ 469.1	$ 427.3
Increase/(Decrease) vs Baseline	**n/a**	**$ (64.0)**	**$ (14.0)**	**$ (14.0)**	**$ (55.8)**

State Contributions for FY25-FY39	Baseline	Alternative 1	Alternative 1A	Alternative 1B	Alternative 1C
Additional State Contributions (PERS non-State employers and TRS)	$ 4,192.8	$ 3,920.9	$ 3,936.6	$ 4,429.2	$ 4,230.1
State-as-an-Employer Contributions (PERS)	4,400.5	4,241.4	4,217.8	4,075.5	4,462.7
Total	$ 8,593.3	$ 8,162.3	$ 8,154.4	$ 8,504.7	$ 8,692.8
Increase/(Decrease) vs Baseline	**n/a**	**$ (431.0)**	**$ (438.9)**	**$ (88.6)**	**$ 99.5**

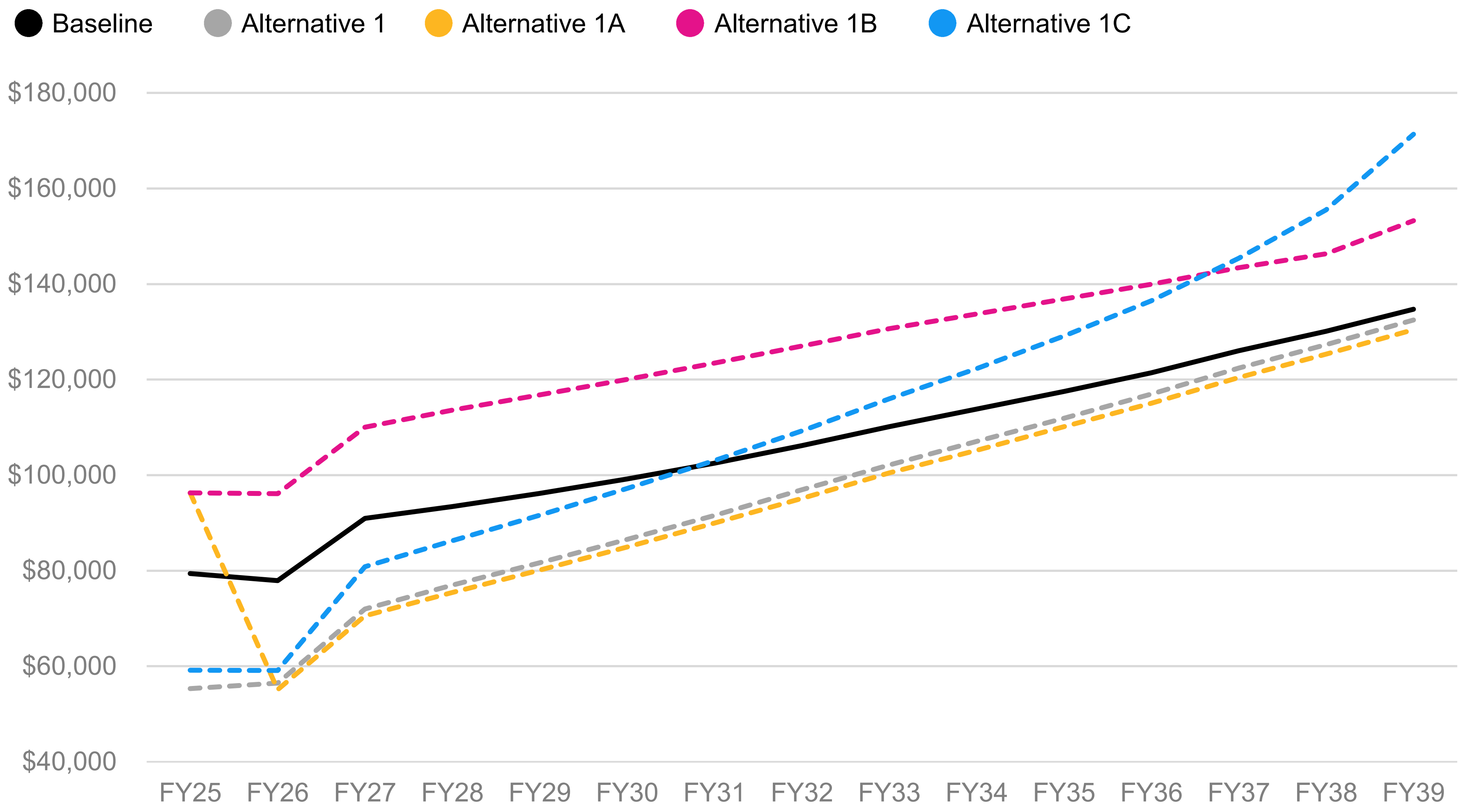
Summary of Projection Figures – Pension Funded Status
(in $millions)

