



**OREGON
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Oregon Investment Council

April 19, 2023

Cara Samples
Chair

Tobias Read
State Treasurer

Rex Kim
Chief Investment Officer



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OREGON INVESTMENT COUNCIL

Agenda

April 19, 2023
9:00 AM

Oregon State Treasury
Investment Division
16290 SW Upper Boones Ferry Road
Tigard, OR 97224

<u>Time</u>		<u>Presenter</u>	<u>Tab</u>
9:00	1. Review & Approval of Minutes March 8, 2023	Cara Samples <i>OIC Chair</i>	1
	2. Committee Reports	Rex Kim <i>Chief Investment Officer</i>	2
9:05-9:10	3. OIC Elections	Cara Samples <i>OIC Chair</i>	3
9:10-10:00	4. OPERF Real Assets Portfolio Review	Ben Mahon <i>Senior Investment Officer, Alternatives</i> Tom Martin <i>Partner, Global Head of Private Equity and Real Assets, Aksia</i>	4
10:00-10:30	5. Oregon Savings Growth Plan Annual Review	Claire Illo <i>Investment Officer, Public Equity</i> Anne Heaphy <i>Senior Vice President, Callan, LLC</i> Uvan Tseng <i>Senior Vice President, Callan, LLC</i>	5

----- **BREAK** -----

10:40-11:30	6. Individual Account Program (IAP) Review <i>(Action Item: Glide Path Recommendation)</i>	Karl Cheng <i>Senior Investment Officer, Portfolio Risk & Research</i> Chris Nikolich <i>Head of Glide Path Strategies (US), Multi-Asset Solutions, Alliance Bernstein</i> Elena Wang <i>Portfolio Manager, Multi-Asset Solutions, Alliance Bernstein</i>	6
11:30	7. Asset Allocation & NAV Updates a. Oregon Public Employees Retirement Fund b. SAIF Corporation c. Common School Fund	Rex Kim	7
11:35	8. Calendar — Future Agenda Items	Rex Kim	8
11:40	9. Open Discussion	OIC Member Staff Consultants	
11:50	10. Public Comments		

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TAB 1
REVIEW & APPROVAL OF MINUTES



**OREGON
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State of Oregon

Office of the State Treasurer

16290 SW Upper Boones Ferry Road
Tigard, Oregon 97224

OREGON INVESTMENT COUNCIL

March 8, 2023

Meeting Minutes

Members Present:	Cara Samples, Lorraine Arvin, Tobias Read, John Russell, Pia Wilson-Body, Kevin Olineck
Staff Present:	Rex Kim, Michael Langdon, David Randall, Karl Cheng, Austin Carmichael, Sam Spencer, Chris Ebersole, Taylor Bowman, Ahman Dirks, Jen Plett, Alli Gordon, Jennifer Kersgaard, Louise Howard, Kenny Bao, Doug Greiner, Sara Bayes, Chuck Christopher, Angela Schaffers
Staff Participating Virtually:	Ryan Auclair, Amy Bates, Tan Cao, Andrew Coutu, Bradley Curran, Ashley Daigle, Debra Day, Eric Engelson, Annie Gregori, Andrew Hillis, Claire Illo, Roy Jackson, Aliese Jacobsen, Kristi Jenkins, Josh Jones, Young Kim, Amanda Kingsbury, Paul Koch, Krystal Korthals, Ericka Langone, Perrin Lim, Ben Mahon, Michael Makale, Sommer May, Eric Messer, Tim Miller, Dana Millican, Mike Mueller, Dmitri Palmateer, Bryson Pate, Tim Powers, Mohammed Quraishi, Jo Recht, Andrew Robertson, Scott Robertson, Faith Sedberry, Stacey Spencer, Anna Totdahl, Andrey Voloshinov, Rachel Wray, Tiffany Zahas
Consultants Present:	Tim Wang, Christine Key (Clarion Partners); Sarah Bernstein, Allan Emkin, Christy Fields, Paola Nealon, Mika Malone (Meketa Investment Group, Inc); Steve Cummings, Raneen Jalajel (Aon)
PERS Present:	Kevin Olineck
Legal Counsel Present:	Steve Marlowe (Department of Justice)

The March 8, 2023, OIC meeting was called to order at 9:00 am by Cara Samples, Chair.

I. 9:00 am Review and Approval of Minutes

MOTION: Chair Samples asked for approval of the January 25, 2023, OIC regular meeting minutes. John Russell moved approval at 9:01 am, Lorraine Arvin seconded the motion which then passed by a 5/0 vote.

II. 9:02 am Committee Reports

Private Equity Committee:
None



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Real Estate Committee:

None

Opportunity Committee:

None

Alternatives Portfolio Committee:

February 1	EQT Infrastructure VI with a sidecar	\$300M \$50M
February 1	NGP Natural Resources XIII with a sidecar	\$200M \$50M
March 6	Davidson Kempner 2023 Top-Up	\$250M
March 6	Hudson Bay 2023 Top-Up	\$250M

Staff Discretion

Common School Fund February 1	EQT Infrastructure VI	\$15M
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III. 9:03 am Real Estate Market Update

Michael Langdon, Director of Private Markets, introduced the guest speaker from Clarion.

Tim Wang, Managing Director, Head of Research, Clarion Partners presented the real estate market update.

IV. 10:06 am OPERF Real Estate Portfolio Review

Michael Langdon, Director of Private Markets introduced the presenting Investment officers and Consultant.

Austin Carmichael, Investment Officer, Christopher Ebersole, Investment Officer, Sam Spencer, Investment Officer, Christy Fields, Managing Principal/Consultant, Meketa Investment Group.

In 2022 9 real estate commitments were approved, totaling \$1.75 billion.

The OIC's Real Estate policy objective of long-term, net returns above the NFI-ODCE plus 50 basis points has been achieved over all time periods, apart from the 12 months ended September 30, 2022, while OIC's core portfolio has outperformed the policy benchmark across all time periods.

V. 11:05 am OPERF Public Equity Recommendation (Action Item: Manager Recommendation)

Louise Howard, Senior Investment Officer, Public Equity presented a recommendation to retain Cantillon Capital Management.

1st quarter Public Equity activities: Rebalanced \$520M from Arrowstreet in favor of Acadian & Walter Scott resulting in an 11bps decrease in ex-ante risk. Raised \$2.5B to fund Fixed Income asset allocation change resulting in a 28bps reduction in ex-ante risk. Recommendation to retain Cantillon Global Equity Strategy for further reduction in ex-ante risk of 8bps.

MOTION: Treasurer Read moved approval to retain Cantillon at 11:24 am, the motion was seconded by Member John Russell and passed by a vote of 5/0.

VI. 11:31 am OIC Investment Beliefs Discussion

Allan Emkin, Managing Principal, Meketa; Raneen Jalajel, Associate Partner, Aon.



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The board suggested an update to consider policy and OIC authority; a request was made to add it to a future meeting.

VII. 11:59am ESG Regulatory Update

Sarah Bernstein, Managing Principal, Meketa and Steven Marlowe, Assistant Attorney General, Oregon Department of Justice.

VIII. 12:27 pm OPERF 2022 Performance Review

Mika Malone, Managing Principal, Meketa; Paola Nealon, Managing Principal, Meketa.

The total fund returned 3% for the 4th quarter, outperforming the OPERF Policy Benchmark (+2.9%) by 10bps. The total fund outperformed the OPERF Policy Benchmark (-8.6%) by 710bps and outperformed the peer median return of -10.0% by 850bps.

IX. 12:42 pm Calendar – Future Agenda Items

Rex Kim discussed highlights of the forward calendar. Future featured agenda items: Diversifying Strategies Portfolio Review, and guest speakers relating to ESG and Climate.

X. 12:43 pm Open Discussion

None

XI. 12:43 pm Public Comments

Chair Samples opened the floor to public comments. Public comments have also been submitted electronically and included with the public meeting book.

Chair Samples adjourned the meeting at 12:53 pm.

Respectfully submitted,
Jennifer Kersgaard
Executive Support Specialist

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TAB 2
COMMITTEE REPORTS

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TAB 3
OIC ELECTIONS

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TAB 4
OPERF REAL ASSETS
PORTFOLIO REVIEW

April 19, 2023

OPERF Real Assets Portfolio

Annual Review and Forward Plan



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Agenda

OIC Investment and Management Beliefs Mapping																			
Section	Pages	1A	1B	1C	1D	2A	2B	3A	4A	4B	5A	5B	6A	6B	7A	7B	8A	8B	9A
Real Assets Portfolio Overview	2-5				X	X	X		X	X			X	X					
Markets	7-10				X		X												
2022 Review	11-13				X	X	X		X	X			X	X			X		X
Exposures	14-15				X		X		X	X									
Results	16-18				X		X			X									
Pacing Analysis	19				X	X	X		X	X									
2023 Priorities	20				X	X	X		X	X			X	X			X		X
Appendix	22-23				X	X	X		X				X	X			X		X

LEGEND: OIC INVESTMENT AND MANAGEMENT BELIEFS

1 THE OIC SETS POLICY AND IS ULTIMATELY RESPONSIBLE FOR THE INVESTMENT PROGRAM

- A. Investment management is dichotomous -- part art and part science.
- B. The OIC is a policy-setting council that largely delegates investment management activities to the OST and qualified external fiduciaries.
- C. The OIC is vested with the authority to set and monitor portfolio risk. Both short-term and long-term risks are critical.
- X** D. To exploit market inefficiencies, the OIC should be long term, contrarian, innovative, and opportunistic in its investment approach.

2 ASSET ALLOCATION DRIVES RISK AND RETURN

- X** A. Asset allocation is the OIC's primary policy tool for managing the investment program's long-term risk/return profile.
- X** B. Portfolio construction, including diversification and correlation considerations, is essential to maximizing risk-adjusted returns.

3 THE EQUITY RISK PREMIUM WILL BE REWARDED

- A. Over the long-term, equity-oriented investments provide reliable return premiums relative to risk-free investments.

4 PRIVATE MARKET INVESTMENTS CAN ADD SIGNIFICANT VALUE AND REPRESENT A CORE OIC/OST COMPETENCY

- X** A. The OIC can capitalize on its status as a true, long-term investor by making meaningful allocations to illiquid, private market investments.
- X** B. Dispersion in private market investment returns is wide; accordingly, top-quartile manager selection, diversification across vintage year, strategy type, and geography, and careful attention to costs are paramount.

5 CAPITAL MARKETS HAVE INEFFICIENCIES THAT CAN BE EXPLOITED

- A. Inefficiencies that can be exploited by active management may exist in certain segments of the capital markets.
- B. Passive investment management in public markets will outperform the median active manager in those markets over time.

6 COSTS DIRECTLY IMPACT INVESTMENT RETURNS AND SHOULD BE MONITORED AND MANAGED CAREFULLY

- X** A. All fees, expenses, commissions, and transaction costs should be diligently monitored and managed in order to maximize net investment returns.
- X** B. External incentive structures should be carefully evaluated to ensure proper alignment with investment program objectives.

7 FAIR AND EFFICIENT CAPITAL MARKETS ARE ESSENTIAL FOR THE LONG-TERM INVESTMENT SUCCESS

- A. The OIC recognizes that the quality of regulation and corporate governance can affect the long-term value of its investments.
- B. The OIC also recognizes that voting rights have economic value.

8 THE INTEGRATION OF ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) FACTORS, SIMILAR TO OTHER INVESTMENT FACTORS, MAY HAVE A BENEFICIAL IMPACT ON THE ECONOMIC OUTCOME OF AN INVESTMENT AND AID IN THE ASSESSMENT OF RISKS ASSOCIATED WITH THAT INVESTMENT

- X** A. The consideration of ESG factors within the investment decision-making framework is important in understanding the near-term and long-term impacts of investment decisions.
- B. Over time, there has been an evolution of multi-factor, or more holistic approaches, to identify opportunities and remediate risks, in a large globally-diversified investment portfolio.

9 DIVERSITY, IN ALL ASPECTS, IS ACCRETIVE TO MEETING OIC OBJECTIVES

- X** A. By embracing and enhancing diversity and inclusion efforts, the OIC ensures that the investment program will be exposed to and informed by a wide range of perspectives, ideas and opinions.



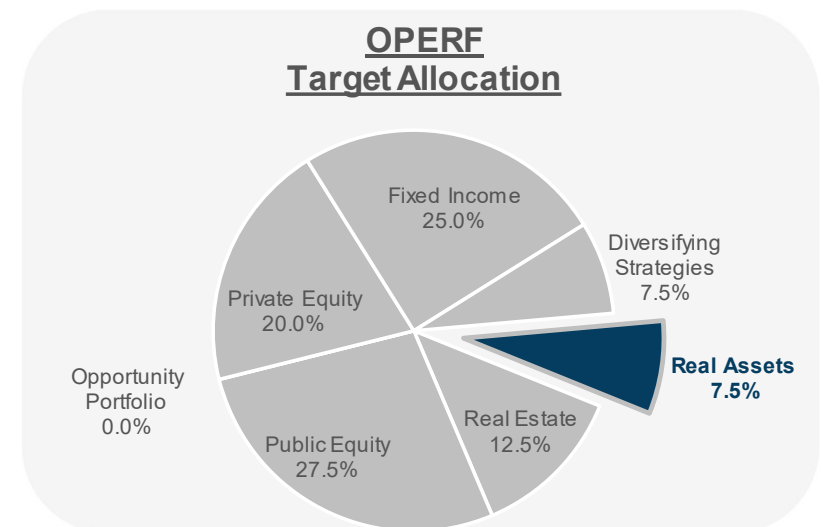
Real Assets Portfolio Strategic Role

➤ Portfolio background

- Alternatives Portfolio approved at January 2011 OIC meeting; seeded July 2011 with three investments from the Opportunity Portfolio.
- Initial <5.0% allocation increased to 7.5% in June 2013.
- Fair market value = \$7.9 billion (8.8% of OPERF) vs. target of \$6.7 billion.

➤ Portfolio objectives

- Participate in attractive long-term investment opportunities.
- Diversify the overall OPERF investment portfolio through differentiated (i.e., less correlated) returns.
- Seek non-real estate *real assets* (i.e., infrastructure and natural resources) exposures.
- Includes inflation hedging objective.
- Performance objective: CPI + 4%.



➤ Performance

IRR	Q3 2022	YTD	1 Year	3 Year	5 Year	10 Year	ITD
Real Assets Portfolio	2.0%	10.7%	18.7%	12.3%	8.4%	7.5%	7.3%
CPI + 4%	1.1%	9.4%	12.2%	9.0%	7.8%	6.5%	6.5%
<i>Difference</i>	0.8%	1.3%	6.5%	3.3%	0.6%	1.0%	0.9%

Source: State Street, Aksia. Data as of September 30, 2022.

Real Assets Portfolio Positioning

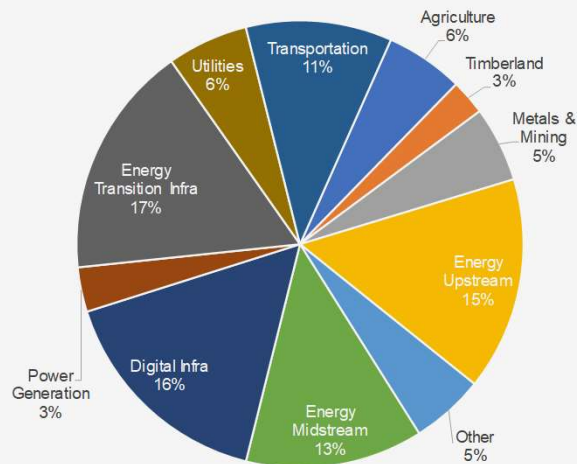
Portfolio Summary¹

Attribute	9/30/2021	9/30/2022	% Change
GP Relationships	33	33	0.0%
Holdings	65	80	23.1%
Total Commitment Amount	\$11,027.3	\$12,864.9	16.7%
Contributions	\$7,829.3	\$10,025.5	28.1%
Distributions	\$2,939.5	\$4,383.8	49.1%
Net Asset Value	\$6,132.2	\$8,094.8	32.0%
Weighted Average Age (yrs)	5.4	5.4	0.4%
Unfunded Commitment	\$4,286.4	\$4,153.9	-3.1%
Net TVPI	1.2x	1.2x	0.1x
ITD IRR	5.0%	7.3%	2.3%

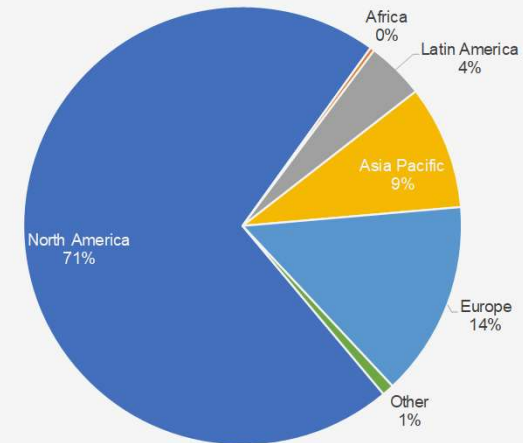
Top 10 Managers¹

Manager	# of Mandates	\$ of Exposure	% of Exposure
Stonepeak Partners	8	\$1,885.9	15.4%
Brookfield Asset Management	10	\$1,732.9	14.1%
Global Infrastructure Partners	5	\$1,271.7	10.4%
NGP Energy Capital Management	9	\$1,050.3	8.6%
EQT Partners	4	\$869.5	7.1%
LS Power	3	\$589.8	4.8%
Quantum Energy Partners	4	\$477.9	3.9%
Warwick Investment Group	2	\$472.0	3.9%
Blackstone Group	2	\$437.4	3.6%
Harrison Street Advisors	2	\$376.5	3.1%

Sector Weights



Geographic Weights



Source: Aksia. Data as of September 30, 2022. \$ in millions.

¹Data shown is since inception.



Executive Summary

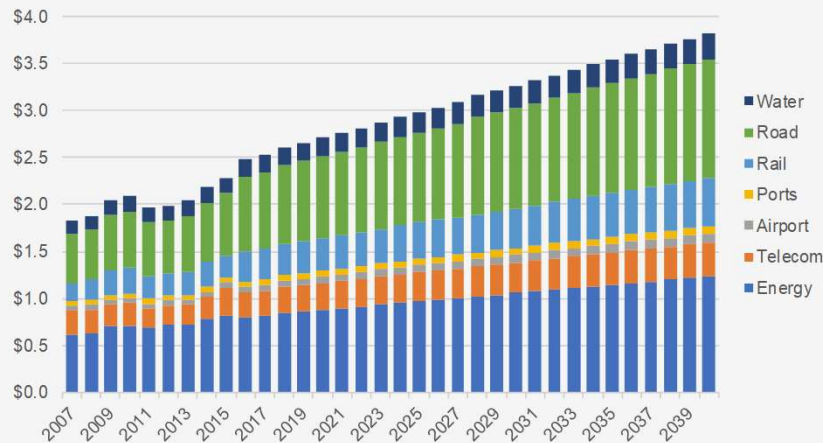
- Second consecutive year of strong performance
 - 12m IRR = 18.7%. Contributors were broad based but led by natural resources and infrastructure energy funds (12m IRR = 38.1%)
 - 24m IRR = 19.1%.
 - SI-IRR stands at 7.3%, a YoY increase of 228 basis points.
- CY 2022 commitment pacing above target...
 - ... but with CY 2021 below target, rolling averages at target level.
 - Strong set of existing managers; capitalized on opportunities to expand relationships.
- Co-investment deployment above plan
 - Including side cars under active legal negotiation, 31% of total capital commitments over the past two years have been in co-investment vehicles.
 - Robust pipeline, with productive GP dialogue.
- Portfolio maturation
 - In the wake of strong performance, Portfolio now above target allocation.
 - All-time high \$1.4bn of distributions in 2022 (net cash flow still negative, -\$658mn).
 - Continued evolution of risk profile, steadily increasing exposure to lower risk segments.
 - Portfolio well diversified across sectors, assets, risk profile, etc.

Topics

1. Real Assets Portfolio Overview
- 2. Real Assets Portfolio Update**
 - A. Markets
 - B. 2022 Review
 - C. Exposures
 - D. Results
 - E. Pacing Analysis
 - F. 2023 Priorities
3. Appendix

Markets: Infrastructure

Annual Global Infrastructure Investment Need (\$ tn)



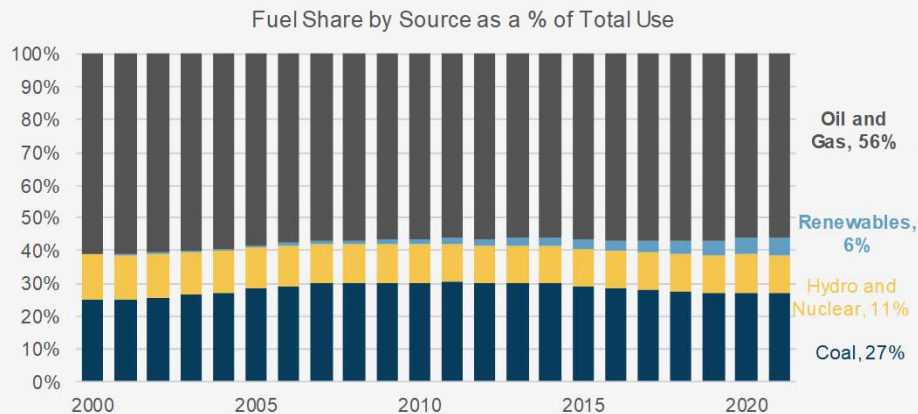
Source: Global Infrastructure Hub.

Digital Transformation

Metric	2018	2023	Growth	CAGR
Global population (bn)	7.6	8.0	1.1x	1%
Global internet users (bn)	3.9	5.3	1.4x	6%
Internet users % of pop.	51%	66%	1.3x	
Global mobile subscribers	5.1	5.7	1.1x	2%
Mobile subscribers % of pop.	67%	71%	1.1x	
Global Mobile Devices (bn)	8.8	13.1	1.5x	8%
Global avg. devices per capita	2.4	3.6	1.5x	8%
Global M2M connections	6.1	14.7	2.4x	19%
Global Wi-Fi hotspots (mn)	169	628	3.7x	30%
Global avg. mobile speed (Mbps)	13.2	43.9	3.3x	27%
Global avg. fixed broadband speed (Mbps)	45.9	110.4	2.4x	19%
Global mobile speed by network type (Mbps)	4G = 32	5G = 575	18.0x	78%
Number of DDoS attacks (mns)	7.9	15.4	1.9x	14%

Source: Cisco Annual Internet Report.

Energy Transition Investment Trends



Total Global Capex (by year, \$ in billions)

	2015	2016	2017	2018	2019	2020	2021
Oil & Gas	68%	60%	60%	59%	56%	46%	46%
Renewables	32%	40%	40%	41%	44%	54%	54%
Total Capex	\$973	\$802	\$818	\$885	\$893	\$771	\$829

Global capex switched in renewable's favor in 2020, although oil and gas represents 10x the fuel percentage

Source: BP Statistical Review of World Energy (dated July 2022), IEA World Energy Investment (dated June 2022).

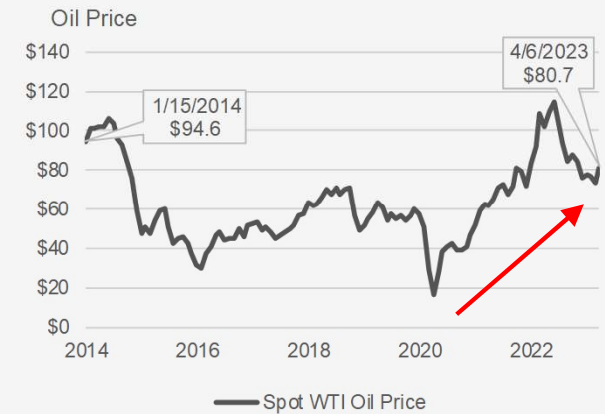
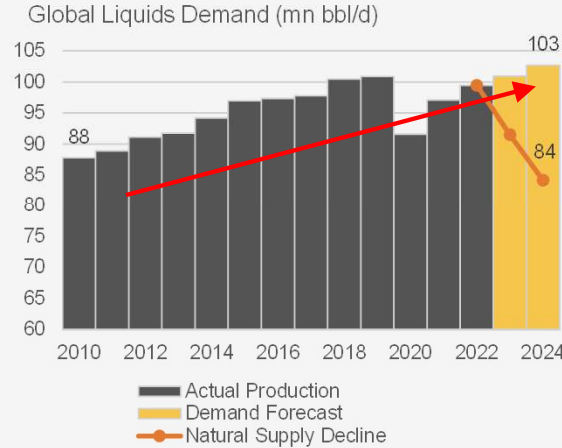
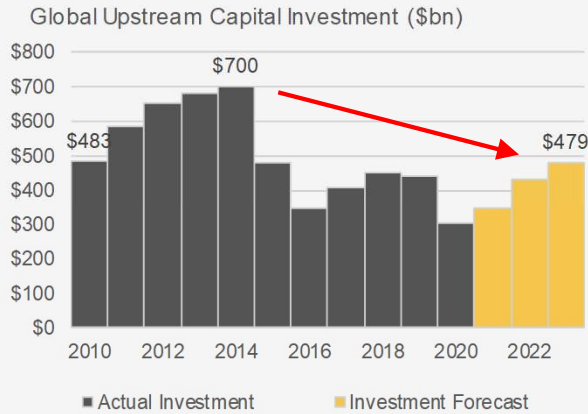
Markets: Natural Resources (1)

Market cycle in action

Investments Fall

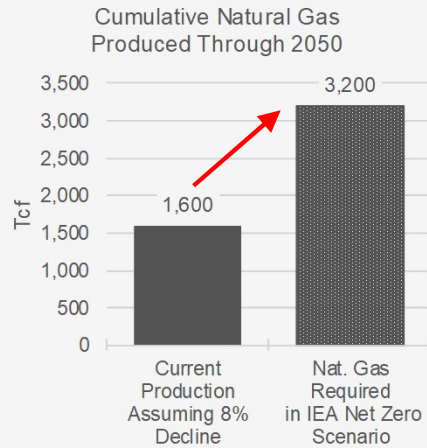
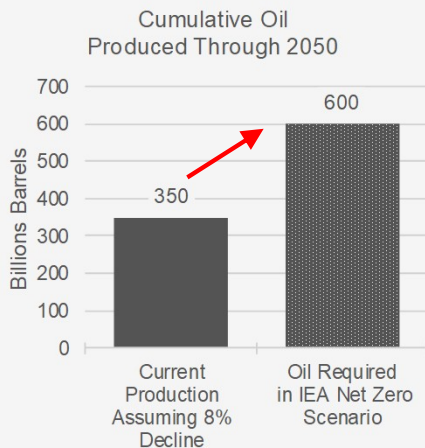
Demand Recovers

Prices Rebound



Source: EIA, IHS.

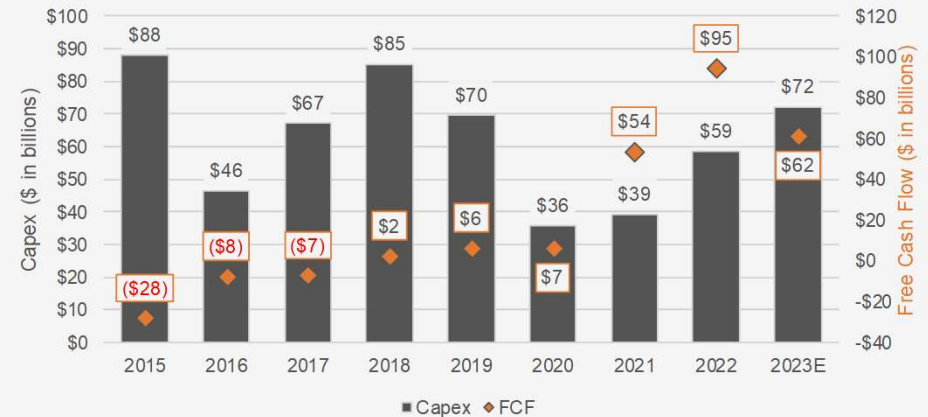
Significant Oil and Gas Required Even in a Net Zero Pathway



Source: IEA Net Zero by 2050 Report (dated October 2021), EIA.

~\$7 trillion of incremental oil and gas capital expenditures are needed through 2050

U.S. Public E&P Independents Capex and Free Cash Flow



Source: Bloomberg as of December 31, 2021.

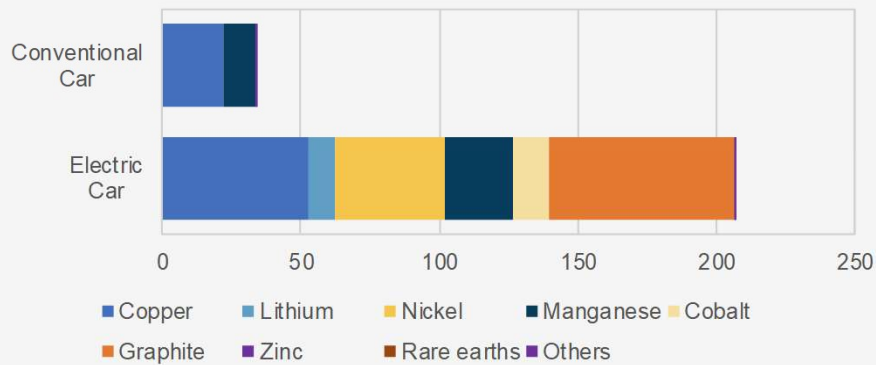
U.S. public E&P independents now supremely focused on free cash flow generation



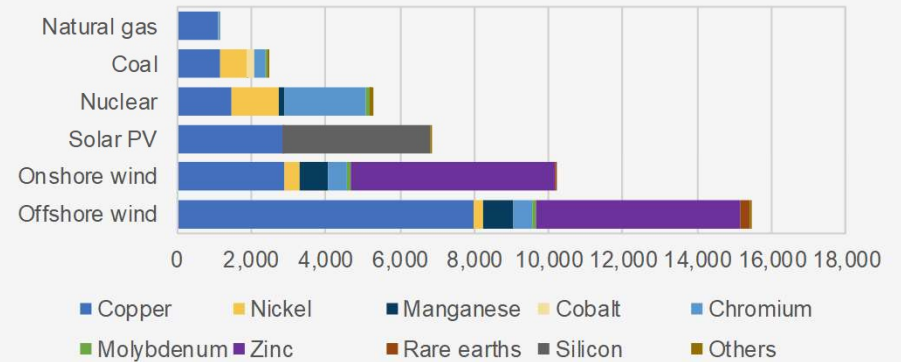
Markets: Natural Resources (2)

The Clean Energy Transition Implies a Significant Increase in Demand for Minerals

Minerals Used for Transport (kg/vehicle)

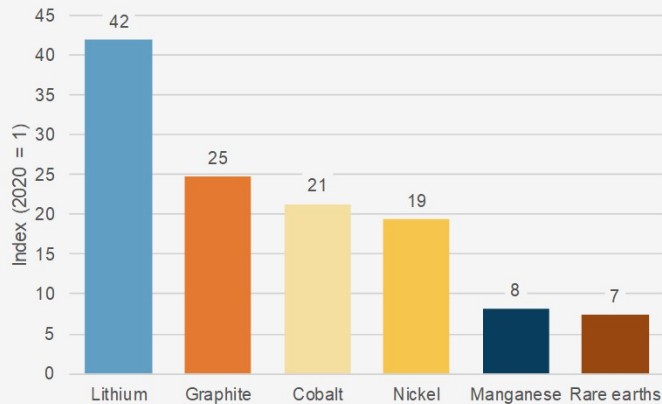


Minerals Used for Power Generation (kg/MW)



Source: IEA The Role of Critical Minerals in Clean Energy Transitions (dated May 2021).

