OREGON
STATE
TREASURY

Oregon Investment Council

March 6, 2024

Cara Samples
Chair

Tobias Read
State Treasurer

Rex Kim
Chief Investment Officer

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

Agenda

March 6, 2024
9:00 AM

Time	Tab		Presenter
9:00 – 9:05	1	**Review & Approval of Minutes** January 24, 2024 & February 6, 2024	Cara Samples *OIC Chair*
9:05 – 9:10	2	**Committee Reports**	Rex Kim *Chief Investment Officer*
9:10 – 9:15	3	**Placement Agent**	Michael Langdon *Director of Private Markets*
9:15 – 9:45	4	**OPERF 2023 Performance Review**	Mika Malone *Managing Principal, Meketa* Colin Bebee *Managing Principal, Meketa*
--- BREAK ---			
9:50 – 10:30	5	**Real Estate Annual Review**	Gloria Gil *Senior Investment Officer, Real Estate* Austin Carmichael *Investment Officer, Real Estate*

			Chris Ebersole *Investment Officer, Real Estate* Christy Fields *Managing Principal, Meketa*
10:30 – 11:10	6	**Real Assets Annual Review**	Ben Mahon *Senior Investment Officer, Real Assets* Nic DiLoretta *Managing Director, Aksia*
11:10 – 11:40	7	**Common School Fund 2023 Performance Review**	Michael Langdon *Director of Private Markets* Wil Hiles *Investment Officers, Public Equity* Jamie McCreary *Service Model Program Manager*
--- BREAK ---			
11:45 – 12:15	8	**Oregon Short Term Fund Update and Policy** *(Action Item: Policy Update)*	Louise Howard *Director of Capital Markets* Will Hampson *Investment Officer, Fixed Income*
12:15	9	**Calendar – Future Agenda Items**	Rex Kim
		Open Discussion	OIC Members, Staff, Consultants
		Public Comments	

TAB 1

REVIEW & APPROVAL OF MINUTES

State of Oregon
Office of the State Treasurer

16290 SW Upper Boones Ferry Road

Tigard, Oregon 97224

OREGON INVESTMENT COUNCIL

January 24, 2024

Meeting Minutes

Members Present:	Cara Samples, Treasurer Tobias Read, Lorraine Arvin, Pia Wilson-Body, Alline Akintore, Kevin Olineck
Staff Present:	Rex Kim, Michael Kaplan, Michael Makale, David Randall, Karl Cheng, Louise Howard, Jamie McCreary, Ben Mahon, Michael Langdon, Philip Larrieu, Eric Messer, Jen Plett, Ahman Dirks, Wil Hiles, Angela Schaffers, Eric Engelson, Chris Ebersole, Kenny Bao, Chuck Christopher, Bryson Pate, Jennifer Kersgaard
Staff Participating Virtually:	Aliese Jacobsen, Alli Gordon, Amanda Kingsbury, Andrew Coutu, Anna Totdahl, Annie Gregory, Ashley Daigle, Austin Carmichael, Caitlen Laue, Chris Gonzales, Christine Wilson, Claire Illo, Dana Millican, Debra Day, Ericka Langone, Erinn Cartwright, Faith Sedberry, Gisela Verdeja, Gloria Gil, Ian Huculak, Jaime Alvarez, Jeremy Knowles, Jo Recht, John Lutkehaus, Josh Jones, Julie Hall, Kiara Cruz, Kristi Jenkins, Krystal Korthals, Loren Terry, Mara Kelly, Mark Selfridge, Mary Krehbiel, Mike Mueller, Missy Simpson, Mohammed Quraishi, Paul Koch, Perrin Lim, Peter Rector, Roy Jackson, Sarah Bagdriwicz, Scott Robertson, Sommer May, Tan Cao, Taylor Bowman, Tiffany Zahas, Tim Miller, Tyler Bernstein, Will Hampson, Young Kim
Consultants Present:	Allan Emkin, Mika Malone, Eric Larsen, Tom Martin, Raneen Jalajel, Paola Nealon, Ashley Woeste, Sarah Anderson, Hannah Creighton, Brian Ruder, Derrek Ransford, Pete Veravanich
PERS Present:	Kevin Olineck
Legal Counsel Present:	Steve Marlowe (Department of Justice)

The January 24, 2024, OIC meeting was called to order at 9:05am by Cara Samples, Chair

Time	**Tab**		**Presenter**
9:05	1	**Review & Approval of Minutes**	Cara Samples

December 6, 2023 — *OIC Chair*

Chair Samples asked for approval of the December 6, 2023, OIC regular meeting minutes. Treasurer Read moved approval at 9:05 am, member Arvin seconded the motion which then passed by a 4/0 vote (Member Alline Akintore had not yet arrived).

Rex Kim, CIO, confirmed for the record that INV 1201 and INV 1202 are retired given the OIC approved the new INV 1203, as well as noted the removal of the signature line from INV 1203 and INV 901.

2 **Committee Reports** — Rex Kim, *Chief Investment Officer*

Private Equity Committee:
None

Real Estate Committee:
None

Opportunity Committee:
None

Alternatives Portfolio Committee:
None

Staff Discretion
None

9:05 – 9:10 3 **OIC Elections** — Cara Samples, *OIC Chair*
(Action Item: Chair, Vice Chair)

Treasurer Read nominated Chair Samples to continue as OIC Chair at 9:06am. Member Arvin seconded the motion which then passed by a 4/0 vote. Treasurer Read nominated Vice Chair Lorraine Arvin to continue as OIC Vice Chair, Member Wilson-Body seconded the motion which then passed by a 4/0 vote. (Member Alline Akintore had not yet arrived)

9:10 – 9:15 4 **2025 OIC Calendar** — Cara Samples, *OIC Chair*

(Action Item: Meeting Dates)
Treasurer Read moved approval of the 2025 OIC Meeting dates at 9:08am. member Arvin seconded the motion which then passed by a 5/0 vote. (Member Alline Akintore was in attendance).

9:15 – 10:00 5 **Private Equity Market Review** — Brian Ruder, *Partner, Permira*

Brian Ruder, partner at Permira, presented a market overview that touched on inflation and valuations. He discussed capital by sector and region, as well as emerging AI technology in the portfolio, and Climate Transition Opportunities.

--- BREAK ---

10:10 – 11:10 6 **OPERF Private Equity Annual Review** — Michael Langdon, *Director of Private Markets*
Ahman Dirks, Angela Schaffers, Eric Messer
Investment Officers, Private Equity
Tom Martin

Head of Private Equity & Real Assets, Aksia
Derrek Ransford, Pete Veravanich
Pathway Capital Management

Michael Langdon, Director of Private Markets, Ahman Dirks, Investment Officer, Angela Schaffers, Investment Officer, Eric Messer, Investment Officer, Tom Martin, Head of Private Equity & Real Assets with Aksia, Derrek Ransford and Pete Veravanich with Pathway Capital Management, presented the OPERF Private Equity Annual Review. The presentation included an economic and market update that discussed 2023 in review, continued market volatility and private equity exposure.

OPERF's Private Equity 2023 returns trails indices -6.5% in the short-term, but outperforms in the long-term, exceeding the benchmarks for the 3-year and 5-year periods by 0.6% and 0.5%, respectively.

--- BREAK ---

11:10 – 12:00 7 **OPERF Public Equity Annual Review**
(Action Item: Updates to INV 603)

Louise Howard
Director of Capital Markets
Wil Hiles
Investment Officer, Public Equity
Philip Larrieu
Investment Officer, Stewardship
Paola Nealon
Managing Principal, Meketa
Raneen Jalajel
Associate Partner, Aon

Louise Howard, Director of Capital Markets, Wil Hiles, Investment Officer, Philip Larrieu, Investment Officer, Paola Nealon, Managing Principal with Meketa, and Raneen Jalajel, Associate Partner with Aon, presented the OPERF Public Equity Annual Review. The presentation included an overview of the strategic role of the portfolio and asset allocation.

OPERF's Public Equity 2023 YTD returns trailed the policy benchmark by -1.3% but are exceeding the benchmark for the 3-year period by 2.0%.

Given Staff's review of the internal equity portfolios and funding needs for IAP, Staff is liquidating the U.S. Risk Premia strategy (59GX) with prior CIO approval. Staff is seeking OIC approval to revise the current investment policy in INV 603 to reflect the removal of the strategy. Moreover, Staff would like to further revise INV 603 to reflect prior liquidations of the International Emerging Markets Risk Premia strategy and the OST Private Equity Stock Distribution Portfolio.

Treasurer Read moved approval at 12:31, Member Wilson-Body seconded the motion which then Passed by a 5/0 vote.

12:00 – 12:20 8 **Audits Review**

Michael Kaplan
Deputy State Treasurer, OST
Michael Makale
Chief Audit Officer, OST
Sarah Anderson

Audit Manager, Secretary of State
Hannah Creighton
Senior Auditor, Secretary of State

Michael Kaplan, Deputy State Treasurer, Michael Makale, Chief Audit Officer, Sarah Anderon, Audit Manager with the Secretary of State, and Hannah Creighton, Senior Auditor with the Secretary of State, presented the Audit Review. The presentation included an overview of the Internal Audit Team as well as completed and planned investment program audits.

The Secretary of State reported no significant findings or issues from their 2023 audits of the Oregon Short Term Fund, The Oregon Intermediate Term Pool, and the Oregon Local Government Intermediate Fund.

12:20 9 **Calendar – Future Agenda Items** Rex Kim

12:25 10 **Open Discussion** OIC Members, Staff, Consultants

Public Comments

State of Oregon
Office of the State Treasurer

16290 SW Upper Boones Ferry Road

Tigard, Oregon 97224

OREGON INVESTMENT COUNCIL

February 6, 2024

Meeting Minutes

Members Present:	Cara Samples, Treasurer Tobias Read, Lorraine Arvin, Pia Wilson-Body, Alline Akintore, Kevin Olineck
Staff Present:	Rex Kim, Dmitri Palmateer, Rachel Wray, Michael Makale, David Randall, Louise Howard, Jamie McCreary, Michael Langdon, Wil Hiles, Eric Engelson, Alli Sorenson, Asia Slaughter, Chuck Christopher, Bryson Pate, Jennifer Kersgaard
Staff Participating Virtually:	Aaron Schaffer, Ahman Dirks, Aliese Jacobsen, Alli Gordon, Amanda Kingsbury, Andrew Coutu, Andrew Robertson, Andre Voloshinov, Angela Schaffers, Annie Gregory, Ashley Daigle, Austin Carmichael, Ben Mahon, Byron Williams, Caitlen Laue, Caitlyn Wang, Carmen Leiva, Christine Wilson, Chris Ebersole, Cora Parker, Debra Day, Eric Messer, Ericka Langone, Faith Sedberry, Gisela Verdeja, Gloria Gil, Grace Roth, Ian Huculak, Jaime Alvarez, Jo Recht, Julie Hall, Karl Cheng, Kenny Bao, Kiara Cruz, Kristi Jenkins, Krystal Korthals, Loren Terry, Mara Kelly, Mark Selfridge, Melissa Sloan, Michael Kaplan, Michael Thompson, Mike Mueller, Mohammed Quraishi, Paul Koch, Perrin Lim, Peter Rector, Roy Jackson, Sarah Oliveria, Scott Robertson, Sommer May, Tan Cao, Taylor Bowman, Tiffany Zahas, Tim Miller, Tyler Bernstein, Will Hampson, Young Kim
Consultants Present:	Allan Emkin, Christy Fields, Raneen Jalajel, Paola Nealon, Ashley Woeste
PERS Present:	Kevin Olineck
Legal Counsel Present:	Steve Marlowe (Department of Justice)

Time	**Tab**		**Presenter**
9:00 – 9:30	1	**Treasurer Read Net Zero Plan**	Treasurer Tobias Read *Oregon State Treasury*

Treasurer Read presented A Pathway to Net Zero: Positioning OPERF For a Net Zero Carbon Future. He began his presentation by outlining Treasury's role as a fiduciary, for the benefit of beneficiaries. OPERF funds are invested to perform in various market conditions while supporting monthly benefit payments and future retirement obligations. The Treasurer's Net Zero plan is guided by the following principles: science based, action oriented, credible, transparent, risk considerate, and opportunity seeking. Emission intensity, which is defined as tons of carbon per million dollars invested, was chosen as the criteria because it is easier to compare over time. Treasury's portfolio emissions baseline covers 80% of total assets under management, the largest share reported among North American pension funds that have published portfolio emissions.

The Plan: Achieve Net-Zero portfolio emissions by no later than 2050 across OPERF. In the interim, target a 60% reduction in portfolio emissions intensity by 2035, relative to the 2022 baseline.

9:30 – 10:00 2 **Data & Process**

Shally Venugopal
Partner & Vivid Economics NA Leader
McKinsey & Company
Ryan Barrett
Engagement Manager - Sustainability
McKinsey & Company
Treasurer Tobias Read
Oregon State Treasury

Shally Venugopal and Ryan Barrett presented on the four steps the Oregon State Treasury used to calculate its portfolio emissions baseline. The Partnership for Carbon Accounting Financials ("PCAF") was the methodology utilized for the calculation of portfolio emissions intensity. The PCAF is the first and the leading emissions accounting standard for financial institutions across 7 asset classes, based on the Greenhouse Gas Protocol principles.

10:00 3 **Open Discussion** OIC, Staff, Consultants

OIC members discussed next steps to properly assess the Treasurer's Net Zero proposal. They would like to engage their consultants throughout 2024 to provide an assessment of the plan.

10:00 4 **Public Comments**
(Please keep comments limited
to 3 minutes.)

TAB 2

COMMITTEE REPORTS

Oregon Investment Council

OREGON STATE TREASURY

TAB 3

PLACEMENT AGENT

Annual Placement Agent Disclosure

March 6, 2024

Purpose
In accordance with its Policy COM 201: Conflict of Interest and Code of Conduct, OST shall disclose, in all investment recommendations to the Oregon Investment Council, any Placement Agent used by the investment firm *that has had any contact with Treasury investment staff*. Staff shall present to the OIC an annual summary of the foregoing, which will also be made available to the public on the Treasury website.

Placement Agent Contact Summary for Calendar Year 2023

Partnership	OPERF Commitment	Placement Agent
Hudson Northern Shipping Fund V	$150 million	Manor Private Capital
Arctos Sports Partners Fund II	$150 million	Evercore

Note that Placement Agents are retained by investment funds' General Partner, and OST investment staff does not rely on such placement agent firms for access or analysis.

TAB 4

OPERF 2023

PERFORMANCE REVIEW

MEKETA

Oregon Investment Council

March 6, 2024

Q4 Performance Update
As of December 31, 2023

Table of Contents

Introduction

OPERF Executive Summary – Notable Items

- → Most major asset classes delivered positive returns in the fourth quarter, with risk assets in particular rallying to finish the calendar year. OPERF returned 3.9% which lagged most peers and its benchmark in part due to its lower exposure to public equity markets.
- → Meketa and AON, together with Staff feedback, are working towards refining and updating the Asset Class Guidelines.
- → Following the Net Zero presentation on February 6, Meketa and AON are working towards providing feedback to Treasurer Reed's proposal with an expected timeline of April.
- → Conversations continue between Staff and consultants regarding additional portfolio-level items, such as the overlay, pacing within private markets, internal index management, and securities lending programs. Meketa continues to support the Council and Staff on both education and recommendations regarding these topics.

Economic and Market Update

Data as of January 31, 2024

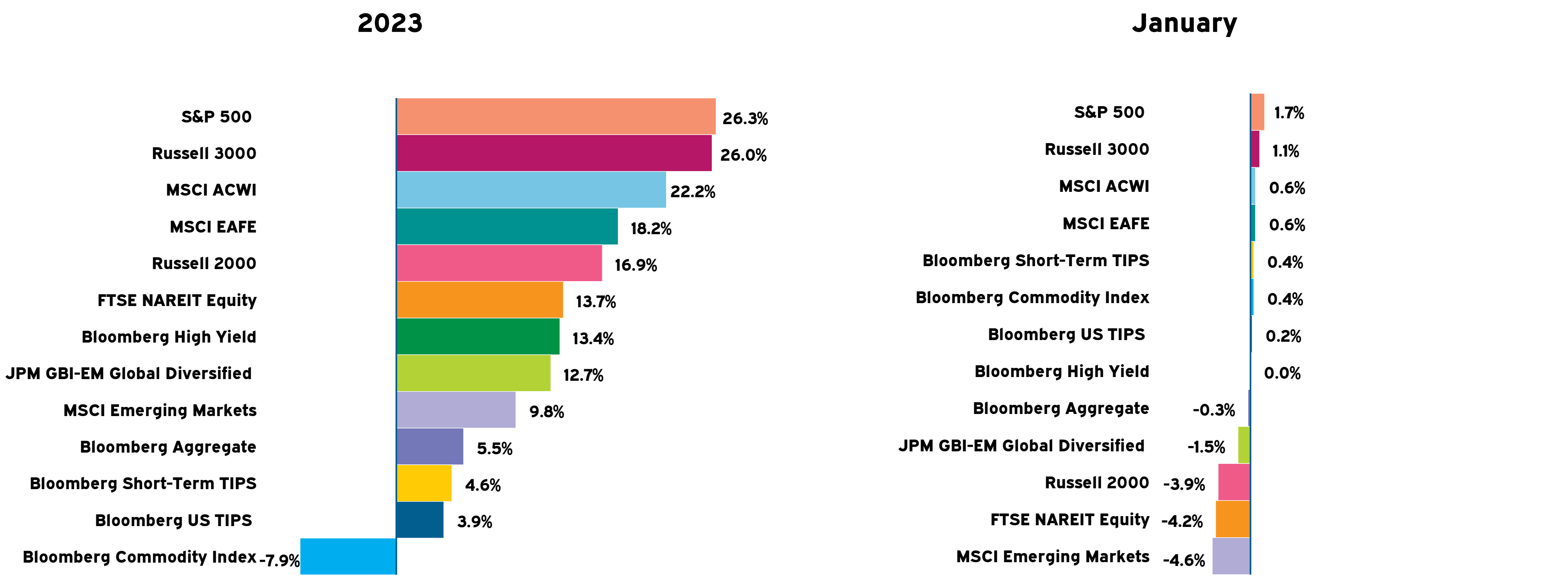
Commentary

→ Markets were mixed in January after posting strong returns in 2023.

- Major central banks have largely paused interest rate hikes with expectations for many to cut rates this year. During the month there were signs though that many central banks, including the US, might not cut rates as soon as expected given strong economic data.
- In general inflation pressures have receded in most countries, but some uncertainty remains. Headline inflation fell in January in the US, but core inflation remained unchanged and elevated. China moved further into deflationary territory (-0.8%) in January.
- US equity markets (Russell 3000 index) rose 1.1% in January after a very strong 2023 (26.0%). There were mixed results across sectors, but technology continued to do well.
- Non-US developed equity markets gained 0.6% in January but 2.6% in local terms as the US dollar reversed course and strengthened during the month. The appreciation of the dollar was largely driven by strong economic data and related expectations that the Fed may delay policy rate cuts this year.
- Emerging market equity returns were also negatively influenced by the strong US dollar, but the biggest headwind in January was China (-10.6%). Emerging market equities had the weakest results for the month, down 4.6%.
- Bonds experienced selling pressure over the month, but ultimately finished the month nearly unchanged. The broad US bond market (Bloomberg Aggregate) declined (0.3%) in January.

→ Looking to the rest of this year, the paths of inflation and monetary policy, China's economic disorder and slowing economic growth, the many looming elections, and the wars in Ukraine and Israel, will be key.

Index Returns[1]



→ After a strong market performance in 2023, the start of 2024 saw US large cap growth stocks continue their rally causing the S&P 500 to lead the way. Emerging market equity was the worst performer, dragged down by the continued sell-off of Chinese stocks.

→ Better than expected economic news in the US weighed on bond markets for the month with the broad US bond market (Bloomberg Aggregate) down slightly.

[1] Source: Bloomberg. Data is as of January 31, 2024.

Domestic Equity Returns[1]

Domestic Equity	January (%)	Q4 2023 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	1.7	11.7	20.8	11.0	14.3	12.6
Russell 3000	1.1	12.1	19.1	9.1	13.5	12.0
Russell 1000	1.4	12.0	20.2	9.8	14.0	12.3
Russell 1000 Growth	2.5	14.2	35.0	10.0	18.0	15.5
Russell 1000 Value	0.1	9.5	6.1	9.2	9.3	8.8
Russell MidCap	-1.4	12.8	6.7	5.5	10.1	9.5
Russell MidCap Growth	-0.5	14.5	15.1	1.2	11.2	10.7
Russell MidCap Value	-1.8	12.1	2.4	7.8	8.6	8.2
Russell 2000	-3.9	14.0	2.4	-0.8	6.8	7.0
Russell 2000 Growth	-3.2	12.7	4.5	-6.0	6.2	7.0
Russell 2000 Value	-4.5	15.3	-0.1	4.5	6.7	6.7

US Equities: The Russell 3000 increased 1.1% in January with a one-year return of 19.1%.

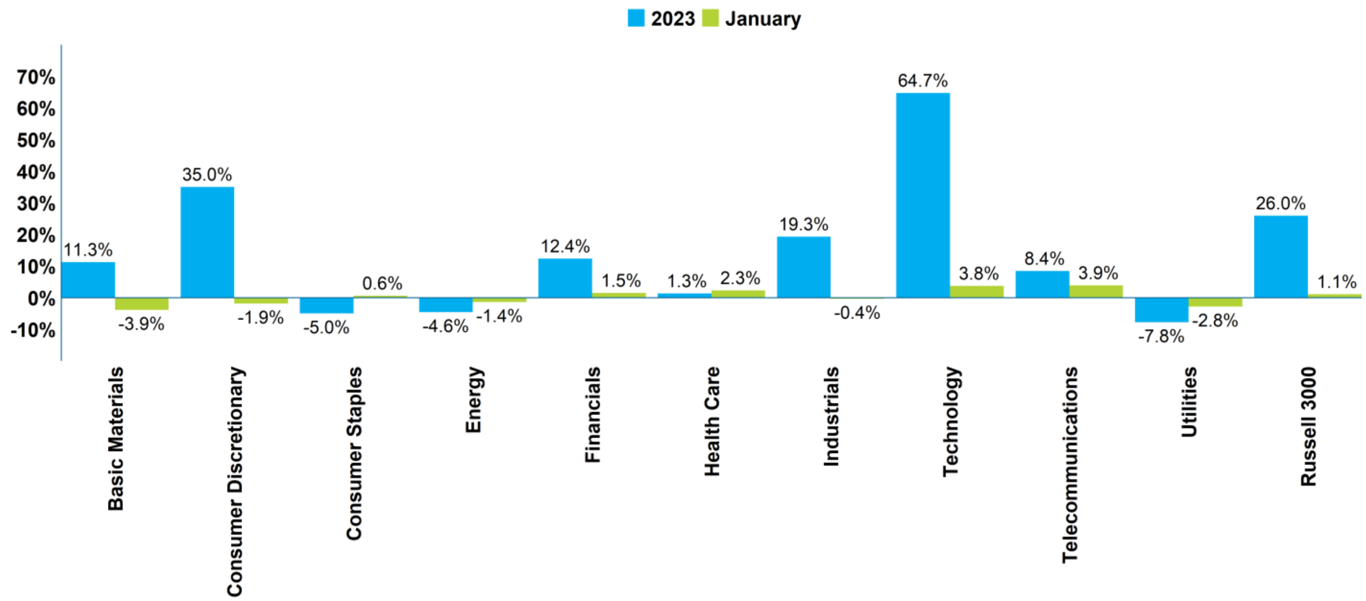
→ US equities built on their large gains from last year in January. Strong corporate earnings, economic data suggesting a soft landing might be achievable, and hopes for significant interest rate cuts (for most of the month) all drove results.

→ Large cap stocks accounted for all the US equity market gains in January. NVIDIA, Microsoft, and Meta Platforms made up nearly 90% of the increase in the Russell 1000 index. Growth stocks outperformed value stocks across the market cap spectrum.

→ While US equities advanced as a group, small and mid-cap stocks both declined in January. Banks contributed to this dynamic after a surprise loss at New York Community Bancorp rekindled fears regarding the banking system.

[1] Source: Bloomberg. Data is as of January 31, 2024.

Russell 3000 Sector Returns[1]



→ In January, telecommunications (3.9%), technology stocks (3.8%), and health care (2.3%) outperformed other sectors. Traditionally defensive sector utilities (-2.8%) trailed along with basic materials (-3.9%) and energy stocks (-1.4%).

→ In 2023, technology (64.7%) and consumer discretionary (35.0%) sectors had the best results, helped respectively by artificial intelligence optimism and a healthy US consumer.

[1] Source: Bloomberg. Data is as of January 31, 2024.

Foreign Equity Returns[1]

Foreign Equity	January (%)	Q4 2023 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	-1.0	9.8	5.9	1.1	5.3	4.2
MSCI EAFE	0.6	10.4	10.0	4.6	6.9	4.8
MSCI EAFE (Local Currency)	2.6	5.0	12.1	9.7	8.9	7.2
MSCI EAFE Small Cap	-1.6	11.1	3.6	-1.1	4.6	4.8
MSCI Emerging Markets	-4.6	7.9	-2.9	-7.5	1.0	2.9
MSCI Emerging Markets (Local Currency)	-3.5	5.6	-0.5	-4.9	3.2	5.3
MSCI China	-10.6	-4.2	-29.0	-23.2	-6.9	0.4

Foreign Equity: Developed international equities (MSCI EAFE) gained 0.6% in January and had a one-year return of 10.0%. Emerging market equities (MSCI EM) fell -4.6% in January, and -2.9% for the trailing year.

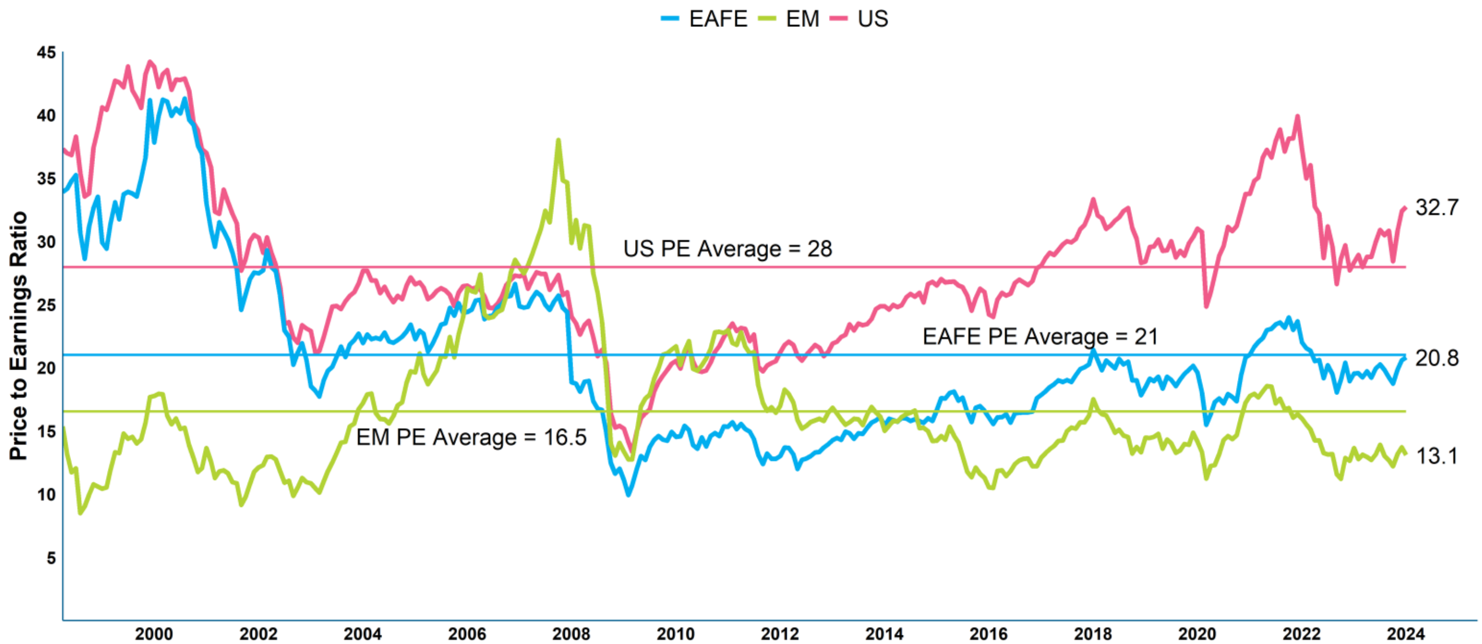
→ International developed equities saw slight gains for the month, while emerging market equities saw large losses for the same period; both were hampered by the US dollar reversing its sell-off from the end of last year. Outside of emerging markets, growth outperformed value for the month.

→ Eurozone equities performed well, benefiting from ECB policy expectations, developments in the tech sector, and promising manufacturing data. U.K. equities stalled, as an unexpected increase in inflation pushed out the expected timing of rate cuts. Japan continues to see the highest returns globally over optimism on structural changes, January being no exception.

→ EM equities continue to be bogged down by China (-10.6%) despite news of further stimulus by the PBOC.

[1] Source: Bloomberg. Data is as of January 31, 2024.

Equity Cyclically Adjusted P/E Ratios[1]



→ In January, the US equity price-to-earnings ratio increased further above its 21st century average.

→ International market valuations were mixed in January and remain below the US. In the case of developed markets, valuations increased slightly to just below their long-term average, while emerging market valuations declined, remaining well below their average.

[1] US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E – Source: Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years. Data is as of January 2023. The average line is the long-term average of the US, EM, and EAFE PE values from April 1998 to the recent month-end respectively.

Fixed Income Returns[1]

Fixed Income	January (%)	Q4 2023 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	-0.2	6.8	2.7	-2.8	1.1	1.9	4.9	6.0
Bloomberg Aggregate	-0.3	6.8	2.1	-3.2	0.8	1.6	4.6	6.2
Bloomberg US TIPS	0.2	4.7	2.2	-1.0	2.9	2.2	4.2	6.9
Bloomberg Short-term TIPS	0.4	2.6	4.3	2.3	3.3	2.0	4.4	2.6
Bloomberg High Yield	0.0	7.2	9.3	1.9	4.4	4.5	7.8	3.7
JPM GBI-EM Global Diversified (USD)	-1.5	8.1	6.4	-3.3	-0.2	0.4	6.3	5.0

Fixed Income: The Bloomberg Universal index fell -0.2% in January but gained 2.7% on a one-year basis.

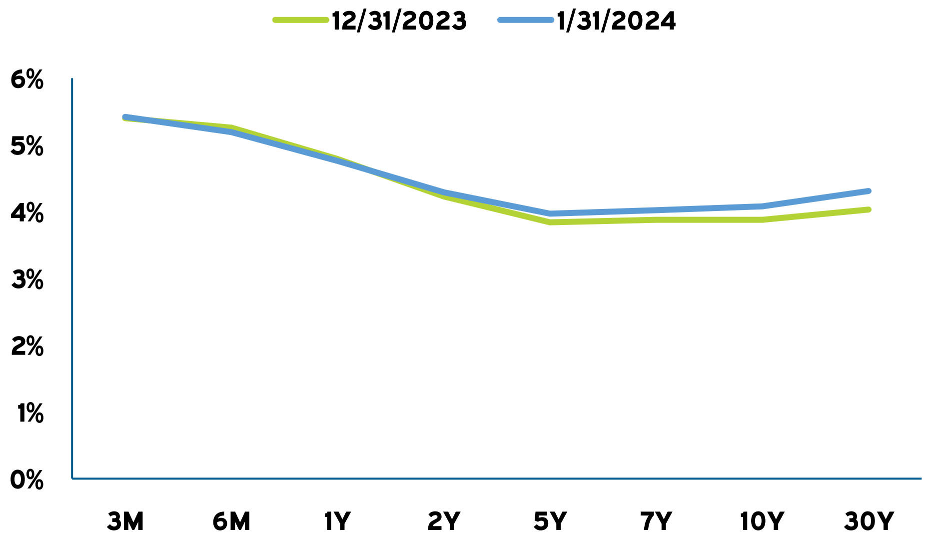
→ Strong economic data in January and comments toward the end of the month by Federal Reserve Chair Jerome Powell hinting that rate cuts were not imminent drove rates up over the month, weighing on bonds.