June 30, 2039 Pension Unfunded Liability	Baseline	Alternative 1	Alternative 1A	Alternative 1B	Alternative 1C
PERS	$ 691	$ 697	$ 659	$ 52	$ 21
TRS	$ 132	$ 135	$ 127	$ 0	$ 0

June 30, 2039 Pension Funded Ratio	Baseline	Alternative 1	Alternative 1A	Alternative 1B	Alternative 1C
PERS	94.9%	94.8%	95.1%	99.6%	99.8%
TRS	97.8%	97.7%	97.9%	100.0%	100.0%

Projected State Contributions

Additional State Contributions – PERS
($000's)



FY25-FY39 contribution totals:

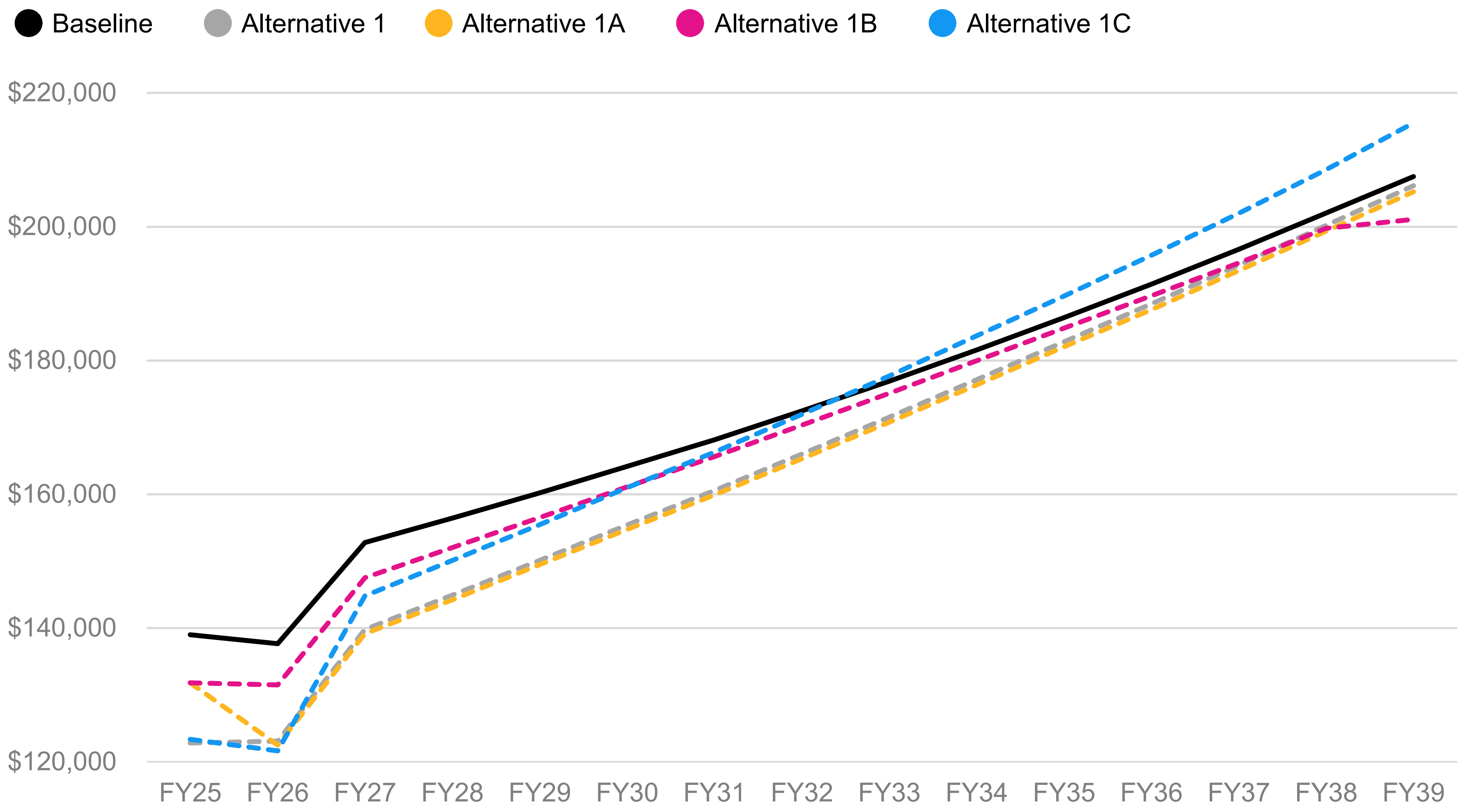
- Baseline $1.60B
- Alternative 1 $1.44B
- Alternative 1A $1.45B
- Alternative 1B $1.89B
- Alternative 1C $1.66B