Growth of Selected Minerals in the SDS, 2040 relative to 2020



Source: IEA The Role of Critical Minerals in Clean Energy Transitions (dated May 2021). SDS = Sustainable Development Scenario, indicating what would be required in a trajectory consistent with meeting the Paris Agreement goals.

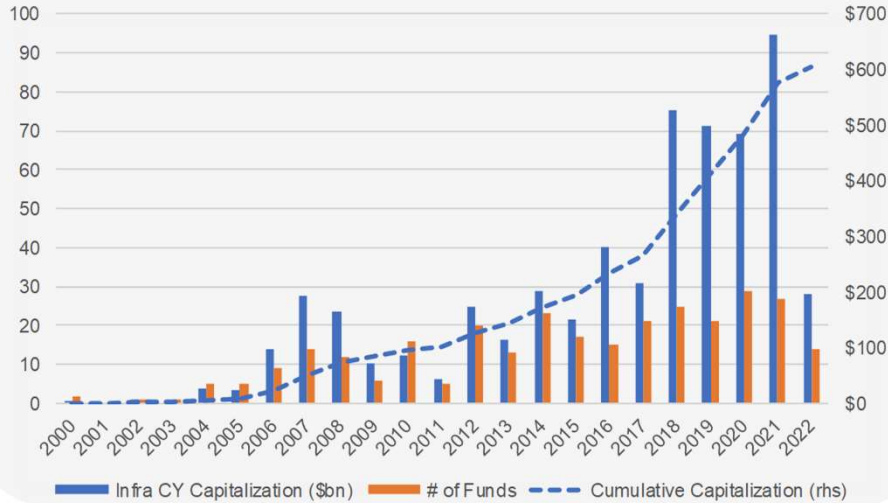
Global Supply Chain is Reliant on Chinese Mineral Processing

	Country	Nickel	Cobalt	Lithium	Copper	Rare Earths
Extraction	Russia	10%	5%			
	EU	8%				
	Other	51%	25%	90%	62%	30%
	D.R.C.		70%			
	US			1%		10%
	Chile				28%	
	China	31%		9%	10%	60%
Processing	Russia					
	EU	13%	17%			
	Other	21%	1%	37%	48%	12%
	D.R.C.					
	US	1%		4%		
	Chile				12%	
	China	65%	82%	59%	40%	88%

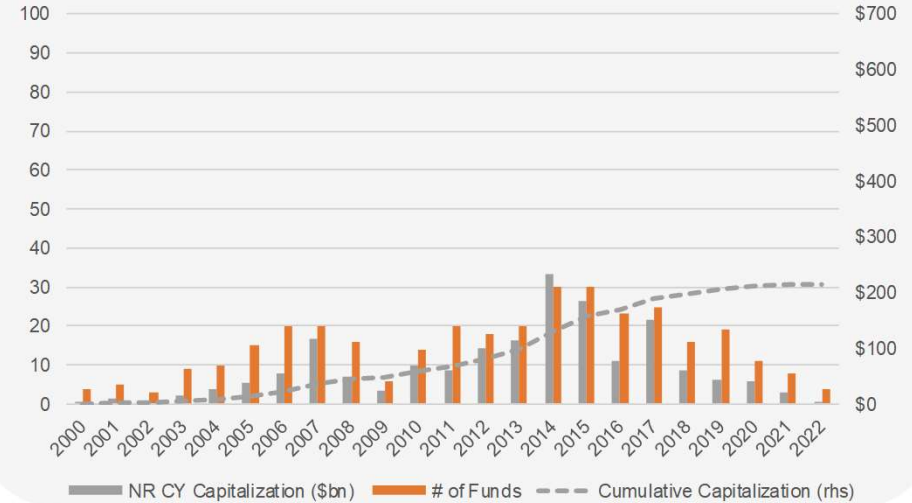
Source: Prepared for Warwick by Evercore, IEA The Role of Critical Minerals in Clean Energy Transitions (dated May 2021).

Markets: Fundraising

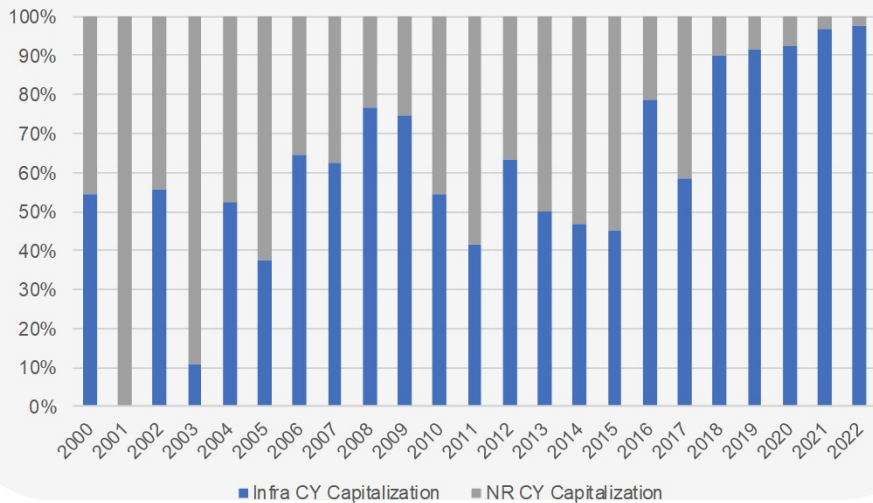
Infrastructure Fundraising, 2000-2022 YTD



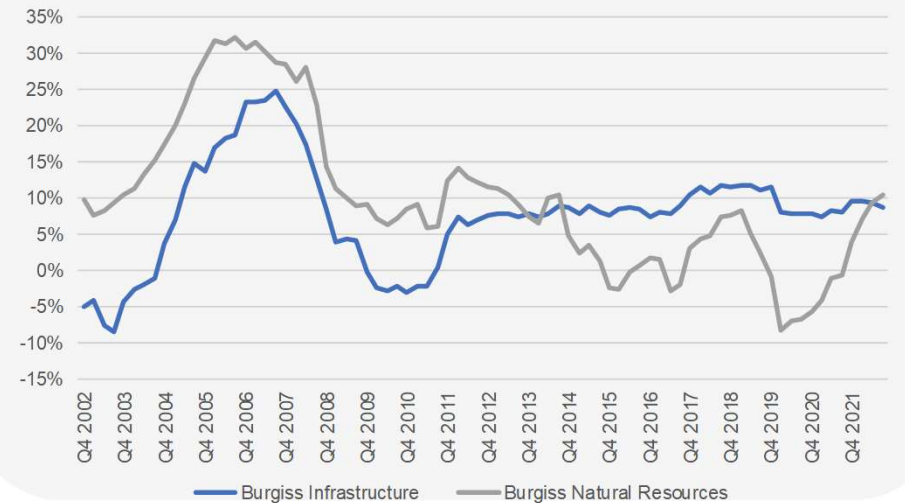
Natural Resources Fundraising, 2000-2022 YTD



Relative Fundraising, 2000-2022 YTD



Rolling 12-quarter Returns, 2000-2022 YTD



Source: Burgiss. Data as of September 30, 2022.



2022 Review: Priorities

● 2022 commitment pacing

- After falling below target in 2021, expect to exceed target pacing in 2022.
 - Will move rolling average in-line with \$1.75 billion annual pacing target.
- ~10 commitments with an average commitment size of ~\$250 million.
 - ***Received approval for \$2.75 billion in commitments across 14 investments. Rolling three-year average of \$1.67 billion in-line with target.***

● Co-investment

- Continue to execute on envisioned structure.
 - ***Received approval for \$899 million in co-investment, representing 33% of total 2022 commitments.***

● Monitoring and risk management

- Continue to pursue enhancements to monitoring and risk management efforts.
- Assist in formalization of ESG integration across the broader Alternatives Program.
 - ***Made significant progress across monitoring, risk management, and ESG efforts; continue to refine and integrate.***

● Conduct research reviews of areas of interest

- Energy transition.
- “Core” infrastructure.
- Digital infrastructure.
 - ***All three completed.***



2022 Review: Approvals

➤ Portfolio development remains on track

- During 2022, OIC/OST authorized \$2.75 billion in commitments across 14 investments.
 - All commitments were re-ups or expansions of existing relationships.
 - Pacing was above plan (\$1.5-2.0 billion per annum range).
- Continued progress towards lower fees through tailored partnership structures, early close discounts, and co-investment.

Investment	Strategy	Authorized Date	Commitment Amount
BSIP co-invest + top-ups	Infrastructure	Jan, Feb, and Jun 2022	\$200.0
Harrison Street co-invest top-ups	Infrastructure	Jan and Jun 2022	\$100.0
Stonepeak co-invest + top-up	Infrastructure	Mar and June 2022	\$100.0
Quantum VIII + co-invest	Natural Resources	April 2022	\$250.0
NGP Royalty Partners II + co-invest	Natural Resources	April 2022	\$200.0
EQT co-invest top-up	Infrastructure	April 2022	\$50.0
Brookfield Infra V + co-invest	Infrastructure	June 2022	\$500.0
Blackstone Energy IV + co-invest	Infrastructure	June 2022	\$250.0
Stonepeak Core Infrastructure	Infrastructure	June 2022	\$250.0
Cube co-invest top-up	Infrastructure	October 2022	\$50.0
Warwick V	Natural Resources	December 2022	\$200.0
EFM V + co-invest	Infrastructure	December 2022	\$200.0
GIP V + co-invest	Infrastructure	December 2022	\$350.0
Sprott Annex	Natural Resources	December 2022	\$50.0
2022 Total			\$2,750.0

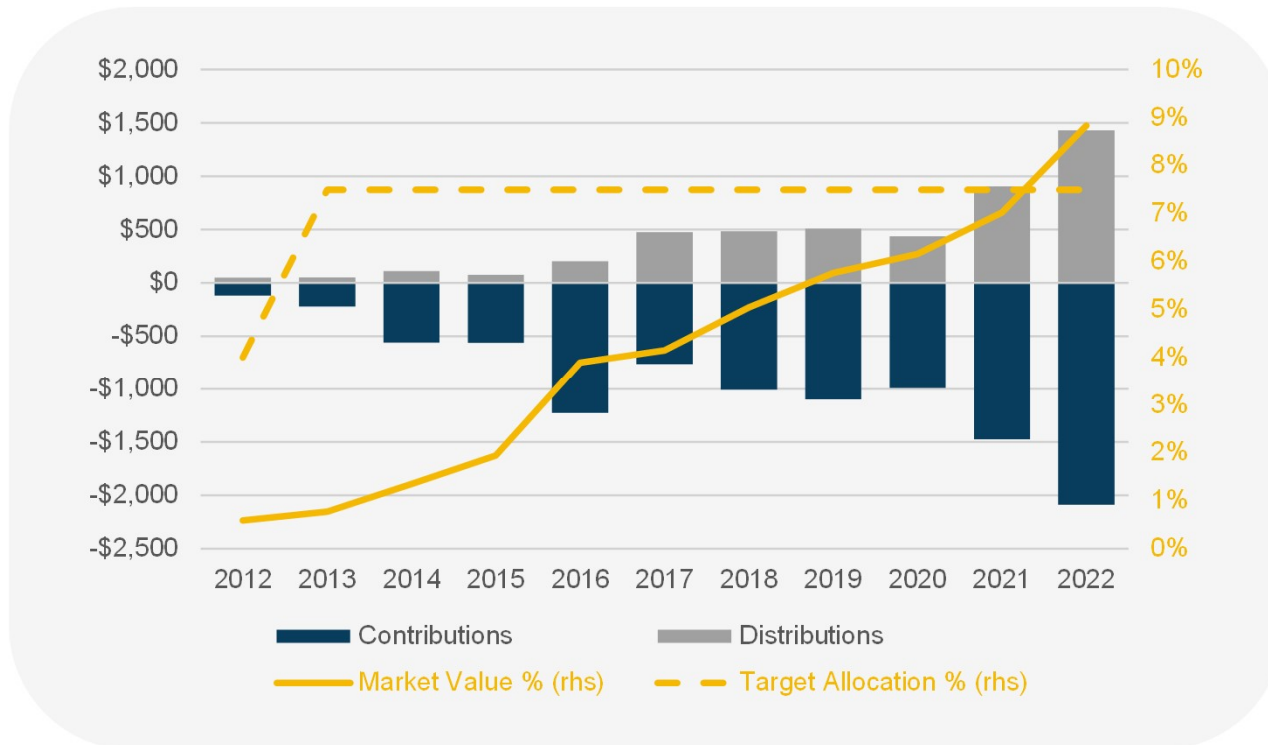
Source: OST Staff. Data as of December 31, 2022. \$ in millions.



2022 Review: Cash Flow Activity

➤ Cash flow activity consistent with expectations

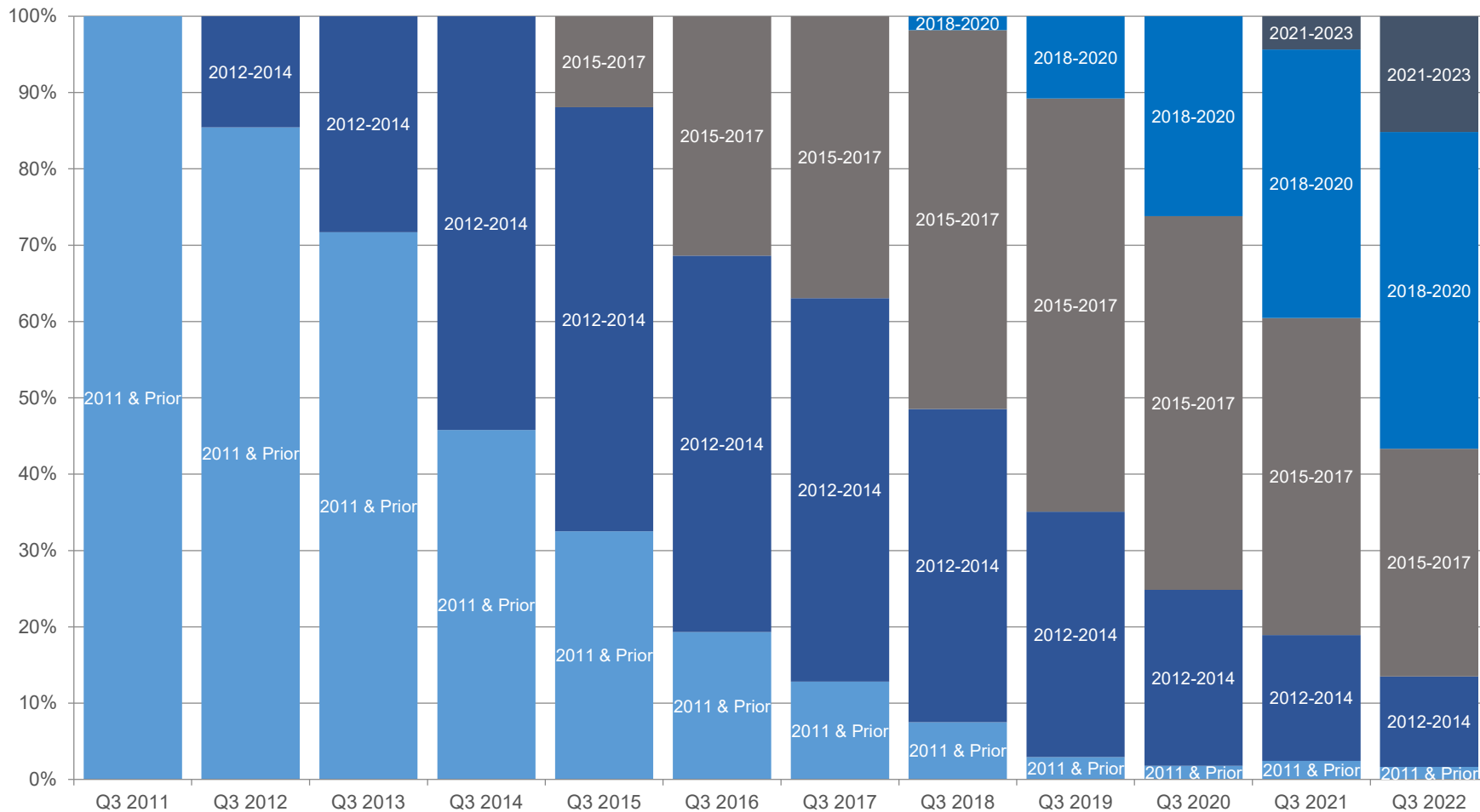
- As anticipated, Portfolio cash outflows have exceeded cash inflows by a meaningful amount with pace of contributions increasing as capital commitments are made.
- As of December 31, 2022, OPERF has funded \$10.4 billion of contributions with \$4.1 billion of unfunded capital commitments remaining. Since inception, a total of \$4.7 billion has been distributed to OPERF.



Source: Aksia. Data as of December 31, 2022. \$ in millions.

Exposures: Vintage Years

➤ Vintage year cohort exposure by market value



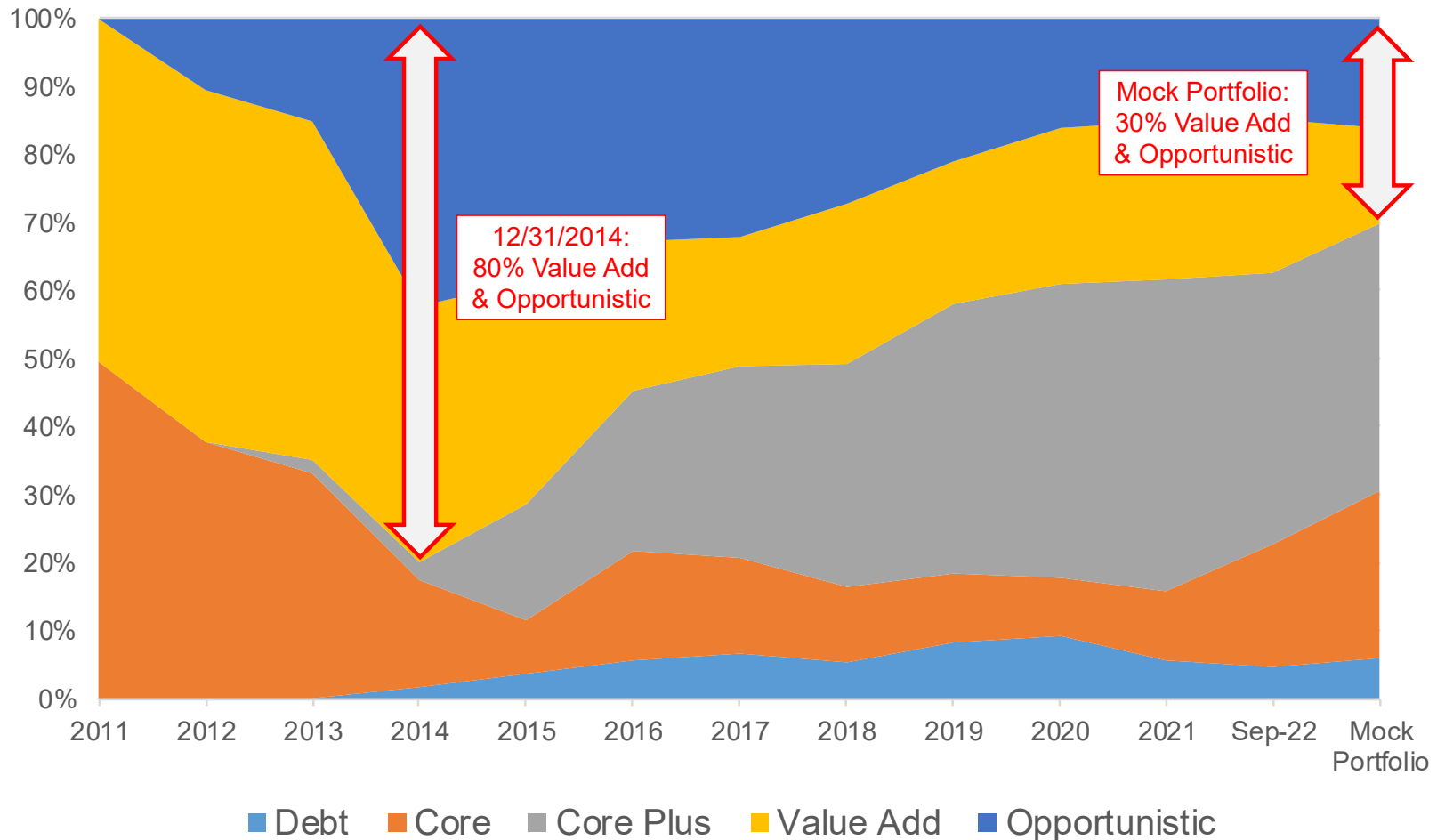
57% of FMV 2018 or later...
 ... compares to 44% for Burgiss universe and 43% for PE portfolio

Source: Aksia. Data as of September 30, 2022.



Exposures: Risk Metrics

➤ Risk categories by market value over time



Source: OST Staff, Aksia. Data as of September 30, 2022.

Results: Portfolio Returns at 9/30/22

IRR	Q322	YTD	1 Year	3 Year	5 Year	10 Year	ITD	ITD 9/20
Real Assets Portfolio	2.0%	10.7%	18.7%	12.3%	8.4%	7.5%	7.3%	1.8%
CPI + 4%	1.1%	9.4%	12.2%	9.0%	7.8%	6.5%	6.5%	5.6%
<i>Difference</i>	<i>0.8%</i>	<i>1.3%</i>	<i>6.5%</i>	<i>3.3%</i>	<i>0.6%</i>	<i>1.0%</i>	<i>0.9%</i>	<i>-3.8%</i>
Burgiss Real Assets (ex-RE)	-0.6%	7.2%	13.3%	9.5%	8.0%	7.9%	7.4%	4.9%
<i>Difference</i>	<i>2.6%</i>	<i>3.5%</i>	<i>5.4%</i>	<i>2.8%</i>	<i>0.4%</i>	<i>-0.4%</i>	<i>0.0%</i>	<i>-3.2%</i>

What a difference 2 years can make!

IRR	Q322	YTD	1 Year	3 Year	5 Year	10 Year	ITD	ITD 9/20
Infrastructure	1.6%	6.3%	14.8%	12.6%	11.5%	11.3%	11.1%	8.4%
CPI + 4%	1.1%	9.4%	12.2%	9.0%	7.8%	6.5%	6.5%	5.6%
<i>Difference</i>	<i>0.5%</i>	<i>-3.1%</i>	<i>2.6%</i>	<i>3.7%</i>	<i>3.8%</i>	<i>4.7%</i>	<i>4.6%</i>	<i>2.9%</i>
Burgiss Infrastructure	-0.8%	3.8%	8.8%	8.9%	9.3%	9.6%	8.3%	7.4%
<i>Difference</i>	<i>2.4%</i>	<i>2.6%</i>	<i>6.0%</i>	<i>3.8%</i>	<i>2.3%</i>	<i>1.7%</i>	<i>2.8%</i>	<i>1.0%</i>
S&P Global Infrastructure	-9.6%	-10.1%	-6.0%	-0.1%	2.1%	5.7%	5.0%	4.5%
<i>Difference</i>	<i>11.3%</i>	<i>16.4%</i>	<i>20.8%</i>	<i>12.8%</i>	<i>9.4%</i>	<i>5.6%</i>	<i>6.0%</i>	<i>3.9%</i>

Consistent performer

IRR	Q322	YTD	1 Year	3 Year	5 Year	10 Year	ITD	ITD 9/20
Natural Resources	2.7%	20.1%	26.9%	11.6%	4.4%	3.5%	3.3%	-5.0%
CPI + 4%	1.1%	9.4%	12.2%	9.0%	7.8%	6.5%	6.5%	5.6%
<i>Difference</i>	<i>1.5%</i>	<i>10.7%</i>	<i>14.7%</i>	<i>2.6%</i>	<i>-3.4%</i>	<i>-3.0%</i>	<i>-3.2%</i>	<i>-10.6%</i>
Burgiss Natural Resources	-0.1%	16.0%	24.7%	10.7%	5.9%	5.3%	5.7%	-0.5%
<i>Difference</i>	<i>2.8%</i>	<i>4.1%</i>	<i>2.2%</i>	<i>0.9%</i>	<i>-1.6%</i>	<i>-1.8%</i>	<i>-2.3%</i>	<i>-4.6%</i>
S&P Global Natural Resources	-4.6%	-5.9%	1.0%	9.1%	5.7%	3.4%	1.8%	-1.7%
<i>Difference</i>	<i>7.3%</i>	<i>26.0%</i>	<i>25.9%</i>	<i>2.5%</i>	<i>-1.3%</i>	<i>0.1%</i>	<i>1.5%</i>	<i>-3.3%</i>
S&P GSCI	-10.3%	21.8%	23.6%	12.2%	7.8%	-3.9%	-3.6%	-11.0%
<i>Difference</i>	<i>13.0%</i>	<i>-1.7%</i>	<i>3.3%</i>	<i>-0.6%</i>	<i>-3.4%</i>	<i>7.5%</i>	<i>6.9%</i>	<i>6.0%</i>

Less consistent but improving

Results: VY Cohort Returns at 9/30/22

IRR	# of Obs	Q322	YTD	1 Year	3 Year	5 Year	ITD	ITD 9/20
RAP All Vintages	69	2.0%	10.7%	18.7%	12.3%	8.4%	7.3%	1.8%
RAP 2007-2014	22	3.5%	14.0%	19.3%	5.0%	-1.0%	1.1%	-2.0%
RAP 2015-2022	47	1.7%	10.1%	18.6%	14.5%	13.2%	12.6%	6.6%
Burgiss Real Assets (ex-RE) 2007-2014	248	-0.1%	7.6%	13.8%	6.7%	5.1%	5.9%	4.7%
<i>Difference vs 2007-2014</i>		3.6%	6.3%	5.4%	-1.7%	-6.1%	-4.8%	-6.7%
Burgiss Real Assets (ex-RE) 2015-2022	296	-0.7%	7.0%	13.1%	11.0%	10.5%	10.7%	6.0%
<i>Difference vs 2015-2022</i>		2.5%	3.1%	5.5%	3.5%	2.7%	1.9%	0.6%

IRR	# of Obs	Q322	YTD	1 Year	3 Year	5 Year	ITD	ITD 9/20
Infrastructure All Vintages	37	1.6%	6.3%	14.8%	12.6%	11.5%	11.1%	8.4%
Infrastructure 2007-2014	10	3.5%	6.0%	11.1%	4.0%	4.9%	7.2%	7.2%
Infrastructure 2015-2022	27	1.4%	6.4%	15.3%	14.7%	13.9%	13.8%	9.9%
Burgiss Infrastructure 2007-2014	108	-0.1%	3.4%	9.4%	7.3%	8.4%	7.5%	7.2%
<i>Difference vs 2007-2014</i>		3.6%	2.6%	1.7%	-3.3%	-3.4%	-0.4%	0.1%
Burgiss Infrastructure 2015-2022	161	-0.9%	3.9%	8.7%	9.5%	9.8%	9.9%	8.6%
<i>Difference vs 2015-2022</i>		2.3%	2.5%	6.6%	5.3%	4.0%	3.9%	1.3%

IRR	# of Obs	Q322	YTD	1 Year	3 Year	5 Year	ITD	ITD 9/20
Natural Resources All Vintages	32	2.7%	20.1%	26.9%	11.6%	4.4%	3.3%	-5.0%
Natural Resources 2007-2014	12	3.5%	22.5%	28.2%	6.1%	-5.7%	-3.6%	-10.4%
Natural Resources 2015-2022	20	2.4%	19.4%	26.6%	14.1%	11.9%	11.0%	2.4%
Burgiss Natural Resources 2007-2014	140	-0.2%	11.6%	18.2%	6.0%	1.5%	3.1%	-0.5%
<i>Difference vs 2007-2014</i>		3.7%	10.9%	10.0%	0.1%	-7.2%	-6.7%	-9.9%
Burgiss Natural Resources 2015-2022	135	-0.1%	19.6%	30.4%	15.7%	12.2%	12.8%	-0.2%
<i>Difference vs 2015-2022</i>		2.5%	-0.2%	-3.9%	-1.6%	-0.2%	-1.8%	2.6%

Energy underweight



Source: Aksia, Burgiss, eVestment. Portfolio inception July 1, 2011. Data as of September 30, 2022. Observation count excludes co-investment.