→ The broad US bond market (Bloomberg Aggregate) declined 0.3% for the month. The broader TIPS index rose 0.2%, while the less interest-rate-sensitive short-term TIPS index rose 0.4%.

→ High yield bonds ended the month unchanged, while emerging market debt declined by 1.5%. Both asset classes produced double-digit gains last year.

[1] Source: Bloomberg. JPM GBI-EM data is from InvestorForce. Data is as of January 31, 2024. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration respectively.

US Yield Curve[1]



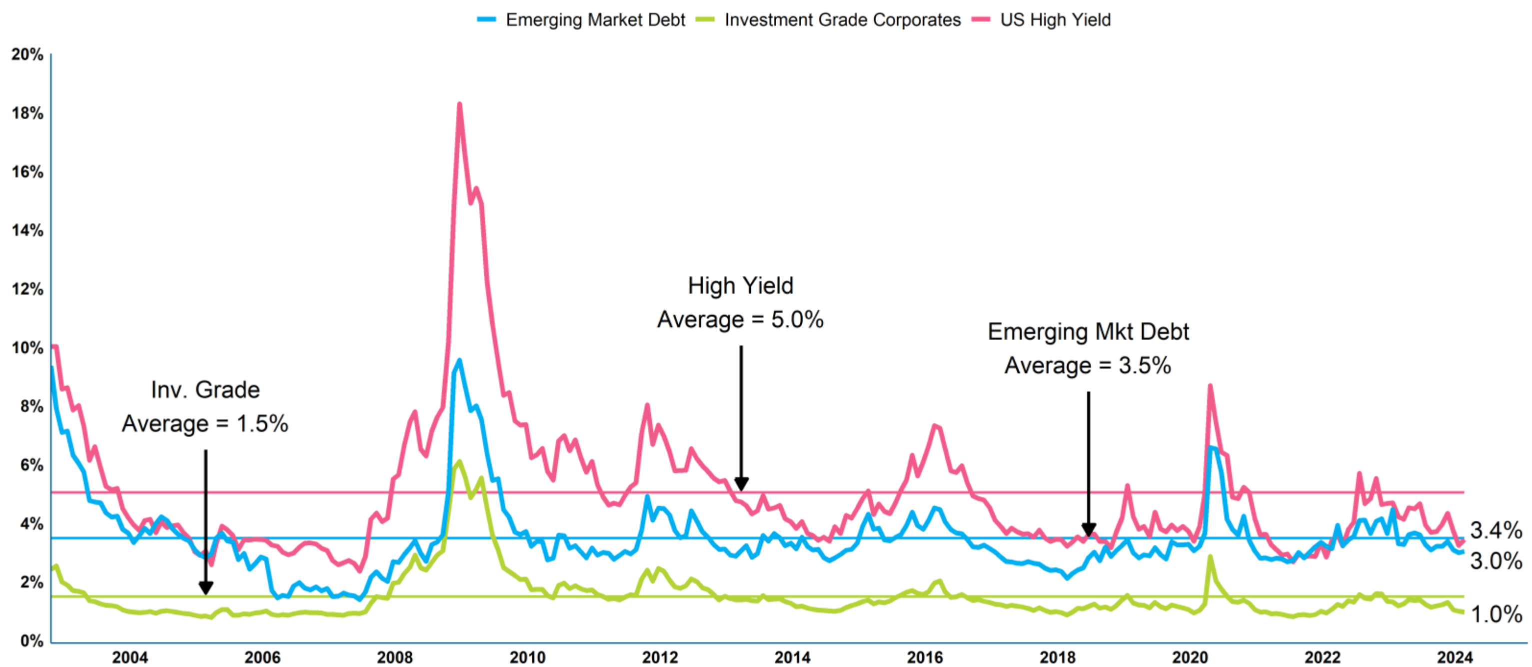
→ Both short-term and longer-term maturities ended the month largely unchanged, however, yields were volatile over the month on surprisingly strong economic data and shifts in monetary policy expectations.

→ For the month, two-year Treasury yields ended at 4.2% (around 1% below the peak from October) while 10-year Treasury yields ended at 3.9%.

→ The yield curve remained inverted at month-end despite a recent flattening trend. The yield spread between the two-year and ten-year Treasury was -0.3% at the end of January.

[1] Source: Bloomberg. Data is as of January 31, 2024.

Credit Spreads vs. US Treasury Bonds[1]



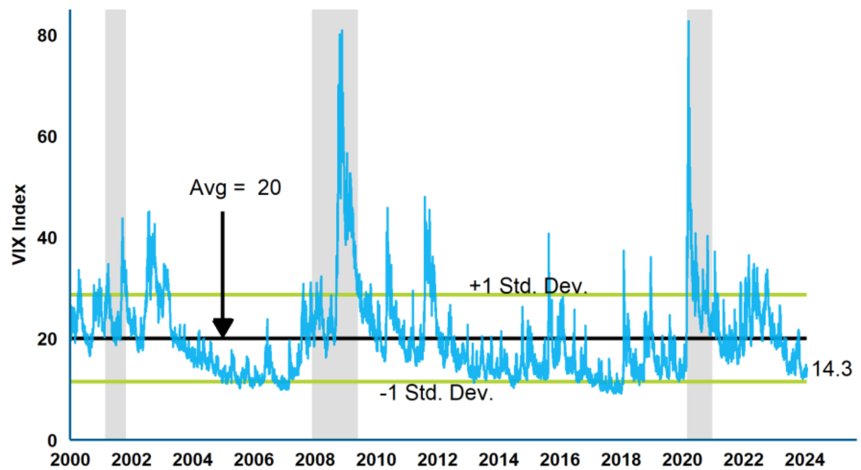
→ Credit spreads widened slightly for high yield in January (3.2% to 3.4%) while spreads for investment grade corporate and emerging market bonds remained the same.

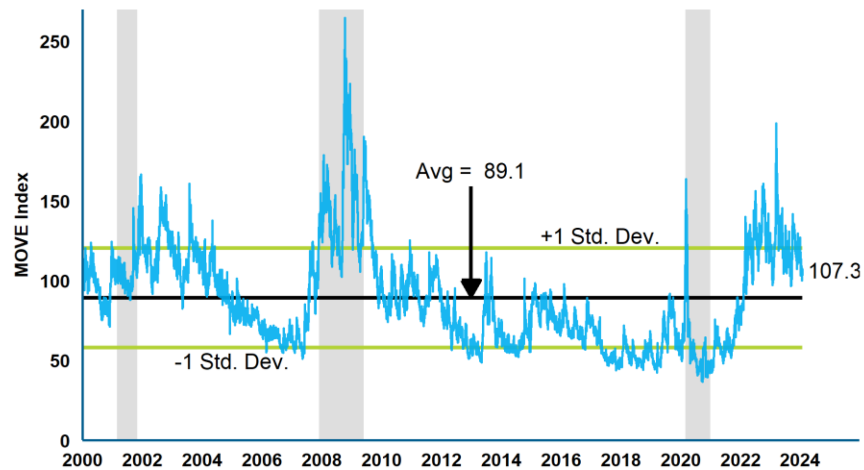
→ Expectations of peaking policy rates and the corresponding increase in risk appetite has recently benefited credit, with spreads (the added yield above a comparable maturity Treasury) narrowing.

→ All spreads remain below their respective long run averages, particularly within high yield.

[1] Sources: Bloomberg. Data is as of January 31, 2024. Average lines denote the average of the investment grade, high yield, and emerging market spread values from September 2002 to the recent month-end, respectively.

Equity and Fixed Income Volatility[1]



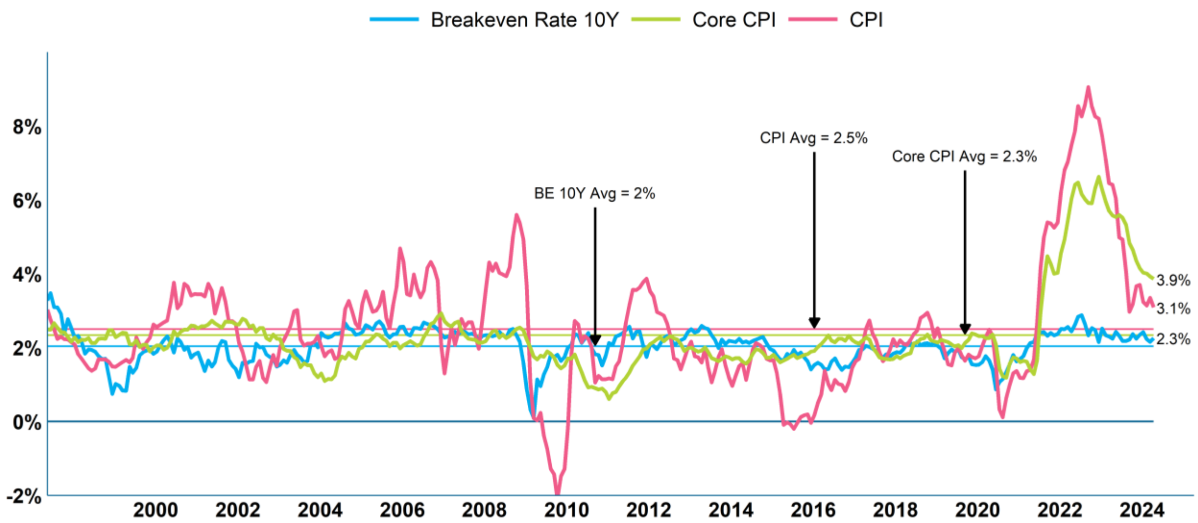


→ Volatility in equities (VIX) remains close to one standard deviation below the long-term average as the focus shifted late last year to peaking policy rates and the potential for a soft landing.

→ Volatility in the bond market (MOVE) came down over the month (114.6 to 107.3) but remains elevated and well above its long-run average (89.1). The bond market remained on edge for most of 2023, driven largely by uncertainty about the ultimate path of monetary policy, as well as continued (and surprising) strength in economic data.

[1] Equity Volatility – Source: FRED. Fixed Income Volatility – Source: Bloomberg. Implied volatility as measured using VIX Index for equity markets and the MOVE Index to measure interest rate volatility for fixed income markets. Data is as of January 2024. The average line indicated is the average of the VIX and MOVE values between January 2000 and January 2024.

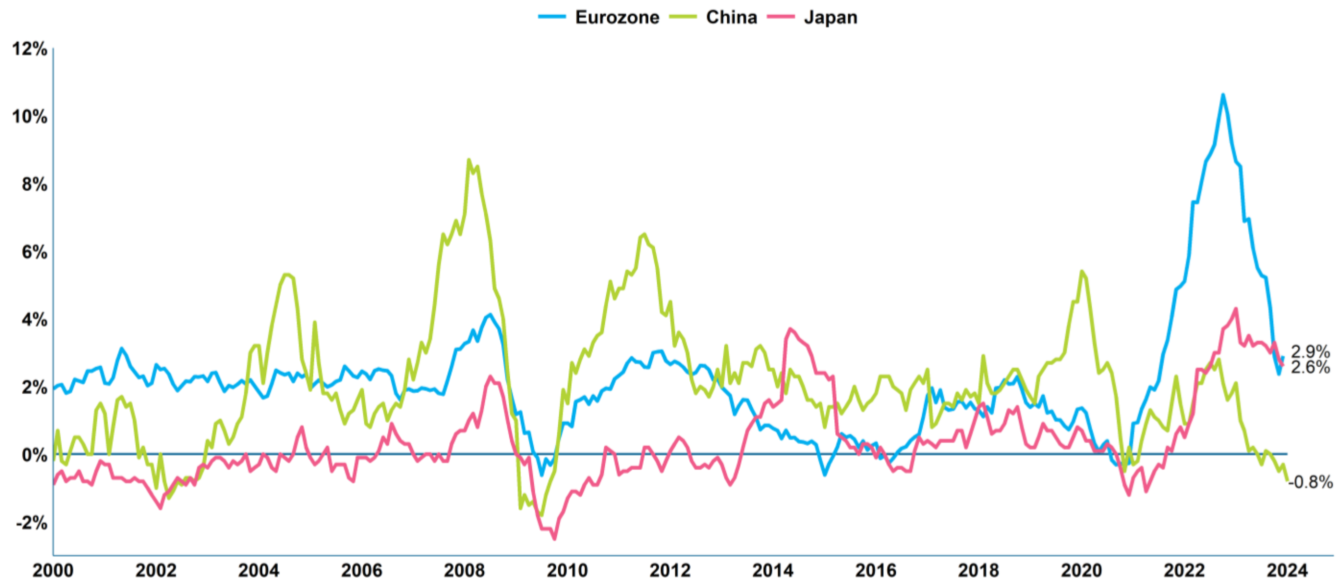
US Ten-Year Breakeven Inflation and CPI[1]



- → Year-over-year headline inflation declined in January (3.4% to 3.1%) but not by as much as expected (expectations were for a 2.9% reading). Month-over-month inflation came in at 0.3%, the same as last month and slightly above expectations of 0.2%. Shelter continues to keep inflation elevated, increasing 6.0% from a year prior. Food rose 2.6% over the same period, while downward pressure on energy prices continued, falling 4.6%.
- → Core inflation - excluding food and energy – remained unchanged at 3.9% year-over-year (expectations were for a decline to 3.7%), with shelter costs again driving the total core index increase.
- → Inflation expectations (breakevens) have remained relatively stable despite the recent significant volatility in inflation.

[1] Source: FRED. Data is as January 2024. The CPI and 10 Year Breakeven average lines denote the average values from February 1997 to the present month-end, respectively. Breakeven values represent month-end values for comparative purposes.

Global Inflation (CPI Trailing Twelve Months)[1]



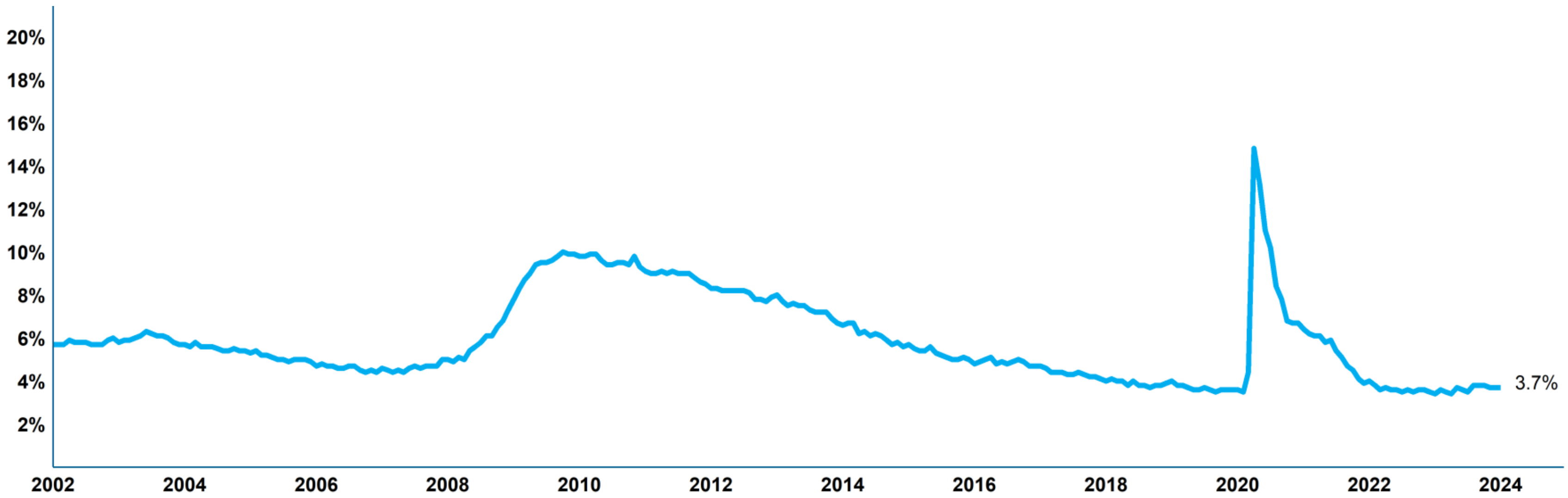
→ Outside the US, inflation is also falling across major economies with China slipping further into deflation.

→ In the eurozone, inflation experienced a dramatic decline last year. In January inflation rose slightly (2.8% to 2.9%) remaining below the 3.1% year-over-year level in the US.

→ Inflation in Japan has slowly declined from the early 2023 peak, but it remains near levels not seen in almost a decade, largely driven by higher food prices.

[1] Source: FRED for United States CPI and Eurozone CPI. Source: Bloomberg for Japan CPI, China CPI, and Eurozone CPI. Data is as January 31, 2024, except Japan which is as of December 31, 2023.

US Unemployment[1]



→ Overall, the US labor market remains healthy with the unemployment rate relatively low, wage growth now positive in real terms, and initial claims for unemployment staying subdued.

→ In January, the number of jobs added in the US were stronger than expected (353,000 versus 185,000) with the unemployment rate remaining at 3.7%. Payrolls from November and December of last year were also revised upward. Business and professional, health care, and retail sales jobs rose the most in January.

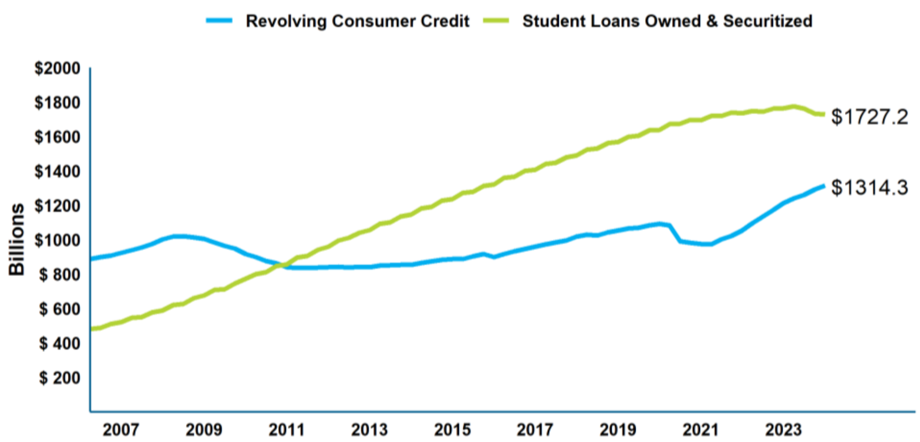
→ The labor force participation remained relatively stable at 62.5%, well off the lows of the pandemic (60.1%) but not back to pre-pandemic levels (63.3%).

→ The pace of hourly wage growth has declined from its peak of close to 6.0% but is above the 3.1% level of inflation. Wage growth rose at 4.5% year-on-year in January, an increase from the 4.1% level in December and above expectations of 4.1%.

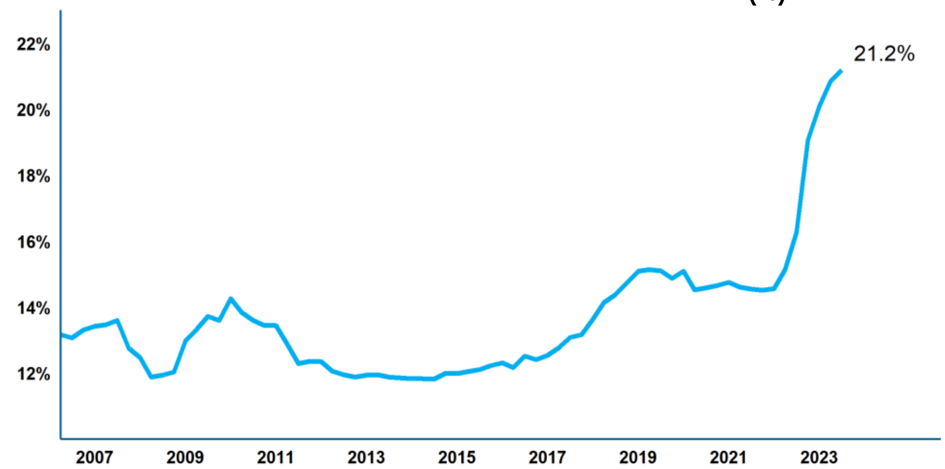
[1] Source: FRED. Data is as January 31, 2024.

US Consumer Under Stress?[1]

Revolving Consumer Credit & Student Loans ($B)



Consumer Credit Card Interest Rates (%)



→ Despite the strong labor market and higher wages, pressures have started to build on the US consumer. This is an important consideration as consumer spending has been a key driver of economic growth.

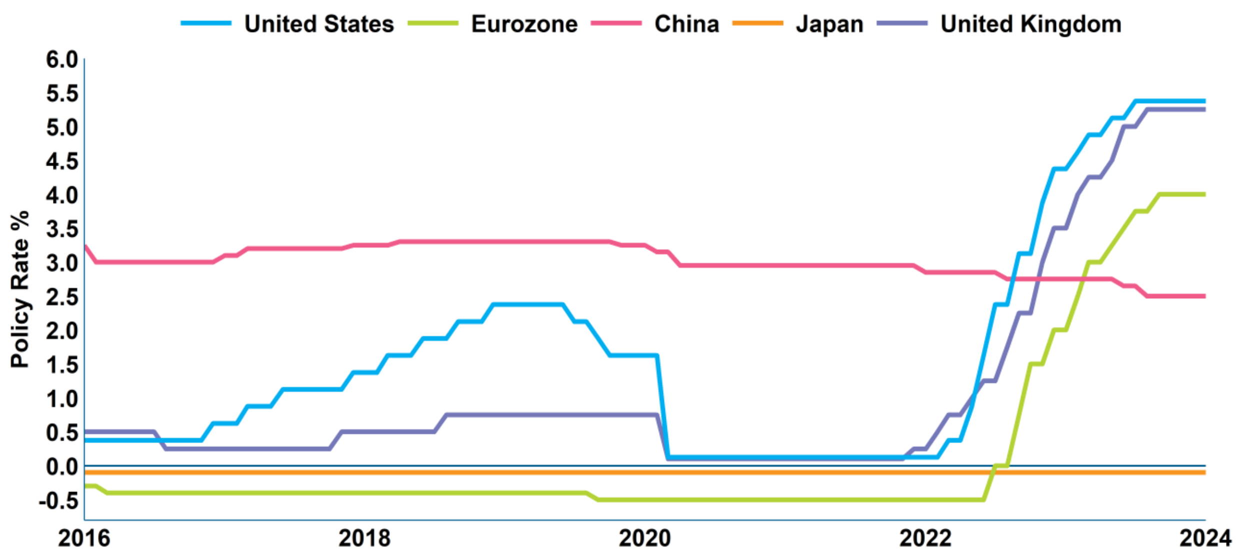
→ Revolving consumer credit surged to new highs in 2023 even as credit card interest rates hit levels not seen before (the prior peak was around 19% in the 1980s). Recently we have also seen payment delinquencies on credit cards start to increase.

→ The return of student loan repayments after a three-year pandemic-related reprieve could add to pressures on consumers' budgets. This might be partially mitigated by recently initiated repayment and forgiveness programs.

→ As we look ahead, the strength of the US consumer will remain key as this sector makes up most of the domestic economy (GDP).

[1] Source: FRED. Data is as of December 31, 2023. Consumer Credit Card Rate data is as of September 30, 2023. Revolving Consumer Credit data is seasonally adjusted to remove distortions during the holiday season.

Policy Rates[1]



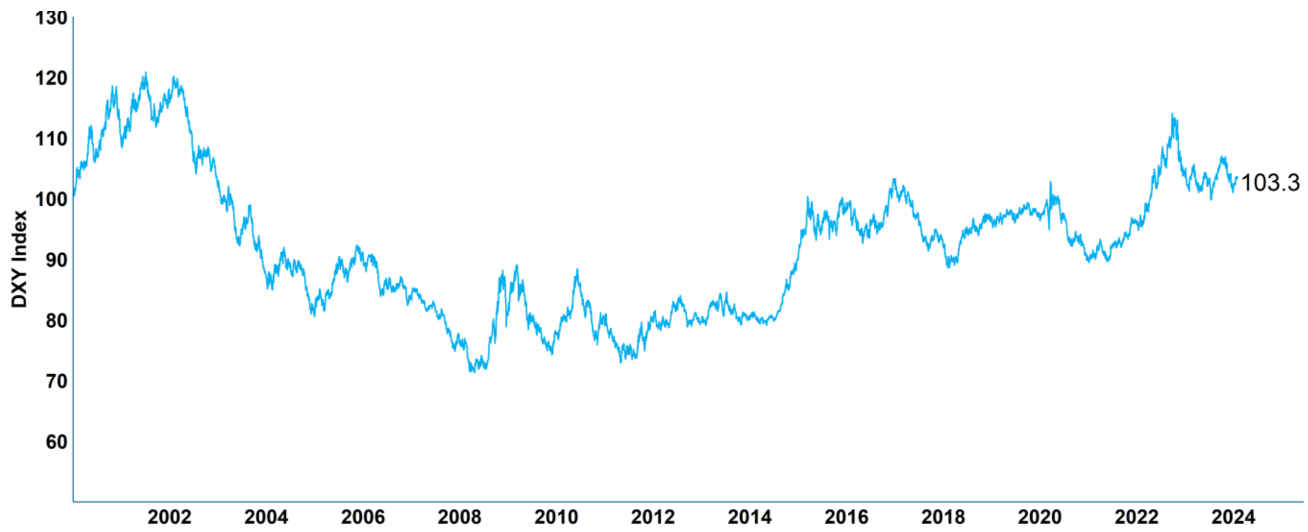
→ The Fed has been on hold since July 2023 when it raised rates to a range of 5.25%-5.50%. Markets are now pricing in around four rate cuts this year down from close to seven late last year as economic data has come in above expectations. There remains a gap between the amount of rate cuts the Fed is predicting compared to the market's expectations, but it has significantly narrowed.

→ The European and UK central banks also recently paused their rate increases on slowing inflation with cuts likely to follow there too. In Japan, the BoJ has further relaxed its yield curve control on the 10-year bond, and expectations for further policy normalization are rising.

→ The central bank in China has maintained interest rates at record low levels and continues to inject liquidity into the banking system, as weaker than expected economic data appears to indicate a widespread slowdown.

[1] Source: Bloomberg. Data is as of January 2024.

US Dollar vs. Broad Currencies[1]



→ Overall, the dollar finished last year only slightly below where it started but it was a volatile year for the US currency as expectations related to monetary policy evolved.

→ Strong economic data in the US may delay policy rate cuts this year which could contribute to upward pressure on the dollar as other countries pivot to rate cuts.

[1] Source: Bloomberg. Data as of January 31, 2024.

Summary

Key Trends:

→ The impact of inflation still above policy targets will remain important, with bond market volatility likely to stay high.

→ Global monetary policies could diverge going forward. The risk of policy errors remains elevated as central banks try to further reduce inflation toward targets while not tipping their economies into recession. In the case of the US the resolution of the disparity between market expectations for the path of interest rates versus the Fed's dot plot will be key.

→ Global growth is expected to slow this year, with some economies forecasted to tip into recession. However, optimism has been building that certain economies could experience soft landings. Inflation, monetary policy, and geopolitical issues will remain key in 2024.

→ US consumers could feel pressure as certain components of inflation (e.g., shelter), remain high, borrowing costs are elevated, and the job market may weaken.

→ A focus for US equities going forward, will be whether earnings can remain resilient if growth continues to slow. Also, the future paths of the large technology companies that have driven market gains will be important.

→ Equity valuations remain lower in emerging and developed markets, but risks remain, including China's economic uncertainty and on-going weakness in the real estate sector which could spill over into key trading partners' economies. Japan's recent hint at potentially tightening monetary policy along with changes in corporate governance in the country could influence relative results.

Executive Summary

Q4 2023

Performance Review Summary

Category	QTD Results	5 Year Results
Performance vs. OPERF Policy Benchmark	Underperform 3.2% vs. 4.1%	Outperform 8.9% vs. 8.6%
Performance vs. 6.9% Actuarial Rate	NA	Outperform 8.9% vs. 6.9%
Performance vs. InvMetrics All DB > $10B Net Median	Underperform 3.2% vs. 6.1%	Outperform 8.9% vs. 8.7%
Actively Managed Public Markets[1] vs. Benchmarks	13 of the 26 actively managed stock and bond portfolios outperformed their respective benchmarks (after fees)	16 of the 19 actively managed stock and bond portfolios outperformed their respective benchmarks (after fees)

Category	Quarter-End	Notes
Compliance with Targets[2]	Out of Compliance	Private Equity remains well above target, while public equity and fixed income are underweight. Real Assets are also overweight.

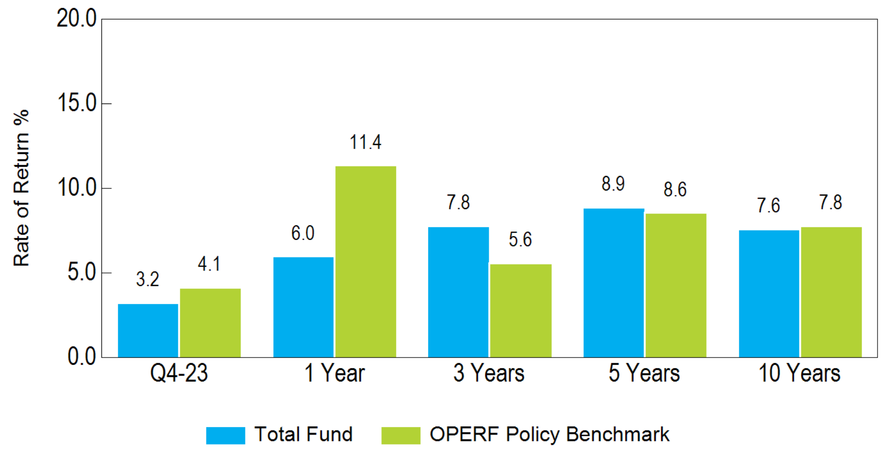
→ Per the Russell Overlay Report dated December 29, 2023 allocations including synthetic positions were as follows.

	Physical	Synthetic	Net	Target	Range
Public Equity	19.9%	-3.4%	16.5%	27.5%	22.5% - 32.5%
Private Equity	28.1%	0.0%	28.1%	20.0%	17.5% - 27.5%
Fixed Income	18.3%	5.1%	23.4%	25.0%	20.0% - 30.0%
Cash	1.7%	-1.7%	0.0%	0.0%	--

[1] Actively Managed Public Markets includes managers with at least one quarter of performance. Managers currently being liquidated are excluded.