Additional State Contributions – PERS ($000's)

Fiscal Year	Baseline	Alternative 1	Alternative 1A	Alternative 1B	Alternative 1C
2025	$ 79,404	$ 55,297	$ 96,297	$ 96,297	$ 59,149
2026	77,919	56,497	55,119	96,119	59,128
2027	90,937	71,965	70,574	110,056	80,819
2028	93,454	76,962	75,428	113,615	86,294
2029	96,173	81,656	80,101	116,824	91,636
2030	99,185	86,557	84,978	120,059	97,212
2031	102,519	91,559	89,955	123,470	103,054
2032	106,167	96,923	95,156	127,048	109,293
2033	110,170	102,143	100,482	130,686	115,983
2034	113,830	107,042	105,204	133,760	122,314
2035	117,539	111,901	110,166	136,853	129,105
2036	121,406	116,970	115,048	139,929	136,490
2037	126,029	122,398	120,431	143,427	145,395
2038	130,112	127,324	125,311	146,329	155,515
2039	134,709	132,487	130,425	153,254	171,361
Sub-Total	**$ 1,599,553**	**$ 1,437,681**	**$ 1,454,675**	**$ 1,887,726**	**$ 1,662,748**
2040-2052	0	0	0	0	0
Total	**$ 1,599,553**	**$ 1,437,681**	**$ 1,454,675**	**$ 1,887,726**	**$ 1,662,748**

Amounts under Alternatives 1A and 1B include the “extra” State contributions.

Additional State Contributions – TRS
($000's)



FY25-FY39 contribution totals:

- Baseline $2.59B
- Alternative 1 $2.48B
- Alternative 1A $2.48B
- Alternative 1B $2.54B
- Alternative 1C $2.57B