Results: Vintage Year Quartiles at 9/30/22

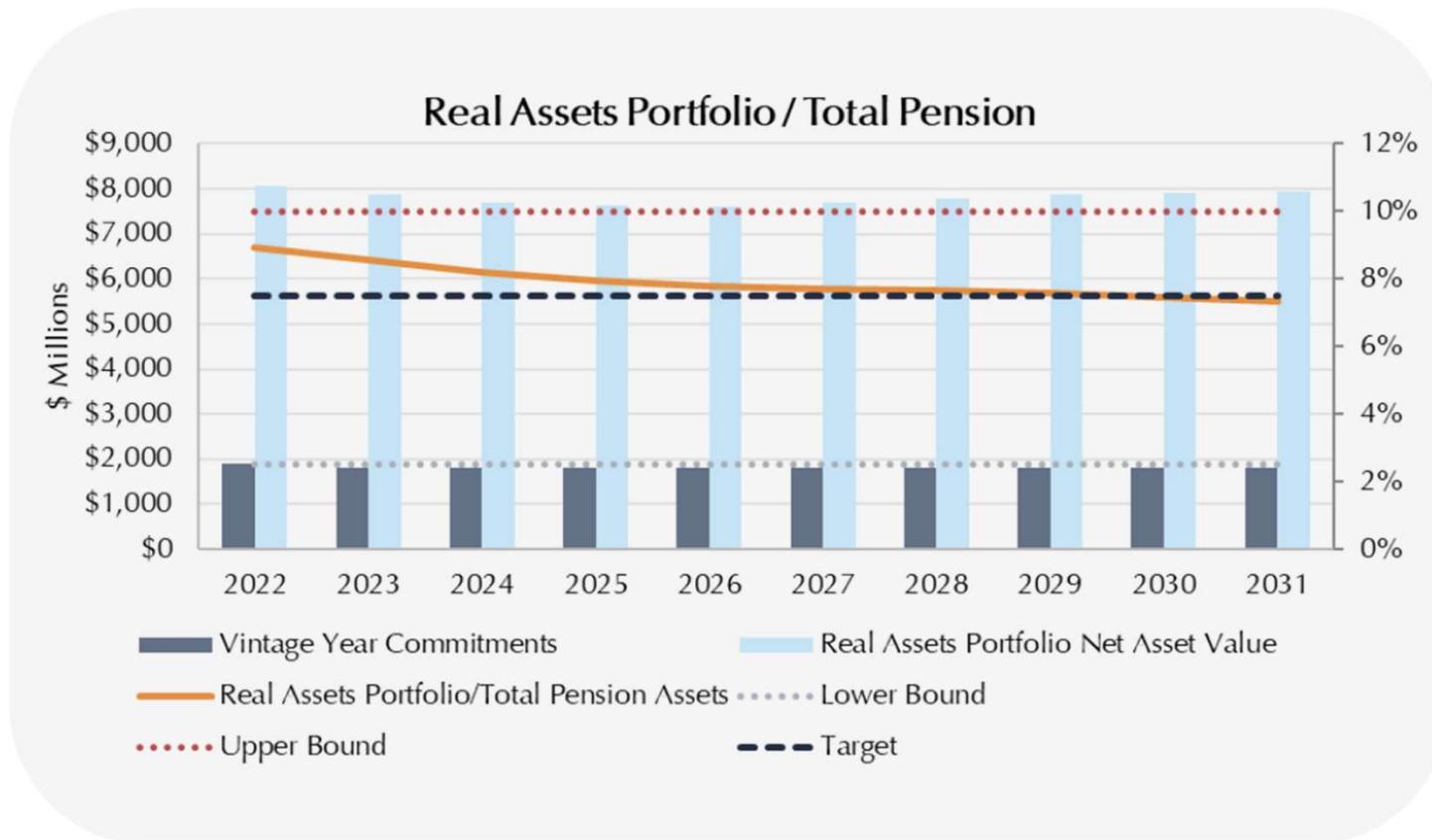
OPERF RAP					Burgiss Real Assets ex. Real Estate						
Vintage Year	IRR	TVPI	Commit. (\$mn)	# of Obs	Top Quartile		Median		Bottom Quartile		# of Obs
					IRR	TVPI	IRR	TVPI	IRR	TVPI	
2007	-100.0%	0.42x	\$10.5	1	8.0%	1.44x	2.4%	1.09x	-0.8%	0.83x	33
2008	1.9%	1.09x	\$129.6	1	11.1%	1.72x	6.3%	1.40x	-1.3%	0.92x	28
2009			\$0.0	0	9.4%	1.41x	6.4%	1.30x	-1.7%	0.93x	12
2010	-18.1%	0.45x	\$221.2	2	5.4%	1.42x	2.7%	1.10x	-2.5%	0.74x	28
2011	15.9%	2.06x	\$50.0	1	7.6%	1.53x	2.2%	1.11x	-8.0%	0.60x	25
2012	7.6%	1.34x	\$537.5	6	12.9%	1.61x	5.7%	1.26x	-1.5%	0.93x	37
2013	2.6%	1.13x	\$455.0	4	9.2%	1.50x	5.1%	1.31x	-0.5%	0.96x	32
2014	0.7%	1.03x	\$1,150.0	7	11.2%	1.60x	8.2%	1.31x	2.4%	1.12x	53
2015	9.5%	1.54x	\$601.8	5	13.6%	1.75x	9.0%	1.41x	3.0%	1.12x	47
2016	10.0%	1.38x	\$1,675.0	7	13.3%	1.64x	9.3%	1.39x	3.5%	1.10x	38
2017	16.7%	1.56x	\$659.4	4	16.2%	1.57x	10.7%	1.37x	7.7%	1.24x	46
2018	17.7%	1.38x	\$1,553.0	6	19.9%	1.57x	13.5%	1.33x	7.6%	1.13x	41
2019	15.2%	1.26x	\$1,441.1	8	19.6%	1.40x	10.8%	1.21x	3.3%	1.07x	40
2020	27.3%	1.22x	\$1,500.0	6	27.2%	1.34x	12.0%	1.14x	7.1%	1.06x	40
2021	5.8%	1.04x	\$750.0	4	17.3%	1.14x	3.2%	1.02x	-14.3%	0.88x	33
2022	-1.0%	0.99x	\$1,200.0	5	7.1%	1.07x	0.8%	1.01x	-3.8%	0.97x	11

1st 2nd 3rd 4th

Source: Aksia, Burgiss. Data as of September 30, 2022.

Pacing Analysis

- Pacing target remains unchanged from prior years
 - Targeting \$1.75 billion in annual commitments.
 - Assuming base case pension annual growth rate of 2%, expect Portfolio allocation to remain within target range.



Source: Aksia. Data as September 30, 2022. \$ in millions.

2023 Priorities

1. 2023 commitment pacing
 - \$1.5 - \$2.0 billion in aggregate commitments.
 - 5-10 commitments with a commitment range between \$150 - \$350 million.
2. Co-investment
 - Continue to execute on envisioned structure.
3. Consultant contract
 - Initial two-year extension of Aksia agreement ends on December 31, 2023. Targeting Q3/Q4 recommendation.
4. Monitoring and risk management
 - Continue to pursue enhancements to monitoring and risk management efforts.
 - Further formalize ESG and DE&I integration across the broader Alternatives Program.
5. Conduct research reviews of areas of interest
 - Energy transition.
 - Metals & mining.



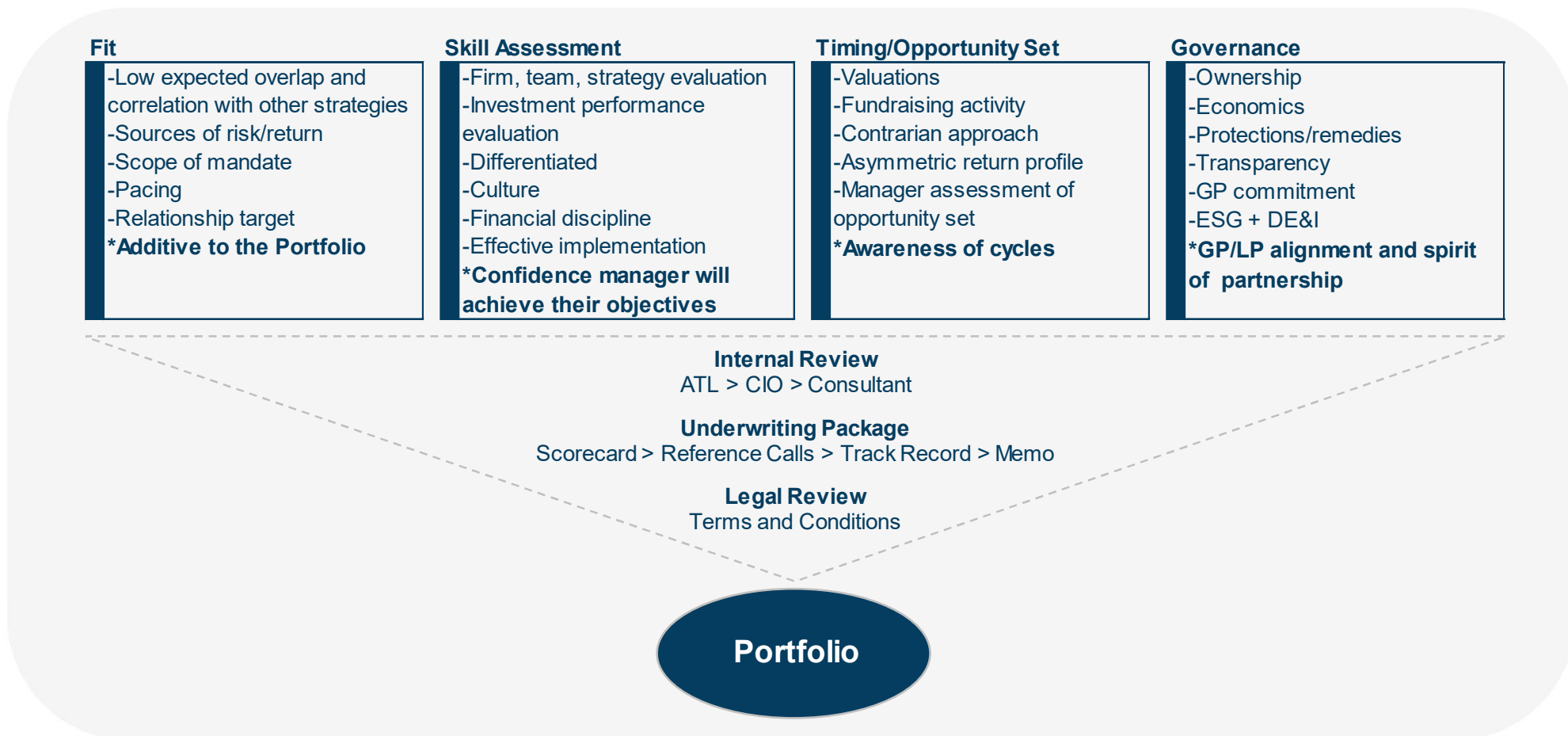
Topics

1. Real Assets Portfolio Overview
2. Real Assets Portfolio Update
- 3. Appendix**

Appendix: Investment Process

➤ Evaluation framework

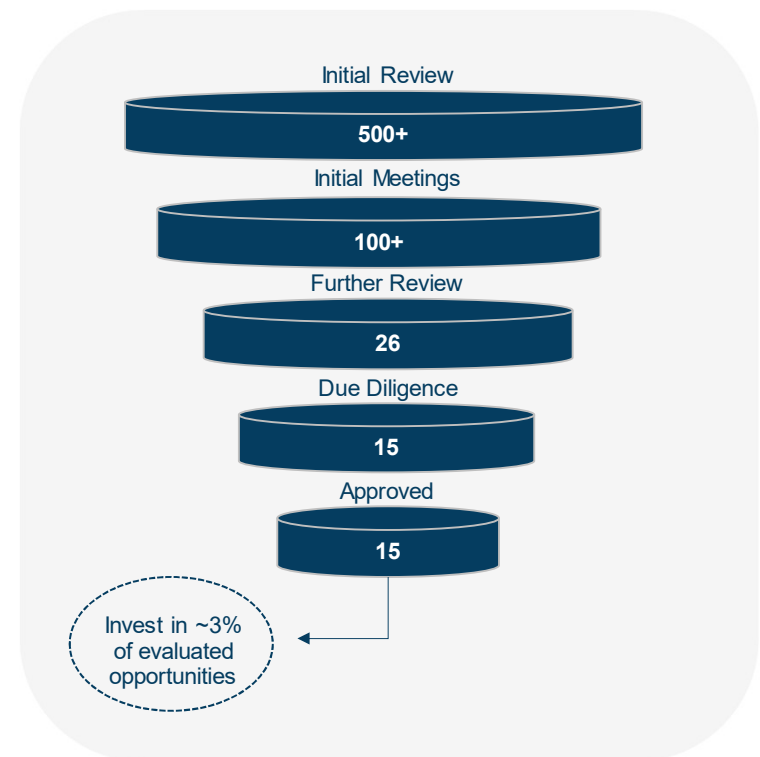
- Very high-level summary of Alternatives Portfolio investment evaluation framework below
- In practice, many more variables, non-linear, and with numerous feedback channels



Appendix: Investment Process, cont.

➤ 2022 Alternatives Portfolio meeting activity

- Began formally tracking meeting count in 2016.
- Scale, brand, and open door policy leveraged to foster deal flow.
 - E.g., among U.S. defined benefit plans, OPERF ranks (by assets) in the top 5 in infrastructure and agriculture, and in the top 10 in energy, commodities, and hedge funds*.
- Over 2,800 notes and other correspondence deposited in research management system.
- After screening approximately 500 opportunities, held initial meetings (in-person or virtual) with over 100 distinct prospective managers/investments.
- “Deep dives” on 26 opportunities.
- Ultimately sought approval for 15 investments.



*Source: P&I. Market values as of September 30, 2022.



OREGON STATE TREASURY

Tobias Read
Oregon State Treasurer

350 Winter St NE, Suite 100
Salem, OR 97301-3896

O I C



OREGON
STATE
TREASURY

TAB 5
OREGON SAVINGS GROWTH PLAN
ANNUAL REVIEW



**OREGON
STATE
TREASURY**

Tobias Read
Oregon State Treasurer

Michael Kaplan
Deputy State Treasurer

Date: April 19, 2023

To: Oregon Investment Council

From: Claire Illo, Investment Officer
Louise Howard, Senior Investment Officer
Kenny Bao, Investment Analyst

Purpose

To provide an annual review of the Oregon Savings Growth Plan.

Background

The Oregon Savings Growth Plan (the “Plan” or “OSGP”) is the State of Oregon’s 457 Deferred Compensation plan. OSGP is a voluntary supplemental retirement plan that provides eligible state and local government employees the opportunity to defer a portion of their current salary on a pre-tax or after-tax (Roth) basis. These deferrals are invested in various investment options until participants draw funds at retirement. The Plan offers an array of equity and fixed income investment options, a suite of target-date retirement funds, which in aggregate constitute a single investment option, and a self-directed brokerage option. As of December 31, 2022, plan assets totaled \$2.91 billion from over 37,400 participants.

With support and assistance from the Oregon State Treasury (OST) Investment Division, the Oregon Investment Council (OIC) is responsible for oversight of the Plan’s investment program. Oversight of Plan administration is the responsibility of the Oregon Public Employees Retirement System Board (“PERS Board”), with support from OSGP staff. Additional oversight is provided by a seven-member Deferred Compensation Advisory Committee (the “Advisory Committee”) established under ORS 243.505.



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OSGP Performance

Fund Option Benchmarks	Performance (%)					
	QTD	YTD	1 Year	3 Years	5 Years	10 Years
Stable Value Option	0.50	1.64	1.64	1.75	1.91	1.63
3-Month T-Bill	0.84	1.46	1.46	0.72	1.26	0.76
<i>Rolling Average 3-Year CMT*</i>	0.31	0.99	0.99	1.34	1.49	1.11
Active Fixed Income Option	1.27	-13.54	-13.54	-2.78	-0.04	1.20
<i>Barclays US Aggregate Bond Index</i>	1.87	-13.01	-13.01	-2.71	0.02	1.06
Large Company Value Stock Option	12.38	-7.67	-7.67	5.85	6.60	10.39
<i>Russell 1000 Value Index</i>	12.42	-7.54	-7.54	5.96	6.67	10.29
Stock Index Option	7.16	-19.30	-19.30	6.97	8.69	12.02
<i>Russell 3000 Index</i>	7.18	-19.21	-19.21	7.07	8.79	12.13
Large Company Growth Stock Option	2.16	-29.25	-29.25	7.68	10.85	13.88
<i>Russell 1000 Growth Index</i>	2.20	-29.14	-29.14	7.79	10.96	14.10
International Stock Option	15.41	-13.83	-13.83	1.71	1.30	4.43
<i>MSCI ACWI ex-US (net) Index</i>	14.28	-16.00	-16.00	0.07	0.88	4.41
Small Company Stock Option	9.56	-15.47	-15.47	7.05	6.08	9.96
<i>Russell 2000 Index</i>	6.23	-20.44	-20.44	3.10	4.13	9.20
Socially Responsible Stock Option	9.73	-17.87	-17.87	7.64	9.10	N/A
<i>Russell 3000 Index</i>	7.18	-19.21	-19.21	7.07	8.79	N/A
Real Return Option	7.10	2.97	2.97	8.66	5.81	N/A
<i>CPI + 3%</i>	7.10	3.15	3.15	8.64	7.83	N/A
BlackRock LifePath Retirement	4.65	-14.82	-14.82	0.55	2.51	3.82
BlackRock LifePath 2025	5.25	-15.42	-15.42	1.01	3.01	5.10
BlackRock LifePath 2030	6.40	-16.12	-16.12	1.73	3.68	5.88
BlackRock LifePath 2035	7.45	-16.85	-16.85	2.31	4.18	6.46
BlackRock LifePath 2040	8.46	-17.53	-17.53	2.85	4.65	7.03
BlackRock LifePath 2045	9.35	-18.08	-18.08	3.34	5.04	7.49
BlackRock LifePath 2050	9.81	-18.39	-18.39	3.60	5.23	7.74
BlackRock LifePath 2055	9.91	-18.46	-18.46	3.66	5.27	7.86
BlackRock LifePath 2060	9.91	-18.47	-18.47	3.64	5.25	N/A
BlackRock LifePath 2065	9.89	-18.48	-18.48	3.53	N/A	N/A

Source: Voya Financial

* CMT is the Constant Maturity Treasury Yield.

Performance shown is a) net of fees and b) annualized for periods longer than one year.

OSGP has two types of fees, investment management and administrative fees.

Administrative fees are comprised of State of Oregon administration, recording keeping, custody, trust, and communications fees.

Additional OSGP Data

Fund Name	Market Value	% of Total	Plan Participants	IM Fees (bps)	Admin Fees (bps)	Total Fees (bps)
Stable Value Option	365,882,401	12.6%	8,830	30.1	11.9	42.0
Active Fixed Income Option	180,795,162	6.2%	7,756	16.7	11.9	28.6
Large Company Value Stock Option	238,594,496	8.2%	11,800	2.4	11.9	14.3
Stock Index Option	341,973,723	11.8%	11,813	2.3	11.9	14.2
Large Company Growth Stock Option	342,161,411	11.8%	13,862	2.2	11.9	14.1
International Stock Option	157,542,951	5.4%	10,993	51.5	11.9	63.4
Small Company Stock Option	246,453,889	8.5%	11,434	32.3	11.9	44.2
Real Return Option	38,313,534	1.3%	2,071	22.0	11.9	33.9
Socially Responsible Investment Option	39,395,228	1.4%	2,834	17.0	11.9	28.9
BlackRock LifePath Retirement Fund	297,207,491	10.2%	5,102	8.0	11.9	19.9
BlackRock LifePath 2025 Fund	153,173,778	5.3%	3,443	8.0	11.9	19.9
BlackRock LifePath 2030 Fund	133,381,526	4.6%	3,963	8.0	11.9	19.9
BlackRock LifePath 2035 Fund	104,524,693	3.6%	4,145	8.0	11.9	19.9
BlackRock LifePath 2040 Fund	85,172,417	2.9%	4,073	8.0	11.9	19.9
BlackRock LifePath 2045 Fund	59,139,603	2.0%	3,876	8.0	11.9	19.9
BlackRock LifePath 2050 Fund	42,899,615	1.5%	3,156	8.0	11.9	19.9
BlackRock LifePath 2055 Fund	20,804,848	0.7%	2,129	8.0	11.9	19.9
BlackRock LifePath 2060 Fund	12,837,257	0.4%	1,369	8.0	11.9	19.9
BlackRock LifePath 2065 Fund	3,510,150	0.1%	369	8.0	11.9	19.9
Self-Directed Brokerage Option	45,276,040	1.6%	516	0.0	11.9	11.9
Total	2,909,040,213	100%				

Source: Market Value & Plan Participants data, OSGP record keeper, Voya Financial. Fee estimation, OST.

OSGP has two types of fees, investment management (IM) and administrative (Admin) fees.

Administrative fees are comprised of State of Oregon administration, recording keeping, custody, trust, and communications fees.

The Plan's Self-Directed Brokerage Option, executed through Charles Schwab, finished the quarter with \$45.3 million in assets, or 1.6% of total OSGP assets.

BlackRock LifePath Fixed Income Enhancements

In October 2021, BlackRock announced they would be making enhancements to the fixed income allocation within the LifePath Funds. BlackRock recently notified Treasury Staff that these changes would be implemented by June 30, 2022. As such, the LifePath fact sheets and statements were updated in the second quarter of 2022.

As a reminder, BlackRock's previous fixed income allocation within the LifePath Funds was through a single allocation to the BlackRock US Debt Index Fund, which is benchmarked to the Bloomberg US Aggregate Bond Index (the "Agg"). The previous fixed income allocation for the vintage dates runs from approximately 1% of the 2065 Fund to 55% of the Retirement Fund.

The new fixed income allocation within the LifePath Funds will break the current single fixed income allocation into five components: Intermediate Government, Long Government, Intermediate Credit, Long Credit, and Securitized.

The total ratio between equity and fixed income allocations did not change with this enhancement, so participants still receive the same exposure to equity over their lifetime. Participants see more intentional allocations to rate and credit exposure aligned to each vintage fund, which should lead to higher consumption. The costs to participants remained the same.

Investment Structure Evaluation

In the second quarter of 2022, Callan, the Plan's retained investment consultant, performed an evaluation on the Plan's investment options. In analyzing the investment lineup, Callan concluded that OSGP has a sound investment structure, and changes to the investment lineup were not necessarily needed. Treasury Staff also reviewed the investment structure evaluation and agreed that at this time, no changes to the plan lineup are needed.

For context, the last investment structure evaluation performed by Callan took place in May 2018 and a couple of investment option changes were made a result of that evaluation: the Short-Term Fixed Income option was eliminated, and the Real Return Option structure was simplified by stripping away the GMO and Wellington funds, leaving the SSgA Real Assets Fund within the Real Return Option.

General Consulting Contract Extension

Callan LLC (Callan) was initially retained with a three-year contract that began on September 1, 2017. Under OST Policy, new contracts are awarded for three-year periods and a) can be renewed no more than twice and b) are limited to a final expiration date no more than four years

beyond the contracts' original expiration date. At the end of seven years, contracts must be re-bid and a new seven-year cycle can begin. Additionally, the Oregon Investment Council (OIC) retains the contractual right to terminate such contracts at any time upon written notice.

In recognition of the contributions made by Callan, Treasury Staff proposed to extend its current contract, subject to satisfactory negotiation of all terms and conditions, for another two-year period beginning September 1, 2022. On July 20, 2022, the OIC approved Treasury Staff's recommendation to retain Callan as the general consultant to the Oregon Savings Growth Plan (OSGP).

Galliard Leadership Change

On August 5, 2022, Galliard announced Mike Norman as the new president of the firm. Norman was previously the Managing Principal and Co-President of Galliard and as of October 1st, became the sole President of the organization.

Ajay Mirza's roles as Senior Managing Principal and Chair of the Galliard Investment Committee remained unchanged, and he continues to assist Norman in the day-to-day management of the firm. Norman continues to report to Joe Sullivan, CEO and Chair of the Board of Allspring Global Investments, which is Galliard's parent company.

Andrew Owen, Senior Managing Principal and the other previous Co-President of Galliard, transitioned away from Galliard into an expanded role within Allspring Global Investments. Owen became Head of Global Fund Governance and continues to lead fund governance for the Allspring Funds Management, LLC board.

Galliard Places Jennison on Watch List

Galliard currently utilizes Jennison Associates ("Jennison") as part of the underlying multi-manager strategy for the OSGP stable value account. On September 20, 2022, Jennison announced the departure of Itai Lourie, Co-Chief Investment Officer of Fixed Income, effective immediately. The team will continue to be led by Tom Wolfe, Head of Fixed Income, who will delay his retirement to the end of 2023. Jake Gaul, previously Co-CIO, has assumed the title of Chief Investment Officer and will be elevated to the role of Head of Fixed Income upon Wolfe's retirement.

Because of this departure, Galliard's External Manager Oversight Working Group has placed Jennison on their Watch List. As a result of this placement, Jennison will be subject to a higher level of evaluation, monitoring, and oversight. However, Jennison remains on Galliard's list of

recommended external managers. Jennison maintains an experienced investment team, fully capable of providing consistency in investment philosophy, style, and process.

As a bit of background, placement on Galliard's Watch List can be due to several reasons, including material organizational and personnel changes, deviations from investment philosophy/process, underperformance over longer term time periods, and operational errors or demonstrated deficiencies in operational controls. OST Staff has reviewed both changes related to Galliard this quarter and have no concerns. Staff will continue to monitor both situations closely.

Arrowstreet Leadership Changes

In December 2022, two founding partners of Arrowstreet advised the firm and clients of their intention to withdraw from the firm on a full-time basis at the end of 2023. John Campbell announced his retirement at the end of 2022. Campbell has more recently devoted one day a week to Arrowstreet since founding the firm in 1999. He will remain involved with Arrowstreet through his role on the Board of Directors.

Peter Rathjens, Chief Investment Officer (CIO), announced that he will be stepping down from his current role at the end of 2023. Rathjens will continue to work for Arrowstreet on a part-time basis, supporting Derek Vance, who will succeed him as CIO. As a Founding Partner, Rathjens will continue to serve on their Board of Directors; however, it should also be noted that he was recently elected to succeed Bruce Clarke as Chair of the Board of Directors following the CIO leadership transition. Derek Vance is currently co-head of Research at Arrowstreet. Chris Malloy will move into Vance's role leading the Research team and Julia Yuan will move into Chris's role leading the Alpha Development effort within Research.

Arrowstreet Capital has multiple strategies within the Oregon Public Employees Retirement Fund (OPERF) Public Equity portfolio, and they remain a high-conviction manager, even with these retirements. Treasury Staff had the opportunity to speak with Rathjens in January 2023 regarding these changes and left the call feeling confident about the future of the firm. Given the team structure, private ownership model, high-conviction level, and long transition period, Treasury Staff remain confident in Vance's new role as CIO, as well as the firm's ability to create value for both the OSGP and OPERF going forward.

The Arrowstreet ACWI ex-US strategy, incepted into the plan in 2019, currently makes up approximately 25% of the Active International Stock Option within the Oregon Savings Growth Plan.

April 19, 2023

Oregon Savings Growth Plan Annual Review

Claire Illo
Investment Officer

Kenny Bao
Investment Analyst

Louise Howard
Senior Investment Officer



**OREGON
STATE
TREASURY**



Agenda

Plan Overview

Investment Options Review

Year in Review

Callan Performance Update

International Stock Option

Plan Overview

Background

The Oregon Savings Growth Plan (OSGP) is the State of Oregon's 457 deferred compensation plan that provides Oregon public employees with a convenient way to save for retirement by allowing them to contribute a portion of their salary on a pre- or after-tax (Roth) basis.

Participation

ORS 243.474 authorizes the state to offer its 457 deferred compensation program to all Oregon public **employers** including local governments and school districts.

All Oregon state **employees** are eligible to participate, so long as their employer has adopted the plan.

Plan Overview

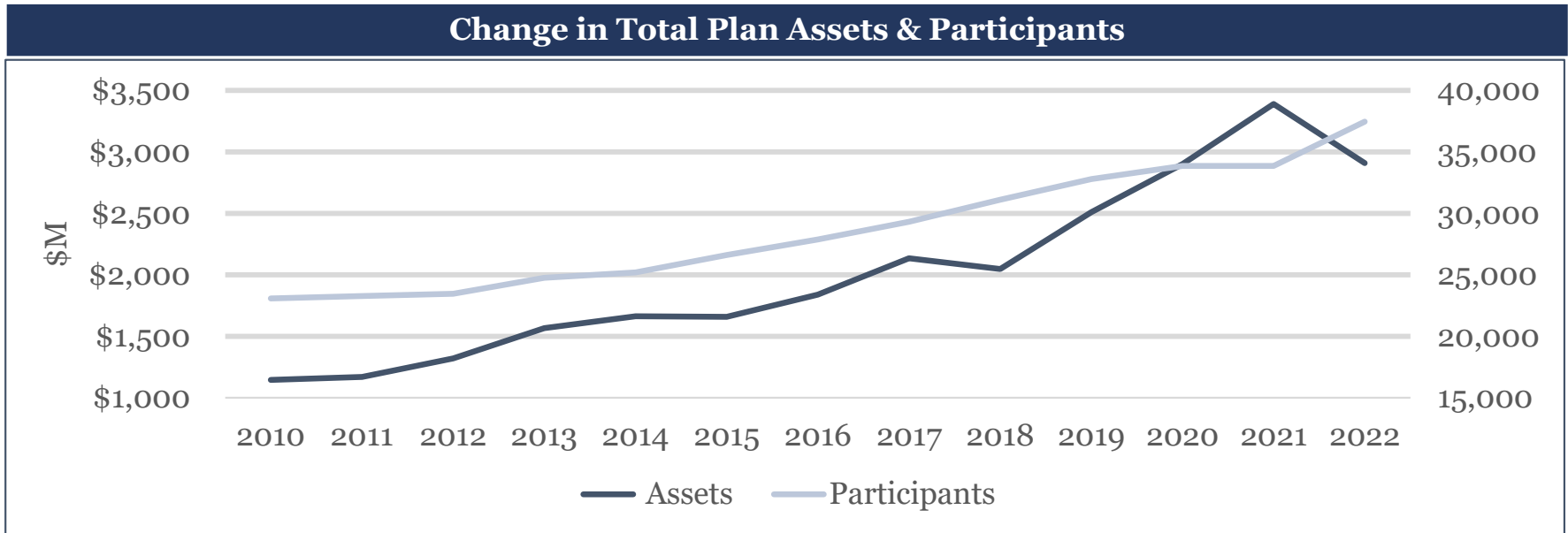
Oversight, Authority & Administration

Oregon Savings Growth Plan (OSGP)	
Investment Oversight	OIC and Oregon State Treasury
Trustee	PERS Board
Recordkeeper	Voya Financial
Custodian	State Street
Administrator	OSGP/PERS
Consultant	Callan
Additional Oversight	OSGP Advisory Committee

Plan Overview

Plan Assets & Participants

Oregon Savings Growth Plan (OSGP)	
Assets	\$2.91 billion
Participants	37,457



Investment Options Overview

Core Funds		
Stable Value Option	Stock Index Option	Small Company Stock Option
Active Fixed Income Option	Large Company Growth Stock Option	Real Return Option
Large Company Value Stock Option	International Stock Option	Socially Responsible Investment Option

Asset Allocation Funds
BlackRock LifePath Funds

Self-Directed Brokerage Option
Schwab Personal Choice Retirement Account (PCRA)

Investment Options Overview

Underlying Funds

	Core Funds
Stable Value Option	Galliard Stable Value
Active Fixed Income Option	BlackRock U.S. Debt (33%) / DoubleLine Total Return Bond (33%) / Wellington Core Bond Plus (33%)
Large Company Value Stock Option	BlackRock Russell 1000 Value Index
Stock Index Option	BlackRock Russell 3000 Index
Large Company Growth Stock Option	BlackRock Russell 1000 Growth Index
International Stock Option	AQR ACWI ex-U.S. (25%) / Arrowstreet ACWI ex-U.S. (25%) / Lazard ACWI ex-U.S. (25%) / DFA Int'l Core (15%) / DFA EM Core (10%)
Small Company Stock Option	DFA Small Cap (35%) / Pleiades Small Cap (35%) / BlackRock S&P 600 Index (30%)
Real Return Option	State Street Real Asset
Socially Responsible Investment Option	TIAA Social Choice

Investment Options Overview

Market Values

	Market Values (\$M)		Participant Count
	Value	Percentage	
Stable Value Option	365.9	12.6%	8,830
Active Fixed Income Option	180.8	6.2%	7,756
Large Company Value Stock Option	238.6	8.2%	11,800
Stock Index Option	342.0	11.8%	11,813
Large Company Growth Stock Option	342.2	11.8%	13,862
International Stock Option	157.5	5.4%	10,993
Small Company Stock Option	246.5	8.5%	11,434
Real Return Option	38.3	1.3%	2,071
Socially Responsible Investment Option	39.4	1.4%	2,843
BlackRock LifePath Funds	912.7	31.3%	31,625
Self-Directed Brokerage Option	45.3	1.6%	516
Total	2,909.0	100%	113,543