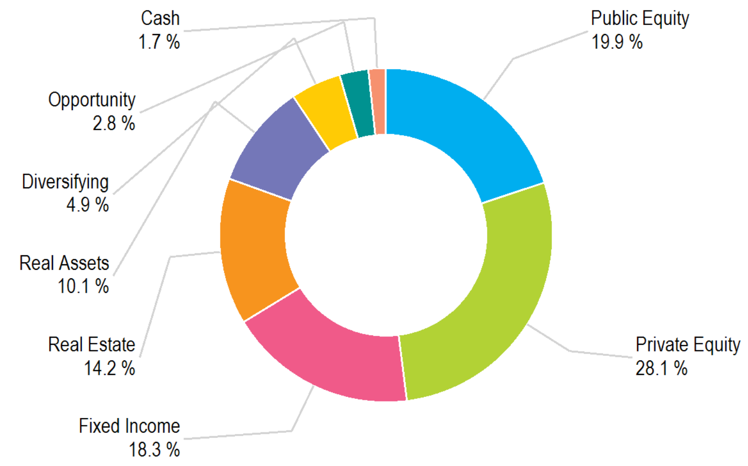
[2] Compliance with Targets

Return Summary
Ending December 31, 2023

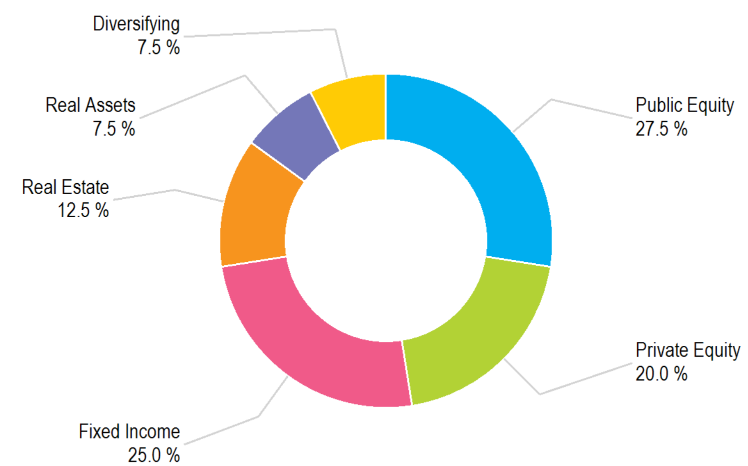


	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Total Fund	**3.2**	**6.0**	**7.8**	**8.9**	**7.6**
OPERF Policy Benchmark	*4.1*	*11.4*	*5.6*	*8.6*	*7.8*
Excess Return	-0.9	-5.4	2.2	0.3	-0.2
InvMetrics All DB > $10B Net Rank	*99*	*99*	*7*	*33*	*7*
Median	*6.1*	*11.0*	*5.4*	*8.7*	*7.0*

Current Allocation

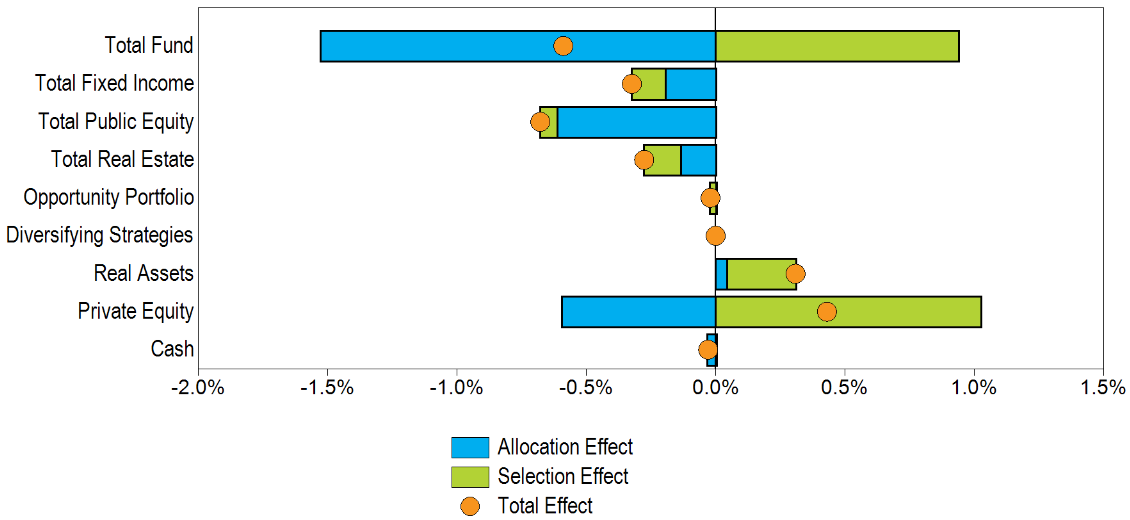


Target Allocation



Quarterly Commentary

Attribution Effects
3 Months Ending December 31, 2023



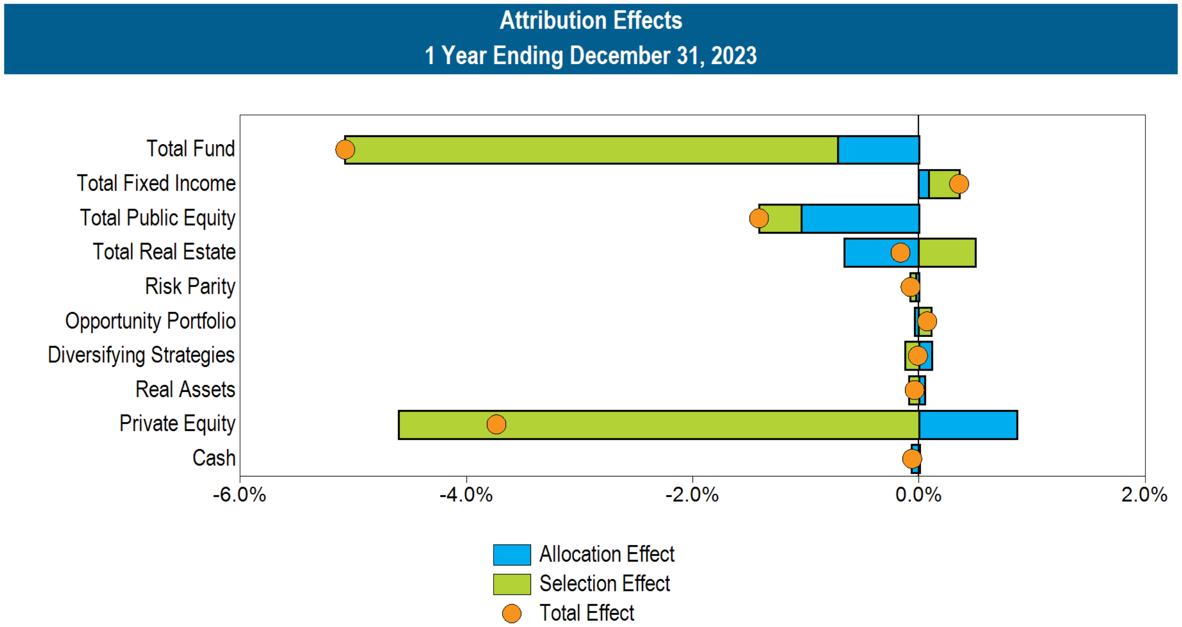
→ Key Contributors

- Real Assets – Strongest outperformance relative to benchmark.
- Private Equity – Strong outperformance relative to benchmark due to manager selection and public market headwinds during the third quarter (benchmark is 1-quarter lagged). Overweight vs. Policy detracted.

→ Key Detractors

- Total Public Equity – Underweight vs. Policy and benchmark relative underperformance detracted.
- Total Fixed Income – Underweight vs. Policy and benchmark relative underperformance detracted.

One Year Commentary



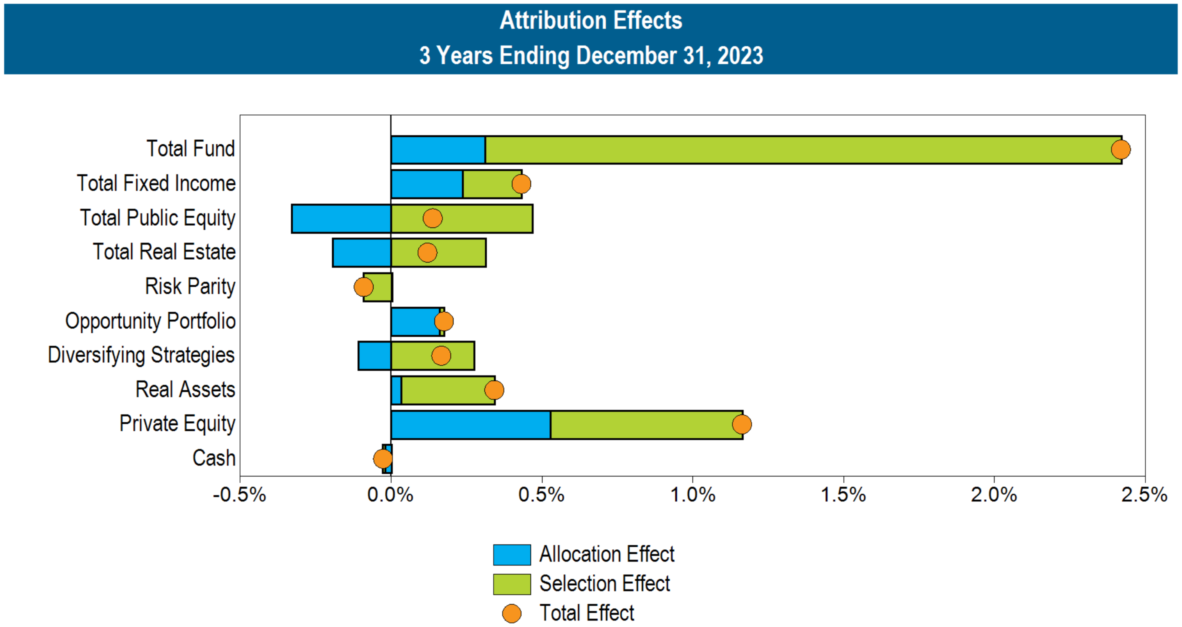
→ Key Contributors

- Total Fixed Income – Strong benchmark relative outperformance due to manager selection. Underweight vs. Policy was also a contributor.

→ Key Detractors

- Private Equity – Weakest benchmark relative performance. Benchmark is a public markets equivalent lagged one quarter.
- Total Public Equity – Underweight vs. policy, as a result of the Private Equity overweight, was the leading detractor. Manager selection also detracted as equity markets were dominated by a few US Growth stocks for most of the calendar year.

Three Year Commentary



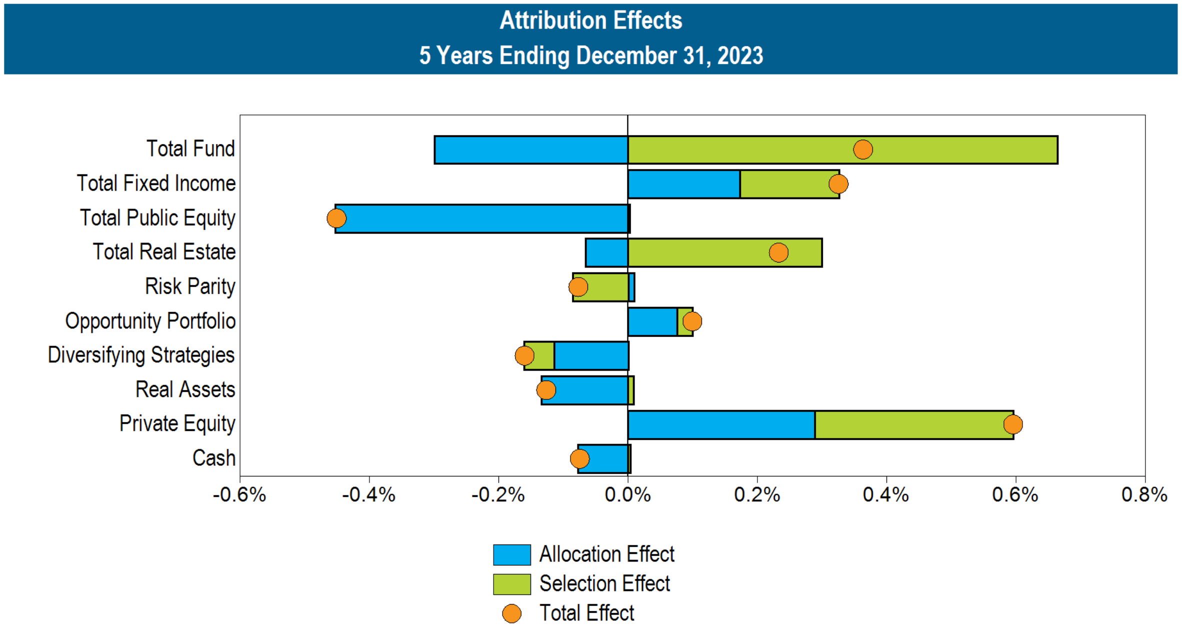
→ Key Contributors

- Private Equity – Strongest absolute performance during the period. Manager selection and overweight vs. Policy were both contributors.
- Fixed Income – Negative absolute performance. Positive benchmark relative performance driven by manager selection. The underweight vs. Policy also contributed.

→ Key Detractors

- Total Public Equity – Underweight vs. Policy detracted from benchmark relative returns. Manager selection drove benchmark relative outperformance. Net impact of Total Public Equity was slightly positive during the period.

Five Year Commentary



→ Key Contributors

- Private Equity – Strongest absolute performance during the period. Manager selection and overweight vs. Policy were both contributors.
- Fixed Income – Positive absolute performance. Positive benchmark relative performance driven by manager selection. The underweight vs. Policy also contributed.

→ Key Detractors

- Total Public Equity – Positive absolute returns. Underweight vs. Policy detracted from benchmark relative returns.

Statistics Summary

1 Year Ending December 31, 2023

	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
Total Fund	5.98%	3.43%	-1.70	0.52	0.28	3.16%
OPERF Policy Benchmark	11.35%	6.18%	--	1.00	1.03	0.00%

3 Years Ending December 31, 2023

	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
Total Fund	7.78%	5.22%	0.65	0.67	1.08	3.38%
OPERF Policy Benchmark	5.57%	6.86%	--	1.00	0.50	0.00%

5 Years Ending December 31, 2023

	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
Total Fund	8.89%	5.97%	0.11	0.77	1.19	2.98%
OPERF Policy Benchmark	8.55%	7.07%	--	1.00	0.96	0.00%

10 Years Ending December 31, 2023

	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
Total Fund	7.60%	5.33%	-0.07	0.81	1.20	2.30%
OPERF Policy Benchmark	7.77%	6.07%	--	1.00	1.08	0.00%

Performance Update
As of December 31, 2023

Asset Allocation vs. Target As Of December 31, 2023	Current	Current	Policy	Difference	Policy Range	Within Range
Public Equity	$18,668,688,481	19.9%	27.5%	-7.6%	22.5% - 32.5%	No
Private Equity	$26,404,338,760	28.1%	20.0%	8.1%	17.5% - 27.5%	No
Fixed Income	$17,208,865,943	18.3%	25.0%	-6.7%	20.0% - 30.0%	No
Real Estate	$13,322,591,822	14.2%	12.5%	1.7%	9.0% - 16.5%	Yes
Real Assets	$9,484,746,669	10.1%	7.5%	2.6%	2.5% - 10.0%	No
Diversifying	$4,554,927,429	4.9%	7.5%	-2.6%	2.5% - 10.0%	Yes
Opportunity	$2,623,154,172	2.8%	0.0%	2.8%	0.0% - 5.0%	Yes
Cash	$1,558,391,981	1.7%	0.0%	1.7%	0.0% - 100.0%	Yes
Total	**$93,825,705,129**	**100.0%**	**100.0%**			

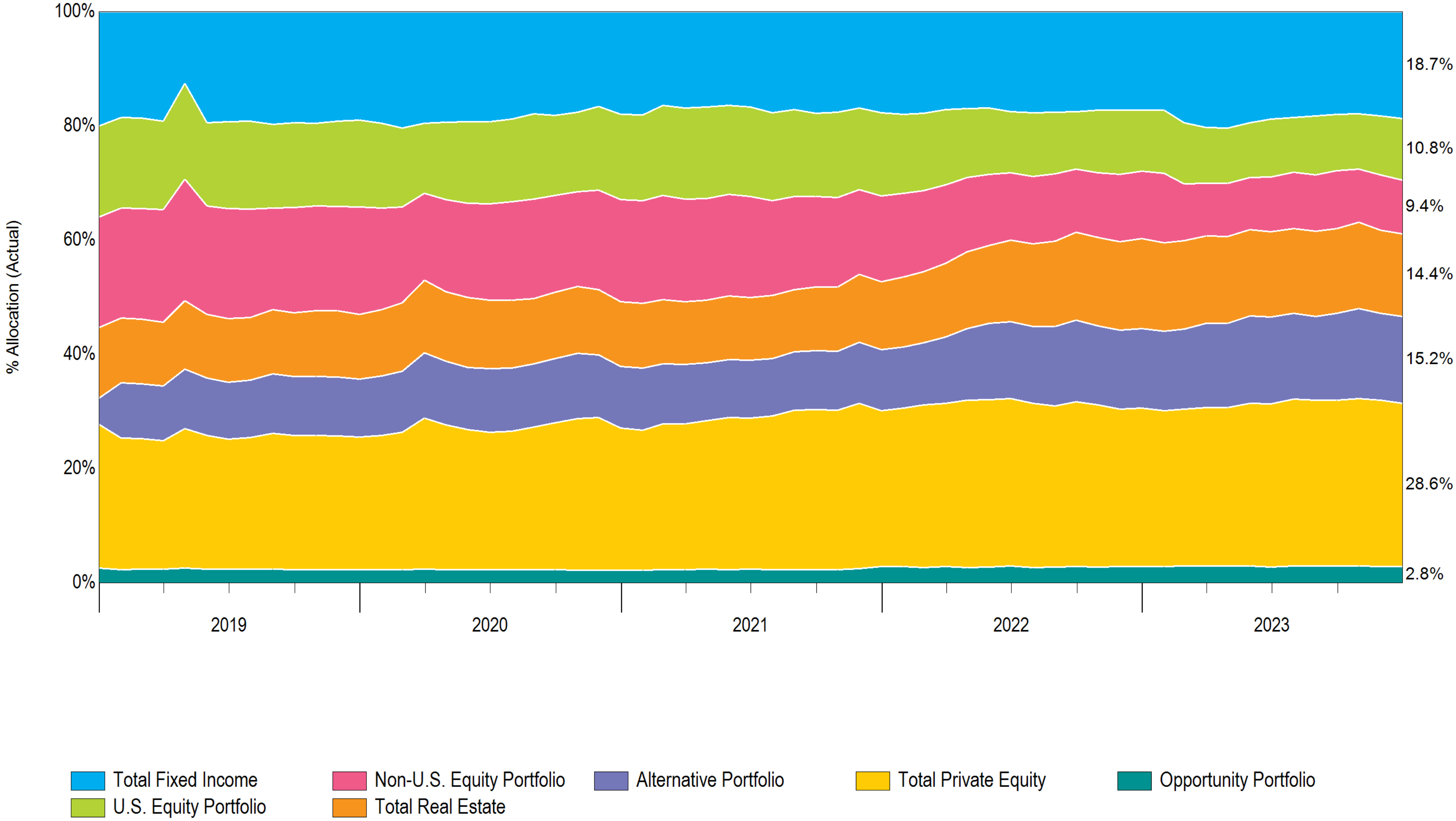
The table above reflects physical asset allocation and excludes Overlay impact.

Total Public Equity includes Other Equity and Cash included Russell Overlay Cash Balance for allocation purposes.

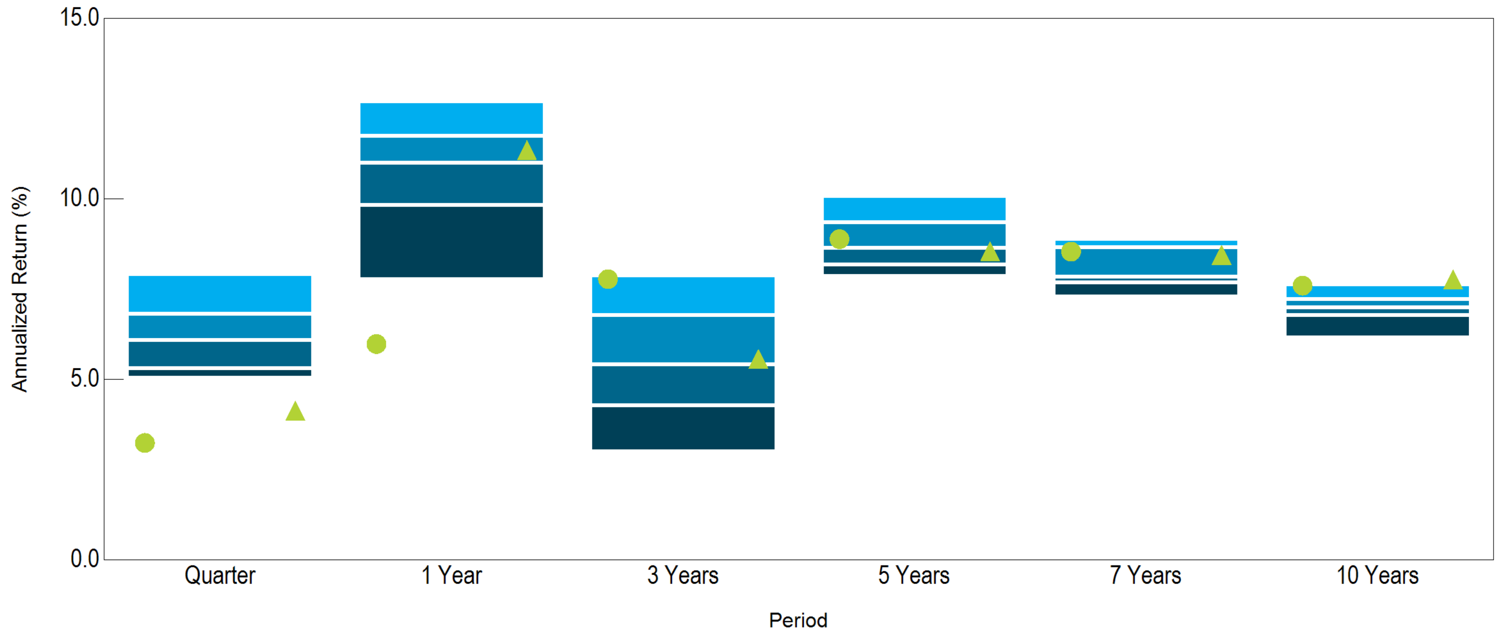
Please note, the target allocation was revised effective 4/1/2023. Plan rebalancing is currently underway.

Asset Allocation History

5 Years Ending December 31, 2023



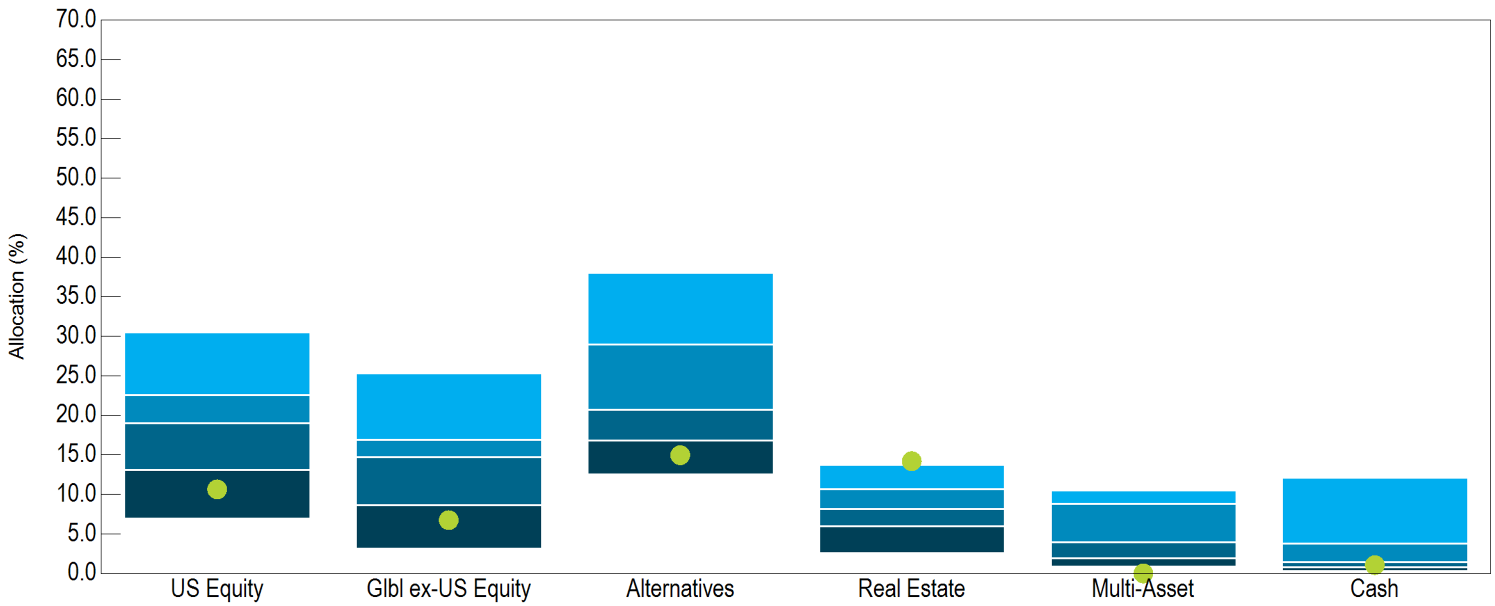
InvMetrics All DB > $10B Net Return Comparison
Ending December 31, 2023



	Return (Rank)											
5th Percentile	7.9		12.7		7.9		10.1		8.9		7.6	
25th Percentile	6.8		11.8		6.8		9.4		8.7		7.2	
Median	6.1		11.0		5.4		8.7		7.9		7.0	
75th Percentile	5.3		9.8		4.3		8.2		7.7		6.8	
95th Percentile	5.0		7.8		3.0		7.9		7.3		6.2	
# of Portfolios	19		19		19		18		17		17	
Total Fund	3.2	(99)	6.0	(99)	7.8	(7)	8.9	(33)	8.5	(32)	7.6	(7)
OPERF Policy Benchmark	4.1	(99)	11.4	(36)	5.6	(43)	8.6	(60)	8.4	(33)	7.8	(1)

(Rank) represents percentile rank.

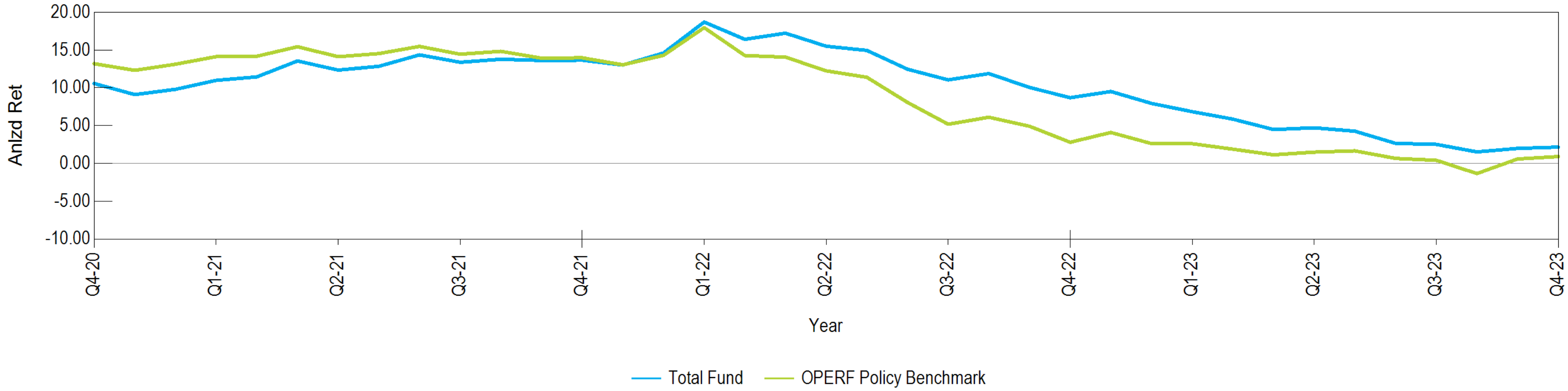
Total Plan Allocation vs. InvMetrics All DB > $10B Net
As of December 31, 2023



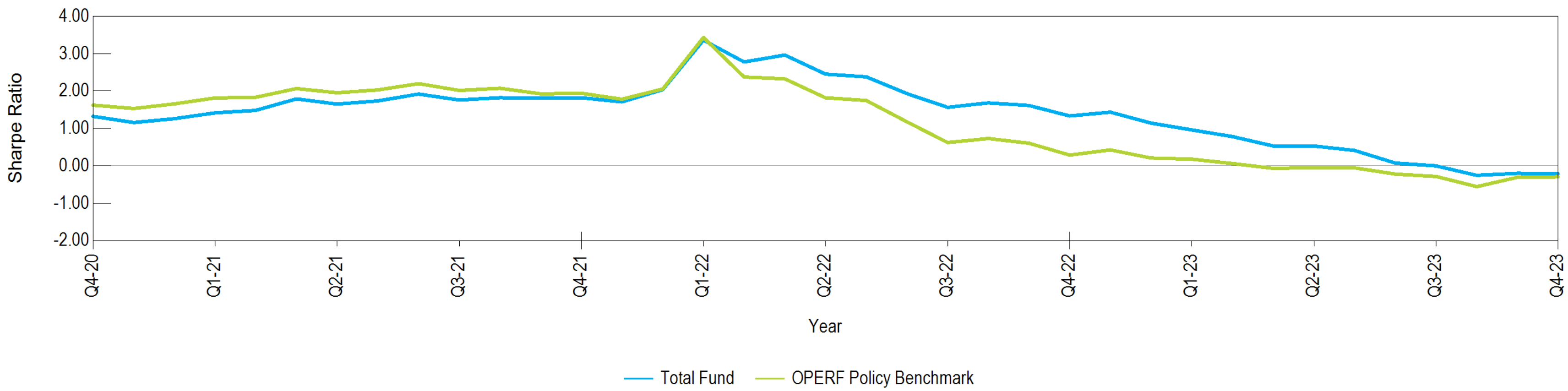
	Allocation (Rank)											
5th Percentile	30.5		25.3		38.0		13.8		10.5		12.1	
25th Percentile	22.6		17.0		29.0		10.7		8.9		3.9	
Median	19.1		14.8		20.8		8.2		4.0		1.5	
75th Percentile	13.2		8.7		16.9		6.0		2.0		0.9	
95th Percentile	7.0		3.2		12.6		2.7		1.0		0.3	
# of Portfolios	17		17		18		18		8		16	
Total Fund	10.6	(89)	6.7	(83)	15.0	(83)	14.2	(5)	0.0	(99)	1.1	(66)

(Rank) represents percentile rank

Rolling 3 Year Annualized Return (%)
Total Fund vs. OPERF Policy Benchmark



Rolling 3 Year Sharpe Ratio
Total Fund vs. OPERF Policy Benchmark



Asset Class Trailing Net Performance

	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Total Fund	93,825,705,129	100.0	--	3.2	6.0	7.8	8.9	7.6
OPERF Policy Benchmark				4.1	11.4	5.6	8.6	7.8
InvMetrics All DB > $10B Net Median				6.1	11.0	5.4	8.7	7.0
InvMetrics All DB > $10B Net Rank				99	99	7	33	7
Total Fixed Income	17,208,865,835	18.3	18.3	6.1	7.0	-2.0	2.0	2.1
Oregon Custom FI Benchmark				6.8	5.5	-3.1	1.1	1.5
Core Fixed Income	5,081,286,211	5.4	29.5	7.4	6.7	-3.2	1.6	2.3
Oregon Custom External FI BM				6.8	5.5	-3.3	1.1	1.8
U.S. Government	7,440,588,147	7.9	43.2	5.5	4.1	-3.8	0.6	0.6
Government Blended Index				5.7	4.1	-3.8	0.5	0.6
Non-Core Fixed Income	2,157,864,158	2.3	12.5	4.0	14.7	7.0	7.0	5.2
Custom Non-Core Fixed Income Index				3.9	13.4	4.9	5.7	4.5
Global Sovereign	3,845,892	0.0	0.0	0.0	2.4	--	--	--
Bloomberg Global Treasury Ex-U.S.				5.4	8.0	-1.5	1.2	2.7
Emerging Markets Debt	244,785,560	0.3	1.4	9.1	10.5	--	--	--
JP Morgan EMBI Global Diversified				9.2	11.1	-3.6	1.7	3.2
Structured Credit Products	1,455,625,290	1.6	8.5	4.1	7.0	--	--	--
Oregon Structured Credit Products FI BM				5.0	7.3	--	--	--
Investment Grade Credit	824,870,687	0.9	4.8	10.4	10.6	--	--	--
Total Public Equity	18,705,250,641	19.9	19.9	10.8	19.8	7.2	11.7	8.0
MSCI ACWI IMI Net (Daily)				11.1	21.6	5.5	11.5	7.8
U.S. Equity	9,974,542,536	10.6	53.3	11.7	20.4	8.8	13.5	10.1
Russell 3000 TR				12.1	26.0	8.5	15.2	11.5
Small Cap Growth	235,739,171	0.3	2.4	4.9	3.6	-1.9	11.9	7.5
Russell 2000 Growth TR				12.7	18.7	-3.5	9.2	7.2
Small Cap Value	161,663,062	0.2	1.6	9.1	8.0	10.8	10.6	7.0
Russell 2000 Value TR				15.3	14.6	7.9	10.0	6.8