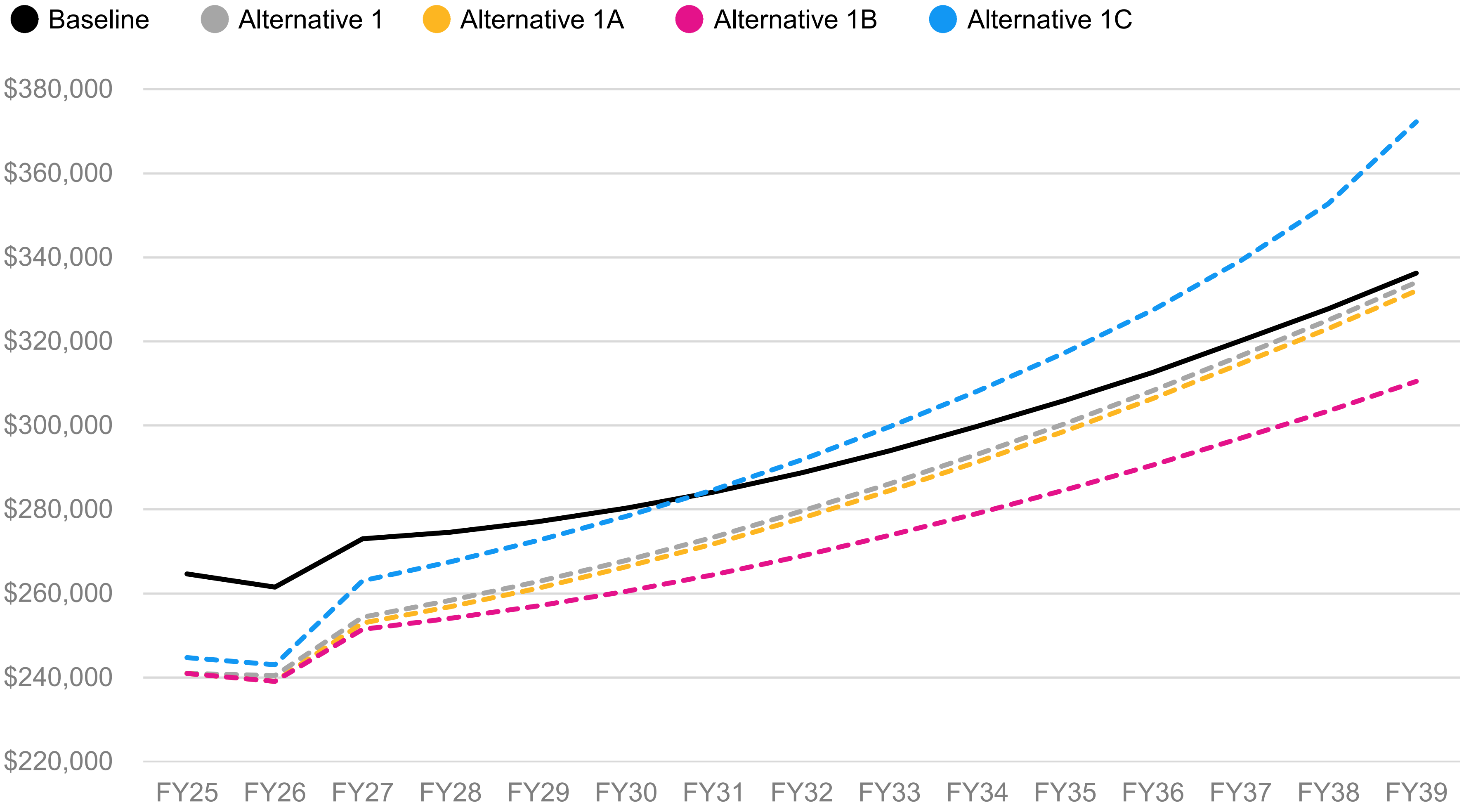
BUCK
A Gallagher Company

Additional State Contributions – TRS
($000's)

Fiscal Year	Baseline	Alternative 1	Alternative 1A	Alternative 1B	Alternative 1C
2025	$ 138,979	$ 122,819	$ 131,819	$ 131,819	$ 123,358
2026	137,643	123,101	122,479	131,479	121,624
2027	152,771	139,791	139,162	147,532	144,826
2028	156,419	144,944	144,227	152,032	150,124
2029	160,210	150,111	149,464	156,525	155,443
2030	164,182	155,407	154,751	161,127	160,983
2031	168,144	160,558	159,891	165,640	166,310
2032	172,458	166,007	165,329	170,340	171,948
2033	176,902	171,538	170,760	175,089	177,680
2034	181,570	177,154	176,359	179,972	183,689
2035	186,391	182,783	182,061	184,836	189,639
2036	191,386	188,434	187,604	189,687	195,721
2037	196,635	194,276	193,427	194,596	202,013
2038	202,046	200,211	199,341	199,746	208,516
2039	207,495	206,110	205,220	201,098	215,505
Sub-Total	**$ 2,593,231**	**$ 2,483,244**	**$ 2,481,894**	**$ 2,541,518**	**$ 2,567,379**
2040-2052	13,599	14,116	12,783	0	0
Total	**$ 2,606,830**	**$ 2,497,360**	**$ 2,494,677**	**$ 2,541,518**	**$ 2,567,379**

Amounts under Alternatives 1A and 1B include the "extra" State contributions.

State-as-an-Employer Contributions – PERS ($000's)



FY25-FY39 contribution totals:

- Baseline $4.40B
- Alternative 1 $4.24B
- Alternative 1A $4.22B
- Alternative 1B $4.08B
- Alternative 1C $4.46B

State-as-an-Employer Contributions – PERS
($000's)

Fiscal Year	Baseline	Alternative 1	Alternative 1A	Alternative 1B	Alternative 1C
2025	$ 264,669	$ 240,965	$ 240,965	$ 240,965	$ 244,753
2026	261,519	240,455	239,100	239,100	243,042
2027	272,991	254,336	252,968	251,476	263,042
2028	274,559	258,342	256,833	254,067	267,519
2029	277,083	262,809	261,279	257,073	272,623
2030	280,310	267,892	266,340	260,519	278,370
2031	284,164	273,386	271,809	264,449	284,690
2032	288,732	279,642	277,904	268,948	291,806
2033	293,974	286,080	284,447	273,831	299,690
2034	299,786	293,112	291,304	279,068	308,129
2035	305,942	300,396	298,690	284,616	317,314
2036	312,637	308,274	306,384	290,534	327,469
2037	320,164	316,593	314,659	296,955	339,207
2038	327,782	325,040	323,060	303,411	352,761
2039	336,231	334,047	332,019	310,487	372,273
Sub-Total	**$ 4,400,543**	**$ 4,241,369**	**$ 4,217,761**	**$ 4,075,499**	**$ 4,462,688**
2040-2052	445,414	441,384	414,107	133,392	16,187
Total	**$ 4,845,957**	**$ 4,682,753**	**$ 4,631,868**	**$ 4,208,891**	**$ 4,478,875**

Projected Pension Unfunded Liability

BUCK
A Gallagher Company

Pension Unfunded Liability – PERS
($000's)