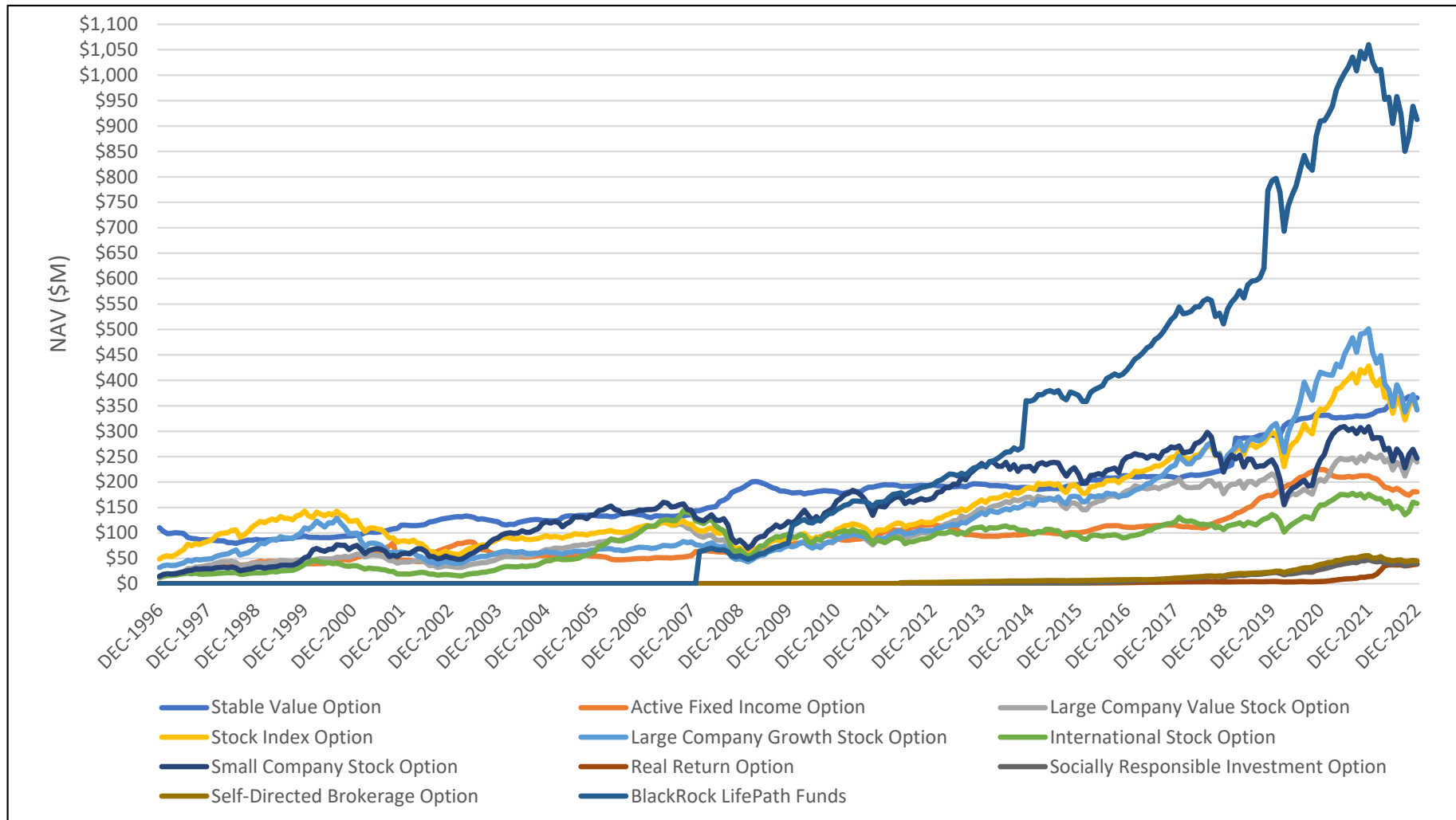
Investment Options Overview

Market Values – BlackRock LifePath Funds

Market Values (\$M)			Participant Count
BlackRock LifePath Retirement	297.2	10.2%	5,102
BlackRock LifePath 2025	153.2	5.3%	3,443
BlackRock LifePath 2030	133.4	4.6%	3,963
BlackRock LifePath 2035	104.5	3.6%	4,145
BlackRock LifePath 2040	85.2	2.9%	4,073
BlackRock LifePath 2045	59.1	2.0%	3,876
BlackRock LifePath 2050	42.9	1.5%	3,156
BlackRock LifePath 2055	20.8	0.7%	2,129
BlackRock LifePath 2060	12.8	0.4%	1,369
BlackRock LifePath 2065	3.5	0.1%	369
Total	912.7	31.3%	31,625

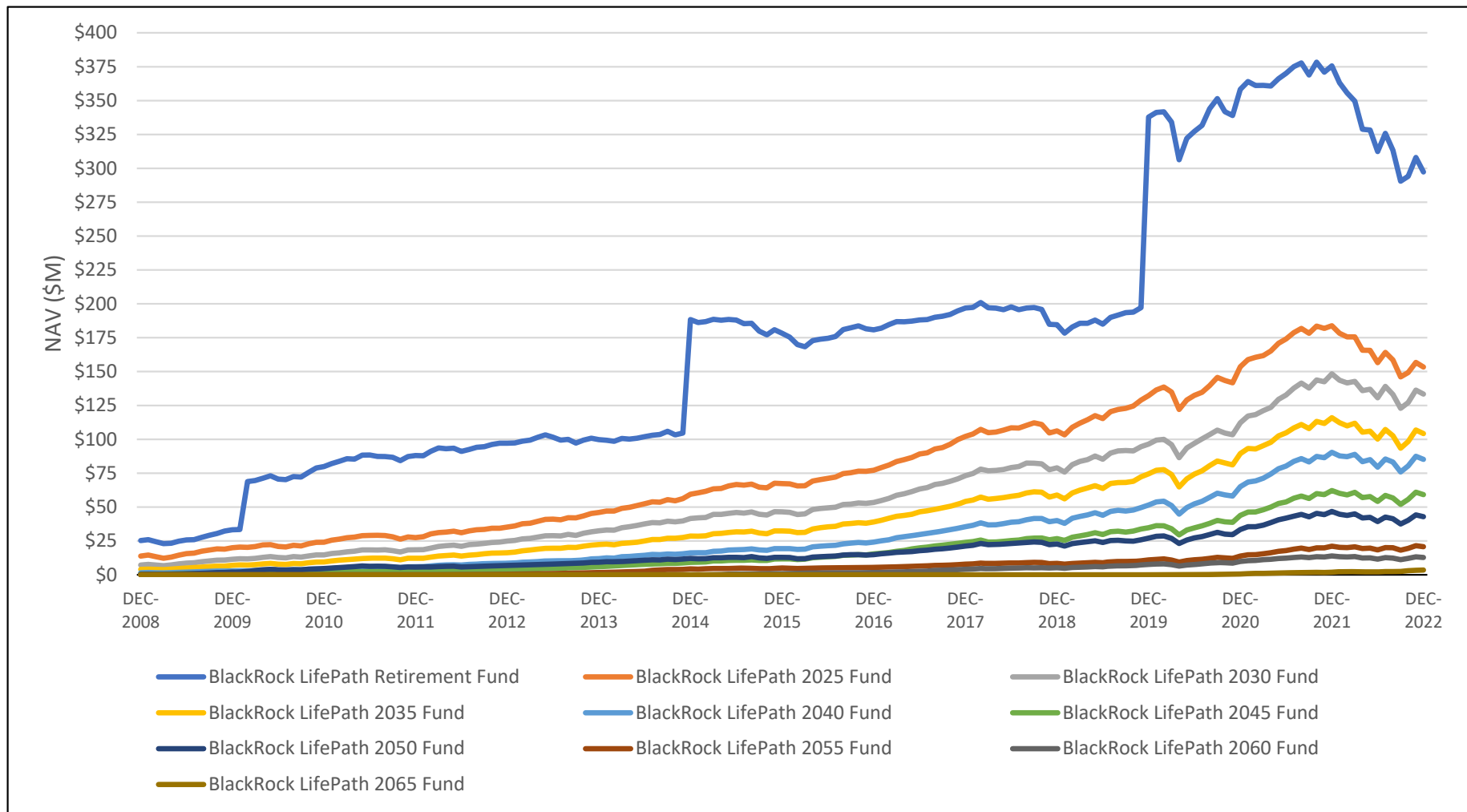
Investment Options Overview

Historical Market Values



Investment Options Overview

Historical Market Values - BlackRock LifePath Funds



Year in Review

Recent Changes

- LifePath Fixed Income Enhancements
- Callan Structure Evaluation
- Callan Consulting Contract Extension

Team

Claire Illo

Investment Officer

Tenure: 2020

Claire assists with external manager monitoring and research, and leads other research initiatives, such as ESG and climate-focused projects for OPERF Public Equity. Claire also oversees the Oregon Savings Growth Plan. Duties assigned include:

- ❖ Serves as portfolio manager and trader for internal enhanced index strategies. Activities include trading securities as well as staying current on trading algorithm strategies;
- ❖ Assists in executing cash raises and transitions with OPERF's external investment managers.
- ❖ Attends meetings with managers and evaluate prospective managers;
- ❖ Identifies new investment opportunities and leads new manager searches;
- ❖ Organizes and participates in quarterly portfolio reviews, as well as documenting quarterly analyses of all equity managers;
- ❖ Facilitates multi-million dollar cash transfers and assists with other custody activity;

Education & Certifications: B.S. in Economics and Business Administration from University of Oregon.



Kenny Bao

Investment Analyst

Tenure: 2020

Kenny assists with prospective and external manager due diligence and overseeing OSGP. Duties assigned include:

- ❖ Participates in quarterly portfolio reviews, as well as documenting quarterly analyses of equity managers;
- ❖ Assists in the operations of internally managed funds;
- ❖ Facilitates multi-million dollar cash transfers within OPERF accounts;
- ❖ Coordinates the opening of new equity markets (countries), which Oregon seeks to invest; and
- ❖ Produce routine reports pertaining to OPERF and OSGP.

Education & Certifications: B.S. in Economics from Portland State University.



Louise Howard

Senior Investment Officer

Tenure: 2022

As Senior Investment Officer, Louise leads the Public Equity team on the oversight of the OPERF public equity portfolio, the Common School Endowment, and the Oregon Savings Growth Plan.

- ❖ Leads the oversight of the \$18.5 billion OPERF public equity program comprised of a mix of 22 internal and external investment strategies;
- ❖ Directs the management of five internally managed portfolios totaling approximately \$8.0 billion;
- ❖ Leads the monitoring and evaluation efforts for the external and prospective investment managers;
- ❖ Evaluates portfolio structure and makes recommendations to improve risk-adjusted returns,
- ❖ Responsible for managing and coordinating the liquidity needs of OPERF by liquidating public equity assets for pension payments and private market capital calls;
- ❖ Participates in private market Committee Meetings (Real Estate, Private Equity, Alternative, and Opportunistic).

Education & Certifications: BA University of New Orleans, MBA University of New Orleans, CFA Charterholder, CAIA Charterholder





OREGON STATE TREASURY

Tobias Read
Oregon State Treasurer

16290 SW Upper Boones Ferry Road
Tigard, OR 97224

oregon.gov/treasury

April 19, 2023



Oregon Investment Council OSGP Annual Review 2023

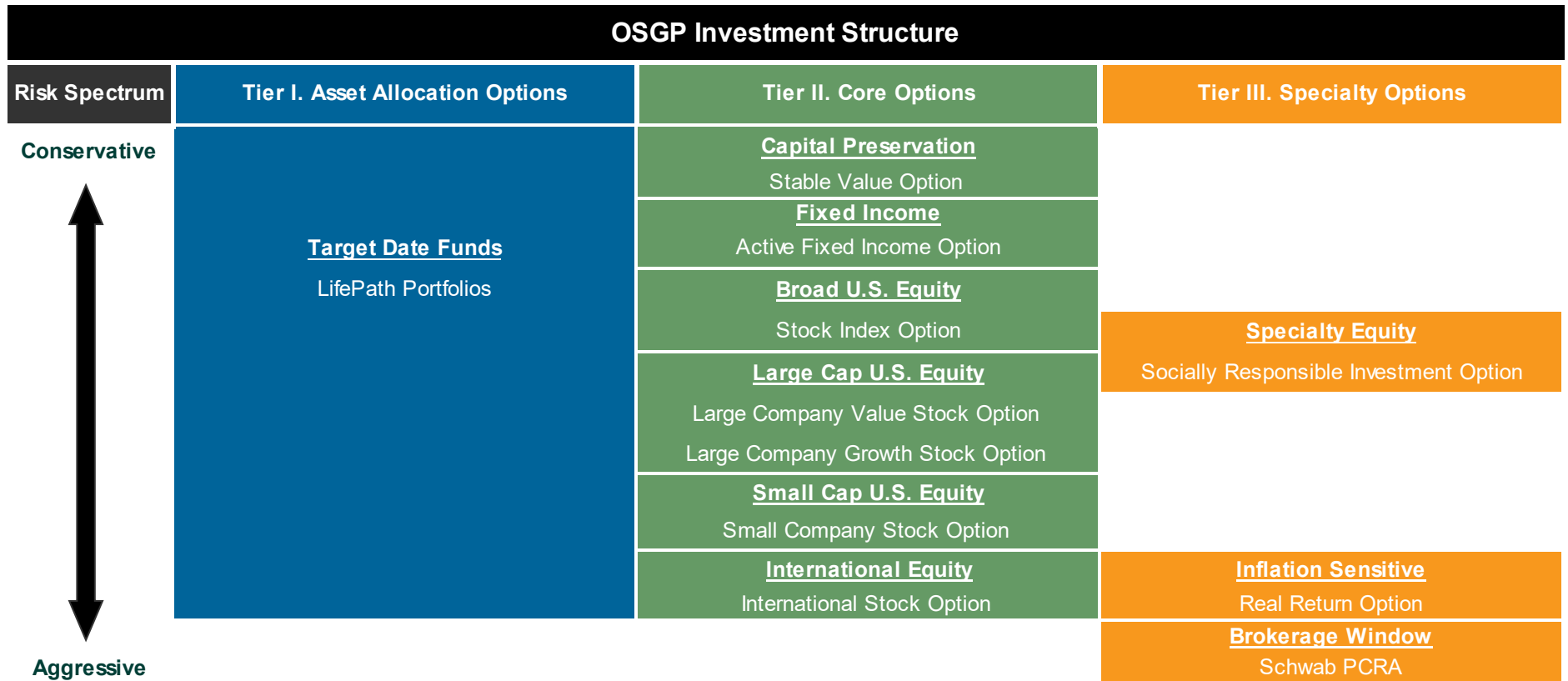
Anne Heaphy
Plan Sponsor Consulting

Uvan Tseng, CFA
Plan Sponsor Consulting



OSGP Annual Review

OSGP Investment Structure



Asset Distribution

	December 31, 2022			December 31, 2021		
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
Target Date Funds	\$912,583,695	31.36%	\$24,932,571	\$(172,231,835)	\$1,059,882,959	31.27%
LifePath Index Retirement Fund O	297,258,832	10.22%	(23,552,272)	(54,751,202)	375,562,306	11.08%
LifePath Index 2025 Fund O	153,265,741	5.27%	(1,940,301)	(28,566,836)	183,772,878	5.42%
LifePath Index 2030 Fund O	133,376,500	4.58%	9,581,187	(24,505,320)	148,300,633	4.37%
LifePath Index 2035 Fund O	104,321,882	3.59%	8,482,960	(20,149,552)	115,988,475	3.42%
LifePath Index 2040 Fund O	85,187,305	2.93%	11,284,733	(16,544,642)	90,447,214	2.67%
LifePath Index 2045 Fund O	59,160,719	2.03%	8,679,095	(11,667,947)	62,149,571	1.83%
LifePath Index 2050 Fund O	42,853,391	1.47%	4,955,503	(8,905,650)	46,803,538	1.38%
LifePath Index 2055 Fund O	20,822,160	0.72%	3,856,216	(4,096,994)	21,062,938	0.62%
LifePath Index 2060 Fund O	12,830,382	0.44%	1,665,831	(2,738,194)	13,902,745	0.41%
LifePath Index 2065 Fund O	3,506,783	0.12%	1,919,619	(305,497)	1,892,661	0.06%
Tier II - Core Investment Options	\$1,874,062,927	64.41%	\$2,347,803	\$(341,244,778)	\$2,212,959,902	65.28%
Stable Value Option	365,498,320	12.56%	28,524,627	5,741,041	331,232,652	9.77%
Active Fixed Income Option	180,794,035	6.21%	(3,281,790)	(28,177,851)	212,253,676	6.26%
Stock Index Option	342,057,756	11.76%	(3,501,947)	(82,653,599)	428,213,302	12.63%
Large Company Value Stock Option	239,066,542	8.22%	3,459,894	(19,578,905)	255,185,554	7.53%
Large Company Growth Stock Option	341,943,310	11.75%	(13,364,006)	(145,685,952)	500,993,268	14.78%
Small Company Stock Option	246,669,331	8.48%	(14,827,047)	(47,517,052)	309,013,430	9.12%
International Stock Option	158,033,634	5.43%	5,338,072	(23,372,458)	176,068,020	5.19%
Tier III - Specialty Options	\$122,931,941	4.23%	\$27,452,662	\$(21,653,805)	\$117,133,083	3.46%
Socially Responsible Investment Option	39,434,353	1.36%	584,348	(8,624,114)	47,474,120	1.40%
Real Return Option	38,267,295	1.32%	25,568,398	(1,464,789)	14,163,685	0.42%
Brokerage Window	45,230,293	1.55%	1,299,916	(11,564,901)	55,495,278	1.64%
Total Fund	\$2,909,589,683	100.0%	\$54,733,037	\$(535,130,281)	\$3,389,986,927	100.0%

Summary Returns

Periods Ended December 31, 2022

	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Tier I - Asset Allocation Options				
LifePath Index Retirement Fund	(14.64)	0.73	2.67	3.99
LifePath Index Retirement Benchmark	(14.54)	0.75	2.68	4.00
LifePath Index 2025 Fund	(15.25)	1.19	3.17	5.27
LifePath Index 2025 Benchmark	(15.17)	1.20	3.16	5.25
LifePath Index 2030 Fund	(15.98)	1.85	3.77	5.96
LifePath Index 2030 Benchmark	(15.92)	1.86	3.75	5.94
LifePath Index 2035 Fund	(16.68)	2.49	4.34	6.63
LifePath Index 2035 Benchmark	(16.67)	2.48	4.29	6.58
LifePath Index 2040 Fund	(17.37)	3.03	4.81	7.21
LifePath Index 2040 Benchmark	(17.38)	2.98	4.75	7.13
LifePath Index 2045 Fund	(17.91)	3.52	5.20	7.66
LifePath Index 2045 Benchmark	(17.96)	3.45	5.10	7.57
LifePath Index 2050 Fund	(18.22)	3.79	5.39	7.92
LifePath Index 2050 Benchmark	(18.30)	3.70	5.29	7.83
LifePath Index 2055 Fund	(18.29)	3.84	5.43	8.04
LifePath Index 2055 Benchmark	(18.38)	3.76	5.33	7.96
LifePath Index 2060 Fund	(18.30)	3.83	5.42	--
LifePath Index 2060 Benchmark	(18.39)	3.75	5.33	--
LifePath Index 2065 Fund	(18.31)	3.77	--	--
LifePath Index 2065 Benchmark	(18.40)	3.75	--	--

Summary Returns

Periods Ended December 31, 2022

	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years
Tier II - Core Investment Options					
Stable Value Option	1.86	1.99	2.15	1.92	2.12
3 Year Constant Maturity Treasury	3.04	1.30	1.69	1.35	1.29
3 Month T-Bill	1.46	0.72	1.26	0.76	0.68
Active Fixed Income Option	(13.44)	(2.64)	0.11	1.37	3.20
Bloomberg Aggregate Index	(13.01)	(2.71)	0.02	1.06	2.66
Stock Index Option	(19.25)	7.11	8.84	12.20	8.72
Russell 3000 Index	(19.21)	7.07	8.79	12.13	8.66
Large Company Value Stock Option	(7.61)	6.01	6.75	10.57	7.07
Russell 1000 Value Index	(7.54)	5.96	6.67	10.29	6.96
Large Company Growth Stock Option	(29.23)	7.74	10.91	13.97	10.00
Russell 1000 Growth Index	(29.14)	7.79	10.96	14.10	10.32
Small Company Stock Option	(15.40)	7.15	6.16	10.04	8.14
Russell 2000 Index	(20.44)	3.10	4.13	9.01	7.16
International Stock Option	(13.61)	2.02	1.61	4.68	2.03
MSCI ACWI ex US Index	(16.00)	0.07	0.88	3.80	1.52
Tier III - Specialty Options					
Socially Responsible Investment Option	(17.85)	7.55	9.07	--	--
Russell 3000 Index	(19.21)	7.07	8.79	12.13	8.66
Real Return Option	3.09	8.63	5.84	--	--
Real Return Option Blended Benchmark	3.24	8.68	6.27	3.18	2.36
Consumer Price Index + 4%	10.26	9.14	7.89	6.57	6.34

Investment Options Fee Summary

Asset Class and Strategy	Investment Management Fees*	Institutional Peer Group Median
Asset Allocation Options		
LifePath Index Retirement, 2020 – 2060 Funds	0.080%	0.10% - 0.11%
Capital Preservation		
Stable Value Option	0.301%	0.29%
Fixed Income		
Active Fixed Income Option	0.168%	0.25%
U.S. Large Cap Equity		
Stock Index Option	0.023%	0.04%
Large Company Value Stock Option	0.024%	0.04%
Large Company Growth Stock Option	0.022%	0.04%
U.S. Small Cap Equity		
Small Company Stock Option	0.323%	0.72%
International Equity		
International Stock Option	0.515%	0.58%
Specialty Options		
Socially Responsible Investment Option	0.170%	0.50%
Real Return Option	0.220%	1.09%

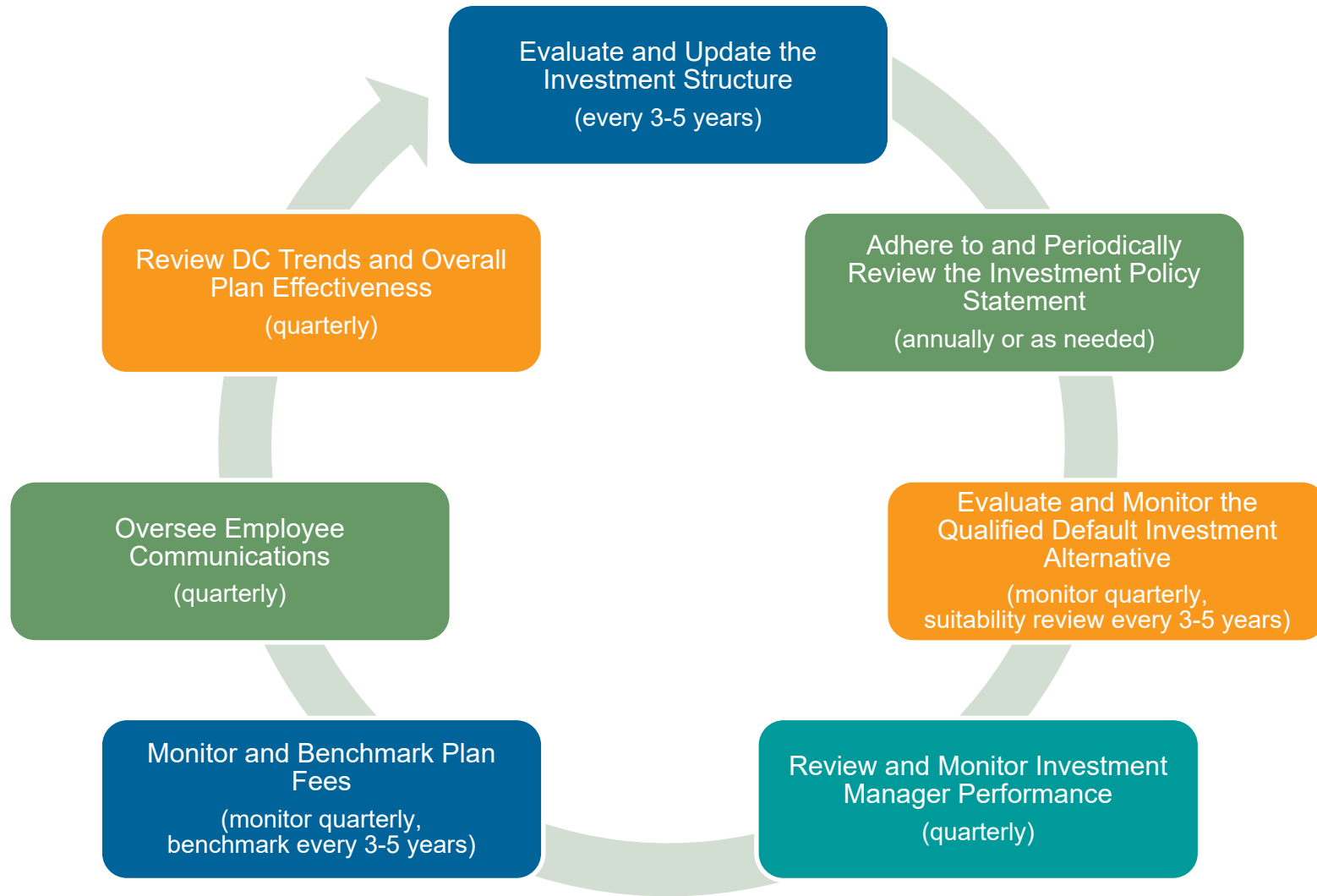
*Fee data provided by OST.

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OSGP Work Plan

Key Functions of a DC Plan Fiduciary

In managing DC Plan investments, fiduciaries should consider seven key areas



OSGP Work Plan

OSGP Action Items	Review Date	Status
Review Existing Investment Managers	Quarterly	Continuous
Monitor Investment Fees	Quarterly	Continuous
DC Regulatory, Legal, and Industry Trends Review	Quarterly	Continuous
Plan Utilization and Administration Review (Voya)	Quarterly	Continuous
Plan Communications Review (Voya)	Quarterly	Continuous
Oregon Investment Council - OSGP Review Meetings	Annually	Continuous
Evaluate Administration Services and Fees (PERS & Cammack)	August 2019	Concluded
Investment Policy Statement Review	November 2017	Concluded
Callan DC Trends Survey	February 2018	Concluded
Investment Structure Evaluation	May 2018	Concluded
Capital Preservation Structure Evaluation	August 2018	Concluded
Large Cap Equity Structure Evaluation	August 2018	Concluded
International Equity Structure Evaluation	August 2018	Concluded
Real Assets Structure Evaluation	August 2018	Concluded
Target Date Fund Suitability Review	January 2019	Concluded
Small Cap Equity Structure Evaluation	August 2019	Concluded
Brokerage Window Review (Schwab)	May 2020	Concluded
ESG Education	August 2020	Concluded
Investment Policy Statement Review	October 2020	Concluded
Callan DC Trends Survey	May 2021	Concluded
ESG/Socially Responsible Investment Option Overview (TIAA-CREF)	May 2022	Concluded
Investment Structure Evaluation	July 2022	Concluded
International Equity Structure Evaluation	First Quarter 2023	In Progress
Investment Policy Statement Review	TBD	

Callan

International Stock Options

International Stock Options

- As part of the 2022 Investment Structure Evaluation, Staff and Callan focused in on the International Stock Option structure and the desire to further align OSGP with OST's changes and high conviction managers; as well as whether participants would benefit from the addition of a passive international option.
- The current international option has a small capitalization and value bias and a modest underweight to emerging markets. The fund is comprised of the following:
 - 25% Lazard International Equity
 - 25% Arrowstreet International Equity
 - 25% AQR ACWI ex-US Fund
 - 10% DFA International Core Equity
 - 15% DFA Emerging Markets Core
- After reviewing multiple potential alternative structures, Callan and Staff arrived at a structure that was highly favorable in that it reduced the style, capitalization, and regional allocation biases.
- Callan and Staff are still conducting analysis on this structure and will come back in a future meeting with a recommendation.
- For a passive international equity option, an index fund benchmarked to the MSCI ACWI ex-US IMI (which covers approximately 99% of the international market) would provide participants with the broadest exposure; however, a fund benchmarked to the MSCI ACWI ex-US (which covers approximately 85% of the international market) would align the passive and active options.