	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Market Oriented (CORE)	9,577,140,303	10.2	96.0	11.9	21.2	8.7	14.0	10.6
Russell 3000 TR				*12.1*	*26.0*	*8.5*	*15.2*	*11.5*
Non-U.S. Equity	6,321,422,273	6.7	33.8	9.6	19.5	4.9	10.0	5.8
Oregon MSCI ACWI Ex US IMI (Net)				*9.8*	*15.6*	*1.5*	*7.2*	*4.0*
Total International Overlay Accounts	-41,265,378	0.0	-0.7					
International Market Oriented (Core)	3,054,427,619	3.3	48.3	8.6	17.5	4.8	9.8	5.8
MSCI World ex USA IMI Net Return				*10.5*	*17.2*	*3.7*	*8.2*	*4.4*
International Value	1,415,904,670	1.5	22.4	9.7	23.2	9.0	9.9	5.9
Oregon MSCI ACWI Ex US Value IMI (Net)				*8.7*	*17.3*	*5.7*	*6.5*	*3.2*
International Growth	866,794,716	0.9	13.7	14.1	19.2	1.9	10.2	6.7
Oregon MSCI WORLD Ex US (Net)				*10.5*	*17.9*	*4.4*	*8.5*	*4.3*
International Small Cap	358,176,772	0.4	5.7	9.8	19.8	6.4	10.3	5.3
MSCI World Ex US Small Cap Value (Net)				*10.0*	*14.7*	*3.8*	*7.1*	*4.2*
Emerging Markets	626,118,496	0.7	9.9	8.7	24.3	2.5	10.2	5.7
ORE MSCI Emerging Markets IMI (Net)				*8.0*	*11.7*	*-3.7*	*4.5*	*3.0*
Global Equity	2,409,285,822	2.6	12.9	10.7	19.3	7.5	10.2	7.5
MSCI ACWI IMI Net (Daily)				*11.1*	*21.6*	*5.5*	*11.5*	*7.8*
Global Equity Low Volatility	1,175,909,479	1.3	48.8	7.8	17.2	7.0	10.0	--
MSCI AC World (Daily Const)				*11.0*	*22.2*	*5.8*	*11.7*	*7.9*
Other Equity	4,703,212	0.0	0.0					
Total Real Estate	13,322,591,822	14.2	14.2	-3.0	-10.2	8.7	7.2	8.6
NCREIF ODCE (Custom) (Adj.)				*-2.1*	*-12.9*	*6.2*	*4.7*	*7.1*
Real Estate excluding REITS	13,028,634,926	13.9	97.8	-3.4	-10.7	8.8	7.3	9.1
NCREIF ODCE (Custom) (Adj.)				*-2.1*	*-12.9*	*6.2*	*4.7*	*7.1*
Total REITS	293,956,895	0.3	2.2	15.5	14.4	7.0	5.4	5.8

	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Opportunity Portfolio	2,623,154,172	2.8	2.8	3.3	13.9	12.3	10.6	8.6
Opportunity Custom Benchmark				*4.1*	*10.0*	*11.4*	*9.6*	*8.1*
Alternative Portfolio	14,039,674,098	15.0	15.0	2.7	5.3	12.9	5.8	4.1
CPI +4%				*0.6*	*7.5*	*9.7*	*8.2*	*6.9*
Diversifying Strategies	4,554,927,429	4.9	32.4	-0.8	0.8	9.9	3.0	2.6
HFRI FOF Conservative Index				*1.8*	*5.3*	*4.3*	*5.1*	*3.4*
Real Assets	9,484,746,669	10.1	67.6	4.6	7.8	14.9	7.9	5.6
CPI +4%				*0.6*	*7.5*	*9.7*	*8.2*	*6.9*
Private Equity	26,404,338,760	28.1	28.1	0.9	6.4	15.1	13.8	13.3
Russell 3000 + 300 BPS QTR LAG (Adj.)				*-2.5*	*24.0*	*12.6*	*12.4*	*14.6*
Cash	991,694,828	1.1	1.1	1.6	5.5	2.0	2.2	1.6
ICE BofA US 3-Month Treasury Bill				*1.4*	*5.0*	*2.2*	*1.9*	*1.2*

Trailing Net Performance

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Total Fund	**93,825,705,129**	**100.0**	**3.2**	**6.0**	**7.8**	**8.9**	**7.6**
OPERF Policy Benchmark			*4.1*	*11.4*	*5.6*	*8.6*	*7.8*
60% MSCI ACWI / 40% Bloomberg Aggregate			*9.4*	*15.4*	*2.2*	*7.7*	*5.7*
70% MSCI ACWI/30% Bloomberg Agg			*9.8*	*17.1*	*3.1*	*8.7*	*6.3*
InvMetrics All DB > $10B Net Median			*6.1*	*11.0*	*5.4*	*8.7*	*7.0*
InvMetrics All DB > $10B Net Rank			*99*	*99*	*7*	*33*	*7*
Total Fixed Income	**17,208,865,835**	**18.3**	**6.1**	**7.0**	**-2.0**	**2.0**	**2.1**
Oregon Custom FI Benchmark			*6.8*	*5.5*	*-3.1*	*1.1*	*1.5*
Bloomberg US Aggregate TR			*6.8*	*5.5*	*-3.3*	*1.1*	*1.8*
Fixed Income Weighted BM			*6.0*	*6.0*	*-2.6*	*1.4*	*2.0*
Core Fixed Income	**5,081,286,211**	**5.4**	**7.4**	**6.7**	**-3.2**	**1.6**	**2.3**
Oregon Custom External FI BM			*6.8*	*5.5*	*-3.3*	*1.1*	*1.8*
Blackrock	1,666,394,113	1.8	7.0	6.2	-3.2	1.5	2.2
Oregon Custom External FI BM			*6.8*	*5.5*	*-3.3*	*1.1*	*1.8*
Wellington	1,697,341,485	1.8	7.0	6.7	-3.2	1.8	2.4
Oregon Custom External FI BM			*6.8*	*5.5*	*-3.3*	*1.1*	*1.8*
Western Asset	1,715,499,568	1.8	8.2	6.9	-3.5	1.9	2.5
Oregon Custom External FI BM			*6.8*	*5.5*	*-3.3*	*1.1*	*1.8*
U.S. Government	**7,440,588,147**	**7.9**	**5.5**	**4.1**	**-3.8**	**0.6**	**0.6**
Government Blended Index			*5.7*	*4.1*	*-3.8*	*0.5*	*0.6*
Government Portfolio	7,440,588,147	7.9	5.5	4.1	-3.8	0.6	--
Government Blended Index			*5.7*	*4.1*	*-3.8*	*0.5*	*0.6*

Total Fund | As of December 31, 2023

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Non-Core Fixed Income	**2,157,864,158**	**2.3**	**4.0**	**14.7**	**7.0**	**7.0**	**5.2**
Custom Non-Core Fixed Income Index			*3.9*	*13.4*	*4.9*	*5.7*	*4.5*
KKR Asset Management	29,599,465	0.0	0.8	18.4	-2.8	0.8	1.8
KKR Custom Leveraged Loans & Bond Index			*4.3*	*13.4*	*4.5*	*5.7*	*4.5*
Oak Hill	1,751,977,195	1.9	3.4	14.8	7.2	7.4	5.8
Oak Hill Custom Lev Loan & Bond Index			*3.5*	*13.4*	*5.3*	*5.8*	*4.5*
Beach Point	376,287,498	0.4	7.3	--	--	--	--
Beach Point Custom Benchmark			*5.0*	--	--	--	--
Global Sovereign	**3,845,892**	**0.0**	**0.0**	**2.4**	--	--	--
Bloomberg Global Treasury Ex-U.S.			*5.4*	*8.0*	*-1.5*	*1.2*	*2.7*
MSIM Global Sovereign	2,747,986	0.0	0.0	2.2	--	--	--
Bloomberg Global Treasury Ex-U.S.			*5.4*	*8.0*	*-1.5*	*1.2*	*2.7*
PIMCO Global Sovereign	1,097,906	0.0	0.0	2.5	--	--	--
Bloomberg Global Treasury Ex-U.S.			*5.4*	*8.0*	*-1.5*	*1.2*	*2.7*
Emerging Markets Debt	**244,785,560**	**0.3**	**9.1**	**10.5**	--	--	--
JP Morgan EMBI Global Diversified			*9.2*	*11.1*	*-3.6*	*1.7*	*3.2*
Ashmore EMD	4,457,033	0.0	0.0	-0.2	--	--	--
JP Morgan EMBI Global Diversified			*9.2*	*11.1*	*-3.6*	*1.7*	*3.2*
Global Evolution EMD	121,422,361	0.1	9.4	11.8	--	--	--
JP Morgan EMBI Global Diversified			*9.2*	*11.1*	*-3.6*	*1.7*	*3.2*
PGIM EMD	118,906,165	0.1	8.7	10.5	--	--	--
JP Morgan EMBI Global Diversified			*9.2*	*11.1*	*-3.6*	*1.7*	*3.2*

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Structured Credit Products	**1,455,625,290**	**1.6**	**4.1**	**7.0**	--	--	--
Oregon Structured Credit Products FI BM			*5.0*	*7.3*	--	--	--
Schroders SCP	853,386,349	0.9	3.8	8.1	--	--	--
ICE BofA AA-BBB US Asset Backed Sec Idx			*3.8*	*8.3*	*0.6*	*2.2*	*2.7*
Putnam SCP	2,718,307	0.0	-1.4	-2.0	--	--	--
Bloomberg US MBS TR USD			*7.5*	*5.0*	*-2.9*	*0.3*	*1.4*
Guggenheim SCP	599,520,634	0.6	4.3	9.2	--	--	--
ICE BofA AA-BBB US Asset Backed Sec Idx			*3.8*	*8.3*	*0.6*	*2.2*	*2.7*
Investment Grade Credit	**824,870,687**	**0.9**	**10.4**	**10.6**	--	--	--
Fidelity	824,870,687	0.9	10.4	10.6	--	--	--
Fidelity Custom Blended Benchmark			*10.2*	*10.2*	--	--	--
Total Public Equity	**18,705,250,641**	**19.9**	**10.8**	**19.8**	**7.2**	**11.7**	**8.0**
MSCI ACWI IMI Net (Daily)			*11.1*	*21.6*	*5.5*	*11.5*	*7.8*
U.S. Equity	**9,974,542,536**	**10.6**	**11.7**	**20.4**	**8.8**	**13.5**	**10.1**
Russell 3000 TR			*12.1*	*26.0*	*8.5*	*15.2*	*11.5*
Small Cap Growth	**235,739,171**	**0.3**	**4.9**	**3.6**	**-1.9**	**11.9**	**7.5**
Russell 2000 Growth TR			*12.7*	*18.7*	*-3.5*	*9.2*	*7.2*
EAM MicroCap Growth	235,739,171	0.3	4.9	3.6	-1.9	11.9	8.0
Russell Microcap Growth Index (Daily)			*15.6*	*9.1*	*-8.2*	*6.0*	*3.7*
Small Cap Value	**161,663,062**	**0.2**	**9.1**	**8.0**	**10.8**	**10.6**	**7.0**
Russell 2000 Value TR			*15.3*	*14.6*	*7.9*	*10.0*	*6.8*

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Mellon Asset Management	161,663,062	0.2	9.1	8.9	6.7	9.7	7.1
Russell 2000 Value TR			*15.3*	*14.6*	*7.9*	*10.0*	*6.8*
Market Oriented (CORE)	**9,577,140,303**	**10.2**	**11.9**	**21.2**	**8.7**	**14.0**	**10.6**
Russell 3000 TR			*12.1*	*26.0*	*8.5*	*15.2*	*11.5*
DFA Large Cap Core	1,278,147	0.0	0.0	11.7	7.5	12.6	--
Russell 1000 TR			*12.0*	*26.5*	*9.0*	*15.5*	*11.8*
Russell 2000 Synthetic - OST managed	338,267,695	0.4	15.1	16.2	7.4	11.3	8.1
S&P 600 Custom			*15.1*	*16.1*	*7.3*	*11.0*	*7.7*
S&P 500 - OST managed	3,138,596,253	3.3	11.7	26.3	10.0	15.7	12.1
S&P 500 Index (Daily)			*11.7*	*26.3*	*10.0*	*15.7*	*12.0*
S&P 400 - OST managed	712,021,286	0.8	11.7	16.5	8.1	12.6	9.4
S&P 400 Midcap Index (Daily)			*11.7*	*16.4*	*8.1*	*12.6*	*9.3*
OST Risk Premia Strategy	1,432,830,115	1.5	12.4	19.5	7.0	13.2	11.3
Risk Premia Custom Index			*12.4*	*19.5*	*7.0*	*13.2*	*11.4*
BR Russell 3000	2,117,562,446	2.3	12.1	--	--	--	--
Russell 3000 TR			*12.1*	*26.0*	*8.5*	*15.2*	*11.5*
DFA All Cap Core	1,836,584,361	2.0	11.5	--	--	--	--
Russell 3000 TR			*12.1*	*26.0*	*8.5*	*15.2*	*11.5*

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Non-U.S. Equity	**6,321,422,273**	**6.7**	**9.6**	**19.5**	**4.9**	**10.0**	**5.8**
Oregon MSCI ACWI Ex US IMI (Net)			*9.8*	*15.6*	*1.5*	*7.2*	*4.0*
Total International Overlay Accounts	**-41,265,378**	**0.0**					
PERS-Adrian Lee Active Currency	-4,532,948	0.0					
PERS-P/E Global Active Currency	-36,732,440	0.0					
PERS-Aspect Cap Active Currency	1	0.0					
International Market Oriented (Core)	**3,054,427,619**	**3.3**	**8.6**	**17.5**	**4.8**	**9.8**	**5.8**
MSCI World ex USA IMI Net Return			*10.5*	*17.2*	*3.7*	*8.2*	*4.4*
Arrowstreet Capital	851,763,774	0.9	8.3	21.7	12.7	14.0	9.5
Oregon MSCI ACWI Ex US IMI (Net)			*9.8*	*15.6*	*1.5*	*7.2*	*4.0*
Lazard Asset Management	1,703,096	0.0					
Lazard International CEF	794,008,890	0.8	10.0	10.5	-5.0	7.6	5.3
Oregon MSCI ACWI Ex US (Net)			*9.8*	*15.6*	*1.5*	*7.1*	*3.8*
AQR Capital Management	3,724,918	0.0					
OST Int'l Risk Premia	1,403,226,941	1.5	7.7	19.8	7.0	10.1	--
MSCI World x US Custom Div Multiple-Factor			*7.6*	*19.3*	*6.6*	*9.7*	*--*
MSCI World ex USA Net Index			*10.5*	*17.9*	*4.4*	*8.4*	*4.3*
International Value	**1,415,904,670**	**1.5**	**9.7**	**23.2**	**9.0**	**9.9**	**5.9**
Oregon MSCI ACWI Ex US Value IMI (Net)			*8.7*	*17.3*	*5.7*	*6.5*	*3.2*
Acadian Asset Management	848,804,817	0.9	9.1	16.5	6.9	10.2	6.4
Oregon MSCI ACWI Ex US Value IMI (Net)			*8.7*	*17.3*	*5.7*	*6.5*	*3.2*
Brandes Investment Partners	567,099,853	0.6	10.6	32.3	11.8	10.0	5.5
Oregon MSCI ACWI Ex US Value (Net)			*8.4*	*17.3*	*5.8*	*6.3*	*2.9*

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
International Growth	**866,794,716**	**0.9**	**14.1**	**19.2**	**1.9**	**10.2**	**6.7**
Oregon MSCI WORLD Ex US (Net)			*10.5*	*17.9*	*4.4*	*8.5*	*4.3*
Walter Scott Management	866,794,716	0.9	14.1	19.2	1.9	10.2	7.3
Oregon MSCI WORLD Ex US (Net)			*10.5*	*17.9*	*4.4*	*8.5*	*4.3*
International Small Cap	**358,176,772**	**0.4**	**9.8**	**19.8**	**6.4**	**10.3**	**5.3**
MSCI World Ex US Small Cap Value (Net)			*10.0*	*14.7*	*3.8*	*7.1*	*4.2*
DFA International Small Cap	1,303,323	0.0					
Harris Associates	202,416,513	0.2	11.5	20.7	7.7	11.8	5.5
MSCI ACWI ex USA Small Cap Value (Net)			*10.1*	*17.2*	*4.9*	*7.8*	*4.7*
EAM International Micro Cap	153,546,646	0.2	7.7	17.5	1.2	11.5	--
Oregon FTSE Global Ex US Micro Cap			*8.9*	*14.5*	*2.2*	*9.7*	*--*
DFA International Micro Cap	910,290	0.0					
Oregon FTSE Global Ex US Micro Cap			*8.9*	*14.5*	*2.2*	*9.7*	*--*
Emerging Markets	**626,118,496**	**0.7**	**8.7**	**24.3**	**2.5**	**10.2**	**5.7**
ORE MSCI Emerging Markets IMI (Net)			*8.0*	*11.7*	*-3.7*	*4.5*	*3.0*
Genesis Emerging Markets	4,413,845	0.0	0.0	0.1	-10.3	1.9	1.5
ORE MSCI Emerging Markets IMI (Net)			*8.0*	*11.7*	*-3.7*	*4.5*	*3.0*
Arrowstreet Emerging Markets	309,355,204	0.3	7.9	21.3	6.0	14.2	7.2
ORE MSCI Emerging Markets IMI (Net)			*8.0*	*11.7*	*-3.7*	*4.5*	*3.0*
Westwood Global Investment	149,366,041	0.2	10.2	22.8	6.9	8.1	5.7
MSCI Emerging Markets IMI Net			*8.0*	*11.7*	*-3.7*	*4.5*	*3.0*
William Blair and Company	162,742,684	0.2	9.7	10.7	-8.3	7.1	4.4
MSCI Emerging Markets Growth Net			*7.7*	*5.8*	*-9.7*	*3.9*	*2.3*

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
William Blair Emerging Mkt Small Cap	113,284	0.0	0.0	4.6	-4.2	7.3	4.4
MSCI Emerging Markets Small Cap Gr Net			*7.7*	*23.8*	*4.6*	*10.0*	*5.2*
OST EM Risk Premia ESG	127,438	0.0					
Global Equity	**2,409,285,822**	**2.6**	**10.7**	**19.3**	**7.5**	**10.2**	**7.5**
MSCI ACWI IMI Net (Daily)			*11.1*	*21.6*	*5.5*	*11.5*	*7.8*
Alliance Bernstein Global Value	722,862	0.0					
GQG Global Equity	371,488,170	0.4	9.8	--	--	--	--
Oregon MSCI ACWI Ex US (Net)			*9.8*	*15.6*	*1.5*	*7.1*	*3.8*
Cantillion	861,165,311	0.9	15.1	--	--	--	--
MSCI ACWI IMI Net (Daily)			*11.1*	*21.6*	*5.5*	*11.5*	*7.8*
Global Equity Low Volatility	**1,175,909,479**	**1.3**	**7.8**	**17.2**	**7.0**	**10.0**	**--**
MSCI AC World (Daily Const)			*11.0*	*22.2*	*5.8*	*11.7*	*7.9*
MSCI ACWI Minimum Volatility Index (Net)			*6.5*	*7.7*	*3.3*	*6.5*	*6.9*
LACM Global Equity Low Volatility	564,977,670	0.6	8.1	15.8	4.4	10.0	--
MSCI AC World (Daily Const)			*11.0*	*22.2*	*5.8*	*11.7*	*7.9*
MSCI ACWI Minimum Volatility Index (Net)			*6.5*	*7.7*	*3.3*	*6.5*	*6.9*
Arrowstreet Global Low Volatility	606,894,160	0.6	7.6	20.0	10.4	13.1	--
MSCI ACWI IMI Net (Daily)			*11.1*	*21.6*	*5.5*	*11.5*	*7.8*
AQR Global Low Volatility	1,854,263	0.0					
Acadian Global Low Volatility	968,778	0.0	0.0	2.2	3.5	5.5	--
MSCI ACWI IMI Net (Daily)			*11.1*	*21.6*	*5.5*	*11.5*	*7.8*
DFA Global Low Volatility	1,214,608	0.0					

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Other Equity	**4,703,212**	**0.0**					
Transitional & Closed Accounts	4,703,208	0.0					
PERS- Equity Distribution	4	0.0					
Total Real Estate	**13,322,591,822**	**14.2**	**-3.0**	**-10.2**	**8.7**	**7.2**	**8.6**
NCREIF ODCE (Custom) (Adj.)			*-2.1*	*-12.9*	*6.2*	*4.7*	*7.1*
Real Estate excluding REITS	**13,028,634,926**	**13.9**	**-3.4**	**-10.7**	**8.8**	**7.3**	**9.1**
NCREIF ODCE (Custom) (Adj.)			*-2.1*	*-12.9*	*6.2*	*4.7*	*7.1*
Total REITS	**293,956,895**	**0.3**	**15.5**	**14.4**	**7.0**	**5.4**	**5.8**
ABKB - LaSalle Advisors	289,248,069	0.3	16.5	15.6	8.6	11.4	10.5
Nareit Equity Share Price Index			*18.0*	*11.4*	*5.7*	*7.6*	*8.0*
Woodbourne Investment Management	4,708,826	0.0	7.1	10.8	3.0	5.4	6.4
Nareit Equity Share Price Index			*18.0*	*11.4*	*5.7*	*7.6*	*8.0*
Opportunity Portfolio	**2,623,154,172**	**2.8**	**3.3**	**13.9**	**12.3**	**10.6**	**8.6**
Opportunity Custom Benchmark			*4.1*	*10.0*	*11.4*	*9.6*	*8.1*
OPERF Policy Benchmark			*4.1*	*11.4*	*5.6*	*8.6*	*7.8*
Portfolio Holdings - Opportunity	78,750,000	0.1	12.9	42.2	--	--	--
Alternative Portfolio	**14,039,674,098**	**15.0**	**2.7**	**5.3**	**12.9**	**5.8**	**4.1**
CPI +4%			*0.6*	*7.5*	*9.7*	*8.2*	*6.9*
Diversifying Strategies	**4,554,927,429**	**4.9**	**-0.8**	**0.8**	**9.9**	**3.0**	**2.6**
HFRI FOF Conservative Index			*1.8*	*5.3*	*4.3*	*5.1*	*3.4*

Other Equity represents Transitional and Closed Accounts and is not included in the Total Public Equity aggregate market value.

The Opportunity Portfolio benchmark changed from CPI +5% to 100% OPERF Policy benchmark beginning April 1st 2023.

Total Fund | As of December 31, 2023

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Diversifiying Strategies	4,554,927,429	4.9	-0.8	0.8	9.9	3.0	--
HFRI FOF Conservative Index			*1.8*	*5.3*	*4.3*	*5.1*	*3.4*
Real Assets	**9,484,746,669**	**10.1**	**4.6**	**7.8**	**14.9**	**7.9**	**5.6**
CPI +4%			*0.6*	*7.5*	*9.7*	*8.2*	*6.9*
Infrastructure	6,668,555,908	7.1	5.4	8.6	13.0	10.6	--
CPI +4%			*0.6*	*7.5*	*9.7*	*8.2*	*6.9*
Natural Resources	2,816,190,761	3.0	2.7	5.9	18.7	5.0	--
CPI +4%			*0.6*	*7.5*	*9.7*	*8.2*	*6.9*
Private Equity	**26,404,338,760**	**28.1**	**0.9**	**6.4**	**15.1**	**13.8**	**13.3**
Russell 3000 + 300 BPS QTR LAG (Adj.)			*-2.5*	*24.0*	*12.6*	*12.4*	*14.6*
MSCI ACWI+3% (1 quarter lagged)			*-2.7*	*24.4*	*10.1*	*9.6*	*10.8*
Cash	**991,694,828**	**1.1**	**1.6**	**5.5**	**2.0**	**2.2**	**1.6**
ICE BofA US 3-Month Treasury Bill			*1.4*	*5.0*	*2.2*	*1.9*	*1.2*
PERS-Russell Overlay Cash Balance	566,697,153	0.6					

Calendar Year Performance

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)
Total Fund	**6.0**	**-1.5**	**20.0**	**7.7**	**13.6**	**0.5**	**15.4**	**7.1**	**2.0**	**7.3**
OPERF Policy Benchmark	*11.4*	*-8.6*	*15.6*	*12.4*	*14.0*	*1.2*	*15.6*	*9.0*	*1.6*	*8.2*
InvMetrics All DB > $10B Net Median	*11.0*	*-10.0*	*16.7*	*10.7*	*17.9*	*-2.6*	*15.4*	*8.2*	*0.3*	*6.6*
InvMetrics All DB > $10B Net Rank	*99*	*1*	*14*	*94*	*92*	*8*	*51*	*82*	*3*	*34*
Total Fixed Income	**7.0**	**-11.3**	**-0.9**	**7.7**	**8.8**	**0.3**	**3.7**	**2.8**	**0.6**	**3.5**
Oregon Custom FI Benchmark	*5.5*	*-13.0*	*-0.9*	*7.3*	*8.3*	*0.3*	*3.3*	*2.5*	*0.1*	*3.0*
Core Fixed Income	**6.7**	**-13.9**	**-1.1**	**8.7**	**9.8**	**-0.2**	**4.6**	**3.4**	**0.6**	**6.9**
Oregon Custom External FI BM	*5.5*	*-13.0*	*-1.5*	*7.5*	*8.7*	*0.0*	*3.5*	*2.7*	*0.6*	*6.0*
Blackrock	6.2	-13.2	-1.4	9.1	8.9	0.1	3.8	2.8	0.9	6.7
Oregon Custom External FI BM	*5.5*	*-13.0*	*-1.5*	*7.5*	*8.7*	*0.0*	*3.5*	*2.7*	*0.6*	*6.0*
Wellington	6.7	-14.3	-0.9	9.6	9.8	-0.4	4.6	4.0	0.8	6.5
Oregon Custom External FI BM	*5.5*	*-13.0*	*-1.5*	*7.5*	*8.7*	*0.0*	*3.5*	*2.7*	*0.6*	*6.0*
Western Asset	6.9	-14.9	-1.2	9.4	11.6	-0.7	5.6	3.7	0.4	7.0
Oregon Custom External FI BM	*5.5*	*-13.0*	*-1.5*	*7.5*	*8.7*	*0.0*	*3.5*	*2.7*	*0.6*	*6.0*
U.S. Government	**4.1**	**-12.5**	**-2.3**	**8.1**	**6.9**	**0.9**	**2.3**	**-1.6**	**0.9**	**1.0**
Government Blended Index	*4.1*	*-12.5*	*-2.3*	*8.0*	*6.9*	*0.9*	*2.3*	*-1.3*	*0.8*	*0.8*
Government Portfolio	4.1	-12.5	-2.3	8.1	6.9	0.9	--	--	--	--
Government Blended Index	*4.1*	*-12.5*	*-2.3*	*8.0*	*6.9*	*0.9*	--	--	--	--
Non-Core Fixed Income	**14.7**	**0.3**	**6.4**	**3.7**	**10.5**	**0.1**	**4.9**	**10.1**	**0.2**	**2.4**
Custom Non-Core Fixed Income Index	*13.4*	*-3.3*	*5.3*	*3.9*	*10.1*	*-0.2*	*5.0*	*12.0*	*-1.7*	*1.8*

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)
KKR Asset Management	18.4	-31.9	13.8	2.6	10.5	-0.4	3.4	9.3	-0.2	2.5
KKR Custom Leveraged Loans & Bond Index	*13.4*	*-4.4*	*5.2*	*4.3*	*10.6*	*-0.5*	*5.3*	*12.7*	*-2.1*	*1.9*
Oak Hill	14.8	1.3	5.7	4.9	10.5	0.5	6.3	11.2	0.9	2.2
Oak Hill Custom Lev Loan & Bond Index	*13.4*	*-2.2*	*5.2*	*3.6*	*9.5*	*0.0*	*4.6*	*11.2*	*-1.3*	*1.7*
Beach Point	--	--	--	--	--	--	--	--	--	--
Beach Point Custom Benchmark	--	--	--	--	--	--	--	--	--	--
Global Sovereign	**2.4**	**-9.3**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Bloomberg Global Treasury Ex-U.S.	*8.0*	*-10.1*	--	--	--	--	--	--	--	--
MSIM Global Sovereign	2.2	-9.3	--	--	--	--	--	--	--	--
Bloomberg Global Treasury Ex-U.S.	*8.0*	*-10.1*	--	--	--	--	--	--	--	--
PIMCO Global Sovereign	2.5	-9.3	--	--	--	--	--	--	--	--
Bloomberg Global Treasury Ex-U.S.	*8.0*	*-10.1*	--	--	--	--	--	--	--	--
Emerging Markets Debt	**10.5**	**-18.4**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
JP Morgan EMBI Global Diversified	*11.1*	*-17.8*	--	--	--	--	--	--	--	--
Ashmore EMD	-0.2	-21.1	--	--	--	--	--	--	--	--
JP Morgan EMBI Global Diversified	*11.1*	*-17.8*	--	--	--	--	--	--	--	--
Global Evolution EMD	11.8	-16.6	--	--	--	--	--	--	--	--
JP Morgan EMBI Global Diversified	*11.1*	*-17.8*	--	--	--	--	--	--	--	--
PGIM EMD	10.5	-17.6	--	--	--	--	--	--	--	--
JP Morgan EMBI Global Diversified	*11.1*	*-17.8*	--	--	--	--	--	--	--	--

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)
Structured Credit Products	**7.0**	**-9.3**	--	--	--	--	--	--	--	--
Oregon Structured Credit Products FI BM	*7.3*	*-9.0*	--	--	--	--	--	--	--	--
Schroders SCP	8.1	-6.5	--	--	--	--	--	--	--	--
ICE BofA AA-BBB US Asset Backed Sec Idx	*8.3*	*-7.6*	--	--	--	--	--	--	--	--
Putnam SCP	-2.0	-14.9	--	--	--	--	--	--	--	--
Bloomberg US MBS TR USD	*5.0*	*-11.8*	--	--	--	--	--	--	--	--
Guggenheim SCP	9.2	-5.9	--	--	--	--	--	--	--	--
ICE BofA AA-BBB US Asset Backed Sec Idx	*8.3*	*-7.6*	--	--	--	--	--	--	--	--
Investment Grade Credit	**10.6**	--	--	--	--	--	--	--	--	--
Fidelity	10.6	--	--	--	--	--	--	--	--	--
Fidelity Custom Blended Benchmark	*10.2*	--	--	--	--	--	--	--	--	--
Total Public Equity	**19.8**	**-14.3**	**20.0**	**12.7**	**25.3**	**-10.5**	**24.5**	**9.8**	**-1.7**	**3.3**
MSCI ACWI IMI Net (Daily)	*21.6*	*-18.4*	*18.2*	*16.3*	*26.4*	*-10.1*	*24.0*	*8.3*	*-2.1*	*3.8*
U.S. Equity	**20.4**	**-16.0**	**27.2**	**13.6**	**29.0**	**-7.9**	**20.3**	**14.9**	**-0.8**	**9.8**
Russell 3000 TR	*26.0*	*-19.2*	*25.7*	*20.9*	*31.0*	*-5.3*	*21.1*	*12.8*	*0.5*	*12.6*
Small Cap Growth	**3.6**	**-23.9**	**19.6**	**38.9**	**33.9**	**-4.7**	**26.8**	**6.3**	**-5.0**	**-3.6**
Russell 2000 Growth TR	*18.7*	*-26.4*	*2.8*	*34.6*	*28.5*	*-9.3*	*22.2*	*11.3*	*-1.4*	*5.6*

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)
EAM MicroCap Growth	3.6	-23.9	19.6	38.9	33.9	-4.7	26.8	6.3	-5.7	1.8
Russell Microcap Growth Index (Daily)	*9.1*	*-29.8*	*0.9*	*40.1*	*23.3*	*-14.2*	*16.7*	*6.9*	*-3.9*	*4.3*
Small Cap Value	**8.0**	**-7.2**	**35.6**	**0.3**	**21.3**	**-14.1**	**7.5**	**31.4**	**-5.2**	**3.0**
Russell 2000 Value TR	*14.6*	*-14.5*	*28.3*	*4.7*	*22.4*	*-12.9*	*7.8*	*31.7*	*-7.5*	*4.3*
Mellon Asset Management	8.9	-11.2	25.8	5.2	24.2	-8.0	10.8	26.8	-5.8	2.6
Russell 2000 Value TR	*14.6*	*-14.5*	*28.3*	*4.7*	*22.4*	*-12.9*	*7.8*	*31.7*	*-7.5*	*4.3*
Market Oriented (CORE)	**21.2**	**-16.3**	**26.6**	**15.2**	**30.1**	**-7.1**	**22.0**	**14.8**	**-1.7**	**11.1**
Russell 3000 TR	*26.0*	*-19.2*	*25.7*	*20.9*	*31.0*	*-5.3*	*21.1*	*12.8*	*0.5*	*12.6*
DFA Large Cap Core	11.7	-12.9	27.8	12.7	29.1	-9.0	21.1	15.6	-4.6	--
Russell 1000 TR	*26.5*	*-19.1*	*26.5*	*21.0*	*31.4*	*-4.8*	*21.7*	*12.1*	*0.9*	--
Russell 2000 Synthetic - OST managed	16.2	-16.2	27.1	11.8	23.4	-11.3	14.5	23.4	-3.6	5.8
S&P 600 Custom	*16.1*	*-16.1*	*26.8*	*11.3*	*22.8*	*-11.0*	*14.7*	*21.3*	*-4.4*	*4.9*
S&P 500 - OST managed	26.3	-18.2	28.7	18.4	31.7	-4.4	21.8	12.0	1.5	13.7
S&P 500 Index (Daily)	*26.3*	*-18.1*	*28.7*	*18.4*	*31.5*	*-4.4*	*21.8*	*12.0*	*1.4*	*13.7*
S&P 400 - OST managed	16.5	-13.0	24.6	13.5	26.6	-10.9	16.7	21.1	-2.0	10.0
S&P 400 Midcap Index (Daily)	*16.4*	*-13.1*	*24.8*	*13.7*	*26.2*	*-11.1*	*16.3*	*20.7*	*-2.2*	*9.8*
OST Risk Premia Strategy	19.5	-17.6	24.3	15.8	31.3	-5.5	27.1	10.8	4.5	13.0
BR Russell 3000	--	--	--	--	--	--	--	--	--	--
Russell 3000 TR	--	--	--	--	--	--	--	--	--	--