Date	Baseline	Alternative 1	Alternative 1A	Alternative 1B	Alternative 1C
6/30/2024	$ 4,981,304	$ 4,981,304	$ 4,981,304	$ 4,981,304	$ 4,981,304
6/30/2025	4,785,094	4,785,982	4,742,010	4,742,010	4,777,928
6/30/2026	5,009,754	5,011,497	4,967,218	4,923,245	4,997,358
6/30/2027	4,877,987	4,880,557	4,835,976	4,748,016	4,846,881
6/30/2028	4,722,829	4,725,931	4,681,326	4,548,898	4,670,301
6/30/2029	4,541,916	4,545,511	4,500,924	4,323,866	4,464,981
6/30/2030	4,332,919	4,336,970	4,292,452	4,070,961	4,228,323
6/30/2031	4,093,417	4,097,891	4,053,499	3,787,627	3,957,332
6/30/2032	3,820,807	3,825,388	3,781,473	3,471,396	3,648,775
6/30/2033	3,511,654	3,516,579	3,472,953	3,118,995	3,298,223
6/30/2034	3,162,416	3,167,658	3,124,713	2,727,138	2,901,540
6/30/2035	2,770,145	2,775,679	2,733,248	2,292,803	2,454,296
6/30/2036	2,331,193	2,336,685	2,295,196	1,812,549	1,951,188
6/30/2037	1,841,208	1,846,610	1,806,226	1,282,258	1,385,081
6/30/2038	1,296,233	1,301,493	1,262,391	698,242	747,560
6/30/2039	691,444	696,842	659,217	51,981	21,469

The projected June 30, 2039 pension unfunded liability under Alternative 1C is not zero like it is for TRS. This is because PERS includes State-as-an-Employer contributions that are not fully paid at the beginning of the fiscal year like Additional State Contributions. As a result, there is a small loss of 1/2 year interest on the State-as-an-Employer contributions.

Pension Unfunded Liability – TRS
($000's)

Date	Baseline	Alternative 1	Alternative 1A	Alternative 1B	Alternative 1C
6/30/2024	$ 1,660,901	$ 1,660,901	$ 1,660,901	$ 1,660,901	$ 1,660,901
6/30/2025	1,555,835	1,556,431	1,546,778	1,546,778	1,555,853
6/30/2026	1,700,809	1,701,904	1,692,218	1,682,566	1,702,868
6/30/2027	1,650,167	1,651,738	1,642,024	1,622,696	1,647,372
6/30/2028	1,590,888	1,592,832	1,583,183	1,554,083	1,582,594
6/30/2029	1,522,623	1,524,913	1,515,259	1,476,476	1,508,214
6/30/2030	1,444,583	1,447,193	1,437,542	1,389,109	1,423,303
6/30/2031	1,356,036	1,358,942	1,349,307	1,291,197	1,327,151
6/30/2032	1,255,967	1,259,146	1,249,540	1,181,843	1,218,679
6/30/2033	1,143,293	1,146,632	1,137,164	1,059,916	1,096,644
6/30/2034	1,016,728	1,020,199	1,010,897	924,174	959,578
6/30/2035	875,073	878,648	869,446	773,459	806,279
6/30/2036	717,174	720,832	711,853	606,673	635,401
6/30/2037	541,574	545,291	536,572	422,513	445,369
6/30/2038	346,868	350,622	342,204	219,442	234,549
6/30/2039	131,546	135,315	127,242	0	0

Projected Pension Funded Ratios

Pension Funded Ratios – PERS

Date	Baseline	Alternative 1	Alternative 1A	Alternative 1B	Alternative 1C
6/30/2024	69.8%	69.8%	69.8%	69.8%	69.8%
6/30/2025	71.2%	71.2%	71.4%	71.4%	71.2%
6/30/2026	69.9%	69.9%	70.2%	70.5%	70.0%
6/30/2027	70.8%	70.7%	71.0%	71.5%	70.9%
6/30/2028	71.6%	71.6%	71.9%	72.7%	72.0%
6/30/2029	72.6%	72.6%	72.9%	73.9%	73.1%
6/30/2030	73.7%	73.7%	73.9%	75.3%	74.3%
6/30/2031	74.9%	74.9%	75.1%	76.8%	75.7%
6/30/2032	76.2%	76.2%	76.5%	78.4%	77.3%
6/30/2033	77.8%	77.8%	78.1%	80.3%	79.2%
6/30/2034	79.6%	79.6%	79.9%	82.4%	81.3%
6/30/2035	81.8%	81.7%	82.0%	84.9%	83.8%
6/30/2036	84.3%	84.2%	84.5%	87.8%	86.8%
6/30/2037	87.2%	87.2%	87.5%	91.1%	90.4%
6/30/2038	90.7%	90.7%	91.0%	95.0%	94.6%
6/30/2039	94.9%	94.8%	95.1%	99.6%	99.8%

Funded Ratio equals Actuarial Value of Assets divided by Actuarial Accrued Liability.