Active International Stock Option Regional Exposure

Style Exposure Matrix Holdings as of December 31, 2022

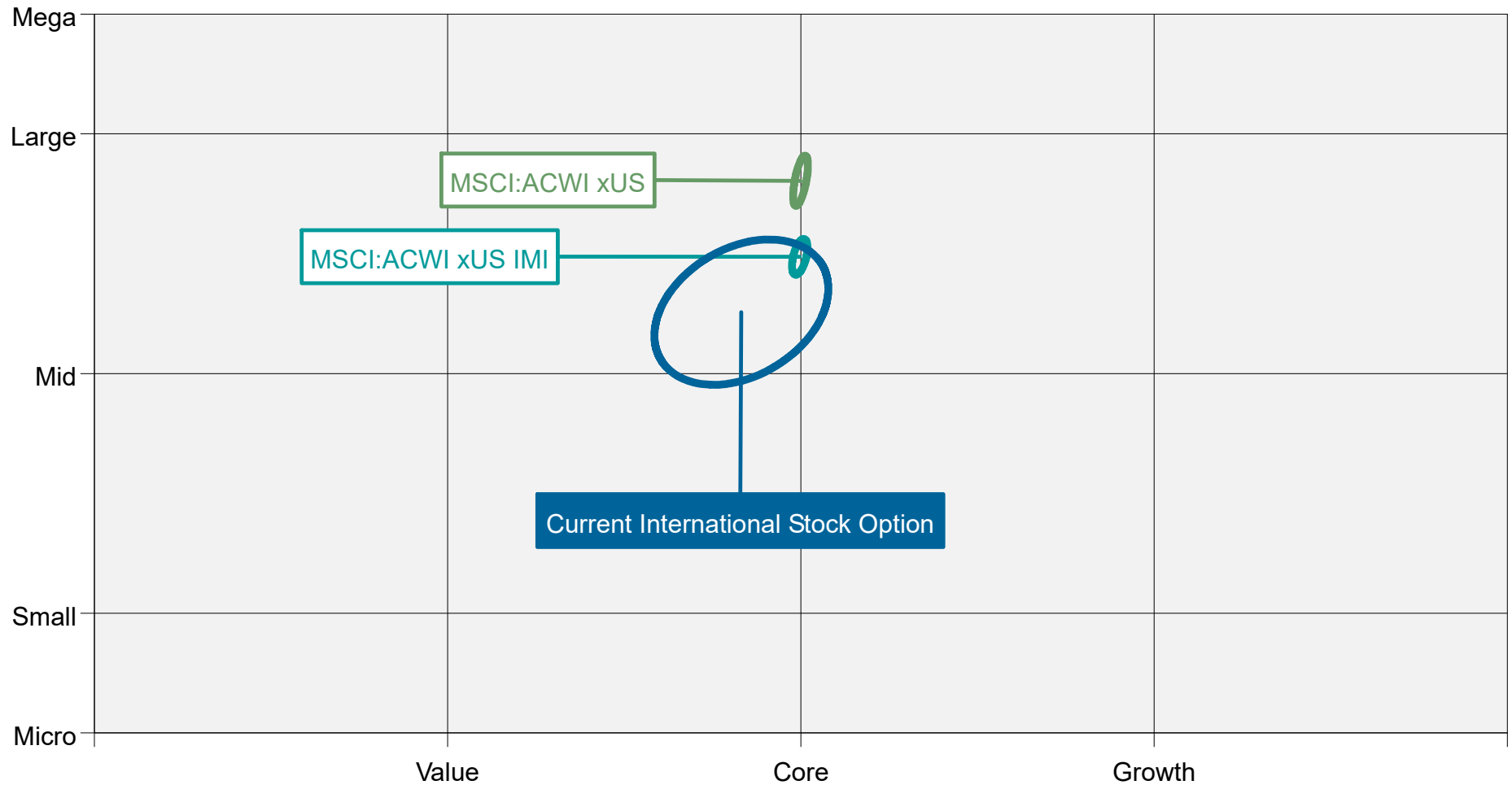
Europe	17.2% (756)	11.0% (652)	13.7% (547)	41.9% (1955)
	11.7% (157)	10.3% (126)	17.2% (155)	39.3% (438)
N. America	2.5% (135)	1.9% (140)	1.1% (96)	5.4% (371)
	2.6% (29)	2.9% (23)	3.0% (37)	8.5% (89)
Pacific	10.5% (1320)	6.0% (821)	8.0% (737)	24.5% (2878)
	8.6% (130)	6.1% (101)	8.3% (125)	23.0% (356)
Emerging	14.0% (2598)	8.8% (2260)	5.3% (1535)	28.1% (6393)
	7.9% (422)	10.3% (430)	11.2% (454)	29.3% (1306)
Total	44.2% (4809)	27.7% (3873)	28.1% (2915)	100.0% (11597)
	30.8% (738)	29.5% (680)	39.7% (771)	100.0% (2189)
	Value	Core	Growth	Total

-- OSGP Current International Option

-- MSCI ACWI ex-US Index

Active International Stock Option Style Map

International Equity Style Map for 10 Years Ended December 31, 2022



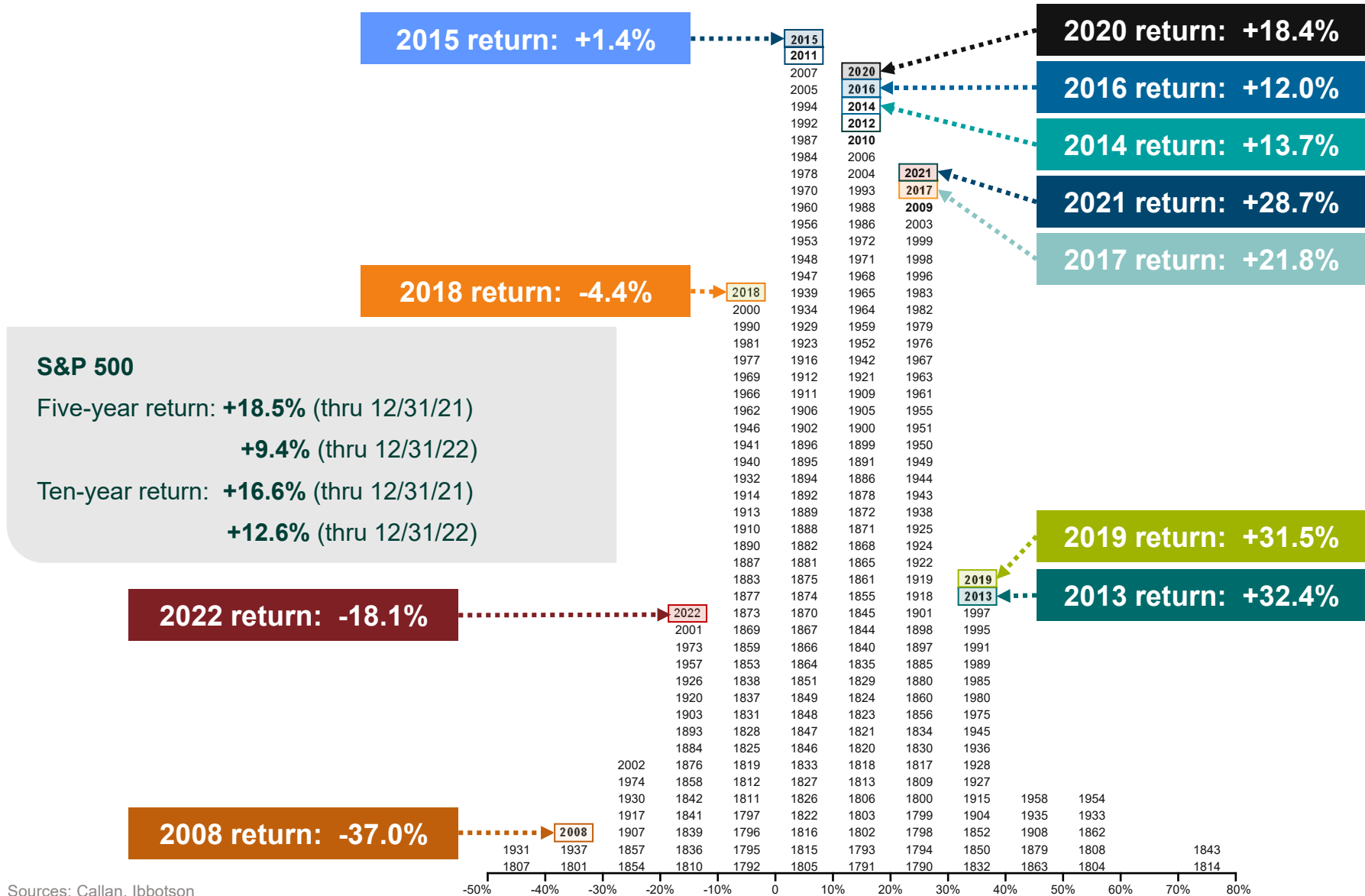
Structure 2 = Acadian composite, Arrowstreet composite, WalterScott BNY Mellon International Stock Fund, MSCI Emerging Markets Index (used as proxy for BlackRock EM Index Fund. BlackRock portfolio characteristics do not go back 5 years).

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Appendix

Stock Market Returns by Calendar Year

2022 YTD performance in perspective: History of the U.S. stock market (233 years of returns)



Diversification Remains Key Risk Control Over the Long Run

Periodic Table of Investment Returns 2008 - 2022

2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
U.S. Fixed Income 5.24%	Emerging Market Equity 78.51%	Small Cap Equity 26.85%	U.S. Fixed Income 7.84%	Real Estate 27.73%	Small Cap Equity 38.82%	Real Estate 15.02%	Large Cap Equity 1.38%	Small Cap Equity 21.31%	Emerging Market Equity 37.28%	Cash Equivalent 1.87%	Large Cap Equity 31.49%	Small Cap Equity 19.96%	Large Cap Equity 28.71%	Cash Equivalent 1.46%
Non-U.S. Fixed Income 4.39%	High Yield 58.21%	Real Estate 19.63%	High Yield 4.98%	Emerging Market Equity 18.23%	Large Cap Equity 32.39%	Large Cap Equity 13.69%	U.S. Fixed Income 0.55%	High Yield 17.13%	Non-U.S. Equity 24.21%	U.S. Fixed Income 0.01%	Small Cap Equity 25.52%	Large Cap Equity 18.40%	Real Estate 26.09%	High Yield -11.19%
Cash Equivalent 2.06%	Real Estate 37.13%	Emerging Market Equity 18.88%	Non-U.S. Fixed Income 4.36%	Non-U.S. Equity 16.41%	Non-U.S. Equity 21.02%	U.S. Fixed Income 5.97%	Cash Equivalent 0.05%	Large Cap Equity 11.96%	Large Cap Equity 21.83%	High Yield -2.08%	Non-U.S. Equity 22.49%	Emerging Market Equity 18.31%	Small Cap Equity 14.82%	U.S. Fixed Income -13.01%
High Yield -26.16%	Non-U.S. Equity 33.67%	High Yield 15.12%	Large Cap Equity 2.11%	Small Cap Equity 16.35%	High Yield 7.44%	Small Cap Equity 4.89%	Real Estate -0.79%	Emerging Market Equity 11.19%	Small Cap Equity 14.65%	Non-U.S. Fixed Income -2.15%	Real Estate 21.91%	Non-U.S. Fixed Income 10.11%	Non-U.S. Equity 12.62%	Non-U.S. Equity -14.29%
Small Cap Equity -33.79%	Small Cap Equity 27.17%	Large Cap Equity 15.06%	Cash Equivalent 0.10%	Large Cap Equity 16.00%	Real Estate 3.67%	High Yield 2.45%	Non-U.S. Equity -3.04%	Real Estate 4.06%	Non-U.S. Fixed Income 10.51%	Large Cap Equity -4.38%	Emerging Market Equity 18.44%	Non-U.S. Equity 7.59%	High Yield 5.28%	Large Cap Equity -18.11%
Large Cap Equity -37.00%	Large Cap Equity 26.47%	Non-U.S. Equity 8.95%	Small Cap Equity -4.18%	High Yield 15.81%	Cash Equivalent 0.07%	Cash Equivalent 0.03%	Small Cap Equity -4.41%	Non-U.S. Equity 2.75%	Real Estate 10.36%	Real Estate -5.63%	High Yield 14.32%	U.S. Fixed Income 7.51%	Cash Equivalent 0.05%	Non-U.S. Fixed Income -18.70%
Non-U.S. Equity -43.56%	Non-U.S. Fixed Income 7.53%	U.S. Fixed Income 6.54%	Real Estate -6.46%	U.S. Fixed Income 4.21%	U.S. Fixed Income -2.02%	Emerging Market Equity -2.19%	High Yield -4.47%	U.S. Fixed Income 2.65%	High Yield 7.50%	Small Cap Equity -11.01%	U.S. Fixed Income 8.72%	High Yield 7.11%	U.S. Fixed Income -1.54%	Emerging Market Equity -20.09%
Real Estate -48.21%	U.S. Fixed Income 5.93%	Non-U.S. Fixed Income 4.95%	Non-U.S. Equity -12.21%	Non-U.S. Fixed Income 4.09%	Emerging Market Equity -2.60%	Non-U.S. Fixed Income -3.09%	Non-U.S. Fixed Income -6.02%	Non-U.S. Fixed Income 1.49%	U.S. Fixed Income 3.54%	Non-U.S. Equity -14.09%	Non-U.S. Fixed Income 5.09%	Cash Equivalent 0.67%	Emerging Market Equity -2.54%	Small Cap Equity -20.44%
Emerging Market Equity -53.33%	Cash Equivalent 0.21%	Cash Equivalent 0.13%	Emerging Market Equity -18.42%	Cash Equivalent 0.11%	Non-U.S. Fixed Income -3.08%	Non-U.S. Equity -4.32%	Emerging Market Equity -14.92%	Cash Equivalent 0.33%	Cash Equivalent 0.86%	Emerging Market Equity -14.57%	Cash Equivalent 2.28%	Real Estate -9.04%	Non-U.S. Fixed Income -7.05%	Real Estate -25.10%

- S&P 500 Index ● Russell 2000 Index ● MSCI World ex USA ● MSCI Emerging Markets ● Bloomberg Barclays US Aggregate Bond
- Bloomberg Barclays High Yield Bond Index ● Bloomberg Barclays Global Aggregate ex US Bond Index ● FTSE EPRA/NAREIT Developed REIT Index
- 3-month Treasury Bill

Source: Callan LLC, Bloomberg Barclays, FTSE Russell, MSCI, Standard & Poor's

Published Research Highlights from 4Q22

Webinar: Rebalancing During this Unusual Market Environment



Considering Currency: A Guide for Institutional Investors



2022 Nuclear Decommissioning Funding Study



2022 ESG Survey



Recent Blog Posts

Unlocking the Secrets of the 'Data Vault'

Bo Abesamis

Index Selection Within TDF Benchmarks Can Make a Big Difference

Mark Andersen

Emerging Managers in Private Equity: A Guide for Success

David Smith

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.

– February 15-16, 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.

– March 1–2, 2023 – In-Person Session – Chicago

– May 23–25, 2023 – Virtual Session via Zoom

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

Mark Your Calendar

2023 Regional Workshops

June 27, 2023 – Denver

June 29, 2023 – San Francisco

October 24, 2023 – New York

October 26, 2023 - Chicago

Watch your email for further details and an invitation.

Webinars & Research Café Sessions

Research Café: ESG Interview Series

February 23, 2023 – 9:30am (PT)

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OREGON
STATE
TREASURY

TAB 6
INDIVIDUAL ACCOUNT
PROGRAM REVIEW

April 19, 2023

Individual Account Program

Review & Staff Recommendation



OREGON
STATE
TREASURY



Individual Account Program (IAP)

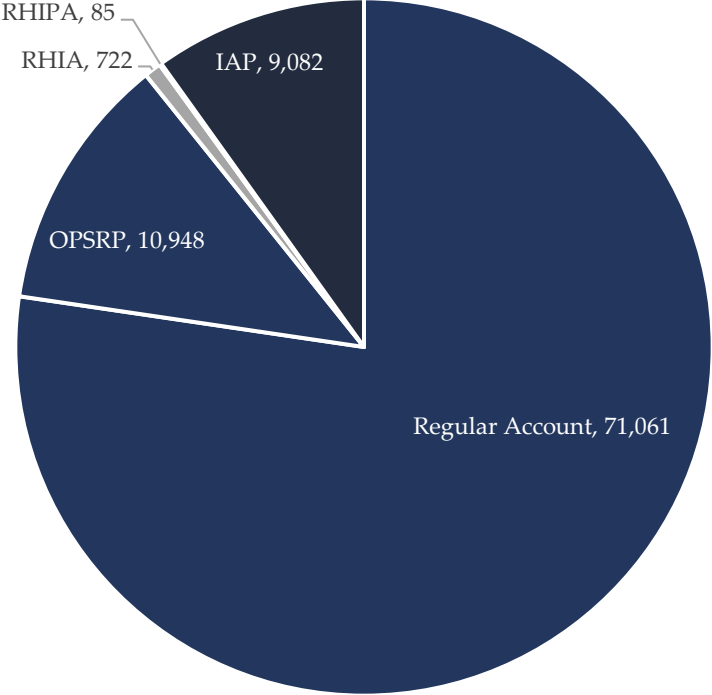
- The Oregon Legislature created IAP in August 2003 as part of a package of PERS reforms. All contributions from Tier One, Tier Two and Oregon Public Service Retirement Plan (OPSRP) members became IAP deposits starting in January 2004.
- IAP is a Defined Contribution (DC), member-funded retirement benefit; members contribute up to 6%* of their salary and the account is credited annually with earnings or losses. At retirement, the IAP account balance is distributed (or rolled over) as directed by the member.
- From program inception until 2017, IAP solely invested in the Oregon Public Employees Retirement Fund.

**Contribution structure changed since January 1, 2020. See subsequent slide.*

Oregon Public Employees Retirement Fund (OPERF)

- OPERF's OIC-approved asset allocation is designed to maximize expected long-term investment returns for PERS and its beneficiaries.
- Units of OPERF are held by various programs including: Tier One/Tier Two Regular Pension; OPSRP Pension; Retiree Health Insurance Account (RHIA); Retiree Health Insurance Premium Account (RHIPA); and IAP.
- OPERF's asset allocation, when applied to the IAP, may not align with the needs or expectations of individual members, particularly as they near retirement age.
 - Given OPERF's capital appreciation orientation, bear market episodes that result in significant losses could have an outsized impact on those members' retirement decisions.
 - Members may not be sufficiently educated on IAP investment risks and/or how to mitigate those risks without comprehensive retirement planning.

OPERF Assets by PERS Accounts (\$M) As of December 31, 2022



Source: Oregon State Treasury

IAP Restructuring

- In 2017, the OIC approved restructuring IAP from investing solely in OPERF to a suite of ten target-date funds (TDFs).
 - Target-date funds are common investment vehicles in DC plans that automatically reduce investment risk by decreasing equity allocation along a “glide path” as investors approach retirement age.
- In the same year, the OIC retained AllianceBernstein to manage the suite of TDFs.
- Treasury staff – in collaboration with PERS staff, State Street (custodian), Voya Financial (PERS recordkeeper), and AllianceBernstein – completed the restructuring at the end of 2017, transitioning approximately \$2B, or 25% of then IAP assets, out of OPERF and into five State Street Global Advisors (SSGA) public equity and fixed income index funds.
- IAP investments of individual members were allocated to different TDFs based on member birth year.
- AllianceBernstein monitors the investments & cash flows and provides monthly trading instructions to rebalance the TDFs to target allocations.

Further Changes to IAP

- Passed in 2019, Senate Bill 1049 changed IAP in two ways:
 1. Redirects a portion of IAP contribution to a newly-created Employee Pension Stability Account which will pay a portion of the member's pension benefits. Depending on the funded status of PERS, this "redirect" ranges from 0% for members with monthly salary below a threshold to 2.5% of salary for Tier 1 & 2 members with monthly salary above the threshold; and
 2. Provides members "choice" among the available IAP TDFs, which was implemented by PERS in 2020. In the month of September, members could reinvest their IAP balance into a different TDF for the following calendar year.

IAP Asset Distribution by Target-Date Fund As of December 31, 2022

Target-Date Fund	Birth Year	Total Balance (\$M)
Retirement Funds*	1957 or before	1,421
2025	Between 1958 and 1962	1,497
2030	Between 1963 and 1967	1,989
2035	Between 1968 and 1972	2,394
2040	Between 1973 and 1977	2,131
2045	Between 1978 and 1982	1,600
2050	Between 1983 and 1987	854
2055	Between 1988 and 1992	352
2060	Born in 1993 and 1997	99
2065	Born in 1998 or after	26
Total		12,364

Source: State Street

*For administrative purposes, there are two retirement funds.

Staff Recommendation

(To be Discussed After AllianceBernstein's Presentation)

Approve changing IAP's allocation from "Current" Glide Path to "Alternative" Glide Path as outlined in AllianceBernstein's presentation.

- Sets maximum OPERF allocation to 75% per target-date fund and eliminates the "hump" in OPERF allocation for IAP participants age 45.
- Alternative Glide Path would reduce the amount of OPERF transactions for IAP.
- Changing from Current to Alternative Glide Path would have low impact on median performances for affected target date funds.



OREGON STATE TREASURY

Tobias Read
Oregon State Treasurer

16290 SW Upper Boones Ferry Road
Tigard, OR 97224

oregon.gov/treasury



ALLIANCEBERNSTEIN®

State of Oregon Individual Account Program (IAP)

Annual Review

April 19, 2023

Chris Nikolich Head of Glide Path Strategies (US)—Multi-Asset Solutions
Elena Wang Portfolio Manager—Multi-Asset Solutions

Agenda

- IAP Custom Target-Date Fund Design
- Performance Review
- OPERF Allocation Scenario Analysis
- TER Impact Analysis

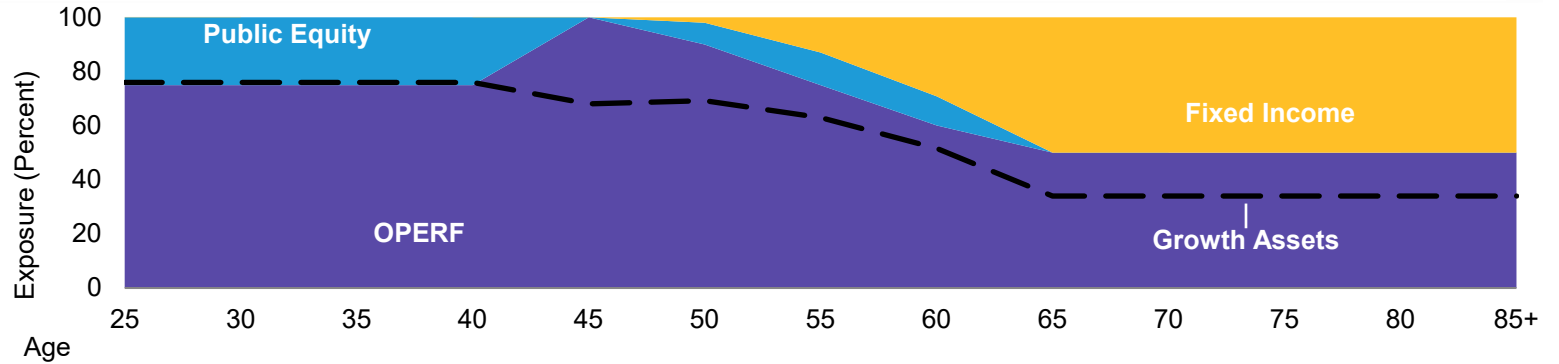
IAP Custom Target- Date Fund Design

IAP Overview

- In collaboration with AllianceBernstein, PERS, Russell Investments, SSGA, and State Street Bank, OST staff facilitated the transition of IAP assets from OPERF to a Target-Date Fund structure effective January 2, 2018
- At the conclusion of the 2018 transition, IAP had approximately \$2.2 billion in the SSGA index funds and \$6.7 billion remaining in OPERF
- IAP has grown over the past 5 years, with total assets of \$11.9 billion as of 2022YE

Glide Path Construction

State of Oregon Individual Account Program (IAP)



	Young Saver					Midlife Saver				New Retiree		Senior Retiree		
	25	30	35	40	45	50	55	60	65	70	75	80	85+	
US All Market Equity	15.00	15.00	15.00	15.00	—	5.10	7.90	7.35	—	—	—	—	—	
ACWI ex US Equity	10.00	10.00	10.00	10.00	—	2.90	4.10	3.45	—	—	—	—	—	
Core Bond	—	—	—	—	—	2.00	9.95	16.55	18.65	18.65	18.65	18.65	18.65	
TIPS	—	—	—	—	—	—	3.05	8.30	12.05	12.05	12.05	12.05	12.05	
Short Duration Bond	—	—	—	—	—	—	—	4.35	19.30	19.30	19.30	19.30	19.30	
OPERF*	75.00	75.00	75.00	75.00	100.00	90.00	75.00	60.00	50.00	50.00	50.00	50.00	50.00	
Public Equity	25.00	25.00	25.00	25.00	—	8.00	12.00	10.80	—	—	—	—	—	
Fixed Income	—	—	—	—	—	2.00	13.00	29.20	50.00	50.00	50.00	50.00	50.00	
OPERF	75.00	75.00	75.00	75.00	100.00	90.00	75.00	60.00	50.00	50.00	50.00	50.00	50.00	
Total Growth Assets†	76.00	76.00	76.00	76.00	68.00	69.20	63.00	51.60	34.00	34.00	34.00	34.00	34.00	

This chart does not represent any particular target-date fund. It is meant to show how the investment mix of any target-date portfolio changes over a lifetime.

Numbers may not sum due to rounding.

*OPERF is managed by the OST under the direction of the OIC and contains a mix of the following asset classes: public and private equity, fixed income, real estate, real assets, and diversifying strategies

†68% of OPERF allocation is counted as growth assets

Source: Oregon State Treasury and AB

Key Inputs and Highlights of Target-Date Fund Glide Path Design

Increase growth potential for young savers, improve risk control approaching retirement and enhance retirement income potential above DB (45%) and Social Security (35%)

Participant Demographics

Oregon Public Employees Retirement Fund (OPERF)

Current Capital Market Environment



Glide Path Design

- Designed a customized glide path landing at age 65
- Allocation to OPERF is determined by OST and incorporated into the design
- OPERF portfolio is assessed and non-OPERF allocations are designed accordingly
- Modeled passive implementation for all non-OPERF allocations

AB's Role and Responsibilities

Investments

Customized Glide Path Design

- Tailored to IAP participant demographics and plan structure
- Evolves over time:
 - Demographic refresh every 5 years or when plan changes occur
 - Non-OPERF allocations evolve along with OPERF portfolio
 - Incorporate latest AB capital market assumptions

Operations

Ongoing Operational Support

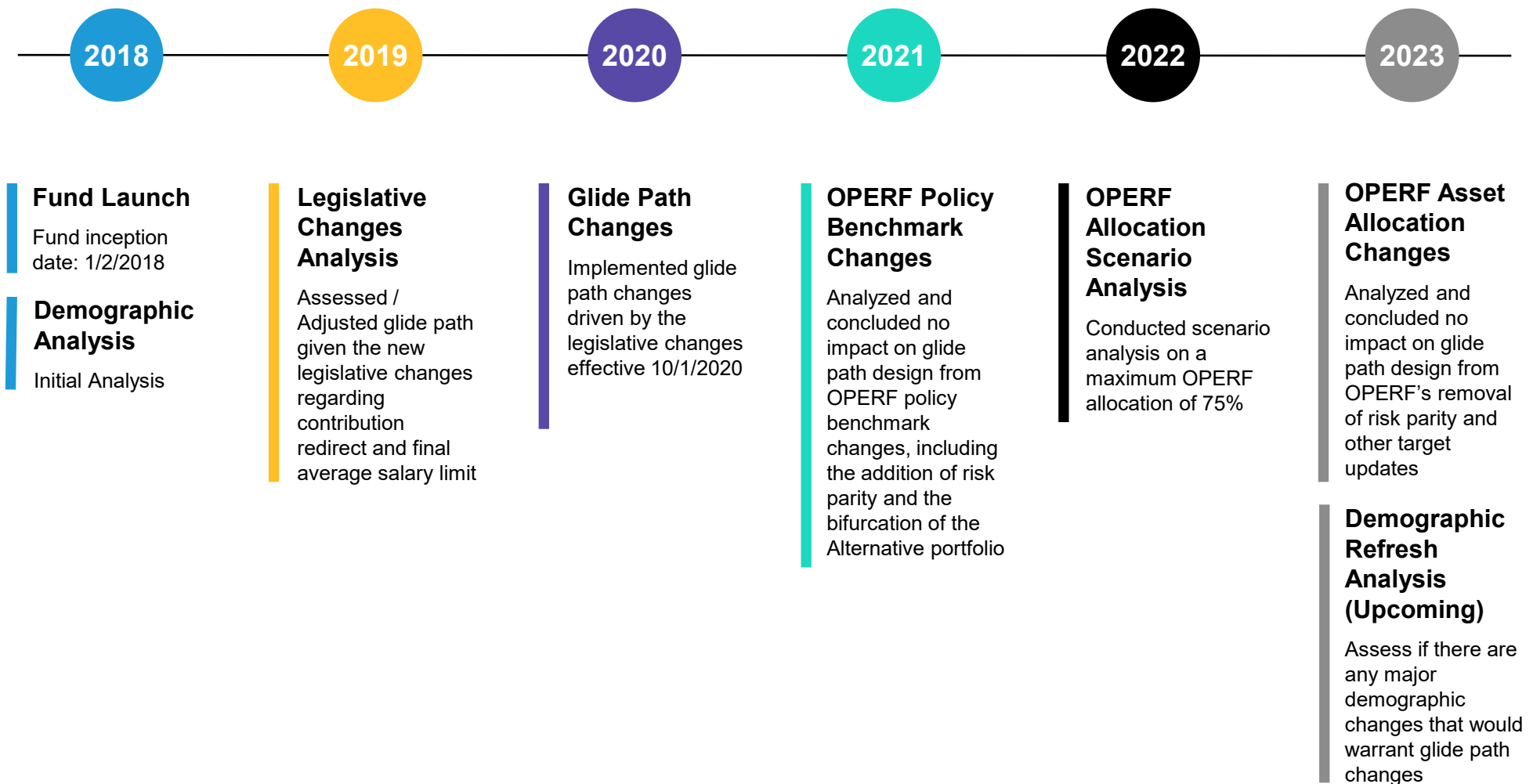
- Developed operational structure
- Support cash flow management and rebalancing
- Interface with:
 - Plan Sponsor (OST and PERS)
 - Component Managers (SSGA)
 - Custodian (State Street)

Communications & Servicing

Participant Communications Support & Client Service

- Implementation
- Ongoing

IAP Custom Target-Date Fund Glide Path Design Evolution Timeline



Performance Review

Performance Summary

Strong 2022 Performance

- Strong relative return vs. the market
 - Delivered absolute return ranging from -5.97% to -2.41%, despite a weak equity (-17.96%) and bond (-13.01%) market
- Strong relative return vs. TDF peers
 - Outperformed during 1Q-3Q sharp market sell-off
 - Underperformed during 4Q market recovery
 - Diversifying OPERF exposure was the key driver to relative performance in both periods

Strong Since Inception Performance

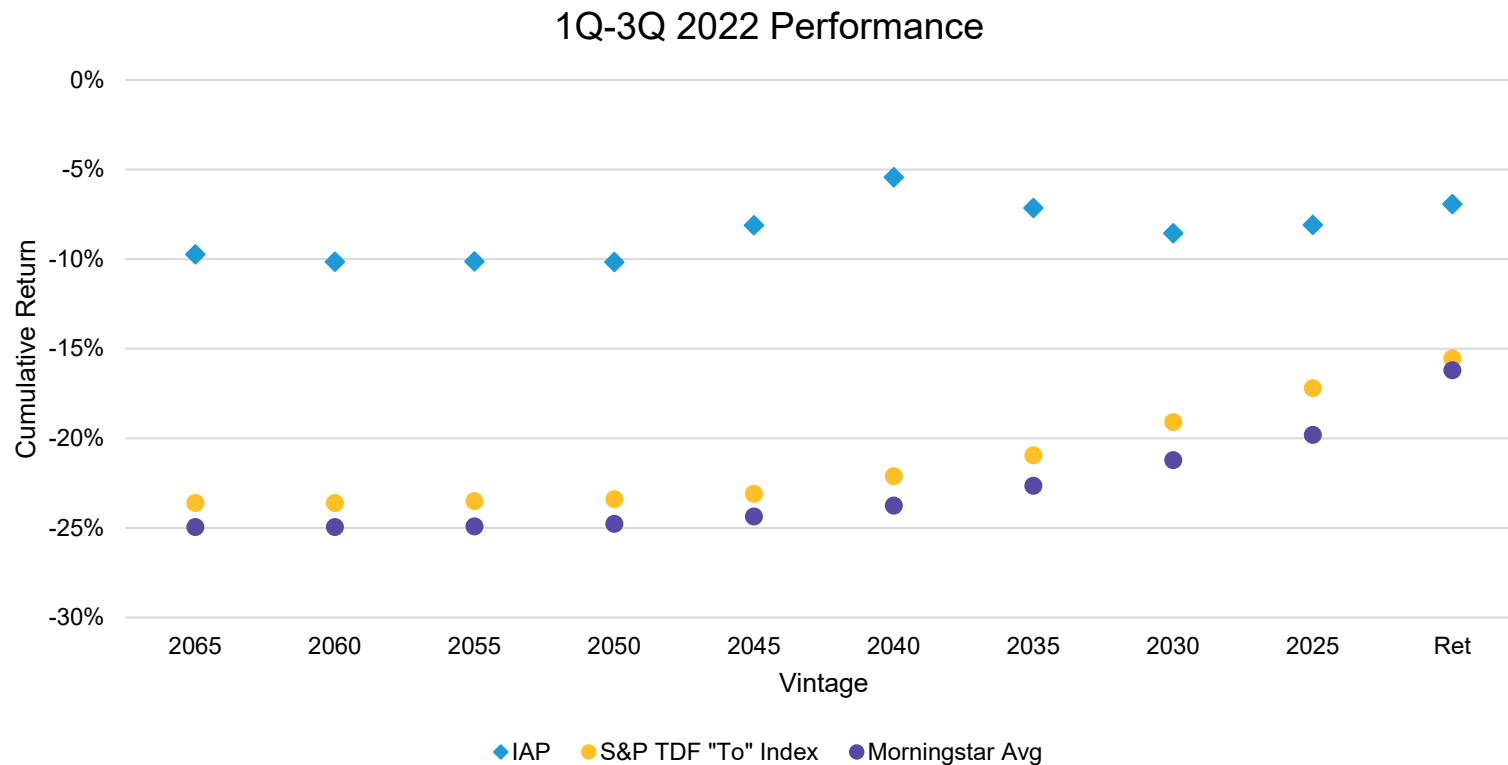
- Strong absolute return ranging from 4.28% to 8.00%
- Strong relative performance vs. TDF peers
 - All vintages outperformed both S&P Target Date Index and Morningstar Category Average by an average of 2.5% per year and 2.8% per year respectively
 - Asset allocation and manager selection both positively contributed