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)
DFA All Cap Core	--	--	--	--	--	--	--	--	--	--
Russell 3000 TR	--	--	--	--	--	--	--	--	--	--
Non-U.S. Equity	**19.5**	**-14.3**	**12.7**	**13.5**	**22.6**	**-14.9**	**30.4**	**4.6**	**-2.6**	**-2.9**
Oregon MSCI ACWI Ex US IMI (Net)	*15.6*	*-16.6*	*8.5*	*11.1*	*21.6*	*-14.8*	*27.8*	*4.4*	*-4.6*	*-3.9*
Total International Overlay Accounts										
PERS-Adrian Lee Active Currency										
PERS-P/E Global Active Currency										
PERS-Aspect Cap Active Currency										
International Market Oriented (Core)	**17.5**	**-13.5**	**13.1**	**12.5**	**23.2**	**-14.3**	**31.0**	**2.5**	**-1.2**	**-2.6**
MSCI World ex USA IMI Net Return	*17.2*	*-15.3*	*12.4*	*8.3*	*22.9*	*-14.7*	*25.2*	*2.9*	*-1.9*	*-4.5*
Arrowstreet Capital	21.7	-5.5	24.5	9.1	23.2	-10.3	35.4	4.7	0.4	0.8
Oregon MSCI ACWI Ex US IMI (Net)	*15.6*	*-16.6*	*8.5*	*11.1*	*21.6*	*-14.8*	*27.8*	*4.4*	*-4.6*	*-3.9*
Lazard Asset Management										
Lazard International CEF	10.5	-25.7	4.5	30.2	29.0	-17.2	39.8	0.1	-0.2	0.6
Oregon MSCI ACWI Ex US (Net)	*15.6*	*-16.0*	*7.8*	*10.7*	*21.5*	*-14.2*	*27.2*	*4.5*	*-5.5*	*-3.9*
AQR Capital Management										
OST Int'l Risk Premia	19.8	-11.5	15.6	7.7	22.8	-12.0	--	--	--	--
MSCI World x US Custom Div Multiple-Factor	*19.3*	*-11.8*	*15.0*	*7.3*	*22.4*	*-12.3*	--	--	--	--
International Value	**23.2**	**-10.9**	**18.0**	**4.9**	**17.8**	**-12.4**	**25.7**	**9.8**	**-4.5**	**-4.3**
Oregon MSCI ACWI Ex US Value IMI (Net)	*17.3*	*-9.3*	*11.0*	*-0.1*	*16.3*	*-14.6*	*23.6*	*8.8*	*-8.9*	*-5.0*

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)
Acadian Asset Management	16.5	-13.9	21.7	11.5	19.4	-15.4	35.1	11.8	-7.2	-3.7
Oregon MSCI ACWI Ex US Value IMI (Net)	*17.3*	*-9.3*	*11.0*	*-0.1*	*16.3*	*-14.6*	*23.6*	*8.8*	*-8.9*	*-5.0*
Brandes Investment Partners	32.3	-7.4	14.1	-1.3	16.4	-9.4	16.3	7.9	-1.6	-5.0
Oregon MSCI ACWI Ex US Value (Net)	*17.3*	*-8.6*	*10.5*	*-0.8*	*15.7*	*-14.0*	*22.7*	*8.9*	*-10.1*	*-5.1*
International Growth	**19.2**	**-21.0**	**12.4**	**19.9**	**28.1**	**-6.4**	**27.5**	**1.3**	**1.9**	**-4.3**
Oregon MSCI WORLD Ex US (Net)	*17.9*	*-14.3*	*12.6*	*7.6*	*22.5*	*-14.1*	*24.2*	*2.8*	*-3.0*	*-4.3*
Walter Scott Management	19.2	-21.0	12.4	19.9	28.0	-6.3	27.5	6.4	1.2	-3.1
Oregon MSCI WORLD Ex US (Net)	*17.9*	*-14.3*	*12.6*	*7.6*	*22.5*	*-14.1*	*24.2*	*2.8*	*-3.0*	*-4.3*
International Small Cap	**19.8**	**-15.0**	**18.1**	**9.3**	**24.1**	**-24.3**	**30.2**	**4.9**	**6.1**	**-6.5**
MSCI World Ex US Small Cap Value (Net)	*14.7*	*-14.0*	*13.3*	*2.6*	*22.8*	*-18.4*	*27.9*	*7.9*	*1.1*	*-5.9*
DFA International Small Cap										
Harris Associates	20.7	-13.8	20.1	5.0	33.4	-24.1	27.2	7.1	1.0	-6.7
MSCI ACWI ex USA Small Cap Value (Net)	*17.2*	*-13.6*	*14.1*	*4.7*	*20.3*	*-18.2*	*29.9*	*8.2*	*-1.2*	*-4.5*
EAM International Micro Cap	17.5	-25.2	17.8	38.4	20.3	-33.6	45.3	2.2	23.5	--
Oregon FTSE Global Ex US Micro Cap	*14.5*	*-21.1*	*18.0*	*27.9*	*16.6*	*-20.0*	*31.4*	*6.0*	*2.9*	*--*
DFA International Micro Cap										
Oregon FTSE Global Ex US Micro Cap	*14.5*	*-21.1*	*18.0*	*27.9*	*16.6*	*-20.0*	*31.4*	*6.0*	*2.9*	*--*
Emerging Markets	**24.3**	**-16.9**	**4.3**	**23.5**	**22.1**	**-17.4**	**35.7**	**10.3**	**-14.5**	**1.2**
ORE MSCI Emerging Markets IMI (Net)	*11.7*	*-19.8*	*-0.3*	*18.4*	*17.6*	*-15.0*	*37.0*	*9.9*	*-13.9*	*-1.8*
Genesis Emerging Markets	0.1	-22.8	-6.6	17.5	29.3	-15.9	33.6	12.0	-14.9	-1.0
ORE MSCI Emerging Markets IMI (Net)	*11.7*	*-19.8*	*-0.3*	*18.4*	*17.6*	*-15.0*	*37.0*	*9.9*	*-13.9*	*-1.8*

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)
Arrowstreet Emerging Markets	21.3	-10.5	9.6	32.1	23.7	-19.5	35.4	11.2	-15.8	1.1
ORE MSCI Emerging Markets IMI (Net)	*11.7*	*-19.8*	*-0.3*	*18.4*	*17.6*	*-15.0*	*37.0*	*9.9*	*-13.9*	*-1.8*
Westwood Global Investment	22.8	-4.1	3.6	10.1	9.8	-9.3	29.5	19.0	-16.1	0.2
MSCI Emerging Markets IMI Net	*11.7*	*-19.8*	*-0.3*	*18.4*	*17.6*	*-15.0*	*37.3*	*11.2*	*-14.9*	*-2.2*
William Blair and Company	10.7	-33.3	4.4	41.4	29.1	-21.6	50.2	1.9	-14.1	5.7
MSCI Emerging Markets Growth Net	*5.8*	*-24.0*	*-8.4*	*31.3*	*25.1*	*-18.3*	*37.3*	*11.2*	*-14.9*	*-2.2*
William Blair Emerging Mkt Small Cap	4.6	-28.6	17.9	33.0	21.7	-24.4	38.5	-4.3	-5.9	14.9
MSCI Emerging Markets Small Cap Gr Net	*23.8*	*-23.3*	*20.4*	*25.6*	*12.0*	*-20.0*	*33.8*	*2.3*	*-6.8*	*1.0*
OST EM Risk Premia ESG										
Global Equity	**19.3**	**-9.8**	**15.5**	**7.4**	**21.6**	**-7.9**	**22.3**	**9.4**	**-3.3**	**6.9**
MSCI ACWI IMI Net (Daily)	*21.6*	*-18.4*	*18.2*	*16.3*	*26.4*	*-10.1*	*24.0*	*8.3*	*-2.1*	*3.8*
Alliance Bernstein Global Value										
GQG Global Equity	--	--	--	--	--	--	--	--	--	--
Oregon MSCI ACWI Ex US (Net)	--	--	--	--	--	--	--	--	--	--
Cantillion	--	--	--	--	--	--	--	--	--	--
MSCI ACWI IMI Net (Daily)	--	--	--	--	--	--	--	--	--	--
Global Equity Low Volatility	**17.2**	**-9.2**	**15.2**	**7.9**	**21.7**	**-5.5**	**22.5**	--	--	--
MSCI AC World (Daily Const)	*22.2*	*-18.4*	*18.5*	*16.3*	*26.6*	*-9.4*	*24.0*	--	--	--
LACM Global Equity Low Volatility	15.8	-14.9	15.4	15.0	23.1	-6.6	22.7	--	--	--
MSCI AC World (Daily Const)	*22.2*	*-18.4*	*18.5*	*16.3*	*26.6*	*-9.4*	*24.0*	--	--	--
Arrowstreet Global Low Volatility	20.0	-2.7	15.1	12.6	22.3	-2.7	--	--	--	--
MSCI ACWI IMI Net (Daily)	*21.6*	*-18.4*	*18.2*	*16.3*	*26.4*	*-10.1*	--	--	--	--

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)
AQR Global Low Volatility										
Acadian Global Low Volatility	2.2	-7.7	17.5	-1.9	20.2	-7.0	--	--	--	--
MSCI ACWI IMI Net (Daily)	*21.6*	*-18.4*	*18.2*	*16.3*	*26.4*	*-10.1*	*--*	*--*	*--*	*--*
DFA Global Low Volatility										
Other Equity										
Transitional & Closed Accounts										
PERS- Equity Distribution										
Total Real Estate	**-10.2**	**20.0**	**19.0**	**2.7**	**7.2**	**8.0**	**10.0**	**7.9**	**9.9**	**14.2**
NCREIF ODCE (Custom) (Adj.)	*-12.9*	*21.0*	*13.6*	*0.6*	*4.7*	*7.7*	*6.7*	*8.9*	*13.5*	*11.3*
Real Estate excluding REITS	**-10.7**	**21.6**	**18.6**	**3.0**	**7.3**	**8.9**	**11.2**	**10.0**	**12.7**	**12.0**
NCREIF ODCE (Custom) (Adj.)	*-12.9*	*21.0*	*13.6*	*0.6*	*4.7*	*7.7*	*6.7*	*8.9*	*13.5*	*11.3*
Total REITS	**14.4**	**-16.4**	**28.2**	**-0.9**	**7.2**	**-2.0**	**9.8**	**1.1**	**2.0**	**22.2**
ABKB - LaSalle Advisors	15.6	-18.6	36.2	3.0	29.9	3.2	7.4	5.4	2.9	32.1
Nareit Equity Share Price Index	*11.4*	*-24.9*	*41.3*	*-5.2*	*28.7*	*-4.0*	*8.7*	*8.6*	*2.8*	*28.0*
Woodbourne Investment Management	10.8	-10.3	9.9	0.6	18.5	-4.8	10.6	4.3	8.6	19.5
Nareit Equity Share Price Index	*11.4*	*-24.9*	*41.3*	*-5.2*	*28.7*	*-4.0*	*8.7*	*8.6*	*2.8*	*28.0*

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)
Opportunity Portfolio	**13.9**	**1.3**	**22.7**	**10.2**	**6.2**	**5.8**	**10.5**	**6.1**	**2.1**	**8.8**
Opportunity Custom Benchmark	*10.0*	*11.7*	*12.4*	*6.4*	*7.4*	*7.0*	*7.2*	*7.2*	*5.8*	*5.8*
Portfolio Holdings - Opportunity	42.2	-15.5	--	--	--	--	--	--	--	--
Alternative Portfolio	**5.3**	**19.1**	**14.8**	**-6.6**	**-1.3**	**-2.4**	**8.3**	**6.6**	**-4.3**	**4.4**
CPI +4%	*7.5*	*10.4*	*11.3*	*5.4*	*6.4*	*6.0*	*6.2*	*6.2*	*4.8*	*4.8*
Diversifying Strategies	**0.8**	**21.4**	**8.7**	**-12.1**	**-1.0**	**-11.5**	**8.0**	**0.5**	**6.4**	**9.0**
HFRI FOF Conservative Index	*5.3*	*0.1*	*7.6*	*6.5*	*6.3*	*-0.9*	*4.1*	*1.9*	*0.4*	*3.1*
Diversifiying Strategies	0.8	21.4	8.7	-12.1	-1.0	-11.5	8.0	--	--	--
HFRI FOF Conservative Index	*5.3*	*0.1*	*7.6*	*6.5*	*6.3*	*-0.9*	*4.1*	--	--	--
Real Assets	**7.8**	**18.2**	**19.0**	**-2.0**	**-1.6**	**4.9**	**8.4**	**9.0**	**-7.9**	**3.1**
CPI +4%	*7.5*	*10.4*	*11.3*	*5.4*	*6.4*	*6.0*	*6.2*	*6.2*	*4.8*	*4.8*
Infrastructure	8.6	13.9	16.6	5.6	8.9	--	--	--	--	--
CPI +4%	*7.5*	*10.4*	*11.3*	*5.4*	*6.4*	--	--	--	--	--
Natural Resources	5.9	27.7	23.9	-12.8	-12.5	--	--	--	--	--
CPI +4%	*7.5*	*10.4*	*11.3*	*5.4*	*6.4*	--	--	--	--	--
Private Equity	**6.4**	**1.2**	**41.8**	**12.7**	**11.1**	**18.1**	**17.3**	**6.3**	**7.3**	**15.9**
Russell 3000 + 300 BPS QTR LAG (Adj.)	*24.0*	*-15.1*	*35.7*	*18.4*	*6.0*	*21.1*	*22.2*	*18.4*	*2.5*	*21.2*
Cash	**5.5**	**0.5**	**0.1**	**1.6**	**3.3**	**2.0**	**1.3**	**1.2**	**0.5**	**0.5**
ICE BofA US 3-Month Treasury Bill	*5.0*	*1.5*	*0.1*	*0.7*	*2.3*	*1.9*	*0.9*	*0.3*	*0.0*	*0.0*
PERS-Russell Overlay Cash Balance										

Benchmark History
As of December 31, 2023

Total Fund		
1/1/2020	Present	19% Russell 3000 + 300 BPS QTR LAG (Adj.) / 21% Oregon Custom FI Benchmark / 12.5% Oregon Custom Real Estate Benchmark / 37.5% MSCI ACWI IMI Net (Daily) / 10% CPI +4%
Total Fixed Income		
3/1/2016	Present	46% Bloomberg US Aggregate TR / 37% Bloomberg US Treasury TR / 4% ICE BofA High Yield Master TR / 13% Morningstar LSTA US Leveraged Loan Index
Core Fixed Income		
	Present	Oregon Custom External FI BM
U.S. Government		
3/1/2016	Present	Bloomberg US Treasury TR
1/1/1990	2/29/2016	Bloomberg US Govt/Credit 1-3 Yr. TR
Non-Core Fixed Income		
	Present	Custom Non-Core Fixed Income Index
Global Sovereign		
3/1/2021	Present	Bloomberg Global Treasury Ex-U.S.
Emerging Markets Debt		
5/1/2021	Present	JP Morgan EMBI Global Diversified
Structured Credit Products		
12/1/2021	Present	Oregon Structured Credit Products FI BM
Investment Grade Credit		
7/1/2022	Present	Bloomberg US Credit

Total Public Equity		
7/1/1997	Present	MSCI ACWI IMI Net (Daily)
U.S. Equity		
	Present	Russell 3000 TR
Large Cap Value		
	Present	Russell 1000 Value TR
Small Cap Growth		
8/1/2009	Present	Russell 2000 Growth TR
Small Cap Value		
	Present	Russell 2000 Value TR
Market Oriented (CORE)		
	Present	Russell 3000 TR
Non-U.S. Equity		
4/1/1985	Present	Oregon MSCI ACWI Ex US IMI (Net)
International Market Oriented (Core)		
	Present	MSCI World ex USA IMI Net Return
International Value		
	Present	Oregon MSCI ACWI Ex US Value IMI (Net)
International Growth		
	Present	Oregon MSCI WORLD Ex US (Net)
International Small Cap		
	Present	MSCI World Ex US Small Cap Value (Net)
Emerging Markets		
	Present	ORE MSCI Emerging Markets IMI (Net)
Global Equity		
	Present	MSCI ACWI IMI Net (Daily)

Disclaimer, Glossary, and Notes

WE HAVE PREPARED THIS REPORT (THIS "REPORT") FOR THE SOLE BENEFIT OF THE INTENDED RECIPIENT (THE "RECIPIENT").

SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

INFORMATION USED TO PREPARE THIS REPORT WAS OBTAINED FROM INVESTMENT MANAGERS, CUSTODIANS, AND OTHER EXTERNAL SOURCES. WHILE WE HAVE EXERCISED REASONABLE CARE IN PREPARING THIS REPORT, WE CANNOT GUARANTEE THE ACCURACY OF ALL SOURCE INFORMATION CONTAINED HEREIN.

CERTAIN INFORMATION CONTAINED IN THIS REPORT MAY CONSTITUTE "FORWARD - LOOKING STATEMENTS," WHICH CAN BE IDENTIFIED BY THE USE OF TERMINOLOGY SUCH AS "MAY," "WILL," "SHOULD," "EXPECT," "AIM", "ANTICIPATE," "TARGET," "PROJECT," "ESTIMATE," "INTEND," "CONTINUE" OR "BELIEVE," OR THE NEGATIVES THEREOF OR OTHER VARIATIONS THEREON OR COMPARABLE TERMINOLOGY. ANY FORWARD-LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION ARE BASED UPON CURRENT ASSUMPTIONS. CHANGES TO ANY ASSUMPTIONS MAY HAVE A MATERIAL IMPACT ON FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS. ACTUAL RESULTS MAY THEREFORE BE MATERIALLY DIFFERENT FROM ANY FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION.

PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

Credit Risk: Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security).

Duration: Measure of the sensitivity of the price of a bond to a change in its yield to maturity. Duration summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. For example, the price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. Conversely, the price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three-year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

Information Ratio: This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

Jensen's Alpha: A measure of the average return of a portfolio or investment in excess of what is predicted by its beta or "market" risk. Portfolio Return- [Risk Free Rate+Beta*(market return-Risk Free Rate)].

Market Capitalization: For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

Market Weighted: Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

Maturity: The date on which a loan, bond, mortgage, or other debt/security becomes due and is to be paid off.

Prepayment Risk: The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

Price-Book Value (P/B) Ratio: The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.

Price-Earnings (P/E) Ratio: A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about is future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

Quality Rating: The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

Sharpe Ratio: A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.

STIF Account: Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

Standard Deviation: A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

Style: The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

Tracking Error: A divergence between the price behavior of a position or a portfolio and the price behavior of a benchmark, as defined by the difference in standard deviation.

Yield to Maturity: The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a "basis book." For example, a 5% bond pays $5 a year interest on each $100 par value. To figure its current yield, divide $5 by $95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay $100 for the bond that can be bought now for $95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

$$\frac{5\%\ \text{(discount)}}{5\ \text{(yrs. to maturity)}} = \begin{array}{l}1\%\ \text{pro rata, plus}\\ 5.26\%\ \text{(current yield)}\end{array} = 6.26\%\ \text{(yield to maturity)}$$

Yield to Worst: The lowest potential yield that can be received on a bond without the issuer actually defaulting. The yield to worst is calculated by making worst-case scenario assumptions on the issue by calculating the returns that would be received if provisions, including prepayment, call, or sinking fund, are used by the issuer.

NCREIF Property Index (NPI): Measures unleveraged investment performance of a very large pool of individual commercial real estate properties acquired in the private market by tax-exempt institutional investors for investment purposes only. The NPI index is capitalization-weighted for a quarterly time series composite total rate of return.

NCREIF Fund Index - Open End Diversified Core Equity (NFI-ODCE): Measures the investment performance of 28 open-end commingled funds pursuing a core investment strategy that reflects funds' leverage and cash positions. The NFI-ODCE index is equal-weighted and is reported gross and net of fees for a quarterly time series composite total rate of return.

Sources: Investment Terminology, International Foundation of Employee Benefit Plans, 1999.
The Handbook of Fixed Income Securities, Fabozzi, Frank J., 1991

Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.

To: **The Oregon Investment Council**

From: Karl Cheng, Senior Investment Officer, Portfolio Risk & Research

Re: **Fourth Quarter 2023 Risk Report for the Oregon Public Employees Retirement Fund**

Executive Summary

This memo summarizes OPERF's predicted volatility, as estimated by Aladdin, Treasury's end-to-end investment analytics platform built by BlackRock. As of December 31, 2023, OPERF has an estimated return volatility of 15.2%, higher than that for the OIC-approved target allocation, last presented by Meketa Investment Group ("Meketa") at the December 2022 meeting. This is driven by: higher levels of predicted volatility by asset class than what Meketa used; and overallocations to private market asset classes versus the OIC-approved targets.

The realized tracking error and the predicted active risk for the Fixed Income Portfolio remain above the OIC-approved guideline limit. The volatilities of U.S. interest rates, the biggest drivers of the Portfolio's ex ante and ex post risks, are still substantially above where they were pre-2020. The combination of high-rate volatilities and the Portfolio's short duration results in elevated volatilities. The Public Equity Portfolio's active risk is below the OIC-approved guideline limit given the restructuring of the Portfolio by the Public Equity team. **Staff recommends no action at this time.**

OPERF Asset Allocation

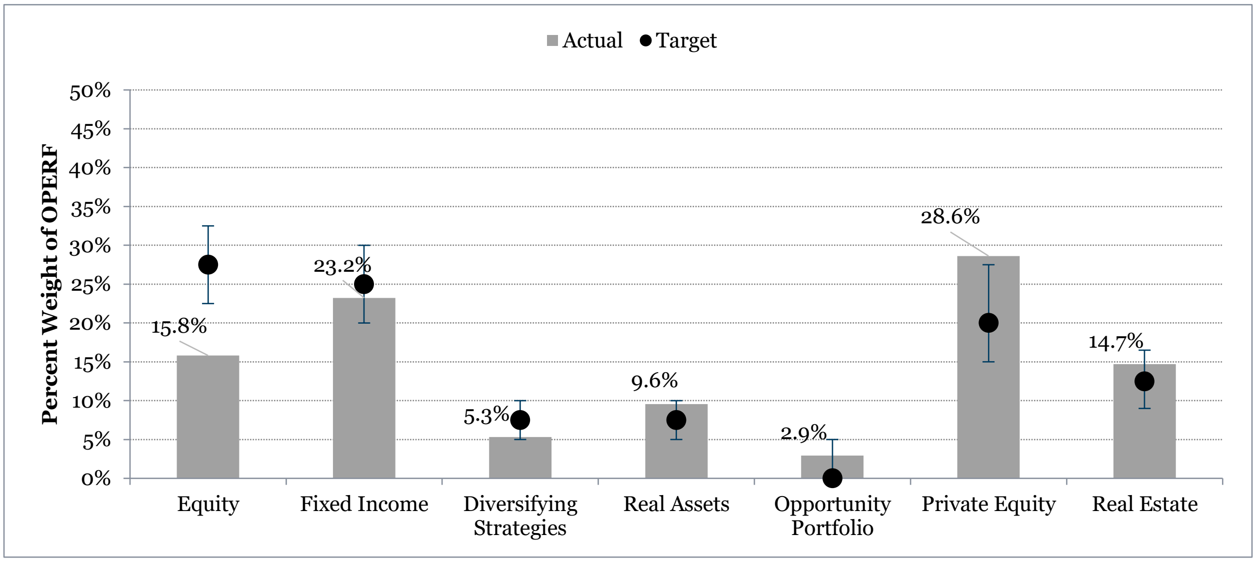
Investment Belief #2 in INV 1201: Statement of OIC Investment and Management Beliefs states: "*Asset Allocation Drives Risk and Return*". Shown in the table below are OPERF's target allocations approved by the Council at the December 2022 meeting.

Table 1. OPERF Target Asset Allocation

Asset Class	Target Allocation (%)	Rebalancing Range (%)
Public Equity	27.5	22.5 – 32.5
Private Equity	20.0	15.0 – 27.5
Fixed Income	25.0	20.0 – 30.0
Real Estate	12.5	9.0 – 16.5
Real Assets	7.5	5.0 – 10.0
Diversifying Strategies	7.5	5.0 – 10.0
Total Fund	**100.0**	

Including the synthetic overlays exposures managed by Russell Investments, Figure **1** below shows OPERF's allocation.

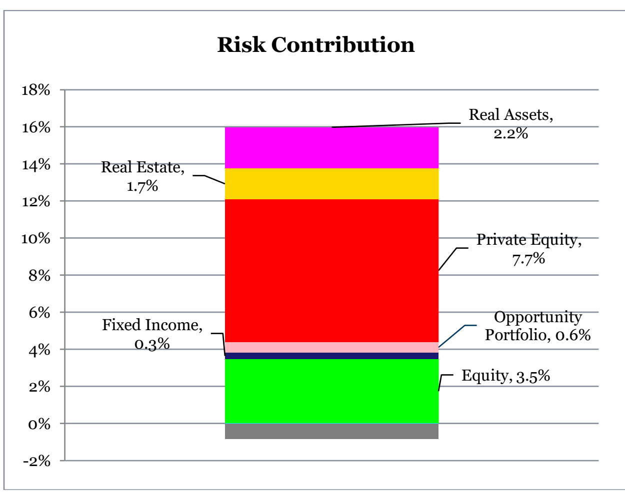
Figure 1. OPERF Actual Allocation versus Target

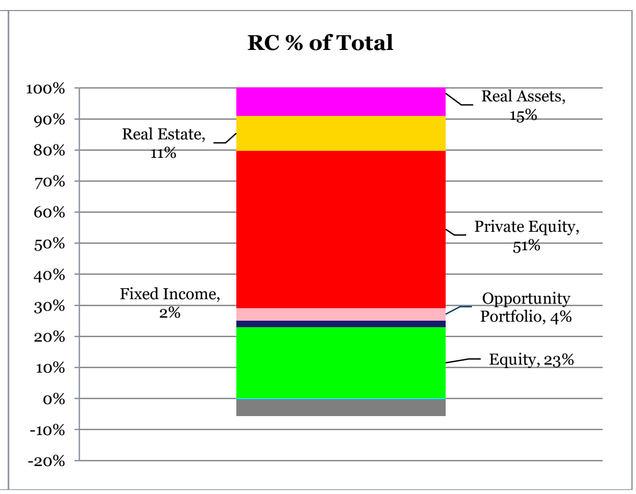


OPERF Predicted Risk

The risk estimates are shown in the charts below.

Figure 2. OPERF Risk Contribution by Asset Class and Risk Contribution as a percent of total OPERF predicted risk





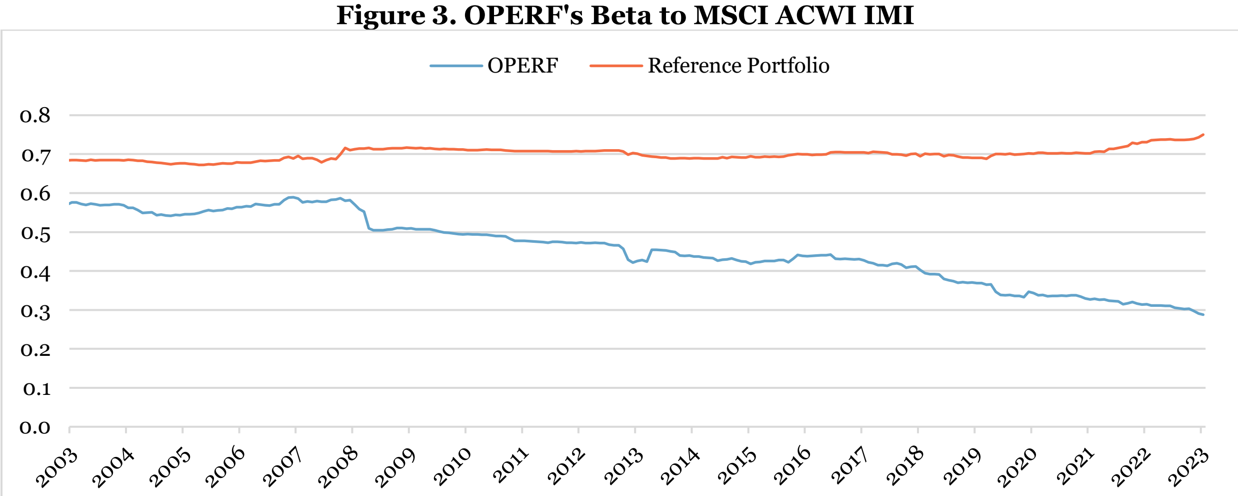
The total predicted **standard deviation**, or **volatility**, for OPERF is 15.2% as of December 31, 2023. To put that in context, Meketa, the OIC's investment consultant, estimated OPERF's long-term volatility to be 11.4% using their 2022 Capital Market Assumptions, which are a blend of 10- to 20-year assumptions from staff, Meketa, and Aon Investments, the Council's secondary investment consultant. Aladdin's model uses a medium-term, five-year lookback period so there will almost always be some difference between the two estimates. OPERF's current "excess" volatility relative to the Capital Market Assumptions can be attributed to two sources: elevated estimated market volatilities relative to the long-term assumptions; and the Fund's overallocation to private market asset classes. Modeling a "what if" allocations using the Strategic Asset Allocation and the December 2023 risk estimates produces in a predicted risk of 13.6%. A very rough interpretation is that, relative to the Capital Market Assumptions, the current market environment added 2.2% (13.6% minus 11.4%) to the estimated risk and the Fund's misweights result added another 1.6% (15.2% minus 13.6%).

Another item of note from Figure 2 is that "equity" risk, that is the predicted risk contributions from the Public Equity and Private Equity Portfolios, is estimated to be 74% of OPERF's predicted risk, the largest risk contributor to OPERF. OIC Investment Belief #3 summarizes the Council's objective for investing in equity: "*Over the long-term, equity-oriented investments provide reliable return premiums relative to risk-free investments.*"

The OIC-approved changes to asset allocation, mainly lowering the allocation to Public Equity and raising those of Real Assets and Diversifying Strategies, have reduced OPERF's realized volatility. Figure 3 below plots OPERF's rolling 20-quarter realized beta to MSCI ACWI IMI as well as that of the "Reference Portfolio", which is a blend of 67.5% MSCI ACWI IMI & 32.5% Bloomberg U.S. Aggregate Index. OPERF's realized beta hovered around +0.60 in the earlier portion of the analysis period before starting a steady decline. A significant contributor to that decline is the increasing allocation to illiquid investments, which have performance smoothing, but also provide diversification.

A noteworthy behavior, the 20-quarter beta of the Reference Portfolio increased recently due to increasing correlation between the two component indices.