Pension Funded Ratios – TRS

Date	Baseline	Alternative 1	Alternative 1A	Alternative 1B	Alternative 1C
6/30/2024	78.9%	78.9%	78.9%	78.9%	78.9%
6/30/2025	80.2%	80.2%	80.3%	80.3%	80.2%
6/30/2026	78.3%	78.3%	78.4%	78.6%	78.3%
6/30/2027	78.9%	78.9%	79.0%	79.2%	78.9%
6/30/2028	79.5%	79.5%	79.6%	80.0%	79.6%
6/30/2029	80.2%	80.1%	80.3%	80.8%	80.3%
6/30/2030	80.9%	80.9%	81.0%	81.7%	81.2%
6/30/2031	81.8%	81.8%	81.9%	82.7%	82.2%
6/30/2032	82.9%	82.8%	82.9%	83.9%	83.4%
6/30/2033	84.1%	84.0%	84.2%	85.2%	84.7%
6/30/2034	85.5%	85.4%	85.6%	86.8%	86.3%
6/30/2035	87.2%	87.1%	87.3%	88.7%	88.2%
6/30/2036	89.2%	89.1%	89.3%	90.9%	90.4%
6/30/2037	91.6%	91.5%	91.7%	93.4%	93.1%
6/30/2038	94.4%	94.4%	94.5%	96.5%	96.2%
6/30/2039	97.8%	97.7%	97.9%	100.0%	100.0%

Funded Ratio equals Actuarial Value of Assets divided by Actuarial Accrued Liability.

Projected Pension Actuarially Determined Contribution Rates

Pension Actuarially Determined Contribution Rates – PERS

Fiscal Year	Baseline	Alternative 1	Alternative 1A	Alternative 1B	Alternative 1C
2025	19.7%	19.7%	19.7%	19.7%	20.0%
2026	19.5%	19.5%	19.4%	19.4%	19.7%
2027	20.5%	20.5%	20.3%	20.2%	21.2%
2028	20.5%	20.6%	20.4%	20.2%	21.3%
2029	20.6%	20.6%	20.5%	20.2%	21.4%
2030	20.7%	20.7%	20.6%	20.1%	21.5%
2031	20.8%	20.8%	20.7%	20.1%	21.7%
2032	20.9%	20.9%	20.8%	20.1%	21.8%
2033	21.0%	21.0%	20.9%	20.1%	22.0%
2034	21.1%	21.1%	21.0%	20.1%	22.2%
2035	21.1%	21.1%	21.0%	20.0%	22.3%
2036	21.2%	21.2%	21.1%	20.0%	22.5%
2037	21.3%	21.3%	21.2%	20.0%	22.8%
2038	21.3%	21.3%	21.2%	19.9%	23.2%
2039	21.4%	21.4%	21.3%	19.9%	23.9%

Contribution rates are expressed as a percentage of projected DB/DCR payroll.

Pension Actuarially Determined Contribution Rates – TRS

Fiscal Year	Baseline	Alternative 1	Alternative 1A	Alternative 1B	Alternative 1C
2025	21.2%	21.2%	21.2%	21.2%	21.3%
2026	20.7%	20.7%	20.6%	20.6%	20.5%
2027	22.3%	22.3%	22.2%	22.1%	22.9%
2028	22.3%	22.4%	22.3%	22.1%	23.0%
2029	22.4%	22.4%	22.3%	22.1%	23.1%
2030	22.5%	22.5%	22.4%	22.1%	23.2%
2031	22.5%	22.5%	22.5%	22.1%	23.2%
2032	22.6%	22.6%	22.5%	22.0%	23.3%
2033	22.6%	22.7%	22.6%	22.0%	23.4%
2034	22.7%	22.7%	22.6%	22.0%	23.4%
2035	22.7%	22.7%	22.7%	22.0%	23.5%
2036	22.7%	22.8%	22.7%	21.9%	23.6%
2037	22.8%	22.8%	22.7%	21.9%	23.6%
2038	22.8%	22.9%	22.8%	21.9%	23.7%
2039	22.9%	22.9%	22.8%	21.9%	23.9%

Contribution rates are expressed as a percentage of projected DB/DCR payroll.