As of December 31, 2022



Strong Relative Returns vs. TDF Peers in 1Q-3Q 2022 Market Sell-Offs

- Key contributor: Diversifying OPERF exposure (-4.5%) outperformed both Global Equity (-25.3%) and US Core Bond (-14.6%)

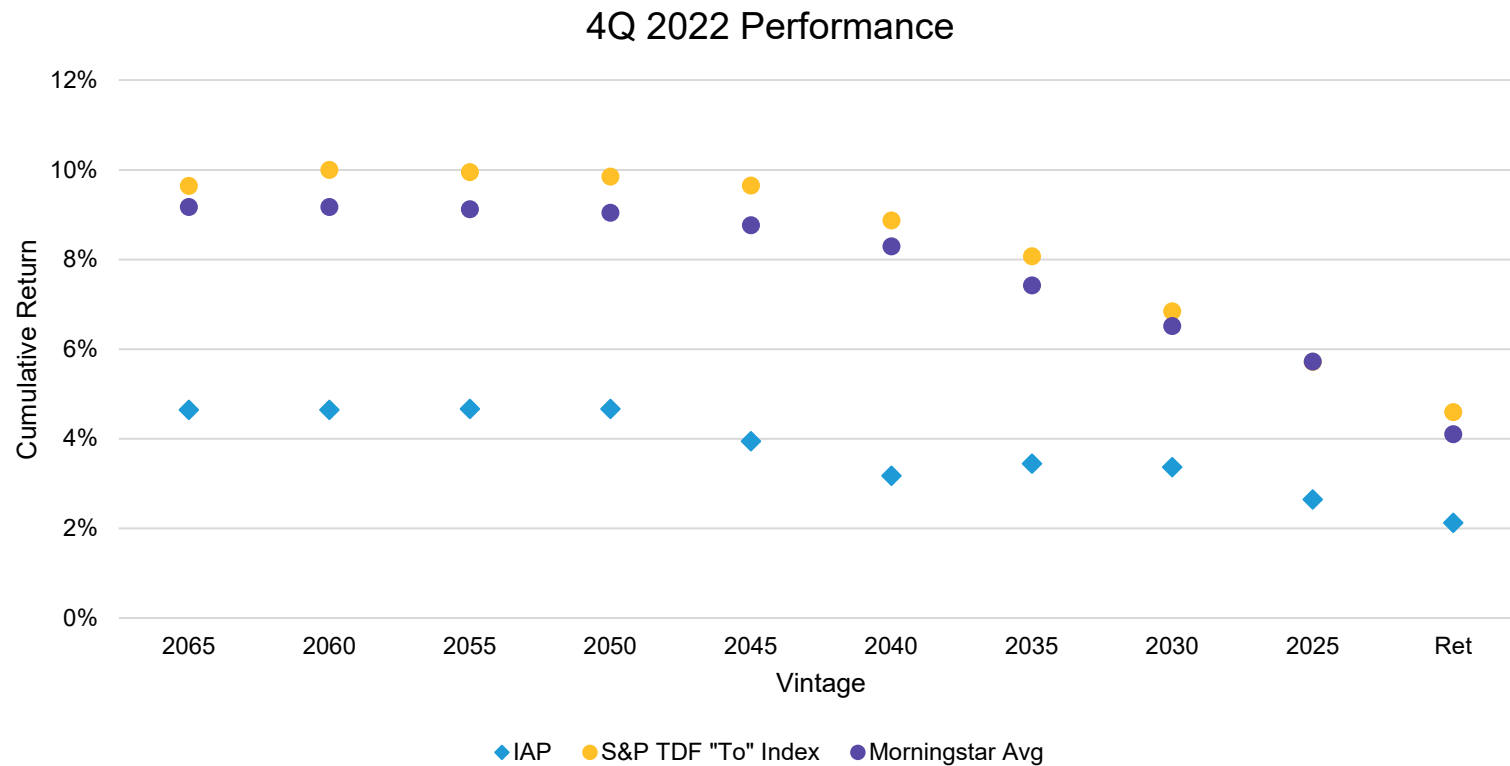


As of December 31, 2022



Underperformed TDF Peers in 4Q 2022 Market Recovery

- Key detractor: Diversifying OPERF exposure (+2.9%) underperformed Global Equity (+9.9%)

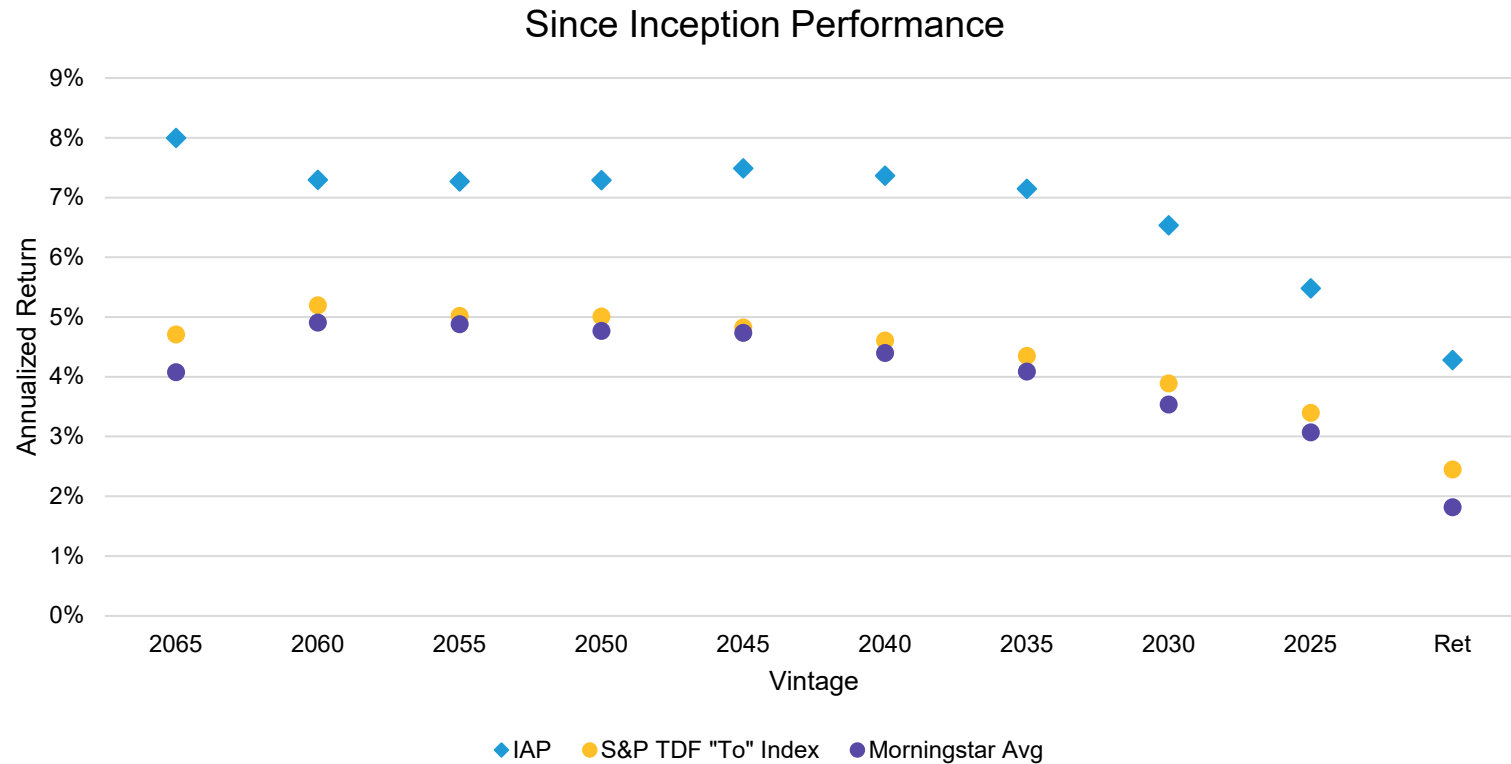


As of December 31, 2022



IAP Outperformed TDF Peers Since Inception

- Both asset allocation and manager selection positively contributed to performance since inception



As of December 31, 2022



OPERF Allocation Scenario Analysis

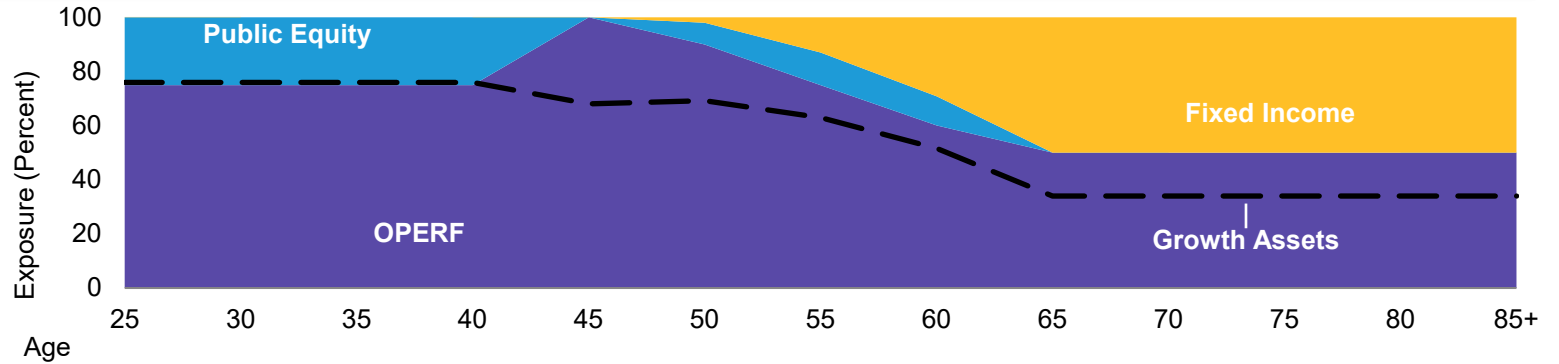
OPERF Allocation Scenario Analysis

In response to Oregon's request, AB analyzed the impact of a maximum OPERF allocation of 75% through age 55 within the IAP Target-Date Fund glide path design:

- Impact on simulated forward-looking performance: only affects midlife savers
 - Marginally improved long-term expected returns
 - Modestly increased short-term volatility
- Impact on simulated historical performance: only affects vintages 2045, 2040, 2035
 - Greater losses during down markets like 1Q-3Q 2022
 - Greater gains during up markets like 4Q 2022
- Estimated asset flow of \$804 million from OPERF to index funds based on 2022 Year-End AUM

Current Glide Path

State of Oregon Individual Account Program (IAP)



	Young Saver					Midlife Saver				New Retiree		Senior Retiree		
	25	30	35	40	45	50	55	60	65	70	75	80	85+	
US All Market Equity	15.00	15.00	15.00	15.00	—	5.10	7.90	7.35	—	—	—	—	—	
ACWI ex US Equity	10.00	10.00	10.00	10.00	—	2.90	4.10	3.45	—	—	—	—	—	
Core Bond	—	—	—	—	—	2.00	9.95	16.55	18.65	18.65	18.65	18.65	18.65	
TIPS	—	—	—	—	—	—	3.05	8.30	12.05	12.05	12.05	12.05	12.05	
Short Duration Bond	—	—	—	—	—	—	—	4.35	19.30	19.30	19.30	19.30	19.30	
OPERF*	75.00	75.00	75.00	75.00	100.00	90.00	75.00	60.00	50.00	50.00	50.00	50.00	50.00	
Public Equity	25.00	25.00	25.00	25.00	—	8.00	12.00	10.80	—	—	—	—	—	
Fixed Income	—	—	—	—	—	2.00	13.00	29.20	50.00	50.00	50.00	50.00	50.00	
OPERF	75.00	75.00	75.00	75.00	100.00	90.00	75.00	60.00	50.00	50.00	50.00	50.00	50.00	
Total Growth Assets†	76.00	76.00	76.00	76.00	68.00	69.20	63.00	51.60	34.00	34.00	34.00	34.00	34.00	

This chart does not represent any particular target-date fund. It is meant to show how the investment mix of any target-date portfolio changes over a lifetime.

Numbers may not sum due to rounding.

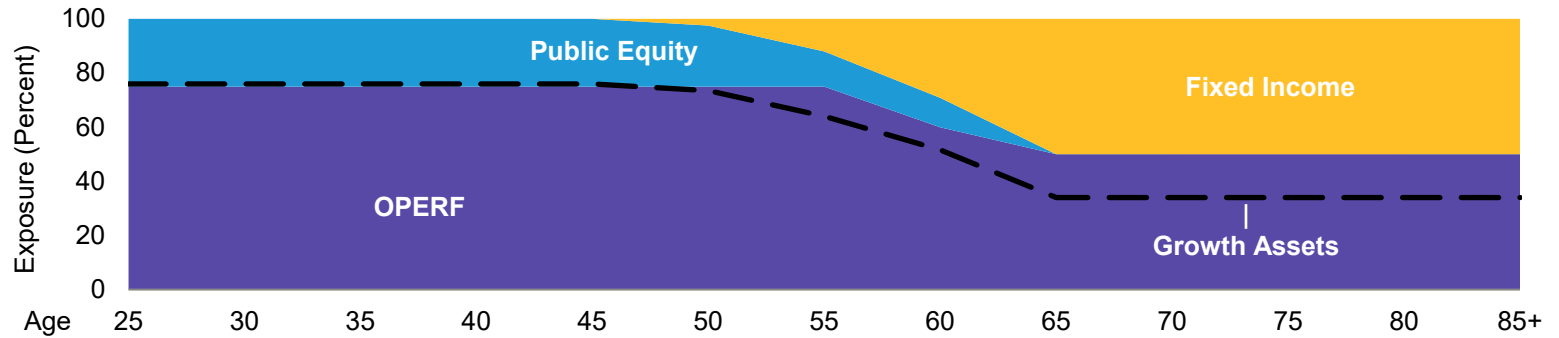
*OPERF is managed by the OST under the direction of the OIC and contains a mix of the following asset classes: public and private equity, fixed income, real estate, real assets, and diversifying strategies

†68% of OPERF allocation is counted as growth assets

Source: Oregon State Treasury and AB

Alternative Glide Path: Maximum OPERF Allocation of 75%

State of Oregon Individual Account Program (IAP)



	Young Saver					Midlife Saver			New Retiree		Senior Retiree		
	25	30	35	40	45	50	55	60	65	70	75	80	85+
US All Market Equity	15.00	15.00	15.00	15.00	15.00	14.20	8.55	7.35	—	—	—	—	—
ACWI ex US Equity	10.00	10.00	10.00	10.00	10.00	8.30	4.45	3.45	—	—	—	—	—
Core Bond	—	—	—	—	—	2.50	9.00	16.55	18.65	18.65	18.65	18.65	18.65
TIPS	—	—	—	—	—	—	3.00	8.30	12.05	12.05	12.05	12.05	12.05
Short Duration Bond	—	—	—	—	—	—	—	4.35	19.30	19.30	19.30	19.30	19.30
OPERF*	75.00	75.00	75.00	75.00	75.00	75.00	75.00	60.00	50.00	50.00	50.00	50.00	50.00
Public Equity	25.00	25.00	25.00	25.00	25.00	22.50	13.00	10.80	—	—	—	—	—
Fixed Income	—	—	—	—	—	2.50	12.00	29.20	50.00	50.00	50.00	50.00	50.00
OPERF	75.00	75.00	75.00	75.00	75.00	75.00	75.00	60.00	50.00	50.00	50.00	50.00	50.00
Total Growth Assets†	76.00	76.00	76.00	76.00	76.00	73.50	64.00	51.60	34.00	34.00	34.00	34.00	34.00

This chart does not represent any particular target-date fund. It is meant to show how the investment mix of any target-date portfolio changes over a lifetime.

Numbers may not sum due to rounding.

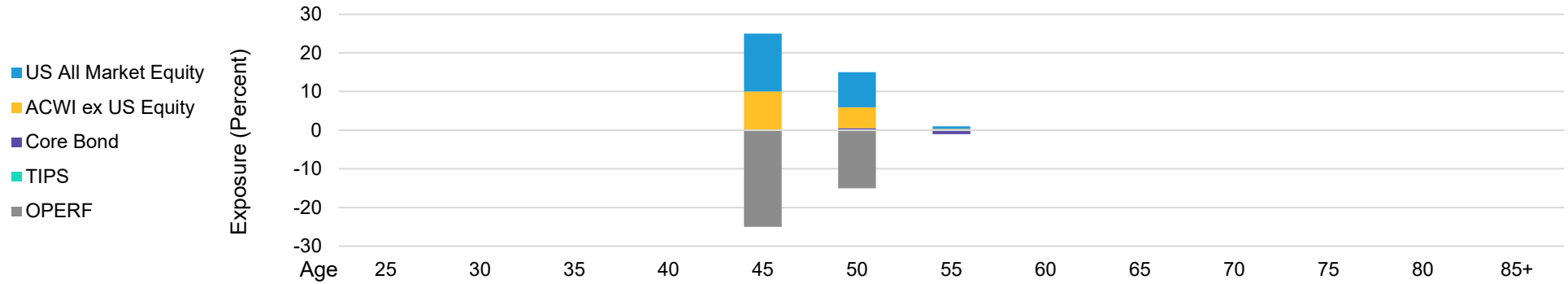
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†68% of OPERF allocation is counted as growth assets

Source: Oregon State Treasury and AB

Glide Path Changes: Alternative Minus Current

State of Oregon Individual Account Program (IAP)



	Young Saver					Midlife Saver			New Retiree		Senior Retiree		
	25	30	35	40	45	50	55	60	65	70	75	80	85+
US All Market Equity	—	—	—	—	15.00	9.10	0.65	—	—	—	—	—	—
ACWI ex US Equity	—	—	—	—	10.00	5.40	0.35	—	—	—	—	—	—
Core Bond	—	—	—	—	—	0.50	-0.95	—	—	—	—	—	—
TIPS	—	—	—	—	—	—	-0.05	—	—	—	—	—	—
Short Duration Bond	—	—	—	—	—	—	—	—	—	—	—	—	—
OPERF*	—	—	—	—	-25.00	-15.00	0.00	—	—	—	—	—	—
Public Equity	—	—	—	—	25.00	14.50	1.00	—	—	—	—	—	—
Fixed Income	—	—	—	—	—	0.50	-1.00	—	—	—	—	—	—
OPERF	—	—	—	—	-25.00	-15.00	—	—	—	—	—	—	—
Total Growth Assets†	—	—	—	—	8.00	4.30	1.00	—	—	—	—	—	—

This chart does not represent any particular target-date fund. It is meant to show how the investment mix of any target-date portfolio changes over a lifetime.

Numbers may not sum due to rounding.

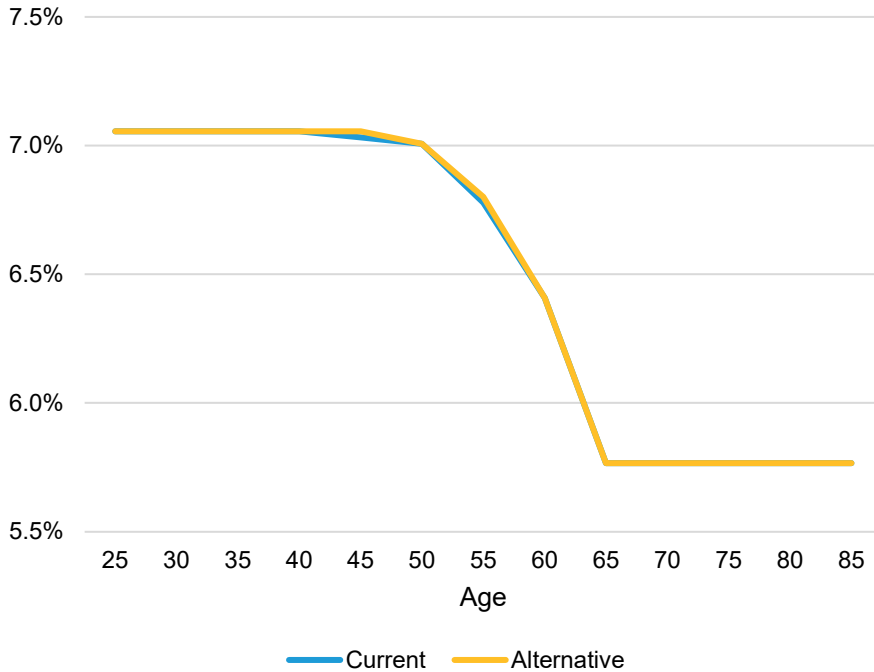
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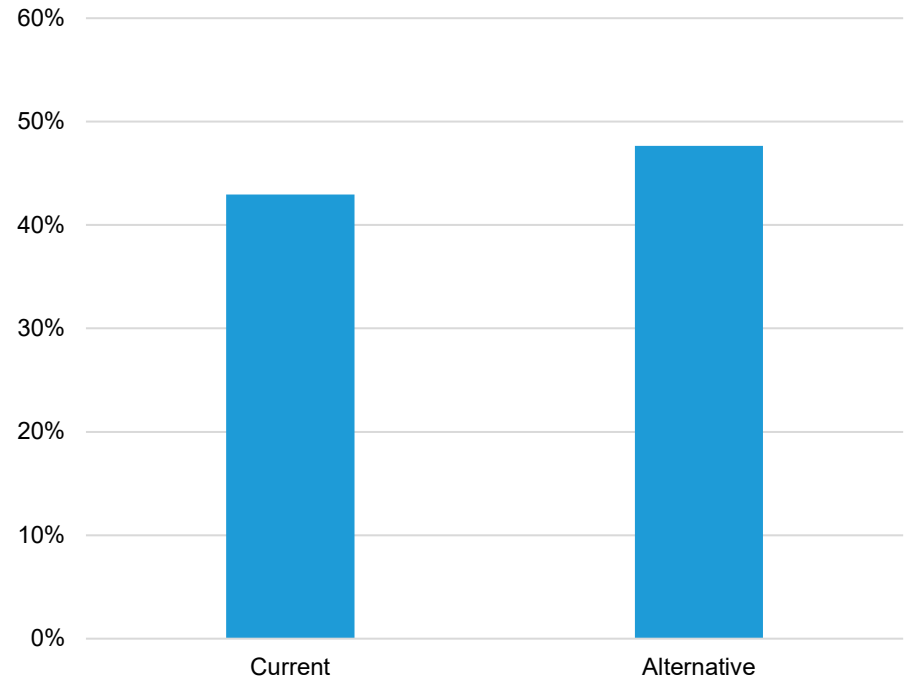
Source: Oregon State Treasury and AB

Minimal Impact on Expected Return & Risk Profile

Forward Looking 10-Year Median Return
Marginally improved for ages 45-55



Simulated Probability of Experiencing Large Annual Loss >15% During Age 25-65 Period
Modestly increased



Based on AB's Capital Market Engine (CME) projection as of December 31, 2022

The analysis should not be construed as a promise of actual future results, the actual range of future results, or the actual probability that these results will be realized.

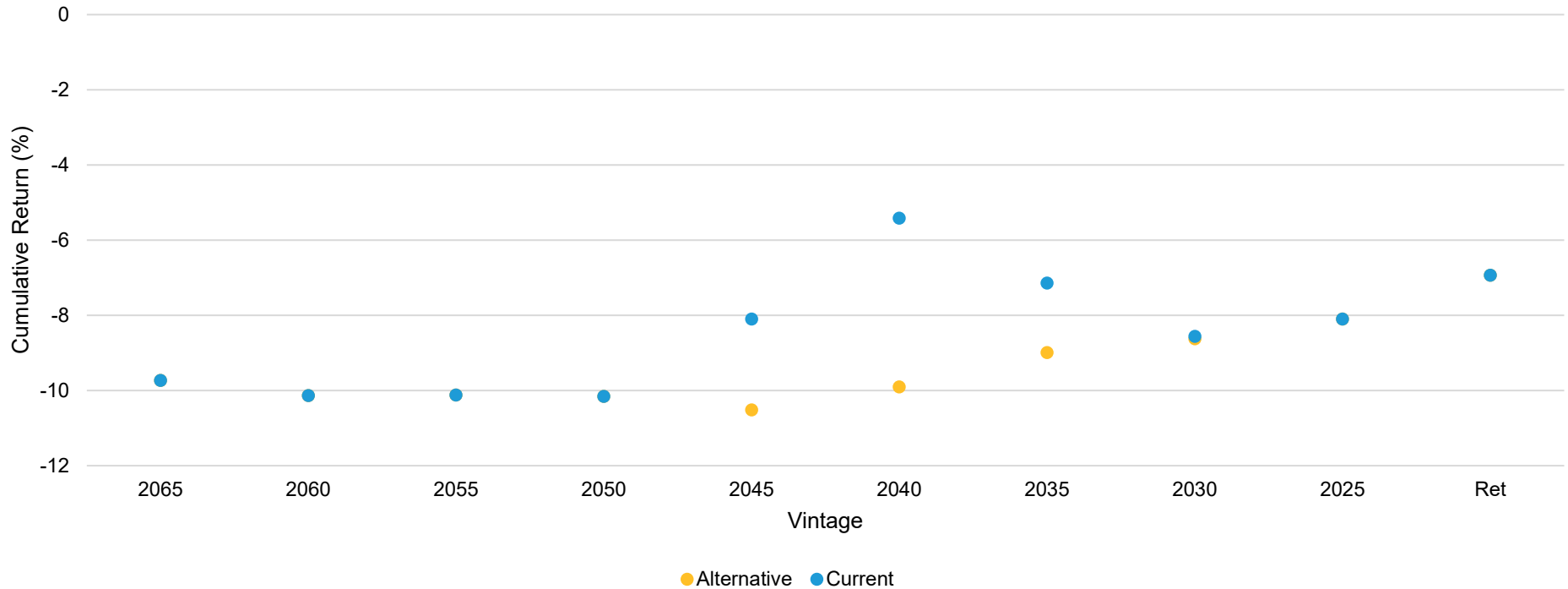
*Annual Equivalent Volatility: the dispersion of potential growth rates around their median value. If the annual returns are serially independent and identically distributed, then the AEV will equal the first-year volatility. When returns are mean reverting—as for equities whose valuations follow the business cycle—the AEV will be smaller than the first-year volatility, whereas when returns are persistent—as for bonds driven by yield momentum—the AEV will exceed first-year volatility.

Source: AB



Greater Losses for Midlife Participants During Down Markets

Historical Simulated Impact: 1Q-3Q 2022

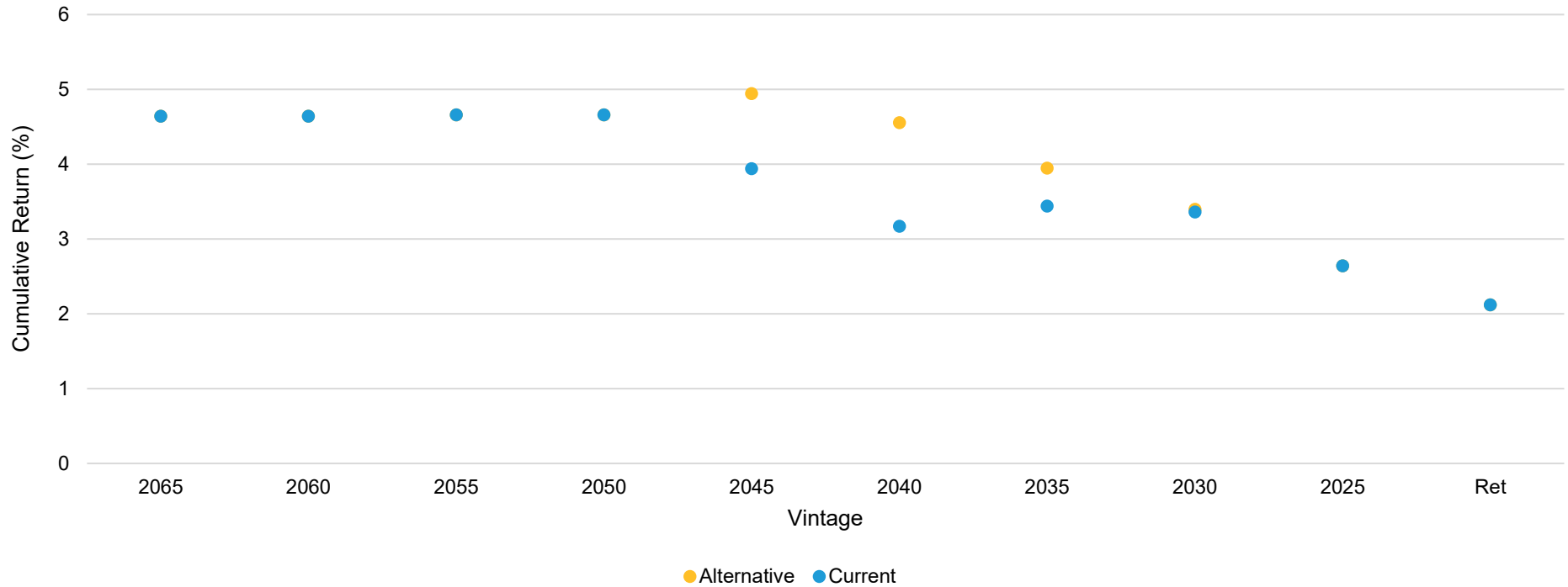


As of December 31, 2022
Simulated based on historical underlying component return



Greater Gains for Midlife Participants During Up Markets

Historical Simulated Impact: 4Q 2022



As of December 31, 2022
Simulated based on historical underlying component return



TER Impact Analysis

Total Expense Ratio Impact Analysis

State of Oregon Individual Account Program (IAP)

	2065	2060	2055	2050	2045	2040	2035	2030	2025	Ret. Alloc.
4Q 2022 TERs	59.97	58.23	58.26	58.27	67.88	71.77	62.86	52.41	44.01	40.98
Estimated TERs*	59.97	58.23	58.26	58.27	58.13	57.94	58.07	52.41	44.01	40.98
Estimated Net Change	0.00	0.00	0.00	0.00	-9.75	-13.83	-4.78	0.00	0.00	0.00

*Based upon the Alternative Glide Path design.

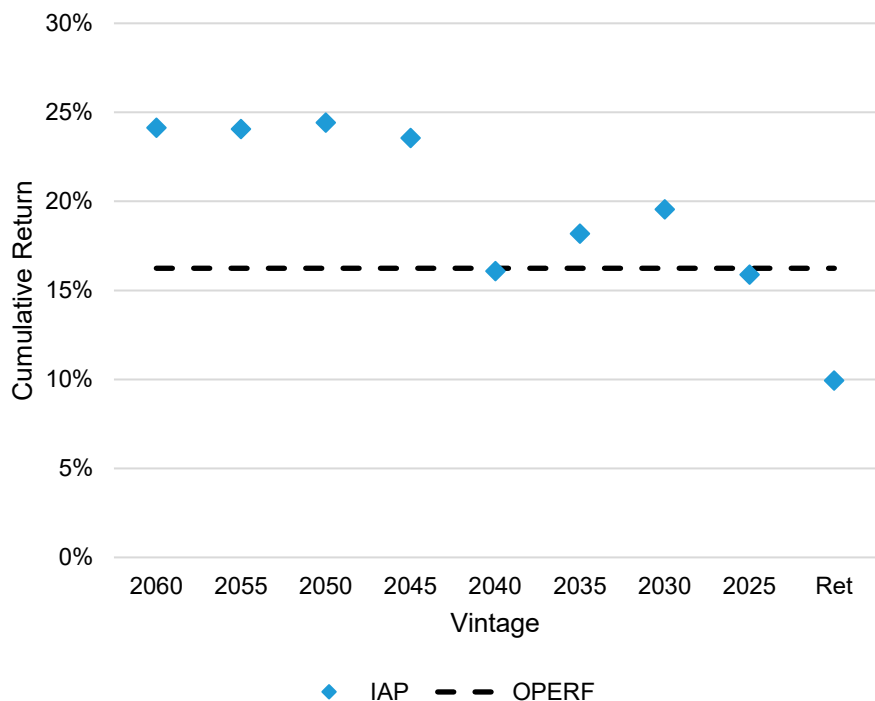
Expense ratios are represented in basis points. The above fees include investment-management and operating fees available as of the most recent quarter-end and may be subject to change. The fees associated with OPERF, which is an investment component of the IAP Target-Date Funds, are estimated based on the latest available Oregon Comprehensive Annual Financial Report (CAFR).