Figure 3. OPERF's Beta to MSCI ACWI IMI

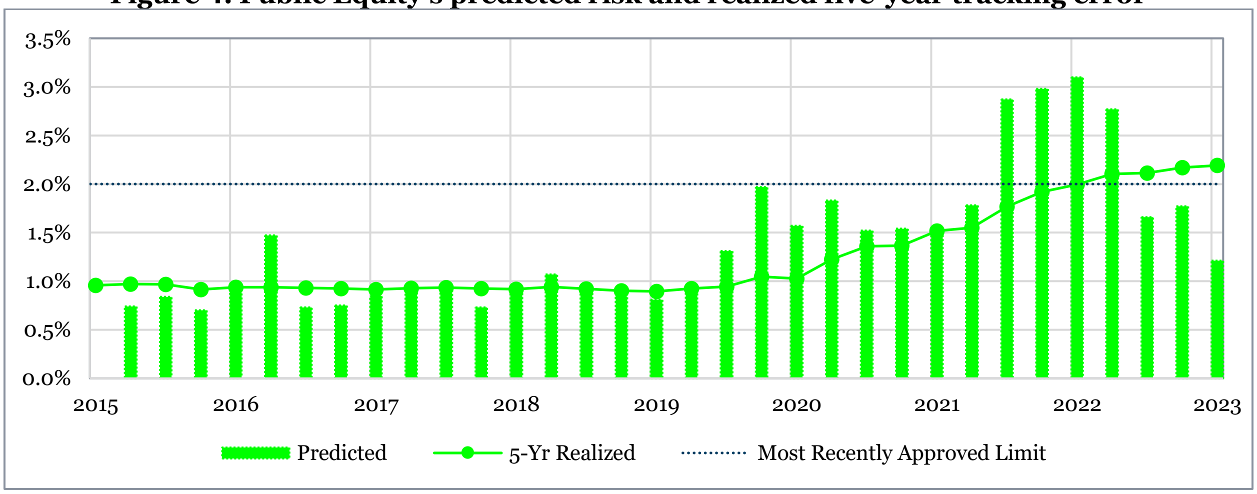


Capital Markets

Public Equity

The Public Equity Portfolio has an OIC-approved **tracking error** range of 0.75% to 2.00%. Using monthly performance data from State Street, the custodian bank, the five-year *ex post* tracking error for the Portfolio through December 31, 2023 is 2.2%, slightly above the upper end of the approved range. However, Aladdin estimates an *ex ante* active risk of 1.2%, substantially lower than the 3.1% for December 31, 2022. The Public Equity team made multiple cash raises for the Fund in 2023, rebalancing the Portfolio each time to reduce the active factor exposures. That implementation, in conjunction with the moderation of factor correlations, lowered the predicted active risk of the Portfolio.

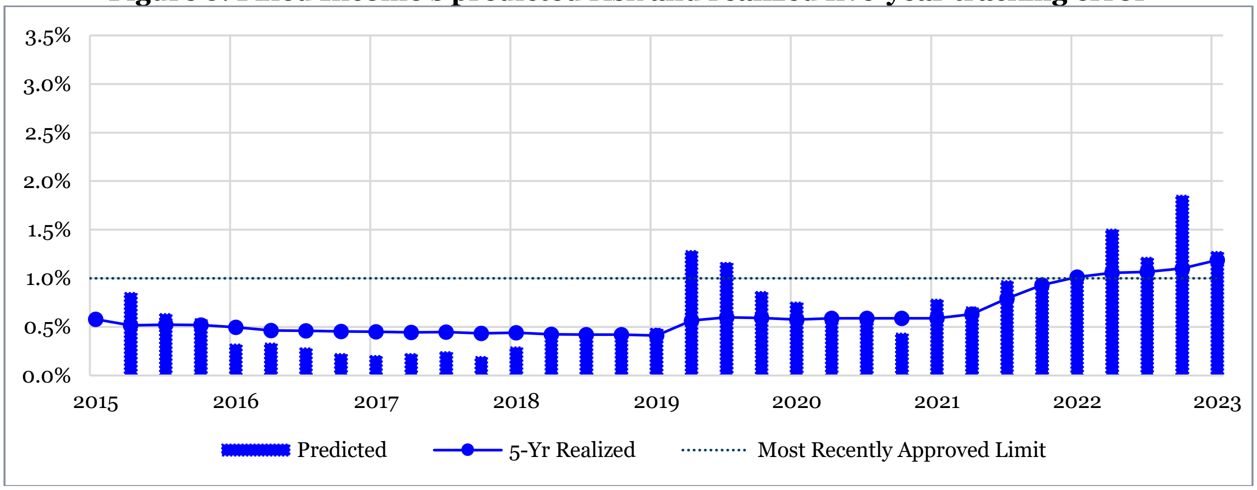
Figure 4. Public Equity's predicted risk and realized five-year tracking error



Fixed Income

The Fixed Income Portfolio has an OIC-approved **tracking error** of up to 1.0%. Using monthly performance data from State Street, the five-year tracking error for the Portfolio through December 31, 2023 is 1.2%, slightly above the upper end of the approved range. Furthermore, the predicted active risk of 1.3% is also above the approved range. This elevation in predicted active risk is mainly due to the Portfolio's short duration exposure of -0.8 relative to its benchmark, the Bloomberg U.S. Aggregate, exacerbated by the pickup in interest rate volatility. The Fixed Income team initiated several rebalancing in the second half of 2023 to start reducing the Portfolio's short duration.

Figure 5. Fixed Income's predicted risk and realized five-year tracking error



OPERF Cash Flow

Table 2 below summarizes approximate net investment cash flow and pension cash flow for Year-to-Date 2023 and for the past five years.

Table 2. OPERF Net Cash Flow by Portfolio by Time Period

	Net Cash Flow ($M)					
Asset Class	YTD (2023)	2022	2021	2020	2019	2018
Public Equity	4,536	3,327	4,047	3,436	2,813	3,544
Private Equity	-542	464	2,503	50	285	1,103
Fixed Income	-1,384	-1,544	-2,653	3,154	327	61
Real Estate	-930	-883	-396	15	-48	-28
Real Assets	-804	-706	-572	-509	-578	-524
Diversifying Strategies	-3	-11	381	-621	-490	-1,349
Opportunity	122	-165	-248	86	26	156
Other*	961	663	-227	-2,249	283	-15
Total Fund	**1,956**	**1,144**	**2,836**	**3,362**	**2,617**	**2,948**
Net Pension	*-2,742*	*-2,605*	*-1,743*	*-3,041*	*-2,659*	*-2,774*

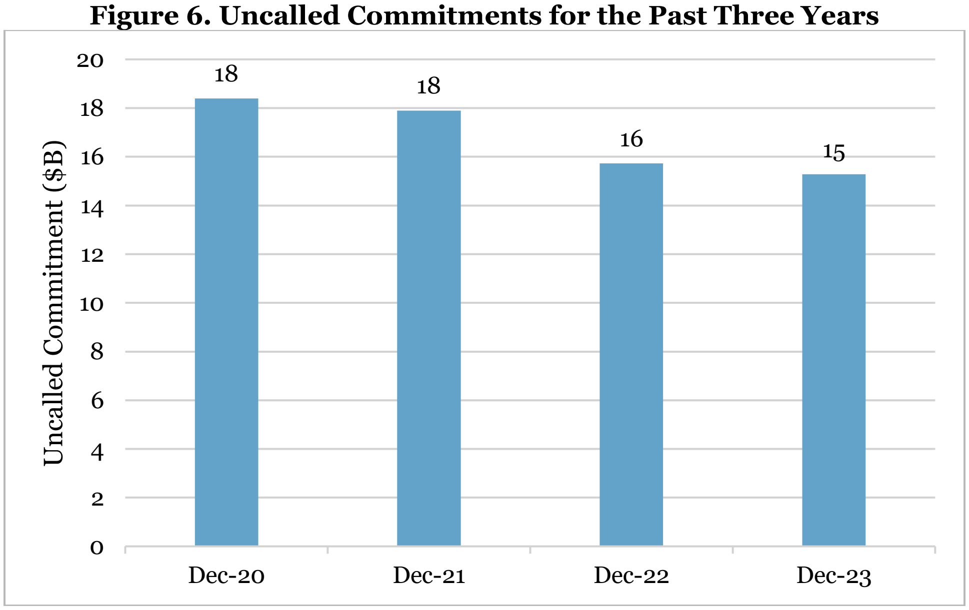
*Including cash flows from the terminated OPERF Risk Parity Portfolio.

The estimated uncalled commitments from the private market portfolios are tabulated below.

Table 3. OPERF Uncalled Commitments

Asset Class Portfolio	**Uncalled Commitment ($B)**
Private Equity	$6.6
Real Assets	$4.1
Real Estate	$3.3
Opportunity	$1.3
Total	**$15.3**

Figure 6. Uncalled Commitments for the Past Three Years



Projected Asset Allocation

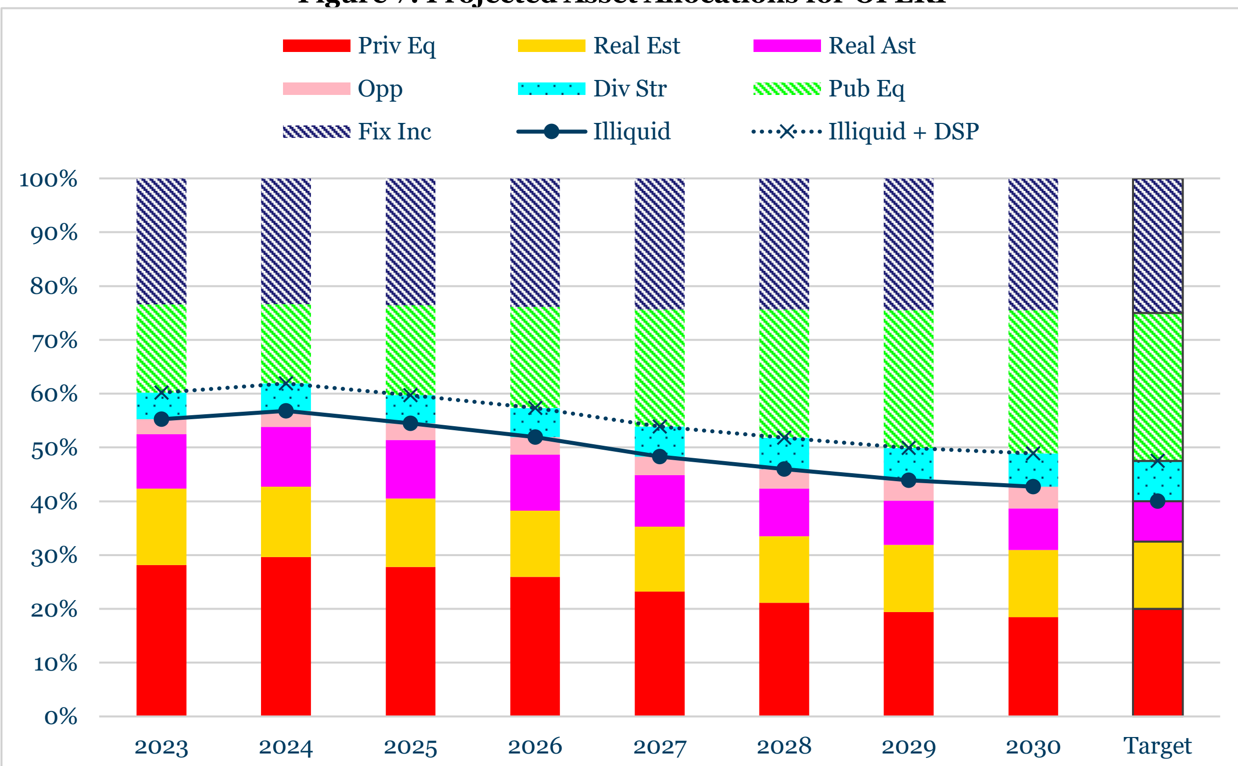
Figure 7 below is constructed using assumptions from various sources, including:

- Actuarial assumptions from Milliman, PERS' external actuary;
- Pacing studies from specialist consultants and staff;
- Capital Market Assumptions from Meketa.

Given all the underlying estimates, which also do not share a common framework, the plot is a very coarse projection. Nevertheless, it provides a useful guidance that the overallocation to private, illiquid investments will likely persist for several years. The current allocation of 55% to illiquid asset classes listed in Table 3 is 15% above the target allocation. Based on the assumptions, it is projected that the allocation to illiquid asset classes will fall below 50% by the end of 2027.

Staff will continue to refine the model and update as returns come in and assumptions are refreshed.

Figure 7. Projected Asset Allocations for OPERF



Oregon Investment Council

OREGON STATE TREASURY

TAB 5

REAL ESTATE

ANNUAL REVIEW

OPERF Real Estate Portfolio

- Portfolio Structure
  - Constructed through a mix of sector specific separately managed accounts, open end fund, closed end funds, joint ventures and co-investments.
  - Advantaged by strong, long-term relationships with aligned partners in fee-efficient vehicles.

- Portfolio Status
  - Seasoned, broadly diversified portfolio that has produced attractive risk-adjusted returns.
  - Moderate levels of leverage (~37% at the total portfolio level); predominantly fixed rate mortgage debt.
  - Moderate levels of committed but uncalled capital.
  - Additional room within the non-core allocation.
  - Well positioned to provide relative stability in the current market AND deploy additional capital into potential market dislocation, such as real estate debt positions.
  - Ability to be an all-cash buyer, tolerate targeted strategies, non-U.S. investments and additional alternative property type exposure.

Current Real Estate Market Distress and Dislocation

2024 is shaping up to be an interesting market for investors with dry powder and a challenging market for others.

Dislocated Capital Markets

- Higher cost of capital and less financing available.
- Decline in property valuations.
- Increasing regulatory scrutiny and troubled loan books causing strain for lenders.

Uncertain Economic Backdrop

- Higher capex requirements to modernize dated assets and attract/retain tenants.
- Uncertainty and potential recession expectations driving equity investors to be more cautious on growth.
- Sector-specific challenges creating uncertain investing environment

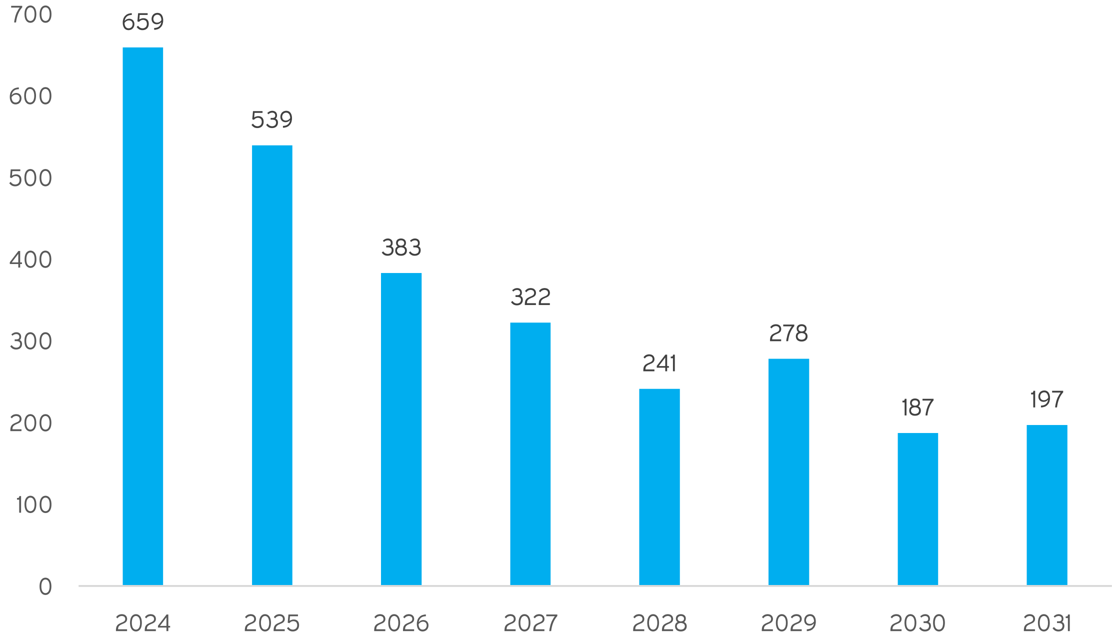
Motivated Sellers

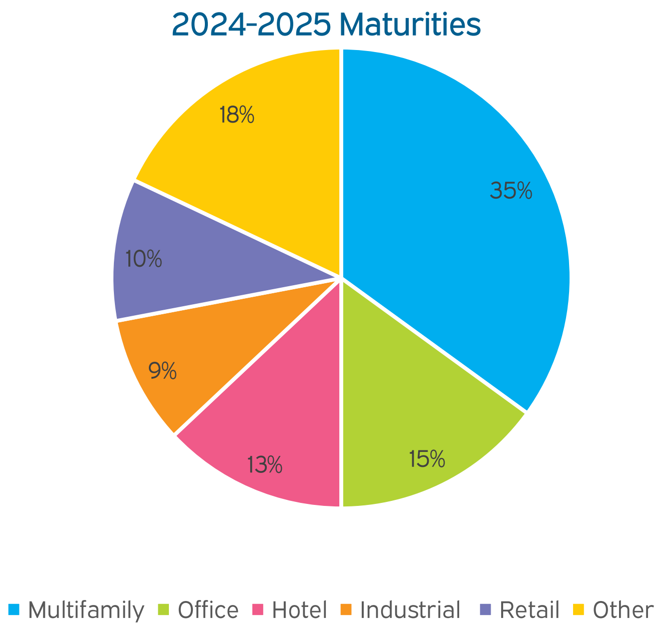
- Open-ended funds facing redemption queues.
- Owners meeting regulatory pressures.
- Public companies trading at a discount.
- Owners unable to service debt.
- Borrowers needing to refinance.
- Families seeking liquidity or operating expertise.
- Developers who have defaulted on their projects.
- Managers with end of fund life constraints.

Outlook: Primary Property Types

	Overall Outlook	Demand	Occupancy	NOI Growth	
Market	🟡	🟡	🟢	🟢	• 2024 could be a year of transition where deal activity picks up, and values begin to stabilize. • Debt will likely remain expensive relative to recent periods. • Given higher input costs, we expect to experience limited new supply.
Office	🔴	🔴	🔴	🔴	• The normalization of hybrid working arrangements will continue to limit office demand. • Vacancy rates are likely to continue to tick up as leases expire. • Well-located newer assets that are highly amenitized will likely outperform older assets.
Retail	🟡	🟡	🟡	🟢	• Consumer spending, high inflation, and a slowing economy may impact discretionary spending, which may negatively impact certain forms of retail (malls and power centers). • Retail has seen a dearth of new supply following GFC, resulting in low overall availability.
Industrial	🟡	🟢	🟢	🟢	• The move from JIT to JIC inventory models has resulted in additional space requirements as users hold more inventory on hand. • As supply chains evolve, additional demand for space may come from re-shoring and nearshoring. • Rents on expiring leases are likely below market, creating upside potential, but new supply is elevated in 2024.
Multifamily	🟡	🟢	🟢	🟡	• 2024 will see the biggest wave of new supply in decades, likely tempering rent growth. • Housing remains in short supply in the U.S. due to low levels of construction following the GFC. • Affordability remains an issue facing both individuals and households.

Debt Maturity Schedule: Total CRE Mortgages Maturing ($ Billions)[1]



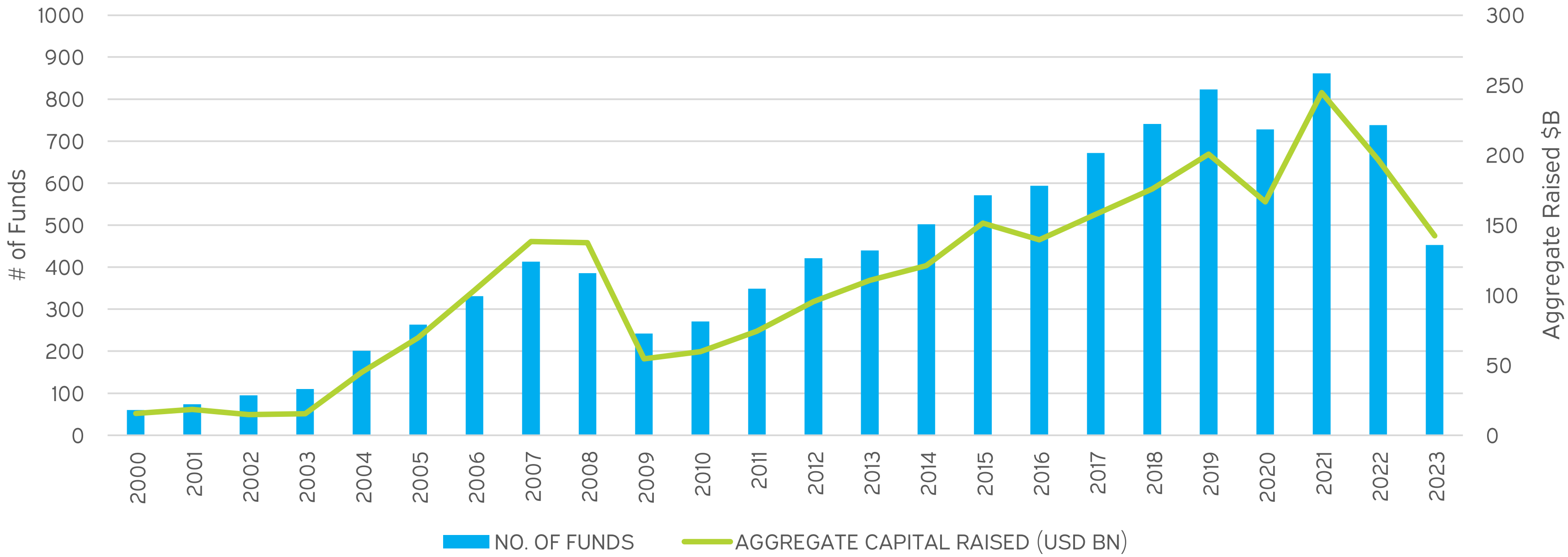


As higher interest rates and a challenging lending environment prevailed in 2022, borrowers sought adjustments to their loans, with 2023 seeing a notable increase in loan modifications relative to prior years. Many loans maturing in the next 24 months were secured when financing costs were much lower than where they stand today, representing a materially higher financing cost to borrowers as they seek new financing.

Deals within desirable property types like multifamily and industrial with positive leverage or a positive debt-service coverage ratio can still secure financing. However, lenders remain cautious and have been increasingly conservative when providing loans.

[1] [1] Source: CRED iQ, Mortgage Bankers Association

Real Estate Capital Commitments[1]

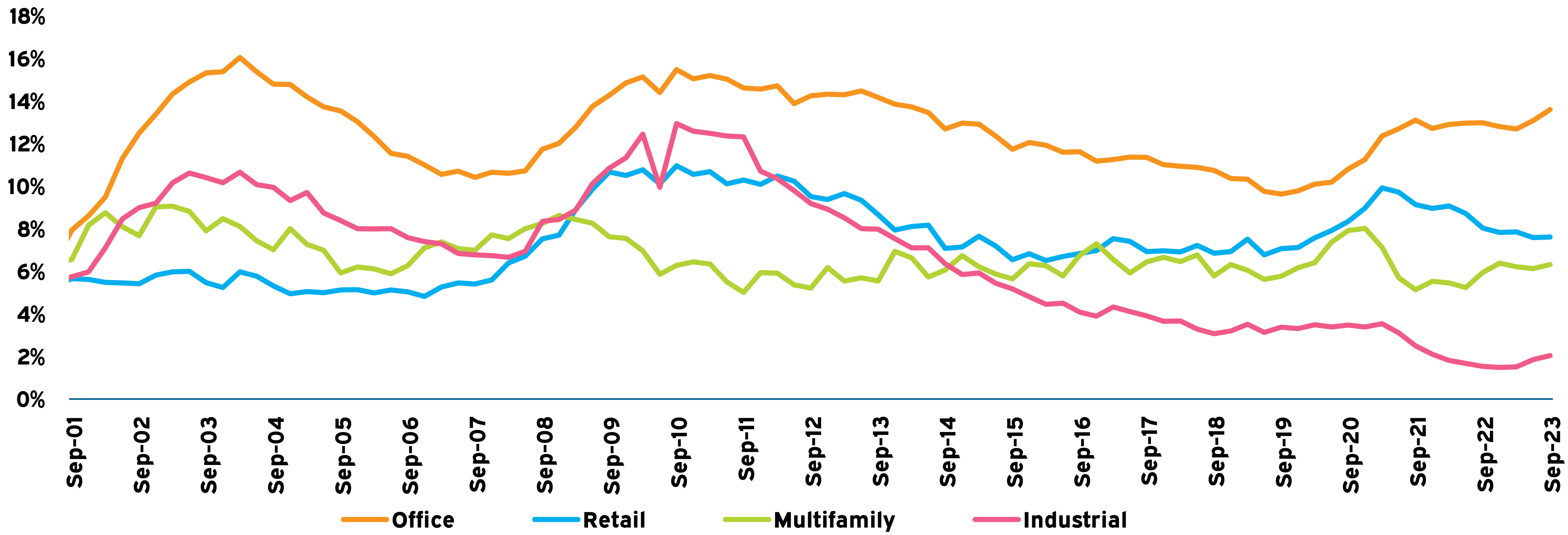


In 2023 only $142 billion was raised by 453 funds, marking a considerable decrease relative to recent years. In the current cycle, capital raising peaked at $197 billion in 2021, which represents close to 30% more capital than was raised in 2023. Paired with recent record levels of capital raised and a muted transactions market, the industry has near record levels of dry powder, meaning there are notable amounts of capital remained on the sidelines that is yet to be deployed, particularly for value-add and opportunistic strategies.

In part due to the broad public markets decline in 2022, the pursuing higher interest rates and declining commercial real estate values, many core investors submitted redemption requests across many large open-end funds during the second half of 2022 and through 2023.

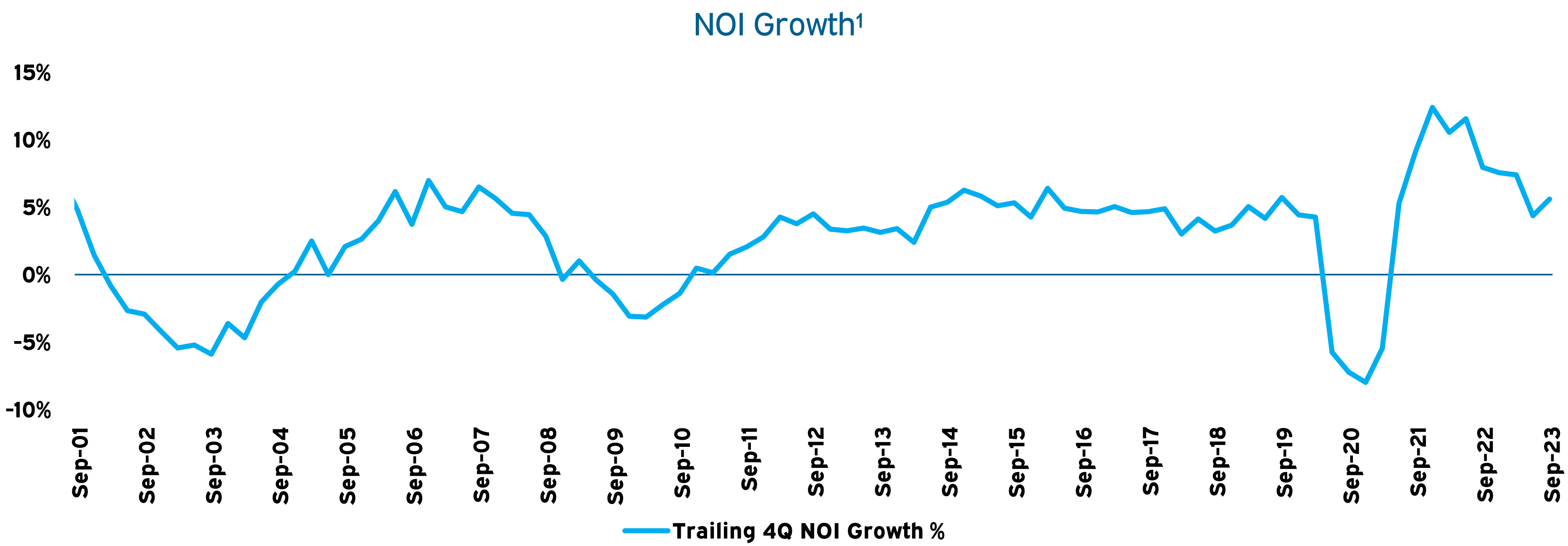
[1] Source: Preqin

Real Estate Fundamentals
Vacancy by Property Type[1]



In the third quarter of 2023, vacancy rates increased for all property types, with retail vacancies increasing only by a negligible 0.02% during the quarter. Generally, retail vacancies continue to trend downwards, decreasing by 42 bps overall year-over-year, representing the only property type to experience a decline in vacancy rates over the past year. Both the multifamily and industrial sectors experienced an increase in vacancy rates of 0.19% during the third quarter, further contributing to their year-over-year increase in vacancy rates of 0.37% and 0.51%, respectively. Office vacancies increased by 0.52% in the third quarter, constituting the highest amount for the quarter relative to other property types. Notably, the office sector maintains the steepest upwards line year-over-year with a 0.62% increase compared to Q3 2022., bringing current vacancies to 13.59%, the highest vacancy rate for office since Q3 2014.

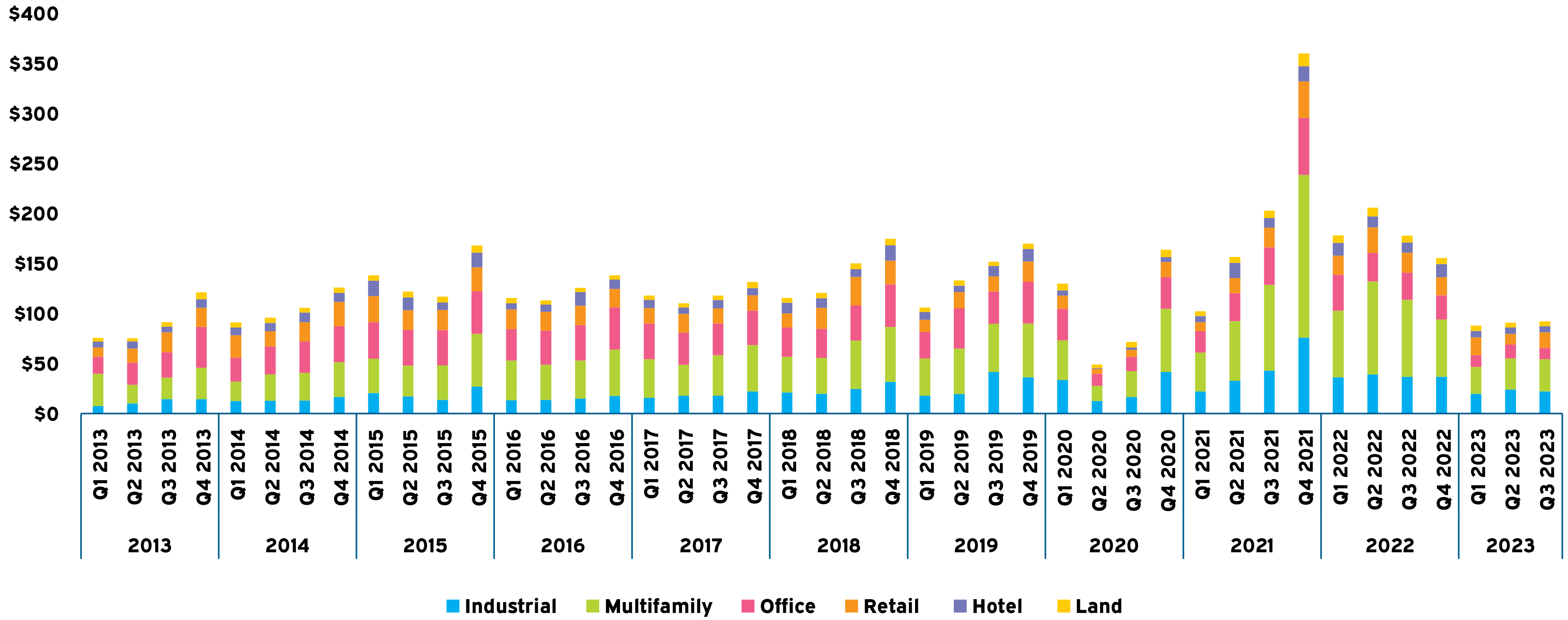
[1] Source: NCREIF



The trailing twelve-month NOI growth rate accelerated in Q3 2023 to 5.6%, as compared to 4.3% in Q2 2023, representing a meaningful increase over the past quarter of 124 bps. Only office and retail saw an increase in NOI growth for the trailing twelve months ending in Q3 2023, constituting the primary drivers for the overall quarterly increase. Retail experienced the highest acceleration (+493 bps), resulting in a positive trailing 12-month NOI growth rate of 4.2% as of September 30, 2023, compared to a negative growth rate last quarter. Despite continued distress in office, the sector also experienced a material increase of 361 basis points over the quarter, denoting 4.6% NOI growth year-over-year. Notably, Q3 2023 is the first quarter since Q2 2021 in which office NOI growth exceeded that of multifamily, which decelerated to 3.5% for the trailing twelve months as the market continues to absorb the near-term excess of asset deliveries. Industrial NOI growth also decelerated in Q3 2023 to 9.8%, still maintaining the highest trailing 4Q growth rate across all property types by over 500 basis points.