Historical Figures

Adopted Contribution Rates – PERS/TRS

Fiscal Year	PERS - Pension	PERS - Healthcare	TRS - Pension	TRS - Healthcare
2009	10.91%	24.31%	20.57%	23.60%
2010	10.25%	17.40%	20.95%	18.58%
2011	9.98%	17.98%	20.32%	18.24%
2012	14.65%	16.11%	26.61%	16.00%
2013	15.45%	17.38%	30.53%	19.03%
2014	16.47%	15.84%	31.40%	18.70%
2015	23.24%	16.61%	44.55%	21.76%
2016	14.43%	8.15%	15.85%	8.63%
2017	15.98%	5.80%	17.78%	5.62%
2018	17.27%	3.11%	19.16%	2.59%
2019	18.27%	4.37%	20.86%	2.70%
2020	18.29%	4.89%	20.71%	3.91%
2021	20.66%	4.27%	20.94%	3.40%
2022	20.89%	3.12%	22.51%	2.98%
2023	18.38%	0.00%	17.90%	0.00%
2024	18.47%	0.00%	18.49%	0.00%

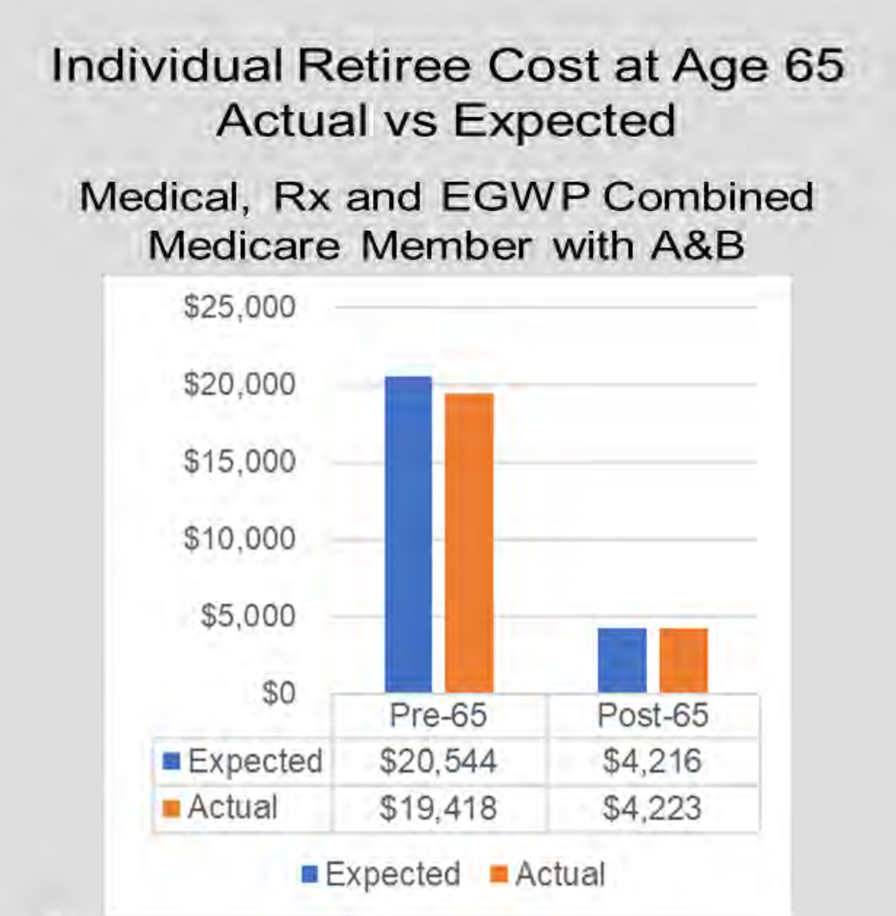
Contribution rates prior to FY09 were not determined separately by pension and healthcare.

Funded Ratios – PERS/TRS

30-Jun	PERS - Pension	PERS - Healthcare	TRS - Pension	TRS - Healthcare
2006	78.2%	43.1%	67.8%	35.6%
2007	77.8%	53.5%	68.2%	45.8%
2008	78.8%	56.9%	70.2%	53.1%
2009	63.0%	60.1%	57.0%	56.9%
2010	62.4%	60.4%	54.3%	52.1%
2011	61.9%	64.6%	54.0%	54.3%
2012	57.1%	67.4%	49.9%	56.8%
2013	54.5%	70.2%	48.1%	60.1%
2014	59.7%	87.0%	54.5%	77.0%
2015	67.0%	99.1%	76.9%	100.3%
2016	66.4%	95.8%	75.8%	100.9%
2017	66.7%	93.9%	75.9%	96.9%
2018	64.6%	100.4%	76.2%	108.0%
2019	63.7%	109.2%	75.3%	117.0%
2020	63.6%	113.5%	75.0%	121.4%
2021	67.9%	125.2%	79.1%	133.9%
2022	68.1%	134.9%	78.2%	140.7%

Appendix
(2022 Valuation Healthcare Per Capita Costs)

2022 Valuation Healthcare Per Capita Costs – PERS/TRS



	Pre-65	Post-65
Expected	$20,544	$4,216
Actual	$19,418	$4,223

Pre-65 = Pre-Medicare Medical + Rx
Post-65 = Medicare A&B + Rx + EGWP

BUCK
A Gallagher Company

Actuarial Certification

Actuarial Certification

The purpose of this presentation is to provide the ARMB Actuarial Committee with (i) the development of the FY25 contribution rates and Additional State Contributions for PERS and TRS, and (ii) FY25-FY39 projections under different scenarios. All calculations are based on the data, assumptions, methods, and plan provisions described in the June 30, 2022 actuarial valuation reports, as well as preliminary June 30, 2023 asset statements. In Alternative 1C, the amortization of the unfunded liability is based on a 25-year period that was established June 30, 2014.