Source: AB

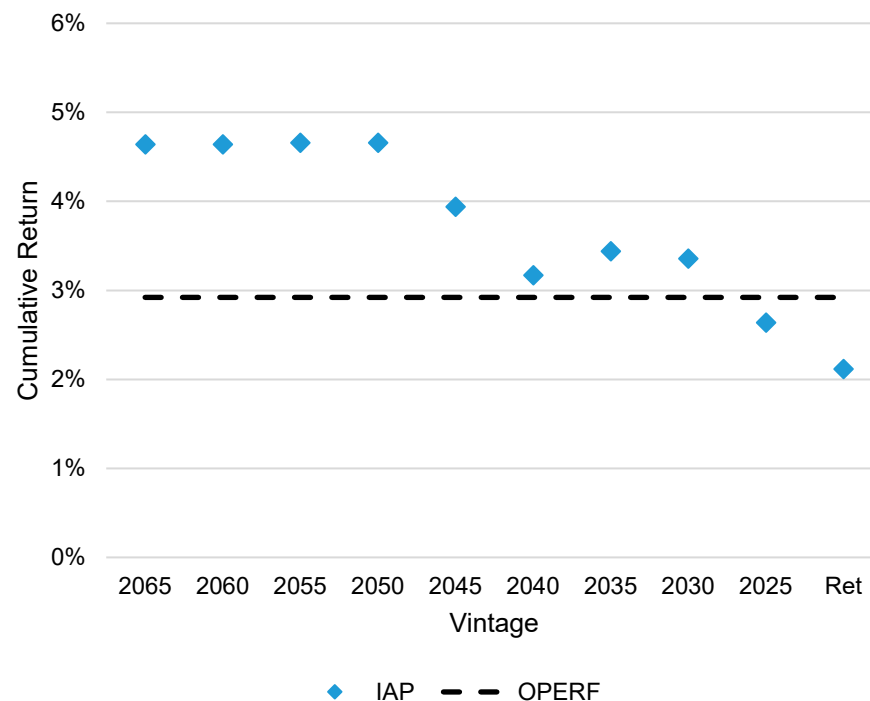
Appendix

Young Members: IAP Higher Return / Risk Profile vs. OPERF Further Enhances Growth Potential

2Q – 4Q 2020 Market Recovery Period

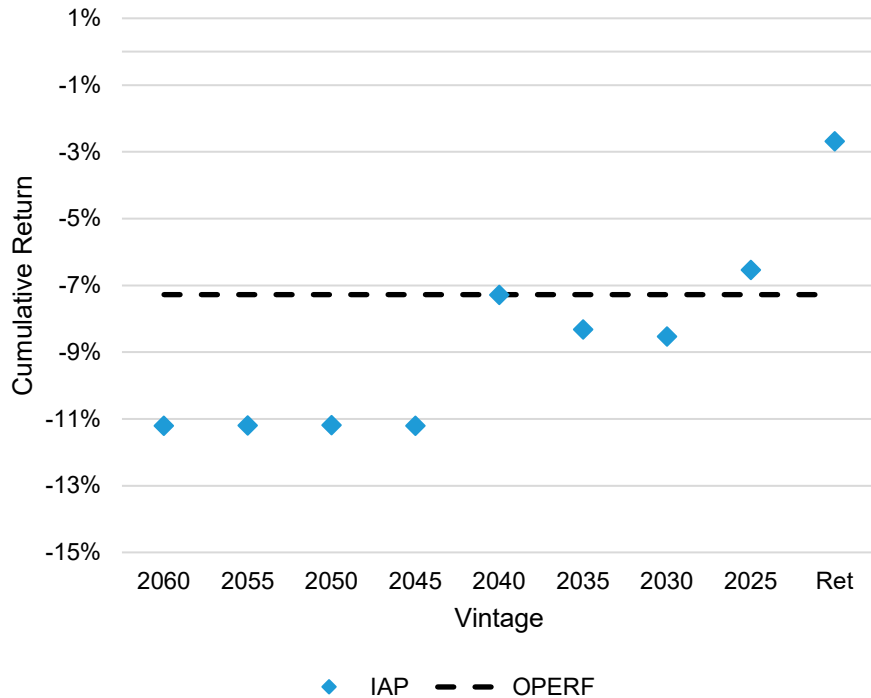


4Q 2022 Market Recovery Period



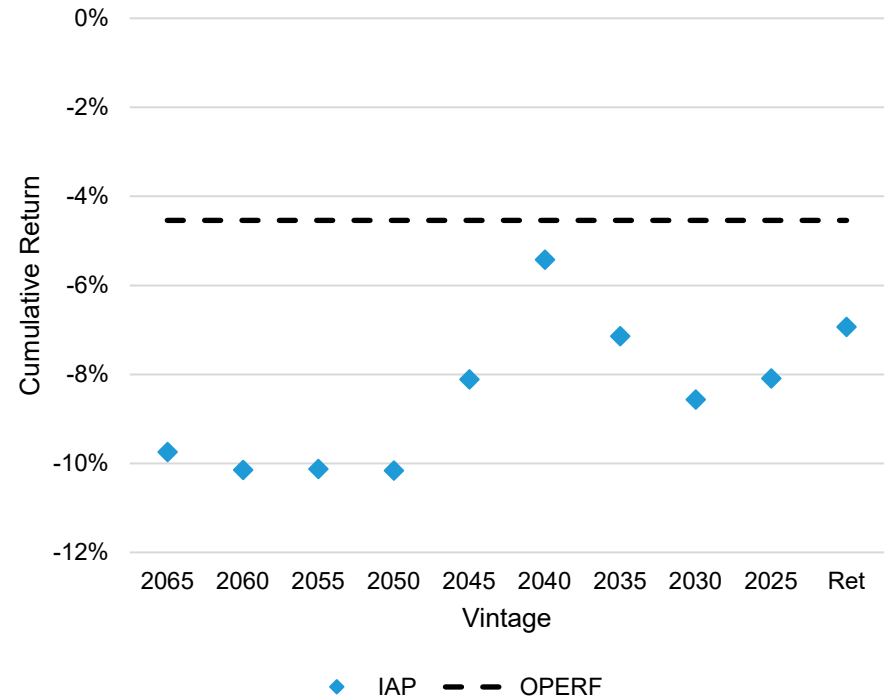
Senior Members: IAP Lower Return / Risk Profile vs. OPERF Further Enhances Risk Control

1Q 2020 Market Sell-Off Period



1Q – 3Q 2022 Market Sell-Off Period

Bond sold off together with equity, failed to provide downside protection in this unique rising interest rate environment



Recent OPERF Asset Allocation Changes

		Asset Class	Previous Target	Current Target (Approved on 12/7/2022)	Change
		Public Equity	30.0%	27.5%	-2.5%
		Fixed Income	20.0%	25.0%	+5.0%
		Private Equity	20.0%	20.0%	
		Real Estate	12.5%	12.5%	
Previously Alternatives Strategy	}	Real Assets	7.5%	7.5%	
		Diversifying Strategies	7.5%	7.5%	
		Risk Parity	2.5%	0.0%	-2.5%
		Other			
		Total	100%	100%	0%

OPERF Changes Have No Significant Impact on TDF Design

- Given the size of the OPERF changes and the relatively small impact at the TDF level, AB concluded no change in the glide path design is warranted
- The recently approved OPERF asset allocation targets were incorporated into AB's OPERF modeling and reflected in the OPERF allocation scenario analysis
- AB now considers 68% of OPERF as growth assets, including the recent OPERF asset allocation changes
 - Public equity, private equity, real estate, and real assets are considered growth assets

OPERF Long-Term Risk & Return Projection

	10-Year Projection				
	Geometric Median Return	Arithmetic Return	YoY Volatility	Annual Equivalent Volatility*	Sharpe Ratio
OPERF	7.0%	7.6%	11.0%	9.4%	0.36
OPERF - Public Equity	7.2%	8.6%	17.5%	14.6%	0.29
OPERF - Fixed Income	4.3%	4.4%	4.9%	3.0%	0.16
OPERF - Private Equity†	8.6%	10.6%	22.1%	19.9%	0.32
OPERF - Real Estate†	6.4%	7.7%	16.8%	15.3%	0.24
OPERF - Real Assets†	7.2%	7.8%	11.9%	11.1%	0.36
OPERF - Diversifying Strategies	5.7%	6.0%	10.8%	14.9%	0.22

Based on AB's Capital Market Engine (CME) projection as of December 31, 2022

The analysis should not be construed as a promise of actual future results, the actual range of future results, or the actual probability that these results will be realized.

*Annual equivalent volatility: the dispersion of potential growth rates around their median value. If the annual returns are serially independent and identically distributed, then the AEV will equal the first-year volatility. When returns are mean reverting—as for equities whose valuations follow the business cycle—the AEV will be smaller than the first-year volatility, whereas when returns are persistent—as for bonds driven by yield momentum—the AEV will exceed first-year volatility.

†The volatility of the private equity, real estate, real assets above reflects the true economic risk.

Source: AB



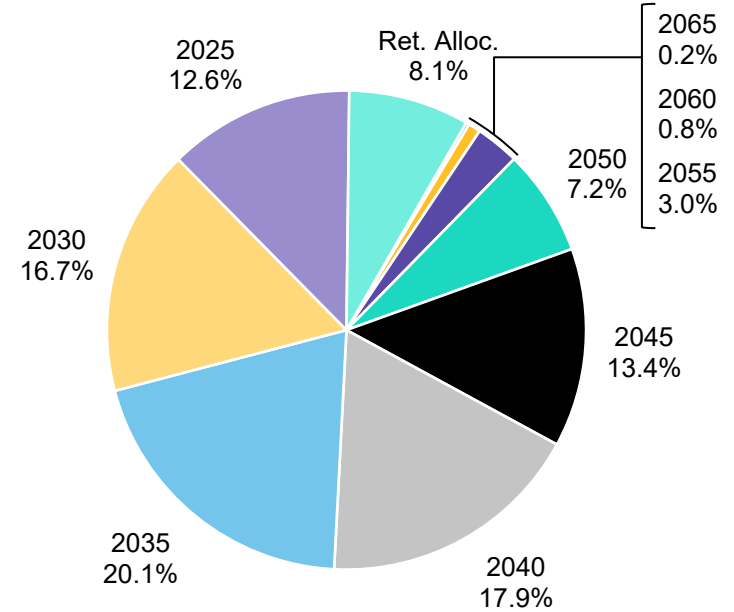
Summary: 4Q 2022

State of Oregon Individual Account Program (IAP)

Target-Date Funds

- Beginning Assets: \$ 11,609,597,626
- Net Flows: \$ (85,140,000)
- Investment Gain (Loss): \$ 388,367,218
- Ending Assets: \$ 11,912,824,844

Distribution by Vintage



As of December 31, 2022
Source: State Street Bank



Performance Summary

State of Oregon Individual Account Program (IAP)

	Periods Ended December 31, 2022						Inception Date
	4Q 2022	YTD 2022	One Year	Three Year	Five Year	Since Inception	
IAP 2065 Target-Date Fund†	4.64	(5.55)	(5.55)	—	—	8.00	01/31/2020
2065 Custom Benchmark	4.79	(10.68)	(10.68)	—	—	5.42	
<i>Relative Return</i>	<i>(0.15)</i>	<i>5.13</i>	<i>5.13</i>	<i>—</i>	<i>—</i>	<i>2.58</i>	
IAP 2060 Target-Date Fund	4.64	(5.97)	(5.97)	7.45	7.30	7.30	12/29/2017
2060 Custom Benchmark	4.79	(10.68)	(10.68)	5.32	6.19	6.19	
<i>Relative Return</i>	<i>(0.15)</i>	<i>4.71</i>	<i>4.71</i>	<i>2.13</i>	<i>1.11</i>	<i>1.11</i>	
Broad Benchmarks							12/29/2017
S&P 500 Index	7.56	(18.11)	(18.11)	7.66	9.42	9.41	
MSCI ACWI ex US	14.28	(16.00)	(16.00)	0.07	0.88	0.88	
Bloomberg US Aggregate Index	1.87	(13.01)	(13.01)	(2.71)	0.02	0.02	
OPERF Component	2.92	(1.76)	(1.76)	8.17	7.56	7.56	

† The official fund performance reported by State Street Bank uses a reporting inception date of 02/01/2020 since they do not consider partial month performance for the month of January 2020. As a result, the custom benchmark performance reported by AB aligns with State Street Bank's practice and uses the same 02/01/2020 reporting inception date.

All portfolio performance calculations are net of fees and are expressed as percentages. Periods of more than one year are annualized. Numbers may not sum due to rounding.

The benchmark for a Target-Date Portfolio is a customized benchmark that has the same target asset allocation as the Portfolio's target asset allocation and uses index returns to represent performance of the asset classes. The benchmark returns were calculated by weighting the monthly index returns of each asset class by the Portfolio's monthly target allocation for each asset class. Target allocations adjust quarterly in accordance with the Portfolio's standard glide path.

The Russell 3000® Index is used to represent Domestic Equities, the MSCI ACWI ex USA IMI Index is used to represent International Equities, the Bloomberg US Aggregate Bond Index is used to represent Core Bonds, the Bloomberg 1-10 Year Government Inflation-Linked Bond Index is used to represent Treasury Inflation-Protected Securities (TIPS), the Bloomberg US 1-3 Year Government/Credit Bond Index is used to represent Short-Duration Bonds, and the OPERF Policy Benchmark is used to represent OPERF, which is a fund managed by the Oregon State Treasury and is comprised of public and private equity, fixed income, alternatives and real estate. The current OPERF Policy Benchmark is comprised of 30% of the MSCI ACWI IMI Net Index, 20% of the Russell 3000® Index + 3%, one quarter lagged, 20% of the Oregon Custom Fixed Income Benchmark (comprised of the Bloomberg Aggregate Bond Index), 7.5% of the CPI + 4%, 7.5% of the HFRI FOF Conservative Index, 12.5% of the Oregon Custom Real Estate Benchmark (comprised of the NFI-ODCE Index, one quarter lagged (net of fees)), and 2.5% of the S&P Risk Parity Index - 12% Target Volatility.

Source: State Street Bank, Oregon State Treasury and AB



Performance Summary

State of Oregon Individual Account Program (IAP)

	Periods Ended December 31, 2022						Inception Date
	4Q 2022	YTD 2022	One Year	Three Year	Five Year	Since Inception	
IAP 2055 Target-Date Fund	4.66	(5.94)	(5.94)	7.44	7.27	7.27	12/29/2017
2055 Custom Benchmark	4.79	(10.68)	(10.68)	5.32	6.19	6.19	
<i>Relative Return</i>	<i>(0.13)</i>	<i>4.74</i>	<i>4.74</i>	<i>2.12</i>	<i>1.08</i>	<i>1.08</i>	
IAP 2050 Target-Date Fund	4.66	(5.97)	(5.97)	7.51	7.29	7.29	12/29/2017
2050 Custom Benchmark	4.79	(10.68)	(10.68)	5.32	6.19	6.19	
<i>Relative Return</i>	<i>(0.13)</i>	<i>4.71</i>	<i>4.71</i>	<i>2.19</i>	<i>1.10</i>	<i>1.10</i>	
Broad Benchmarks							12/29/2017
S&P 500 Index	7.56	(18.11)	(18.11)	7.66	9.42	9.41	
MSCI ACWI ex US	14.28	(16.00)	(16.00)	0.07	0.88	0.88	
Bloomberg US Aggregate Index	1.87	(13.01)	(13.01)	(2.71)	0.02	0.02	
OPERF Component	2.92	(1.76)	(1.76)	8.17	7.56	7.56	

All portfolio performance calculations are net of fees and are expressed as percentages. Periods of more than one year are annualized. Numbers may not sum due to rounding.

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Source: State Street Bank, Oregon State Treasury and AB



Performance Summary

State of Oregon Individual Account Program (IAP)

	Periods Ended December 31, 2022						Inception Date
	4Q 2022	YTD 2022	One Year	Three Year	Five Year	Since Inception	
IAP 2045 Target-Date Fund	3.94	(4.49)	(4.49)	7.85	7.49	7.49	12/29/2017
2045 Custom Benchmark	3.83	(9.81)	(9.81)	5.39	6.23	6.23	
<i>Relative Return</i>	<i>0.11</i>	<i>5.32</i>	<i>5.32</i>	<i>2.46</i>	<i>1.26</i>	<i>1.26</i>	
IAP 2040 Target-Date Fund	3.17	(2.41)	(2.41)	7.92	7.37	7.37	12/29/2017
2040 Custom Benchmark	3.33	(8.61)	(8.61)	5.34	6.10	6.10	
<i>Relative Return</i>	<i>(0.16)</i>	<i>6.20</i>	<i>6.20</i>	<i>2.58</i>	<i>1.27</i>	<i>1.27</i>	
Broad Benchmarks							12/29/2017
S&P 500 Index	7.56	(18.11)	(18.11)	7.66	9.42	9.41	
MSCI ACWI ex US	14.28	(16.00)	(16.00)	0.07	0.88	0.88	
Bloomberg US Aggregate Index	1.87	(13.01)	(13.01)	(2.71)	0.02	0.02	
OPERF Component	2.92	(1.76)	(1.76)	8.17	7.56	7.56	

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The benchmark for a Target-Date Portfolio is a customized benchmark that has the same target asset allocation as the Portfolio's target asset allocation and uses index returns to represent performance of the asset classes. The benchmark returns were calculated by weighting the monthly index returns of each asset class by the Portfolio's monthly target allocation for each asset class. Target allocations adjust quarterly in accordance with the Portfolio's standard glide path.

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Source: State Street Bank, Oregon State Treasury and AB



Performance Summary

State of Oregon Individual Account Program (IAP)

	Periods Ended December 31, 2022						Inception Date
	4Q 2022	YTD 2022	One Year	Three Year	Five Year	Since Inception	
IAP 2035 Target-Date Fund	3.44	(3.95)	(3.95)	7.42	7.15	7.15	12/29/2017
2035 Custom Benchmark	3.63	(9.43)	(9.43)	5.02	5.98	5.98	
Relative Return	(0.19)	5.48	5.48	2.40	1.17	1.17	
IAP 2030 Target-Date Fund	3.36	(5.48)	(5.48)	6.44	6.54	6.54	12/29/2017
2030 Custom Benchmark	3.50	(9.84)	(9.84)	4.21	5.44	5.44	
Relative Return	(0.14)	4.36	4.36	2.23	1.10	1.10	
Broad Benchmarks							12/29/2017
S&P 500 Index	7.56	(18.11)	(18.11)	7.66	9.42	9.41	
MSCI ACWI ex US	14.28	(16.00)	(16.00)	0.07	0.88	0.88	
Bloomberg US Aggregate Index	1.87	(13.01)	(13.01)	(2.71)	0.02	0.02	
OPERF Component	2.92	(1.76)	(1.76)	8.17	7.56	7.56	

All portfolio performance calculations are net of fees and are expressed as percentages. Periods of more than one year are annualized. Numbers may not sum due to rounding. The benchmark for a Target-Date Portfolio is a customized benchmark that has the same target asset allocation as the Portfolio's target asset allocation and uses index returns to represent performance of the asset classes. The benchmark returns were calculated by weighting the monthly index returns of each asset class by the Portfolio's monthly target allocation for each asset class. Target allocations adjust quarterly in accordance with the Portfolio's standard glide path.

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Source: State Street Bank, Oregon State Treasury and AB



Performance Summary

State of Oregon Individual Account Program (IAP)

	Periods Ended December 31, 2022						Inception Date
	4Q 2022	YTD 2022	One Year	Three Year	Five Year	Since Inception	
IAP 2025 Target-Date Fund	2.64	(5.67)	(5.67)	5.01	5.48	5.48	12/29/2017
2025 Custom Benchmark	2.75	(9.13)	(9.13)	3.36	4.66	4.66	
<i>Relative Return</i>	<i>(0.11)</i>	<i>3.46</i>	<i>3.46</i>	<i>1.65</i>	<i>0.82</i>	<i>0.82</i>	
IAP Retirement Allocation Fund	2.12	(4.96)	(4.96)	3.80	4.28	4.28	12/29/2017
Ret. Alloc. Custom Benchmark	2.25	(8.16)	(8.16)	2.40	3.60	3.60	
<i>Relative Return</i>	<i>(0.13)</i>	<i>3.20</i>	<i>3.20</i>	<i>1.40</i>	<i>0.68</i>	<i>0.68</i>	
Broad Benchmarks							12/29/2017
S&P 500 Index	7.56	(18.11)	(18.11)	7.66	9.42	9.41	
MSCI ACWI ex US	14.28	(16.00)	(16.00)	0.07	0.88	0.88	
Bloomberg US Aggregate Index	1.87	(13.01)	(13.01)	(2.71)	0.02	0.02	
OPERF Component	2.92	(1.76)	(1.76)	8.17	7.56	7.56	

All portfolio performance calculations are net of fees and are expressed as percentages. Periods of more than one year are annualized. Numbers may not sum due to rounding.

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Source: State Street Bank, Oregon State Treasury and AB



Performance vs. S&P Target Date Benchmarks

State of Oregon Individual Account Program (IAP)

	Periods Ended December 31, 2022						Inception Date
	4Q 2022	YTD 2022	One Year	Three Year	Five Year	Since Inception	
IAP 2065 Target-Date Fund	4.64	(5.55)	(5.55)	—	—	8.00	01/31/2020
S&P Target Date To 2065+ Index (Linked)	9.64	(15.86)	(15.86)	—	—	4.71	
<i>Relative Return</i>	(5.00)	10.31	10.31	—	—	3.29	
IAP 2060 Target-Date Fund	4.64	(5.97)	(5.97)	7.45	7.30	7.30	12/29/2017
S&P Target Date To 2060 Index	10.00	(15.97)	(15.97)	4.04	5.20	5.20	
<i>Relative Return</i>	(5.36)	10.00	10.00	3.41	2.10	2.10	
IAP 2055 Target-Date Fund	4.66	(5.94)	(5.94)	7.44	7.27	7.27	12/29/2017
S&P Target Date To 2055 Index	9.95	(15.88)	(15.88)	3.81	5.02	5.02	
<i>Relative Return</i>	(5.29)	9.94	9.94	3.63	2.25	2.25	
IAP 2050 Target-Date Fund	4.66	(5.97)	(5.97)	7.51	7.29	7.29	12/29/2017
S&P Target Date To 2050 Index	9.85	(15.84)	(15.84)	3.82	5.01	5.01	
<i>Relative Return</i>	(5.19)	9.87	9.87	3.69	2.28	2.28	
IAP 2045 Target-Date Fund	3.94	(4.49)	(4.49)	7.85	7.49	7.49	12/29/2017
S&P Target Date To 2045 Index	9.65	(15.65)	(15.65)	3.53	4.83	4.83	
<i>Relative Return</i>	(5.71)	11.16	11.16	4.32	2.66	2.66	
IAP 2040 Target-Date Fund	3.17	(2.41)	(2.41)	7.92	7.37	7.37	12/29/2017
S&P Target Date To 2040 Index	8.87	(15.19)	(15.19)	3.31	4.61	4.61	
<i>Relative Return</i>	(5.70)	12.78	12.78	4.61	2.76	2.76	

All portfolio performance calculations are net of fees and are expressed as percentages. Periods of more than one year are annualized. Numbers may not sum due to rounding.

The S&P Target Date Benchmarks, provided by S&P Dow Jones Indices, are representative benchmarks for Target-Date Funds. The S&P Target Date To Indices offer style-specific measures of a "To" approach to glide path management. For additional information, please see the appendix section of this presentation.

Source: S&P and AB



Performance vs. S&P Target Date Benchmarks

State of Oregon Individual Account Program (IAP)

	Periods Ended December 31, 2022						Inception Date
	4Q 2022	YTD 2022	One Year	Three Year	Five Year	Since Inception	
IAP 2035 Target-Date Fund	3.44	(3.95)	(3.95)	7.42	7.15	7.15	12/29/2017
S&P Target Date To 2035 Index	8.07	(14.56)	(14.56)	3.05	4.35	4.35	
<i>Relative Return</i>	<i>(4.63)</i>	<i>10.61</i>	<i>10.61</i>	<i>4.37</i>	<i>2.80</i>	<i>2.80</i>	
IAP 2030 Target-Date Fund	3.36	(5.48)	(5.48)	6.44	6.54	6.54	12/29/2017
S&P Target Date To 2030 Index	6.84	(13.55)	(13.55)	2.53	3.89	3.89	
<i>Relative Return</i>	<i>(3.48)</i>	<i>8.07</i>	<i>8.07</i>	<i>3.91</i>	<i>2.65</i>	<i>2.65</i>	
IAP 2025 Target-Date Fund	2.64	(5.67)	(5.67)	5.01	5.48	5.48	12/29/2017
S&P Target Date To 2025 Index	5.71	(12.47)	(12.47)	1.94	3.40	3.40	
<i>Relative Return</i>	<i>(3.07)</i>	<i>6.80</i>	<i>6.80</i>	<i>3.07</i>	<i>2.08</i>	<i>2.08</i>	
IAP Retirement Allocation Fund	2.12	(4.96)	(4.96)	3.80	4.28	4.28	12/29/2017
S&P Target Date To Retirement Income Index	4.59	(11.66)	(11.66)	0.74	2.45	2.45	
<i>Relative Return</i>	<i>(2.47)</i>	<i>6.70</i>	<i>6.70</i>	<i>3.06</i>	<i>1.83</i>	<i>1.83</i>	

All portfolio performance calculations are net of fees and are expressed as percentages. Periods of more than one year are annualized. Numbers may not sum due to rounding.

The S&P Target Date Benchmarks, provided by S&P Dow Jones Indices, are representative benchmarks for Target-Date Funds. The S&P Target Date To Indices offer style-specific measures of a "To" approach to glide path management. For additional information, please see the appendix section of this presentation.

Source: S&P and AB



Performance vs. Morningstar Category Averages

State of Oregon Individual Account Program (IAP)

	Periods Ended December 31, 2022						Inception Date
	4Q 2022	YTD 2022	One Year	Three Year	Five Year	Since Inception	
IAP 2065 Target-Date Fund	4.64	(5.55)	(5.55)	—	—	8.00	01/31/2020
Morningstar 2060+	9.17	(18.06)	(18.06)	—	—	4.08	
<i>Relative Return</i>	(4.53)	12.51	12.51	—	—	3.92	
IAP 2060 Target-Date Fund	4.64	(5.97)	(5.97)	7.45	7.30	7.30	12/29/2017
Morningstar 2060+	9.17	(18.06)	(18.06)	3.53	4.91	4.91	
<i>Relative Return</i>	(4.53)	12.09	12.09	3.92	2.39	2.39	
IAP 2055 Target-Date Fund	4.66	(5.94)	(5.94)	7.44	7.27	7.27	12/29/2017
Morningstar 2055	9.12	(18.05)	(18.05)	3.53	4.88	4.88	
<i>Relative Return</i>	(4.46)	12.11	12.11	3.91	2.39	2.39	
IAP 2050 Target-Date Fund	4.66	(5.97)	(5.97)	7.51	7.29	7.29	12/29/2017
Morningstar 2050	9.04	(17.96)	(17.96)	3.45	4.77	4.77	
<i>Relative Return</i>	(4.38)	11.99	11.99	4.06	2.52	2.52	
IAP 2045 Target-Date Fund	3.94	(4.49)	(4.49)	7.85	7.49	7.49	12/29/2017
Morningstar 2045	8.76	(17.73)	(17.73)	3.35	4.74	4.74	
<i>Relative Return</i>	(4.82)	13.24	13.24	4.50	2.75	2.75	
IAP 2040 Target-Date Fund	3.17	(2.41)	(2.41)	7.92	7.37	7.37	12/29/2017
Morningstar 2040	8.29	(17.42)	(17.42)	2.98	4.40	4.40	
<i>Relative Return</i>	(5.12)	15.01	15.01	4.94	2.97	2.97	

All portfolio performance calculations are net of fees and are expressed as percentages. Periods of more than one year are annualized. Numbers may not sum due to rounding.

Source: Morningstar and AB



Performance vs. Morningstar Category Averages

State of Oregon Individual Account Program (IAP)

	Periods Ended December 31, 2022						Inception Date
	4Q 2022	YTD 2022	One Year	Three Year	Five Year	Since Inception	
IAP 2035 Target-Date Fund	3.44	(3.95)	(3.95)	7.42	7.15	7.15	12/29/2017
Morningstar 2035	7.42	(16.90)	(16.90)	2.52	4.09	4.09	
<i>Relative Return</i>	(3.98)	12.95	12.95	4.90	3.06	3.06	
IAP 2030 Target-Date Fund	3.36	(5.48)	(5.48)	6.44	6.54	6.54	12/29/2017
Morningstar 2030	6.51	(16.09)	(16.09)	1.89	3.54	3.54	
<i>Relative Return</i>	(3.15)	10.61	10.61	4.55	3.00	3.00	
IAP 2025 Target-Date Fund	2.64	(5.67)	(5.67)	5.01	5.48	5.48	12/29/2017
Morningstar 2025	5.72	(15.21)	(15.21)	1.29	3.07	3.07	
<i>Relative Return</i>	(3.08)	9.54	9.54	3.72	2.41	2.41	
IAP Retirement Allocation Fund	2.12	(4.96)	(4.96)	3.80	4.28	4.28	12/29/2017
Morningstar Retirement	4.10	(12.75)	(12.75)	0.04	1.82	1.82	
<i>Relative Return</i>	(1.98)	7.79	7.79	3.76	2.46	2.46	

All portfolio performance calculations are net of fees and are expressed as percentages. Periods of more than one year are annualized. Numbers may not sum due to rounding.