[1] Source: NCREIF

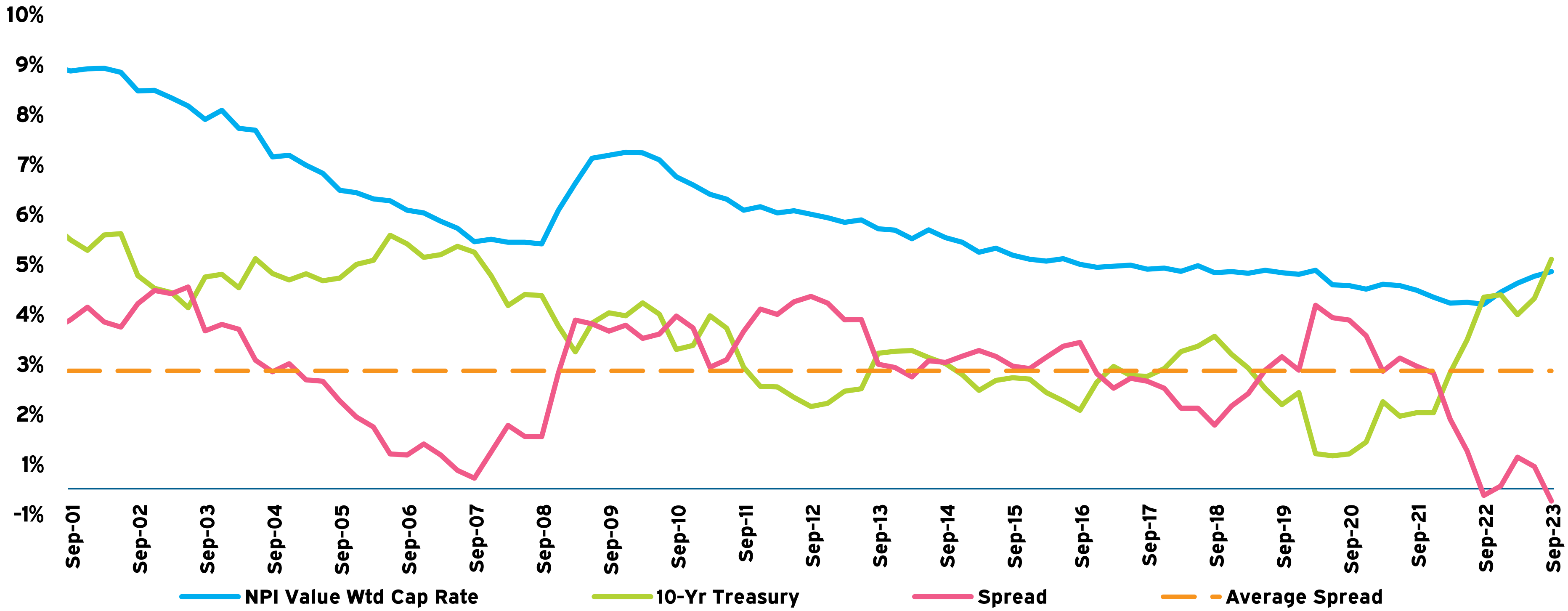
Transaction Volume ($B)[1]



Private real estate transaction volume for properties valued over $2.5 million was $92.1 billion in Q3 2023, slightly up from the $90.9 billion total last quarter, but remaining generally low overall relative to prior quarters as a result of the rising rate environment and continued market volatility. The retail sector experienced the largest increase in transaction volume from the prior quarter of $5.0 billion. The only other sector to report a positive change in transaction volume was industrial, increasing by $1.0 billion over the quarter. Transaction volume in both office and multifamily slowed over the quarter, decreasing by $2.6 billion and $1.8 billion, respectively. Hotel and land volumes also declined by minimal amounts of less than $500 million from the prior quarter.

[1] Source: PREA

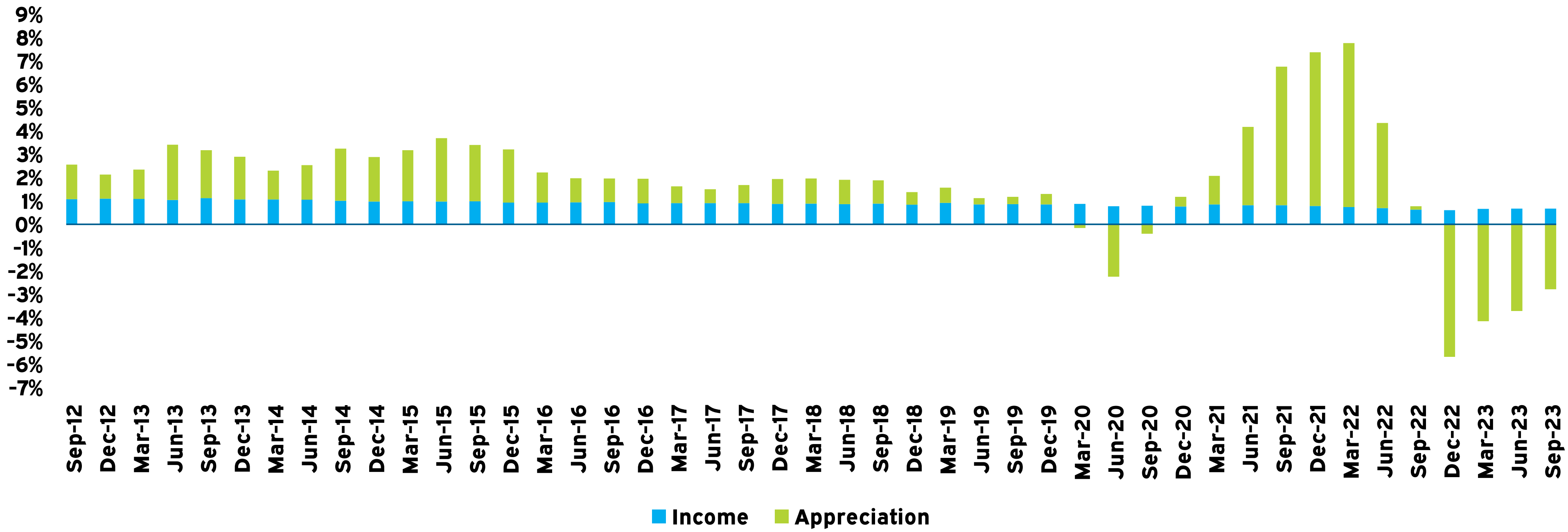
Real Estate Capital Markets
Cap Rates vs. 10-Year Treasury[1]



The NPI Value Weighted Cap Rate increased slightly to 4.34% (+9 bps) in Q3 2023. The 10-year Treasury yield increased by 78 basis points in Q3 2023 to approximately 4.6%, resulting in a negative spread of 25 basis points between cap rates and treasury yields. This represents only the second time that the treasury yield has exceeded the NPI cap rate over the last 20 years, with the first instance occurring in Q3 2022 when the Fed began consistently raising interest rates by 75 bps.

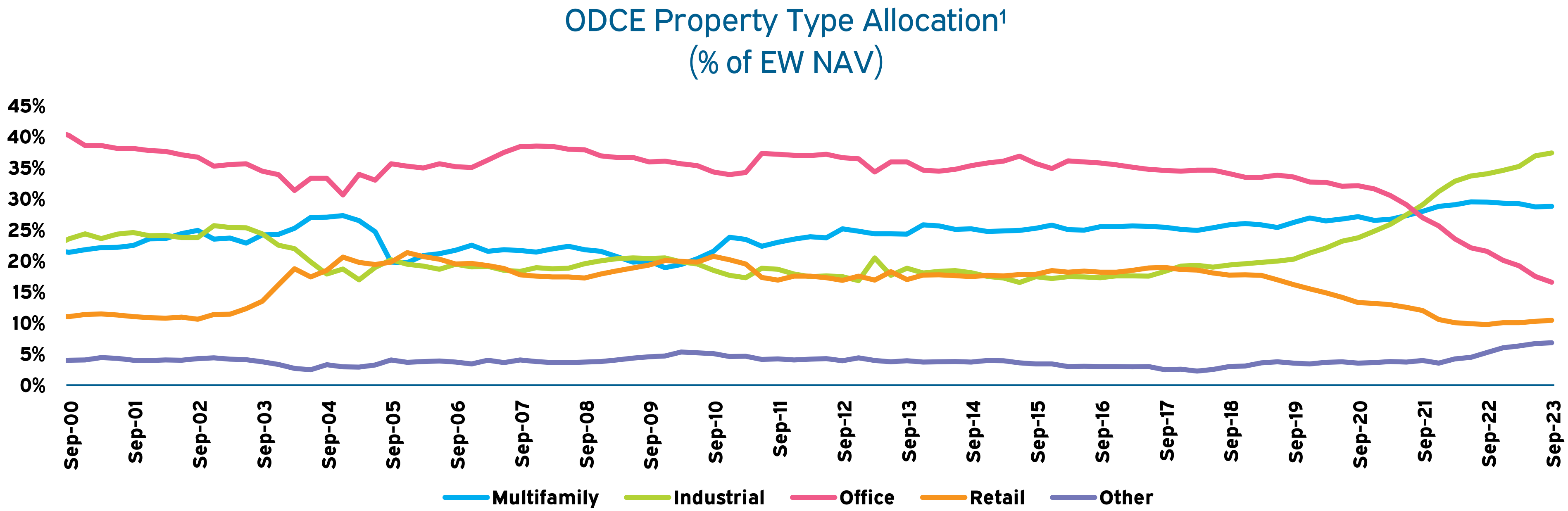
[1] Source: NCREIF and US Department of the Treasury

ODCE Return Components[1] (Equal Weight, Net)



In Q3 2023, the NFI-ODCE Equal Weight Index reflected a net return of -2.1%, representing its fourth consecutive negative return, although increasing by 93 basis points from Q2 2023. This result was driven by a -2.8% appreciation return for the quarter, which was slightly offset by a 0.9% income return. Upward adjustments to the discount rate, used in valuations to reflect increasing interest rates and the cost of debt financing, continue to negatively impact the appreciation component of returns. Over the last four quarters, the NFI-ODCE Equal Weight Index has reported a cumulative negative appreciation return of -15.4%.

[1] Source: NCREIF



The NFI-ODCE Equal Weight Index currently comprises 29% multifamily, 37% industrial, 17% office, 10% retail, and 7% in other property types, based on its net asset value ("NAV") as of Q3 2023. The heavy weight towards multifamily and industrial results from a trend of consistent growth within each sector over the past five years, in accordance with a steady decline in office exposure which was heightened after the onset of COVID in March 2020. In the past year (Q3 2022-Q3 2023), the office sector has experienced the largest decline in its ODCE allocation, decreasing by nearly 500 basis points. Alternatively, industrial and "other" have experienced material growth over the past year, increasing by 340 bps and 160 bps, respectively. As of Q3 2023, the "other" category includes 2.7% self-storage, 1.3% healthcare, 0.6% land, 0.2% hotel, and 2.0% in other smaller sectors. Both the multifamily and retail allocations have generally plateaued over the past few quarters; over the last year, multifamily exposure decreased slightly 0.70%, while retail exposure increased by the same percentage.

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[1] Source: NCREIF

March 6, 2024

OPERF Real Estate Portfolio Annual Review & 2024 Plan

OREGON STATE TREASURY

Agenda

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.
- 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**
- A. Asset allocation is the OIC's primary policy tool for managing the investment program's long-term risk/return profile.
- 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**
- A. The OIC can capitalize on its status as a true, long-term investor by making meaningful allocations to illiquid, private market investments.
- 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**
- A. All fees, expenses, commissions, and transaction costs should be diligently monitored and managed in order to maximize net investment returns.
- 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**
- 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**
- 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 Estate Strategic Role

The strategic role of OPERF real estate investments is outlined in OIC INV 1201 – Statement of OIC Investment and Management Beliefs and OIC Policy INV 501 – Acquiring and Managing Equity Real Estate. Return and risk objectives for the Real Estate Portfolio (outlined in OIC Policy INV 501 Acquiring and Managing Equity Real Estate) are as follows:

1) **To reduce risk among the Portfolio's investments through diversification by strategy, property type, investment size, geography, and time; and**
2) **To achieve long-term, net returns to OPERF above the NFI-ODCE[1] plus 50 basis points (bps)**

Real Estate Policy Objective – 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, with the exception of the three months ended September 30, 2023

Period Ending 9/30/2023	Market Value	3 Months	1 Year	3 Years	5 Years	10 Years	Since Inception*
OPERF Real Estate Portfolio	**$13,015,192,810**	**-2.56%**	**-10.86%**	**8.13%**	**6.65%**	**8.40%**	**10.15%**
NFI-ODCE, Net +50bps		-1.98%	-12.38%	6.69%	5.22%	7.69%	
Excess		**-0.58%**	**1.52%**	**1.44%**	**1.43%**	**0.71%**	

[1]National Council of Real Estate Investment Fiduciaries – Open End Diversified Core Equity Index (NFI-ODCE) + 50 bps (net)

** Since inception benchmark data is not available due to cash flows not verifiable for period prior to Private Edge contract commencement Q1 2006*

OREGON STATE TREASURY

Real Estate Position

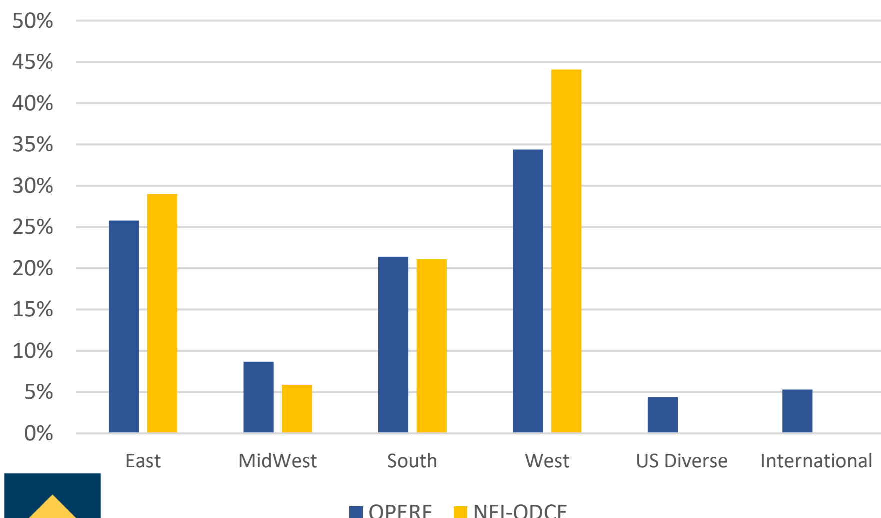
Strategic Allocation Targets

Allocation	Market Value ($mm) (As of Q3 2023)	Market Value (%)	OIC Target	OIC Ranges
Core	$ 9,538	73.3%	55%	45-65%
Value Added	$ 1,765	13.6%	20%	10-30%
Opportunistic	$ 1,447	11.1%	20%	10-30%
REITs	$ 265	2.0%	5%	0-10%
Total	**$13,015**	**100.0%**		

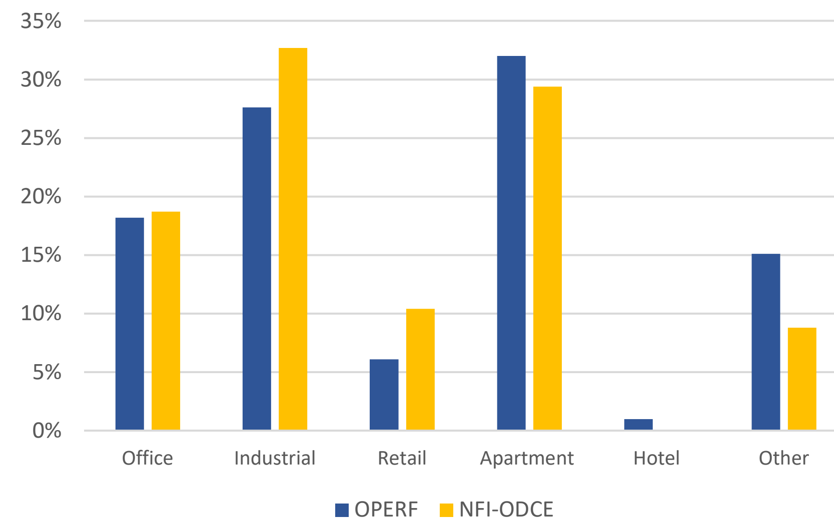
Top 10 Partnerships

Manager	Market Value ($mm)	Market Value (%)	Risk
Lincoln Advisors	$ 2,160	16.6%	Core
GID	$ 1,512	11.6%	Core
Clarion Partners	$ 778	6.0%	Core
Harrison Street	$ 696	5.4%	Core/Value Add
Prologis	$ 668	5.1%	Core
Regency	$ 550	4.2%	Core
Ascentris	$ 530	4.1%	Core/Value Add
Abacus	$ 519	4.0%	Core/Value Add
LBA Realty	$ 512	3.9%	Core/Value Add
Lionstone	$ 483	3.7%	Core/Value Add
Total:	**$ 8,410**	**64.6%**	

Geographic Weights



Property Sector Weights



Real Estate Benchmark Composition

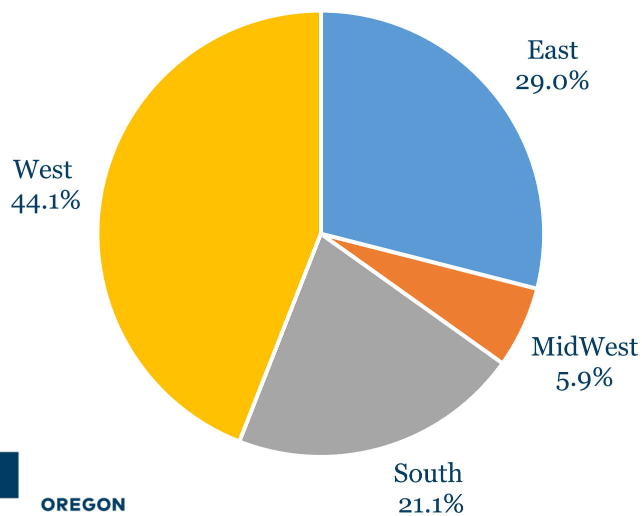
Real Estate Benchmark: The NCREIF Fund Index – Open End Diversified Core Equity Index (NFI-ODCE) + 50 bps (net)

NCREIF: National Council of Real Estate Investment Fiduciaries

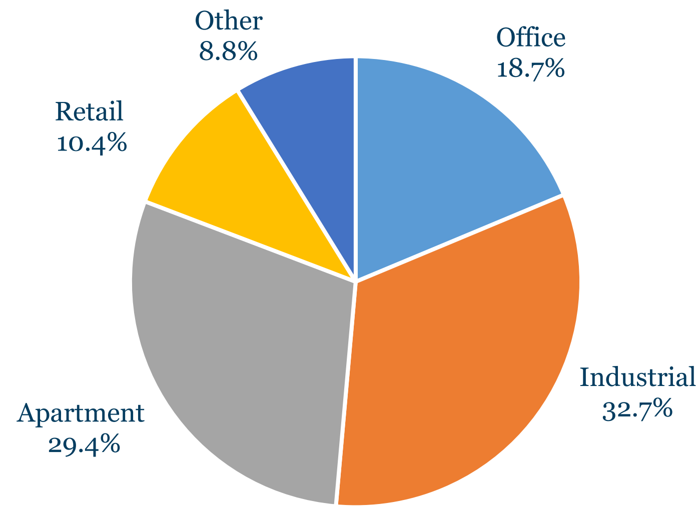
NFI-ODCE Benchmark Composition:

- Number of Funds in Benchmark: 25
- United States
- Open-End Core Funds Diversified across four primary property types
- Low Leverage (max 35%, 26.2% LTV as of 4Q 2023)
- $296.8 Billion in gross asset value, 3,467 investments

NFI-ODCE Geographic Weights



NFI-ODCE Property Sector Weights



Executive Summary

Key Takeaways…

1. Portfolio performance has been strong across time periods, led by the core portfolio and a higher concentration in better performing high-conviction sectors (industrial & multifamily) with less exposure to the challenged office sector

2. Income returns remain largely positive, offset by appraisal-driven depreciation that has been felt market-wide

3. Asset write-downs continue, even when fundamentals remain healthy in most sectors, due to capital market dislocations caused by lack of liquidity, rising financing costs, rising cap rates, and uncertainty around future tenant demand for office space

4. The overweight to core demonstrates the portfolio's long-term, income-driven focus which has delivered consistent income returns across real estate market cycles

5. The Real Estate Allocation remains within policy bandwidth but above the target midpoint. Staff is taking a conservative posture toward new capital allocation while continuing to balance vintage year pacing

Investment Environment

- **Capital Markets**
  - Despite the current pause in rate increases, credit markets remain constrained and financial markets remain volatile in light of rate uncertainty and geopolitical tensions.
  - Higher interest rates have driven somewhat of a correction in public market REIT pricing, but private market valuations have lagged due to the lack of transactional activity.

- **Residential**
  - Apartment demand converged toward long term trend levels in the second and third quarters of 2023.
  - Rent growth is expected to be limited in 2024 as new buildings already underway deliver to the market.
  - Beyond 2024, as supply pressures ease, chronic housing shortages are expected to persist and support long term rental growth.

- **Industrial**
  - Industrial absorption over the first three quarters of 2023 was down nearly 75% from the prior year.
  - As new supply currently under construction delivers, a continued deceleration in rent growth is expected.
  - Longer term demand drivers— e-commerce and efforts to bolster supply chains — will continue to support fundamentals.

- **Office**
  - Demand for office properties remained weak in 2023, pushing vacancy rates above their GFC peaks.
  - Office utilization has stagnated around 50 percent of pre-COVID levels and users continue to recalibrate to new working models.
  - Transaction volume remains muted, and uncertainty remains around whether market values have sufficiently adjusted.

- **Retail**
  - Retail vacancies fell to their lowest levels since at least 2005 in the third quarter of 2023.
  - Demand for necessity-based retail is supported by the continuing trend of migration from urban to suburban areas.
  - With a lack of new supply pressure, retail is positioned to produce competitive, relatively stable returns over the next cycle.

- **Alternatives**
  - Demographically-driven sectors continue to benefit from a degree of non-correlation with GDP and the financial markets.
  - Housing sectors such as manufactured housing and single family rentals offer an attractive value proposition in markets that experience under-served demand.
  - Office sectors such as medical office and life science have proved resilient relative to the greater market due to aging trends and increasing accessibility to healthcare.

Real Estate 2023 Year In Review

2023 was focused on capitalizing separately managed accounts in resilient, demographically-driven sectors, as well as seeking high-quality diversifying investment opportunities and continued portfolio alignment and monitoring efforts

- $550 million in new commitments across three investments
- Supported onboarding of new leadership (Senior Investment Officer) as well as an internal promotion (Investment Officer)
- Completed strategic portfolio reviews with separate account managers to ensure underlying assets and areas of focus are providing long-term alignment with Staff objectives
- Staff prioritized travel to assets and in-person manager meetings to re-engage on strategic asset-level and portfolio construction initiatives
- Integration of underwriting and due diligence to further build out the Common School Fund (CSF) real estate portfolio, leveraging OPERF investment relationships to achieve favorable economics
- Continued refinement of internal due diligence and monitoring processes, including the integration of ESG and DEI factors
- Commencement of diligence process on further portfolio diversification via international core real estate exposures

Real Estate 2023 Year In Review – Approvals

In 2023: 3 real estate commitments were approved, totaling $550 million

Pacing

- The commitments conform to the team's long-term plan to strategically increase exposures to asset classes and strategies that fulfill portfolio construction needs
- Material decrease in commitment activity compared to 2022 (9 commitments totaling $1.75 billion)

Strategy

- Thematically, 2023 commitments represent two re-ups to existing SMA relationships, increasing exposure to both value-add strategies in the face of market dislocation and core strategies driven by necessity-based real estate, and the establishment of a new manager relationship to increase portfolio exposure to non-traditional property types

FUND NAME	STRATEGY	SUB-PORTFOLIO	GEOGRAPHY	COMMITMENT ($ MM)	FUNDING STATUS
Ascentris-OR Partners (SMA)	Diversified	Value-Add	Domestic	200	Partially Funded
Carlyle Property Investors	Alternative/Niche	Core	Domestic	200	Unfunded
Columbia Regency Retail Partners (SMA)	Retail - Grocery	Core	Domestic	150	Unfunded
NEW COMMITMENTS SUB-TOTAL				**$ 550**	

Performance Review

- The Core portfolio has shown continued strong long-term performance, having outperformed the policy benchmark over the 3-, 5-, and 10-year periods.
- The Value-Add portfolio underperformed the policy benchmark over the 3-, 5- and 10-year periods.
- The Opportunistic portfolio outperformed the benchmark over the respective 1-, 3-, 5-year periods and underperformed over the 10-year period.

Summary of Portfolio Investment Returns		Q3 2023	1-Yr	3-Yr	5-Yr	10-Yr	Since Inception[1]
Total Private Real Estate - $12,750 M	Income	0.99%	1.72%	2.58%	2.78%	3.48%	3.79%
	Appreciation	-3.55%	-12.77%	6.01%	4.28%	5.45%	6.23%
	Total	**-2.56%**	**-11.22%**	**8.69%**	**7.15%**	**9.07%**	**10.21%**
Core - $9,538 M	Income	0.78%	2.30%	3.10%	3.55%	4.28%	6.61%
	Appreciation	-4.09%	-14.98%	6.02%	4.54%	6.04%	3.14%
	Total	**-3.31%**	**-12.94%**	**9.24%**	**8.20%**	**10.51%**	**9.91%**
Value Added - $1,765 M	Income	3.16%	-0.09%	0.27%	-0.13%	1.57%	0.65%
	Appreciation	-1.50%	-10.95%	-0.03%	0.46%	5.44%	2.71%
	Total	**1.65%**	**-11.08%**	**0.21%**	**0.33%**	**7.04%**	**3.12%**
Opportunistic - $1,447 M	Income	-0.12%	-0.41%	1.56%	1.60%	2.70%	0.36%
	Appreciation	-1.31%	1.90%	8.78%	4.84%	3.69%	10.15%
	Total	**-1.43%**	**1.48%**	**10.42%**	**6.49%**	**6.47%**	**10.67%**
Public Real Estate – REITs - $265 M	Income	0.99%	4.40%	3.97%	4.20%	4.15%	5.51%
	Appreciation	-8.38%	-1.39%	-0.11%	-1.11%	1.72%	3.98%
	Total	**-7.39%**	**2.96%**	**3.87%**	**3.05%**	**5.91%**	**9.66%**
Total Portfolio - $13,015 M	Income	0.99%	1.78%	2.63%	2.85%	3.45%	4.61%
	Appreciation	-3.55%	-12.48%	5.42%	3.73%	4.83%	5.36%
	Total	**-2.56%**	**-10.86%**	**8.13%**	**6.65%**	**8.40%**	**10.15%**
NFI-ODCE, Net +50 bps[2]		-1.98%	-12.38%	6.69%	5.22%	7.69%	
Out / Under Performance		**-0.58%**	**1.52%**	**1.44%**	**1.43%**	**0.71%**	
NAREIT Index		-8.33%	-1.71%	2.68%	2.79%	6.13%	

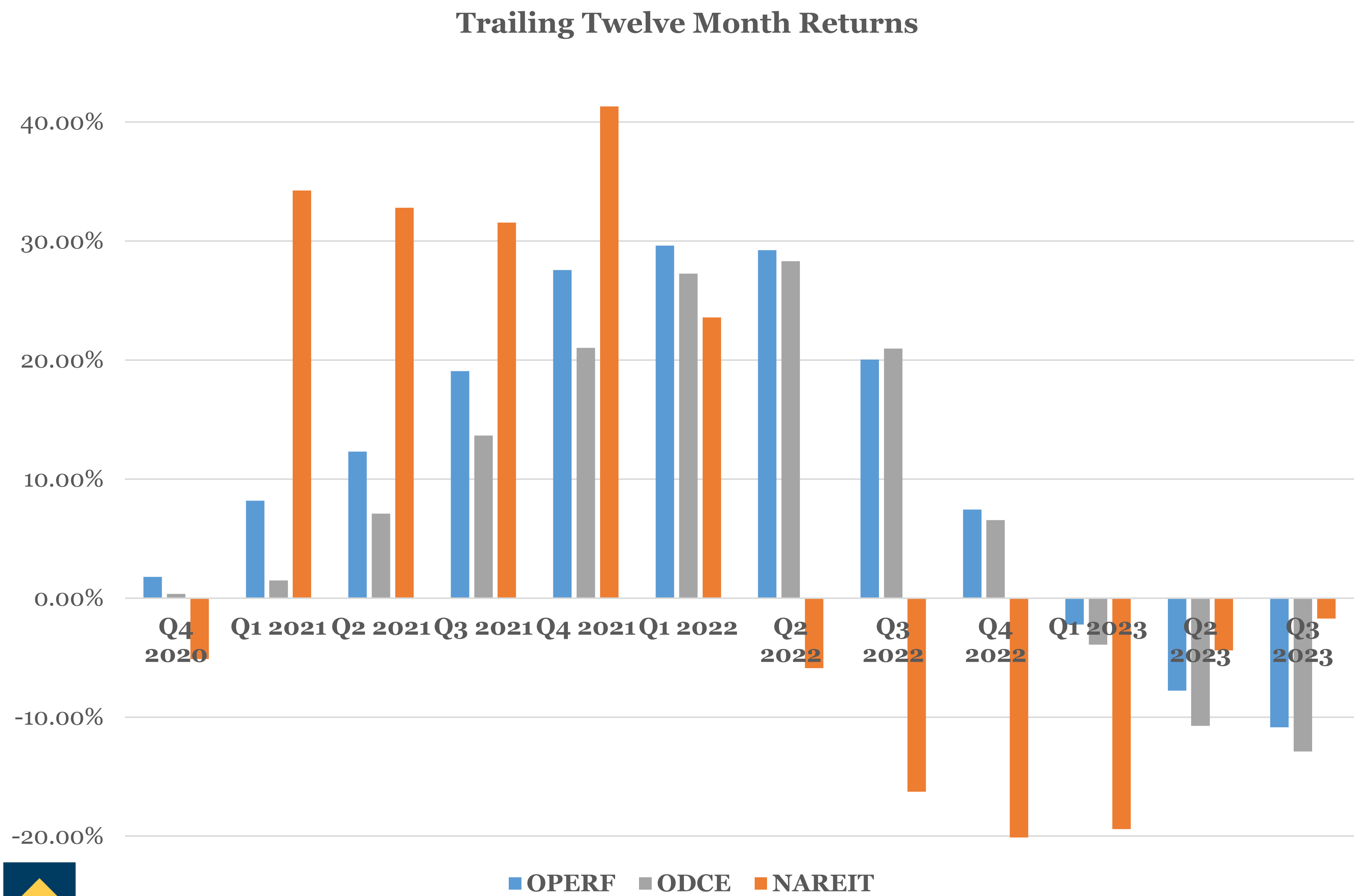
All returns represented are net of fees.