Please see the June 30, 2022 actuarial valuation reports for a detailed description of (i) Buck's projection models which are the same ones used for this presentation (ASOP 56), (ii) risk factors related to future funding of the plans (ASOP 51), and (iii) the assumption-setting process (ASOP 27 and ASOP 35).

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.

The results were prepared under the direction of David Kershner and Bob Besenhofer, both of whom meet 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

Robert Besenhofer
ASA, MAAA, FCA
Director, Health

BUCK

A Gallagher Company

State of Alaska

Timeline for June 30, 2023 Valuations (PERS, TRS, PERS DCR, TRS DCR)

Item #	Task	Original Deadline	Revised Deadline	Date Completed	Team Responsible	Comments / Notes
1	Monthly audit discussion with GRS / Buck	7/12/23		7/12/23	GRS / Buck	
2	Enrollment data request to Aetna	7/14/23		7/13/23	Buck	
3	Valuation data request to DRB	7/14/23		7/14/23	Buck	
4	Monthly audit discussion with GRS / Buck	8/9/23		8/9/23	GRS / Buck	
5	Preliminary 6/30/23 assets to Buck (to be used for FY25 contribution rates only)	8/18/23		8/18/23	DRB	Updated TRS statement provided on 8/21.
6	Valuation data to Buck	9/1/23			DRB	
7	Monthly audit discussion with GRS / Buck	9/6/23			GRS / Buck	
8	Send valuation data files received from DRB to GRS	9/8/23			Buck	
9	**Actuarial Committee Meeting - FY25 contribution rates (based on 6/30/22 valuations)**	9/13/23			All	**Anchorage**. Deadline for meeting materials is 8/26.
10	Audit data and sample lives request to Buck	9/15/23			GRS	
11	Claims data request to Segal/DRB	9/22/23			Buck	Incurred claims through 6/30/23 that are paid through 8/31/23.
12	Data questions to DRB	9/22/23			Buck	
13	Data answers to Buck	10/6/23			DRB	
14	Monthly audit discussion with GRS / Buck	10/11/23			GRS / Buck	
15	Final 6/30/23 assets to Buck (to be used for 6/30/23 valuations)	10/13/23			DRB	
16	Claims data to Buck	10/20/23			Segal / DRB	Incurred claims through 6/30/23 that are paid through 8/31/23.
17	6/30/23 valuation data and DRB data questions to GRS	10/27/23			Buck	
18	Monthly audit discussion with GRS / Buck	11/8/23			GRS / Buck	
19	Sample life information to GRS	11/10/23			Buck	
20	Preliminary valuation results and PVB's by individual to GRS	11/17/23			Buck	
21	**Actuarial Committee Meeting - 6/30/23 valuation results (preliminary)**	12/6/23			All	**Anchorage**. Deadline for meeting materials is 11/17.
22	Monthly audit discussion with GRS / Buck	12/13/23			GRS / Buck	
23	Draft DCR valuation reports to GRS	1/5/24			Buck	
24	Monthly audit discussion with GRS / Buck	1/10/24			GRS / Buck	
25	Draft DB valuation reports to GRS	1/19/24			Buck	
26	Monthly audit discussion with GRS / Buck	2/14/24			GRS / Buck	
27	**Actuarial Committee Meeting - 6/30/23 valuation results (full), projections, sensitivity analysis, draft valuation reports**	3/5/24			All	**Juneau**.
28	Draft actuarial review report to Buck	3/8/24			GRS	
29	Monthly audit discussion with GRS / Buck	4/10/24			GRS / Buck	
30	**ARMB Meeting - follow-up to March meeting (if needed)**	April 2024 - TBD			All	**Teleconference.**
31	Monthly audit discussion with GRS / Buck	5/8/24			GRS / Buck	
32	Monthly audit discussion with GRS / Buck	6/5/24			GRS / Buck	
33	**Actuarial Committee Meeting - final valuation reports**	6/11/24			All	**Anchorage**.

Note: All deadline and completion dates are specific to PERS and TRS.