Source: Morningstar and AB



Underlying Component Performance

State of Oregon Individual Account Program (IAP)

	Periods Ended December 31, 2022					
	4Q 2022	YTD 2022	One Year	Three Year	Five Year	Since Inception*
State Street Russell All Cap Index Securities Lending Series Fund Class I	7.24	(19.07)	(19.07)	7.15	8.85	8.84
Russell 3000 Index	7.18	(19.21)	(19.21)	7.07	8.79	8.77
<i>Relative Return</i>	0.06	0.14	0.14	0.08	0.06	0.07
State Street Global All Cap Equity Ex US Index Securities Lending Fund Class I	14.71	(16.27)	(16.27)	0.48	1.14	1.14
MSCI AC World ex USA IMI	14.15	(16.58)	(16.58)	0.20	0.85	0.84
<i>Relative Return</i>	0.56	0.31	0.31	0.28	0.29	0.30
State Street US Bond Index Securities Lending Fund Class I	1.68	(13.11)	(13.11)	(2.72)	0.03	0.03
Bloomberg US Aggregate Index	1.87	(13.01)	(13.01)	(2.71)	0.02	0.02
<i>Relative Return</i>	(0.19)	(0.10)	(0.10)	(0.01)	0.01	0.01
State Street 1-10 Year US TIPS Index Non-Lending Series Fund Class A	1.46	(7.49)	(7.49)	1.97	2.48	2.48
Bloomberg US Govt Inflation-Linked 1-10 Year	1.64	(7.38)	(7.38)	2.05	2.53	2.53
<i>Relative Return</i>	(0.18)	(0.11)	(0.11)	(0.08)	(0.05)	(0.05)
State Street US Short-Term Government/Credit Bond Index Fund	0.87	(3.72)	(3.72)	(0.33)	0.91	0.91
Bloomberg 1-3 Year Government/Credit	0.89	(3.69)	(3.69)	(0.32)	0.92	0.92
<i>Relative Return</i>	(0.02)	(0.03)	(0.03)	(0.01)	(0.01)	(0.01)

*Inception date is 12/29/2017 unless noted otherwise

Periods of more than one year are annualized. Numbers may not sum due to rounding. Returns expressed in percentages.

Performance for the underlying components was provided by the underlying fund managers. SSGA component performance calculations are presented gross of investment management fees and net of operating expenses.

Source: SSGA, State Street Bank, Oregon State Treasury and AB



Underlying Component Performance

State of Oregon Individual Account Program (IAP)

	Periods Ended December 31, 2022					
	4Q 2022	YTD 2022	One Year	Three Year	Five Year	Since Inception*
Oregon Public Employees Retirement Fund (OPERF)	2.92	(1.76)	(1.76)	8.17	7.56	7.56
OPERF Policy Benchmark†	3.00	(8.48)	(8.48)	5.93	6.52	6.52
<i>Relative Return</i>	<i>(0.08)</i>	<i>6.72</i>	<i>6.72</i>	<i>2.24</i>	<i>1.04</i>	<i>1.04</i>

† Comprised of 30% of the MSCI ACWI IMI Net Index, 20% of the Russell 3000® Index + 3%, one quarter lagged, 20% of the Oregon Custom Fixed Income Benchmark (comprised of the Bloomberg Aggregate Bond Index), 7.5% of the CPI + 4%, 7.5% of the HFRI FOF Conservative Index, 12.5% of the Oregon Custom Real Estate Benchmark (comprised of the NFI-ODCE Index, one quarter lagged (net of fees)), and 2.5% of the S&P Risk Parity Index - 12% Target Volatility

*Inception date is 12/29/2017 unless noted otherwise

Periods of more than one year are annualized. Numbers may not sum due to rounding. Returns expressed in percentages.

Performance for the underlying components was provided by the underlying fund managers. SSGA component performance calculations are presented gross of investment management fees and net of operating expenses.

Source: SSGA, State Street Bank, Oregon State Treasury and AB



Contribution Analysis: Year to Date

State of Oregon Individual Account Program (IAP)

Fund*	Fund Return [†]	Contribution			
		Asset Allocation	Drift	Selection	Residual
2065	(4.99)%	(10.68)%	(0.12)%	5.40%	0.41%
2060	(5.41)%	(10.68)%	(0.09)%	5.39%	(0.02)%
2055	(5.37)%	(10.68)%	(0.11)%	5.41%	0.01%
2050	(5.43)%	(10.68)%	(0.16)%	5.40%	0.00%
2045	(3.86)%	(9.81)%	(0.19)%	6.11%	0.03%
2040	(1.70)%	(8.61)%	(0.01)%	6.94%	(0.02)%
2035	(3.36)%	(9.43)%	0.05%	6.09%	(0.07)%
2030	(4.99)%	(9.84)%	(0.08)%	4.94%	(0.01)%
2025	(5.28)%	(9.13)%	(0.06)%	3.94%	(0.03)%
Ret. Alloc.	(4.55)%	(8.16)%	0.01%	3.54%	0.06%

As of December 31, 2022

*Inception date is 12/29/2017 for the Retirement Allocation – 2060 funds and 12/31/2019 for the 2065 fund. Attribution begins on the first full month after the inception date. †Estimated gross of fee return.

Definitions

Asset Allocation: represents performance that is attributable to the asset allocation decision and design of the glide path.

Drift: represents the performance impact due to the variance between the actual and target allocations. Drift is caused by market movement.

Selection: represents the relative return of the underlying managers versus their benchmark returns.

Residual: represents the remainder of the return not explained by the attribution factors. Residual return can be caused by cash flow.

Source: AB



Contribution Analysis: Selection - Year to Date

State of Oregon Individual Account Program (IAP)

	2065	2060	2055	2050	2045	2040	2035	2030	2025	Ret. Alloc.
State Street Russell All Cap Index Securities Lending Series Fund Class I	0.02%	0.02%	0.02%	0.02%	0.01%	0.00%	0.01%	0.01%	0.01%	—
State Street Global All Cap Equity Ex US Index Securities Lending Fund Class I	0.04%	0.03%	0.04%	0.03%	0.02%	0.00%	0.01%	0.01%	0.01%	—
State Street US Bond Index Securities Lending Fund Class I	—	—	—	—	—	0.00%	(0.01)%	(0.01)%	(0.02)%	(0.02)%
State Street 1-10 Year US TIPS Index Non-Lending Series Fund Class A	—	—	—	—	—	—	0.00%	(0.01)%	(0.01)%	(0.01)%
State Street US Short-Term Government/Credit Bond Index Fund	—	—	—	—	—	—	—	0.00%	0.00%	0.00%
Oregon Public Employees Retirement Fund (OPERF)	5.34%	5.33%	5.35%	5.35%	6.07%	6.93%	6.08%	4.94%	3.96%	3.58%

As of December 31, 2022

Source: AB



Contribution Analysis: Since Inception

State of Oregon Individual Account Program (IAP)

Fund*	Fund Return [†]	Contribution			
		Asset Allocation	Drift	Selection	Residual
2065	8.77%	5.42%	(0.01)%	3.09%	0.27%
2060	7.93%	6.19%	0.00%	1.70%	0.05%
2055	7.90%	6.19%	(0.01)%	1.70%	0.02%
2050	7.92%	6.19%	0.01%	1.70%	0.03%
2045	8.15%	6.23%	(0.01)%	1.91%	0.01%
2040	8.17%	6.10%	0.01%	2.10%	(0.03)%
2035	7.87%	5.98%	0.06%	1.87%	(0.05)%
2030	7.14%	5.44%	0.17%	1.54%	0.00%
2025	5.98%	4.66%	0.10%	1.23%	0.00%
Ret. Alloc.	4.70%	3.60%	0.03%	1.08%	(0.01)%

As of December 31, 2022

*Inception date is 12/29/2017 for the Retirement Allocation – 2060 funds and 12/31/2019 for the 2065 fund. Attribution begins on the first full month after the inception date. †Estimated gross of fee return.

Definitions

Asset Allocation: represents performance that is attributable to the asset allocation decision and design of the glide path.

Drift: represents the performance impact due to the variance between the actual and target allocations. Drift is caused by market movement.

Selection: represents the relative return of the underlying managers versus their benchmark returns.

Residual: represents the remainder of the return not explained by the attribution factors. Residual return can be caused by cash flow.

Source: AB



Contribution Analysis: Selection - Since Inception

State of Oregon Individual Account Program (IAP)

	2065	2060	2055	2050	2045	2040	2035	2030	2025	Ret. Alloc.
State Street Russell All Cap Index Securities Lending Series Fund Class I	0.02%	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%	0.01%	0.00%	—
State Street Global All Cap Equity Ex US Index Securities Lending Fund Class I	0.06%	0.03%	0.03%	0.03%	0.03%	0.00%	0.01%	0.01%	0.01%	—
State Street US Bond Index Securities Lending Fund Class I	—	—	—	—	—	0.00%	0.00%	0.00%	0.00%	0.00%
State Street 1-10 Year US TIPS Index Non-Lending Series Fund Class A	—	—	—	—	—	—	0.00%	0.00%	0.00%	0.00%
State Street US Short-Term Government/Credit Bond Index Fund	—	—	—	—	—	—	—	0.00%	0.00%	0.00%
Oregon Public Employees Retirement Fund (OPERF)	3.02%	1.66%	1.66%	1.66%	1.88%	2.09%	1.86%	1.52%	1.22%	1.08%

As of December 31, 2022

Source: AB



Rebalance Details

State of Oregon Individual Account Program (IAP)

Month	Number of Rebalances (Days)*	Rebalances (\$)
Jan 22	—	—
Feb 22	1	42,182,810
Mar 22	—	—
Apr 22	1	73,431,100
May 22	—	—
Jun 22	—	—
Jul 22	1	104,238,787
Aug 22	—	—
Sep 22	—	—
Oct 22	—	—
Nov 22	—	—
Dec 22	1	30,682,280
Totals	4	250,534,977

As of December 31, 2022

Numbers may not sum due to rounding.

*Number of Rebalances (Days) indicates the number of days in a month where a rebalance was performed within the Target-Date Portfolio series.

Source: AB



Total Expense Ratio

State of Oregon Individual Account Program (IAP)

	2065	2060	2055	2050	2045	2040	2035	2030	2025	Ret. Alloc.
Manager Fees	55.04	55.04	55.04	55.04	64.65	68.54	59.62	49.17	40.77	37.72
Asset Allocation	4.93	3.19	3.22	3.23	3.23	3.23	3.24	3.24	3.25	3.26
Total	59.97	58.23	58.26	58.27	67.88	71.77	62.86	52.41	44.01	40.98

As of December 31, 2022

Expense ratios are represented in basis points. The above fees include investment-management and operating fees available as of the most recent quarter-end and may be subject to change. The fees associated with OPERF, which is an investment component of the IAP Target-Date Funds, are estimated based on the latest available Oregon Comprehensive Annual Financial Report (CAFR).

Source: AB



Additional S&P Target Date Benchmarks Information

State of Oregon Individual Account Program (IAP)

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For more information on these indices, please visit **www.SPIndices.com**



Disclosure

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TAB 7
ASSET ALLOCATION
& NAV UPDATES

Asset Allocations at February 28, 2023

OPERF	Regular Account							Target Date Funds	Variable Fund	Total Fund
	Policy	Target ¹	\$ Thousands	Pre-Overlay	Overlay	Net Position	Actual	\$ Thousands	\$ Thousands	\$ Thousands
Public Equity	25.0-35.0%	30.0%	18,563,703	20.1%	(816,813)	17,746,891	19.2%	1,208,993	251,317	19,207,201
Private Equity	15.0-27.5%	20.0%	24,763,468	26.8%		24,763,468	26.8%			24,763,468
Total Equity	45.0-55.0%	50.0%	43,327,171	46.9%	(816,813)	42,510,359	46.0%	2,143,079	6,232	43,970,669
Opportunity Portfolio	0-5%	0.0%	2,623,554	2.8%		2,623,554	2.8%			2,623,554
Fixed Income	15-25%	20.0%	17,682,147	19.2%	2,869,592	20,551,739	22.3%			22,694,818
Risk Parity	0.0-3.5%	2.5%	224,836	0.2%		224,836	0.2%			224,836
Real Estate	7.5-17.5%	12.5%	13,927,725	15.1%	(1,700)	13,926,025	15.1%			13,926,025
Real Assets	2.5-10.0%	7.5%	8,373,229	9.1%		8,373,229	9.1%			8,373,229
Diversifying Strategies	2.5-10.0%	7.5%	4,302,538	4.7%		4,302,538	4.7%			4,302,538
Cash ²	0-3%	0.0%	1,862,048	2.0%	(2,051,079)	(189,031)	-0.2%	(182,799)		
TOTAL OPERF		100%	\$ 92,323,248	100.0%	\$ -	\$ 92,323,248	100.0%	\$ 3,352,072	\$ 257,549	\$ 95,932,869

¹Targets established in October 2021. Interim policy benchmark effective October 1, 2021, consists of: 30% MSCI ACWI IMI Net, 20% Bloomberg U.S. Aggregate, 20% Russell 3000+300bps (1 quarter lagged), 12.5% NCREIF ODCE net (1 quarter lagged), 7.5% CPI+400bps, 7.5% HFRI FOF Conservative & 2.5% S&P Risk Parity - 12% Target Volatility.

²Includes cash held in the policy implementation overlay program.

SAIF	Policy	Target	\$ Thousands	Actual
Total Equity	7-13%	10.0%	447,112	10.4%
Fixed Income	80-90%	85.0%	3,504,632	81.7%
Real Estate	0-7%	5.0%	296,564	6.9%
Cash	0-3%	0.0%	42,949	1.0%
TOTAL SAIF			\$ 4,291,258	100.0%

CSF	Policy	Target	\$ Thousands	Actual
Global Equities	40-50%	45.0%	1,052,252	49.6%
Private Equity	8-12%	10.0%	186,906	8.8%
Total Equity	58-62%	55.0%	1,239,159	58.4%
Fixed Income	20-30%	25.0%	540,082	25.5%
Real Estate	0-12%	10.0%	213,810	10.1%
Alternative Investments	0-12%	10.0%	116,708	5.5%
Cash	0-3%	0.0%	10,291	0.5%
TOTAL CSF			\$ 2,120,049	100.0%

SOUE	Policy	Target	\$ Thousands	Actual
Global Equities	0-65%	N/A	1,960	75.5%
Fixed Income	35-100%	N/A	636	24.5%
Cash	0-3%	N/A	1	0.0%
TOTAL SOUE			\$ 2,597	100.0%

WOUE	Policy	Target	\$ Thousands	Actual
Global Equities	30-65%	55.0%	1,561	56.5%
Fixed Income	35-60%	40.0%	1,065	38.6%
Cash	0-25%	5.0%	135	4.9%
TOTAL WOUE			\$ 2,761	100.0%

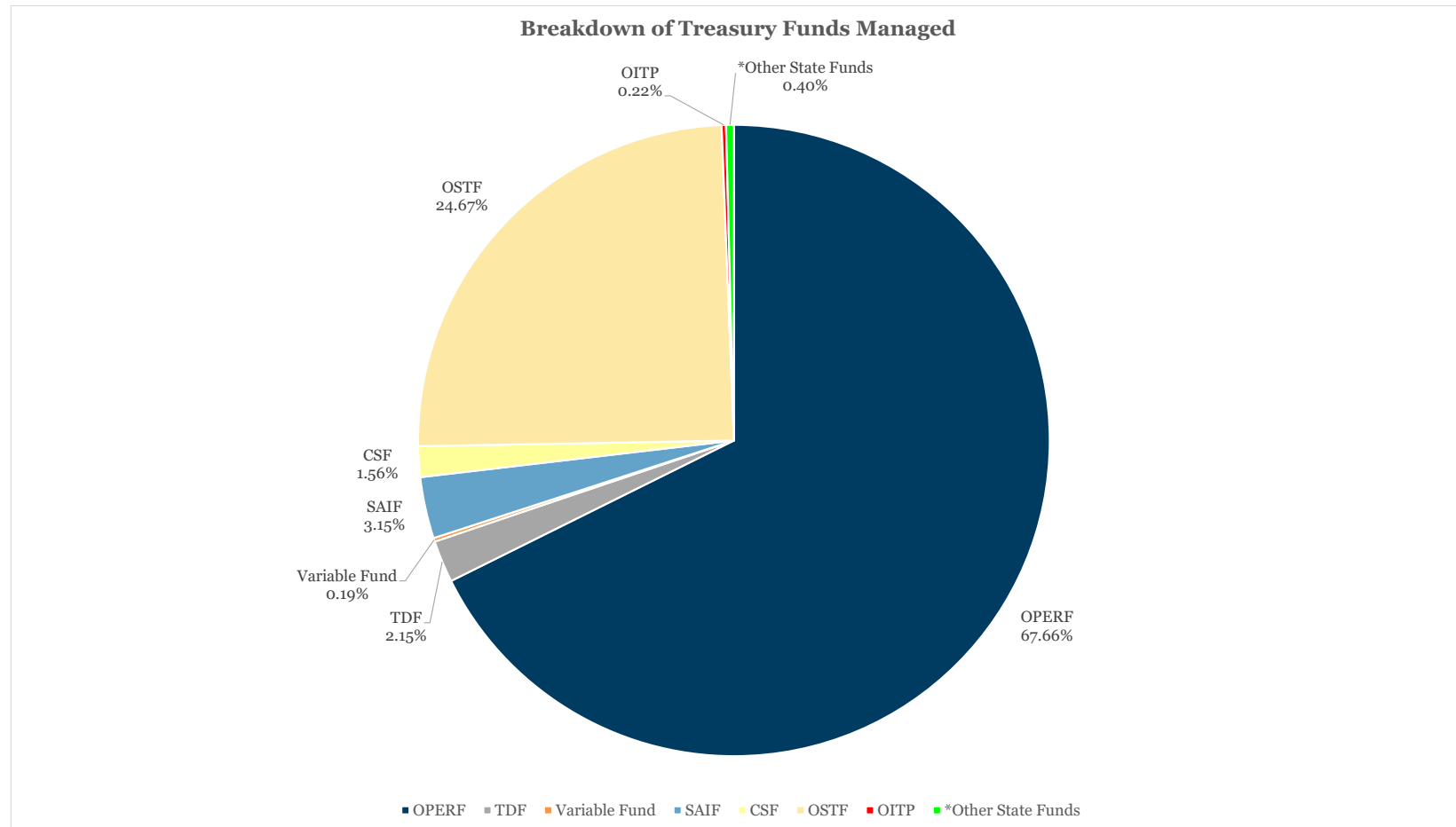
Oregon State Treasury Funds Managed as of February 28, 2023

OSTF, OITP & Other State Funds*	
OSTF	
OITP	
DAS Insurance Fund	
DCBS Operating Fund	
DCBS Workers Benefit Fund	
DCHS - Elderly Housing Bond Sinking Fund	
DCHS - Other Fund	
Oregon Lottery Fund	
DVA Bond Sinking Fund	
ODOT Fund	
OLGIF	
OPUF	
Total OSTF & Other State Funds	

\$ Thousands	Actual
33,270,657	94.4%
304,257	0.9%
97,570	0.3%
219,152	0.6%
142,405	0.4%
1,271	0.0%
13,564	0.0%
99,846	0.3%
101,459	0.3%
365,247	1.0%
232,640	0.7%
379,004	1.1%
\$ 35,227,072	100.0%

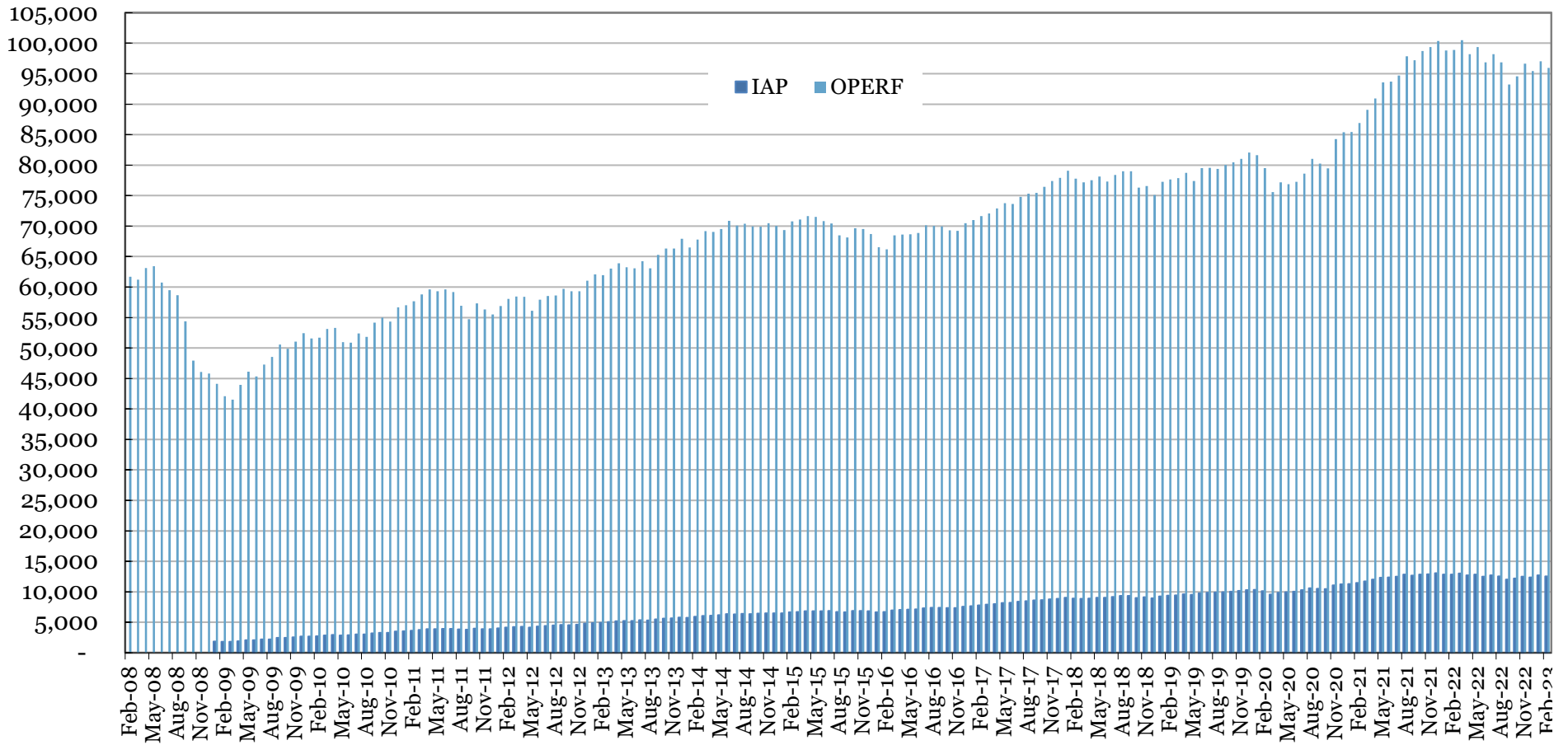
Total of All Treasury Funds**

\$ 134,872,680

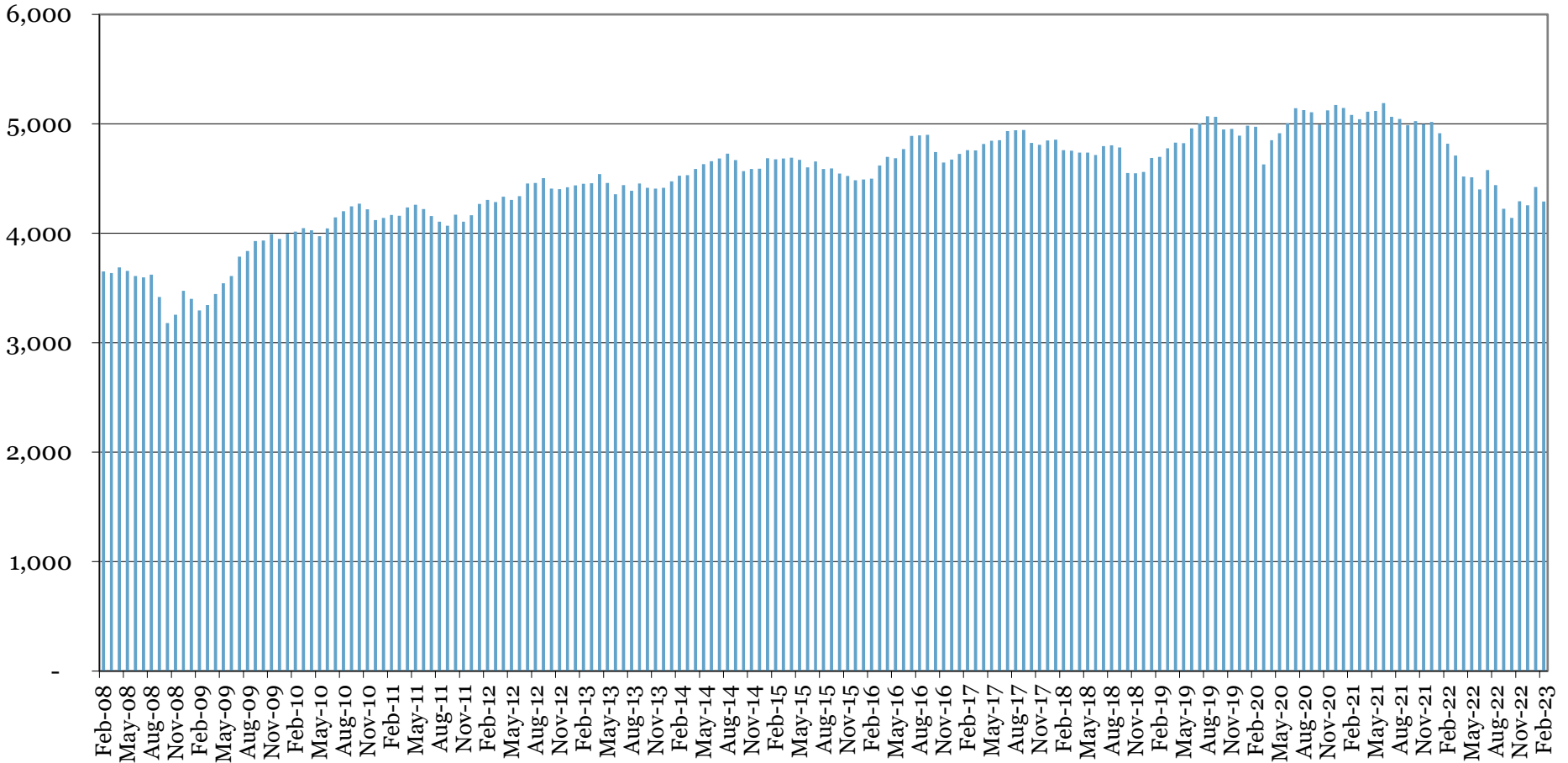


*Other State Funds include DAS Insurance Fund, DCBS Operating Fund, DCBS Workers Benefit Fund, DCHS - Elderly Housing Bond Sinking Fund, DCBS - Other Fund, Oregon Lottery Fund, DVA Bond Sinking Fund, ODOT Fund, OLGIF, & OPUF.

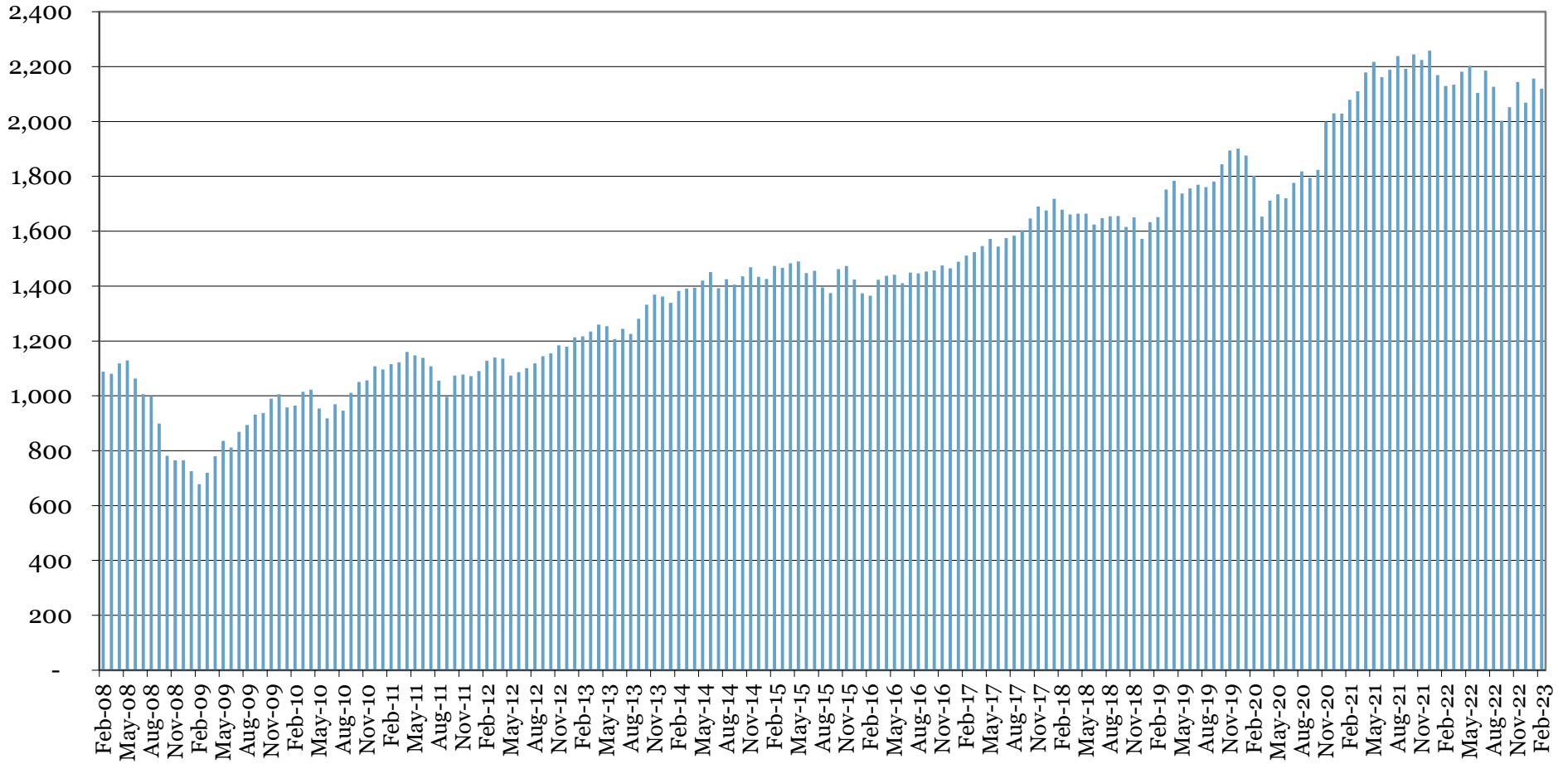
OPERF NAV
15 years ending February 28, 2023
(\$ in Millions)



SAIF NAV
15 years ending February 28, 2023
(\$ in Millions)



CSF NAV
15 years ending February 28, 2023
(\$ in Millions)



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TAB 8

CALENDAR – FUTURE AGENDA ITEMS

2023-24 OIC Forward Calendar and Planned Agenda Topics

May 31, 2023	OIC-PERS Joint Session Q1 Performance Review: OPERF
July 19, 2023	Diversifying Strategies Portfolio Review
September 6, 2023	Q2 Performance Review: OPERF, CSF, SAIF
October 25, 2023	Operations Annual Review CEM Benchmarking
December 6, 2023	Q3 OPERF Performance Public Equity Portfolio Review Fixed Income Portfolio Review: OPERF, OSTF
January 24, 2024	Private Equity Portfolio Review Opportunity Portfolio Review 2025 OIC Calendar Approval
March 6, 2024	2023 Performance Review: OPERF, CSF, SAIF Fixed Income Portfolio Review Real Estate Portfolio Review
April 17, 2024	Real Assets Portfolio Review Individual Account Program (IAP) Review OSGP Annual Review

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TAB 9
OPEN DISCUSSION

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TAB 10

PUBLIC COMMENTS

Public comments can now be found at the OIC website at:

<https://www.oregon.gov/treasury/invested-for-oregon/pages/oregon-investment-council.aspx>