[1] Since Inception benchmark data not available due to cash flows not-verifiable for period prior to Private Edge contract commencement Q1 2006

[2] NFI-ODCE +50bps was adopted as Policy benchmark commencing April 1, 2016; net of fees, levered

Source: OST, Private Edge

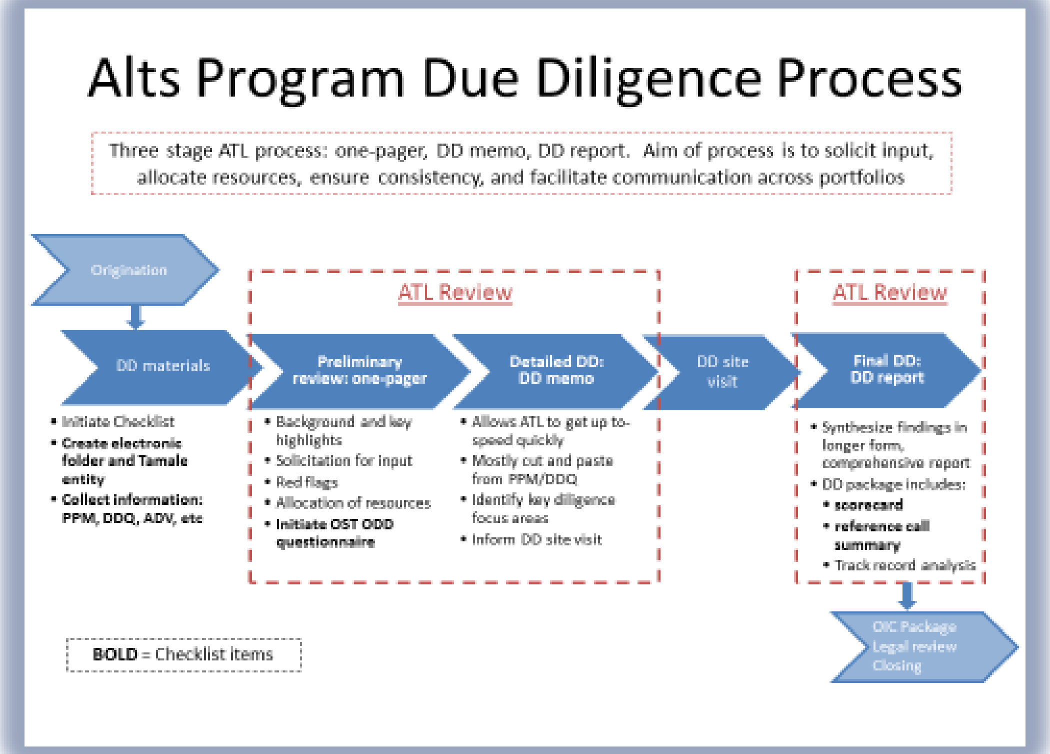
Relative Returns – Public and Private Markets



Portfolio Update – ESG/DEI Integration

ESG/DEI Factor Inclusion

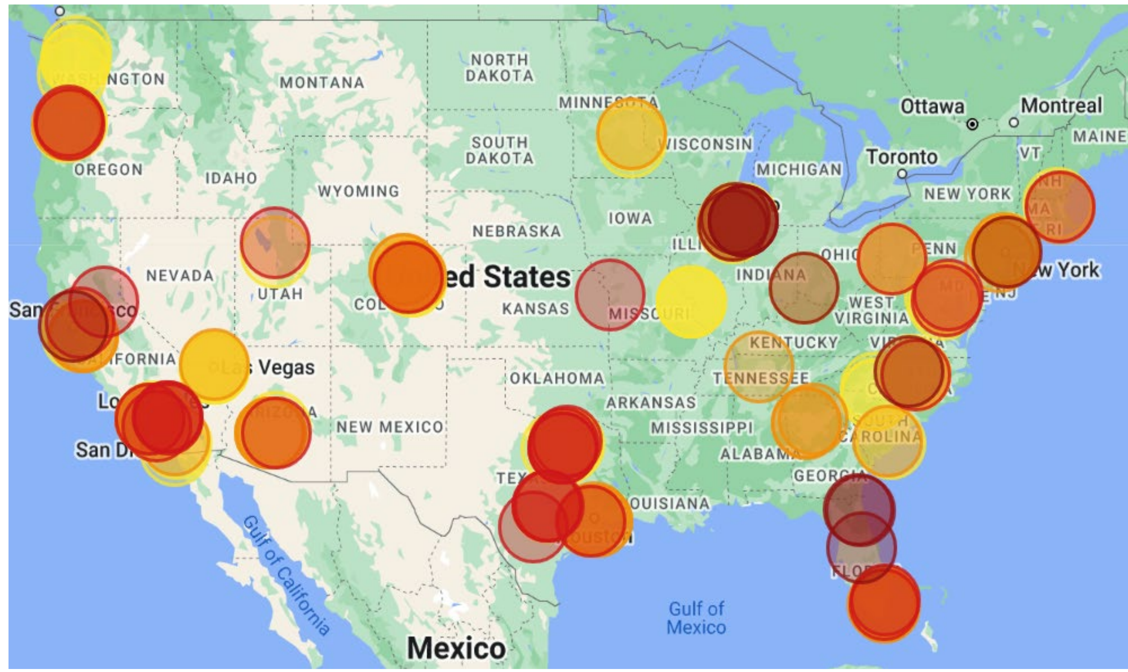
- Continued building on work done in recent years and acknowledging the OIC's reinforced focus on Environmental, Social & Governance (ESG) and Diversity, Equity & Inclusion (DEI), the real estate team has integrated these factors into all stages and elements of both the due diligence and monitoring processes
- The primary focus of these efforts is to form a qualitative assessment of a manager's application and integration of ESG and DEI factors into the management of investments and their business
- ESG and DEI approaches, focus areas and nomenclature vary significantly from manager to manager making portfolio level aggregation challenging



ESG Initiatives

The real estate portfolio team has integrated a physical climate risk assessment from Four Twenty Seven into the onboarding process for new property acquisitions in OPERF's separate accounts

- Heat Stress
- Wildfires
- Floods
- Hurricanes & Typhoons
- Sea level rise
- Water Stress



Summary Statistics

	Floods	Heat Stress	Hurricanes & Typho...	Sea Level Rise	Water Stress	Wildfires	Earthquakes
Maximum	79	12	92	80	100	99	99
Mean	30	1	30	5	45	60	28
Minimum	0	0	0	0	1	25	0

Red Flag   High   Medium   Low   No Risk

Source: FourTwentySeven, Map represents Flood Risk

Overview of Investment Structures in the Real Estate Portfolio

	Separate Accounts	Open End Funds	Closed End Funds	Co-Investments	REITs
Risk Profile	Primarily Core/Core+ with Non-Core sleeves	Core / Core+	Value-Add, Opportunistic	All	All
Investor Control	Major Decisions	Passive	Passive	Passive	Passive with termination/liquidation rights
Fee Structure	Mgmt. fee based on NAV, incentive fees on non-core investments	Mgmt. fees based on NAV	Mgmt. fees based on committed or invested capital plus incentive fee	Discounted mgmt. fees, discounted or no incentive fee	Mgmt. fees based on market value
Liquidity	LP control	Quarterly redemption rights (subject to queue)	None	None	Immediate for widely traded securities
Typical Leverage	40% - 65% LTV	20% - 40% LTV	40% - 75% LTV	Varies	20% - 40% LTV
Term	Evergreen with LP termination rights	Evergreen	10 years	Varies	Evergreen with LP termination rights
Portfolio NAV %	56%	23%	17%	2%	2%

Growth of Core Portfolio

Open-End Core Portfolio

Open-End Funds	NAV	2017 and Earlier	2018	2019	2020	2021	2022	2023
RREEF America II	$112,463,281	●						
Prologis European Logistics Fund	$223,354,757	●						
JP Morgan Strategic Property Fund	$298,773,970	●						
ASB Allegiance Real Estate Fund	$172,282,265	●						
Morgan Stanley Prime Property Fund	$292,904,742		●					
Heitman America Real Estate Trust	$170,739,773		●					
Harrison Street Core Property Fund	$183,655,169		●					
Harrison Street CPF Co-Investment	$99,532,002			●				
Prologis Targeted US Logistic Fund	$445,133,753			●				
Nuveen U.S. Cities Multifamily Fund	$125,626,463				●			
AEW Core Property Trust	$130,674,404					●		
GID Mainstay Fund	$208,996,021					●		
Walton Street Real Estate Core-Plus Fund	$267,503,924					●		
Nuveen U.S. Cities Industrial Fund	$187,175,272						●	
AEW Essential Housing Fund	$148,483,823						●	
Sculptor Diversified RE Income Trust	$160,252,500							●

Open-End Funds	NAV	1-Year	3-Year	5-Year	10-Year
Total:	**$3,227,552,119**	**-10.16%**	**9.60%**	**7.43%**	**7.87%**
NFI-ODCE + 50 bps		**-12.38%**	**6.69%**	**5.22%**	**7.69%**
Outperformance		**2.22%**	**2.91%**	**2.21%**	**0.18%**

Separate Account Portfolio

Separately Managed Funds	NAV	2017 and Earlier	2018	2019	2020	2021	2022	2023
Clarion	$770,530,217	●						
Lincoln	$2,159,947,876	●						
Regency	$550,404,278	●						
GID WCRF	$1,171,855,286	●						
Lionstone LORE	$220,726,439	●						
Waterton Fund IX PT Chicago	$219,010,040	●						
Ascentris	$86,441,438		●					
DW-Columbia Perfco	$173,225,230			●				
LBA Industrial	$433,831,301			●				
Abacus	$492,468,286				●			
Harrison Street Life Science Core	$32,224,716					●		

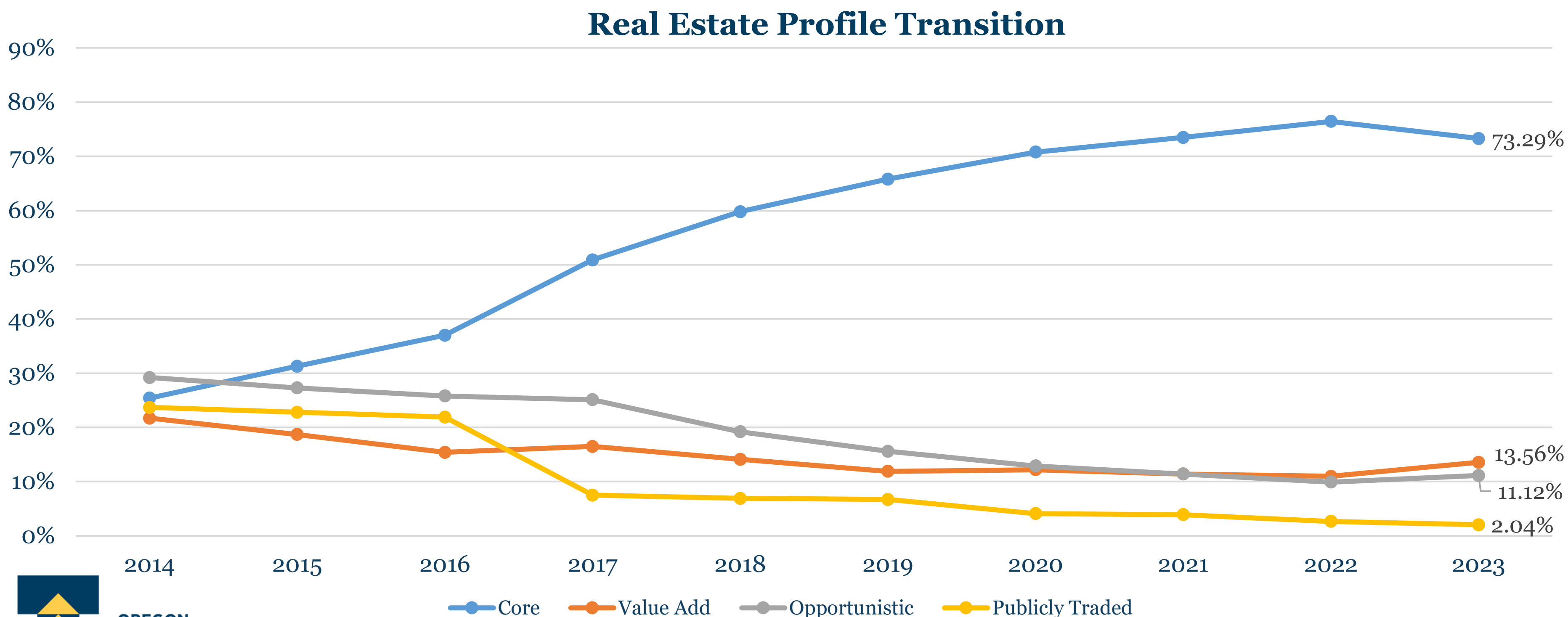
Separately Managed Funds	NAV	1-Year	3-Year	5-Year	10-Year
Total:	**$6,310,665,107**	**-14.36%**	**8.96%**	**8.37%**	**10.78%**
NFI-ODCE + 50 bps		**-12.38%**	**6.69%**	**5.22%**	**7.69%**
Underperformance/ Outperformance		**-1.98%**	**2.27%**	**3.15%**	**3.09%**

Source: OST, Private Edge, SitusAMC

Portfolio Update – Strategy Exposure

Portfolio Policy Change ("de-risking") – 2014 to current

- Beginning in 2014, Staff shifted new capital commitments toward long term investment partnerships – Core/Core Plus SMAs and open-ended structures, while maintaining a baseline exposure to non-core strategies
- **Core:** Currently overweight due to increased pacing into Core SMAs relative to Value Add and Opportunistic funds, combined with outperformance of Core real estate relative to non-core strategies over the intermediate term
- **Non-Core** (Value Add, Opportunistic): Combined allocation of 23.4% is at the bottom of current policy range. Staff has allocated 15-25% non-core allowances to most SMAs, which will maintain long-term Non-Core exposures within range as this capital continues to deploy
- **Public REITs**: maintain exposure within 0-10% allocation, primarily to serve as a diversifier to the Core portfolio

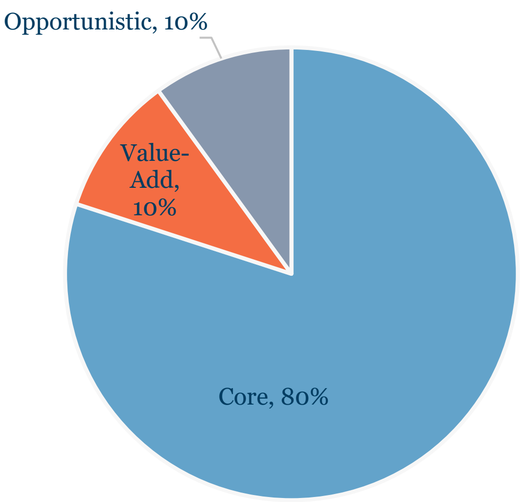


Source: OST, Private Edge

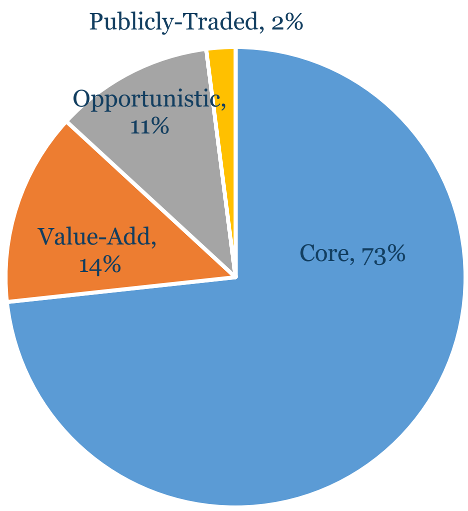
Portfolio Update – Peer Comparison

Risk Allocations

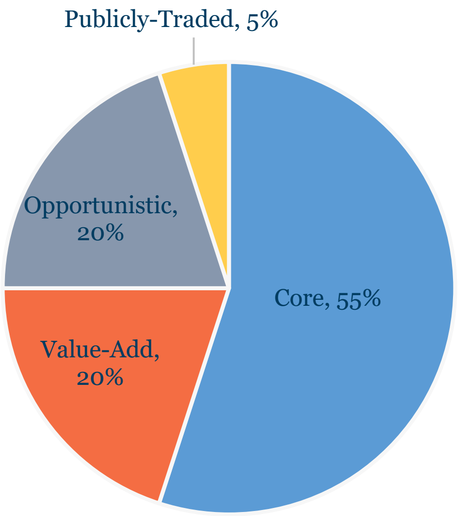
- Although OPERF's policy targets allow for a marginally riskier portfolio than the average institutional investors surveyed by Pension Real Estate Association, Staff has implemented a portfolio allocation that is more similar to the peer group



Peer Group



OPERF (9/30/2023)



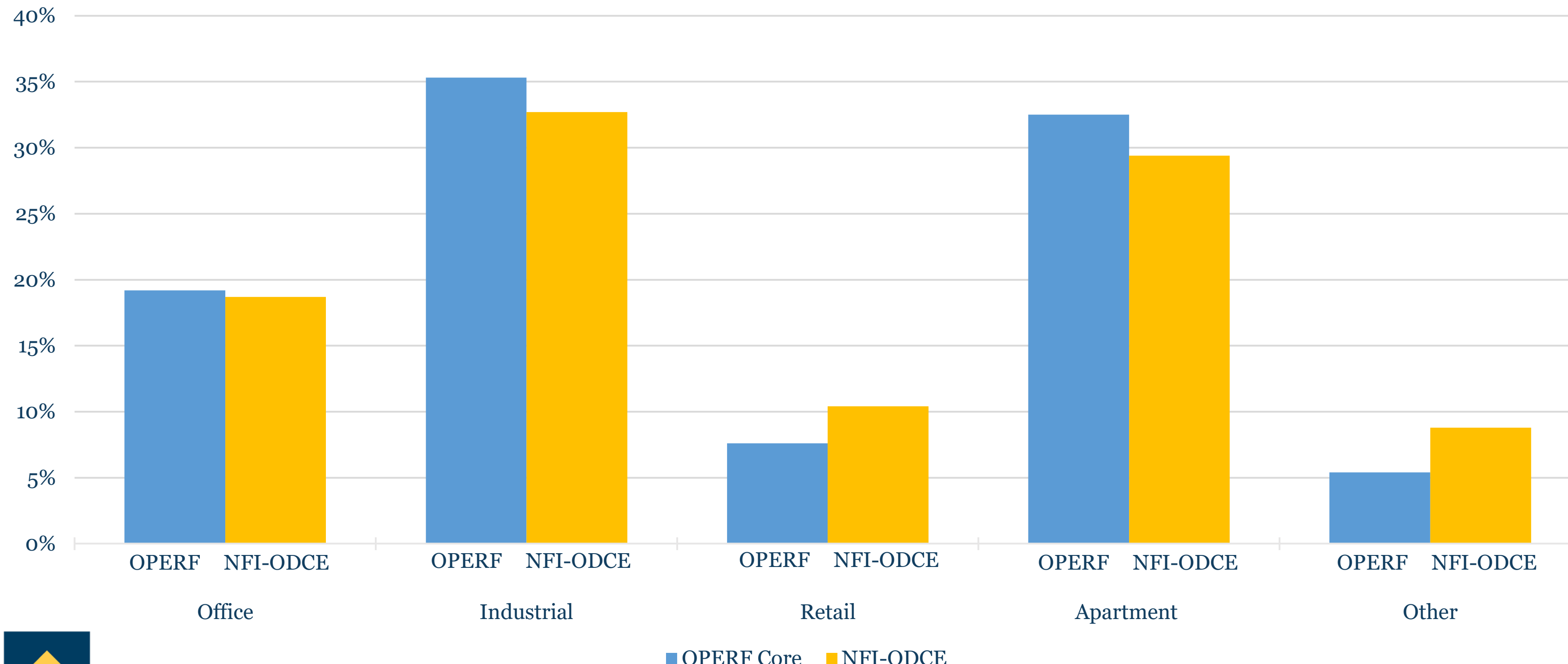
OPERF Policy (Target)

Source: 2024 PREA Investment Intentions Survey

Portfolio Update – Property Exposure

Core Portfolio Weightings

- Staff actively manages portfolio exposures for strategic over and underweights to the benchmark
  - Portfolio has benefited from multi-year shift toward heavier industrial and multifamily exposure as well as decreased pacing into the office and retail sectors
  - Long term intentions are to continue overweight to industrial and multifamily, slightly grow retail (grocery) exposures, while reducing exposure to non-strategic office weightings through opportunistic dispositions
  - Staff also aims to increase the "Other" category which consists of many non-traditional institutional property types which have benefited from secular market changes and attractive demand drivers



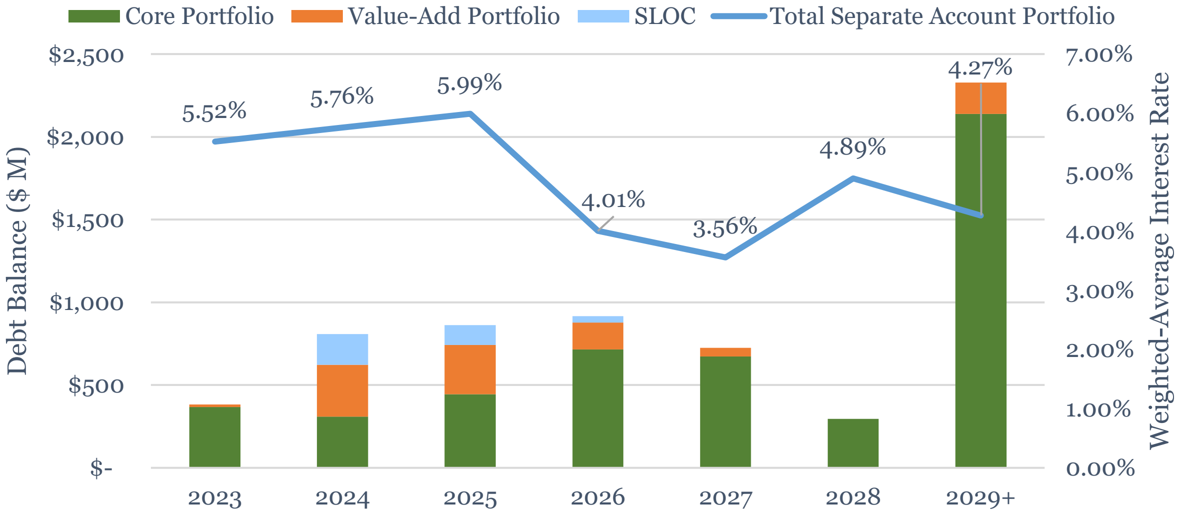
Source: OST, Private Edge

Portfolio Update – Debt Summary

Debt Breakdown

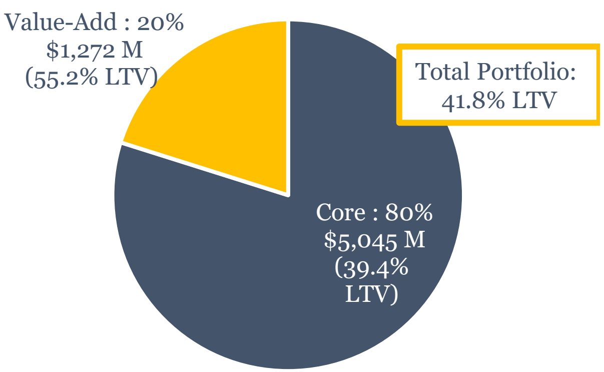
Total Separate Account Portfolio	Debt ($ M)	Debt (%)	Weighted-Ave Years to Maturity	Weighted-Ave Interest Rate
Total Mortgage Debt	**$5,970**	**95%**	**4.3 years**	**4.41%**
Fixed[1]	$4,622	74%	4.9 years	3.70%
Floating	$1,348	21%	2.5 years	6.84%
Total Subscription Lines of Credit (SLOC)	**$347**	**5%**	**1.5 years**	**7.03%**
Fixed	$0	0%	N/A	N/A
Floating	$347	5%	1.5 years	7.04%
Total Debt	**$6,317**	**100%**	**4.2 years**	**4.55%**

Debt Maturity Schedule



	Core Portfolio		Value-Add Portfolio		SLOC		Total Portfolio	
Maturity Year	Debt Balance ($ M)	Weighted-Ave Interest Rate	Debt Balance ($ M)	Weighted-Ave Interest Rate	Debt Balance ($ M)	Weighted-Ave Interest Rate	Debt Balance ($ M)	Weighted-Ave Interest Rate
2023	$366	5.55%	$15	4.63%	$0	N/A	$382	5.52%
2024	$308	4.51%	$314	6.29%	$186	6.92%	$808	5.76%
2025	$445	4.73%	$297	7.37%	$121	7.24%	$862	5.99%
2026	$714	3.55%	$163	5.29%	$40	6.93%	$917	4.01%
2027	$672	3.39%	$54	5.59%	$0	N/A	$725	3.56%
2028	$295	4.89%	$0	N/A	$0	N/A	$295	4.89%
2029+	$2,139	3.47%	$188	5.58%	$0	N/A	$2,328	4.27%
Total	**$4,940**	**4.02%**	**$1,030**	**6.26%**	**$347**	**7.03%**	**$6,317**	**4.55%**

Separate Account Portfolio Outstanding Debt by Strategy[2]



[1] Fixed rate debt includes floating rate debt that has been hedged with an interest rate swap.
[2] LTV calculations have the Subscription Lines of Credit allocated to the Core and Value-Add Portfolios, about half of which is allocated to the Value-Add portfolio and represents development activity untaken by GID. For all debt maturity calculations, SLOC debt is shown separately.
[2] Maturity Year excludes any extension options that may require certain covenants to be met.

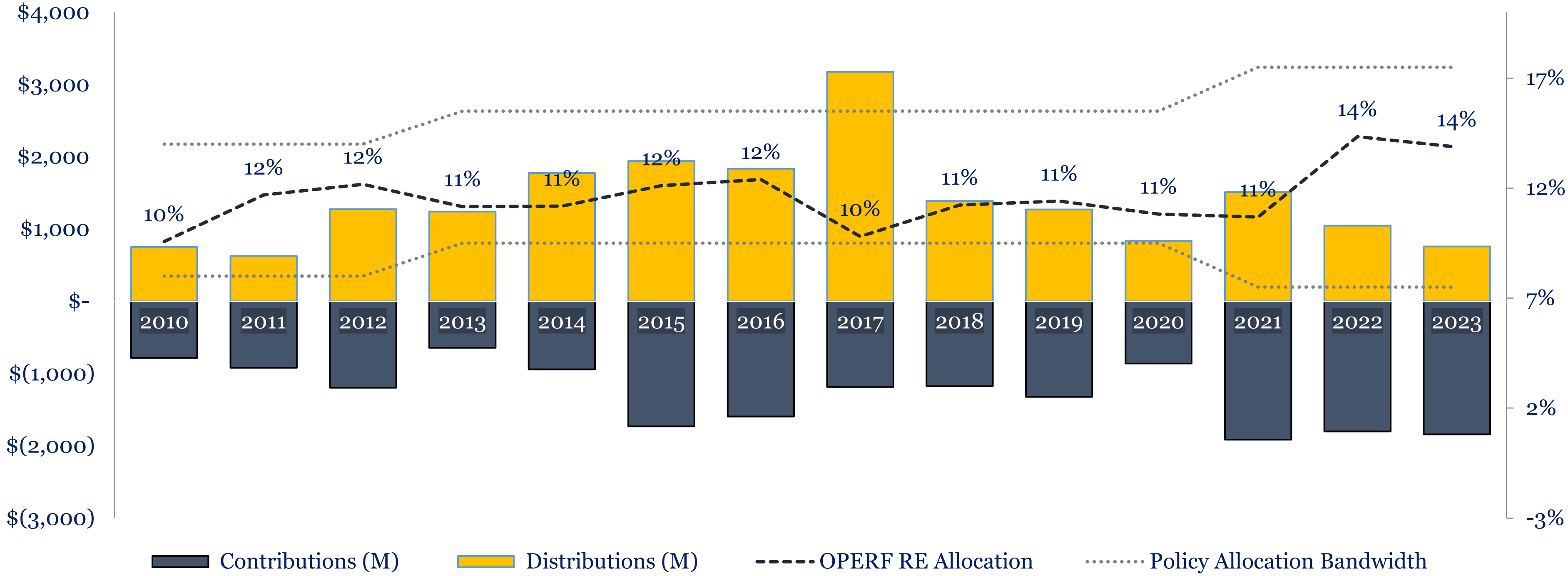
As of 9/30/2023

OREGON STATE TREASURY

Portfolio Update – Allocations

Portfolio allocation remains within policy bandwidth

- **The real estate portfolio has generated $1.9 billion in net cash flows to OPERF since 2010**
- As the core commitments made over the past few years fully invest, and with over 70% of the real estate portfolio in evergreen structures (open-ended funds and separate accounts), distributions from income will become an increasingly larger component of future portfolio cash flows
- **Real Estate is currently within its policy range of 7.5% to 17.5%, but above the midpoint target of 12.5%**

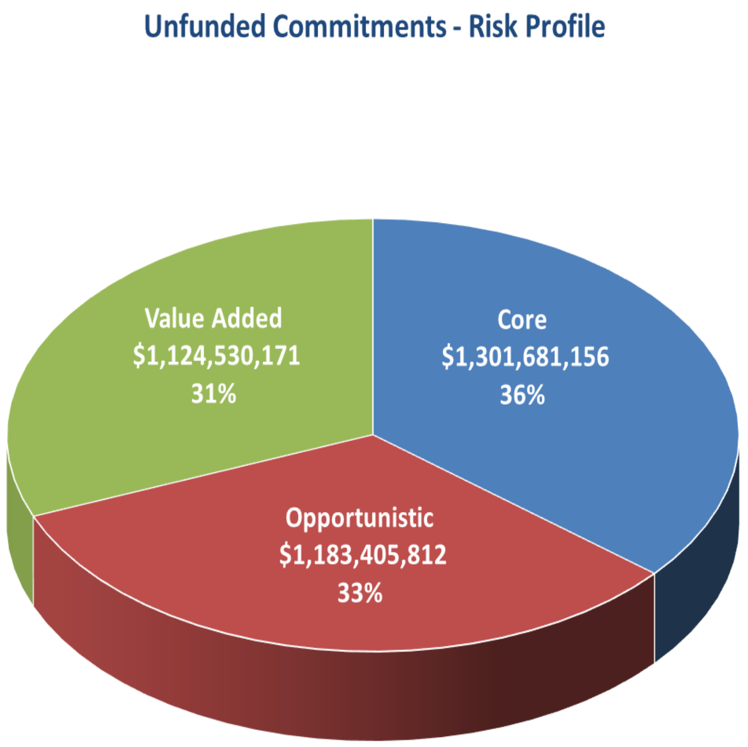


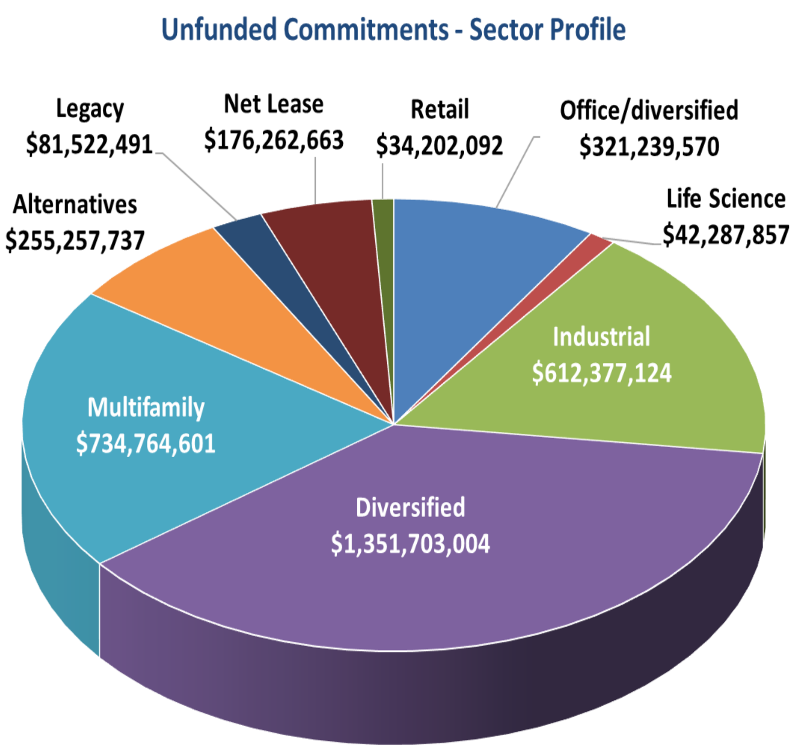
Portfolio strategic weightings to Core = permanent positive cash flow & yield generation

OREGON STATE TREASURY

As of 9/30/2023
Source: OST, Private Edge

Overview of $3.6 bn Unfunded Commitment Balance





- **Of the portfolio's $3.6 billion in unfunded commitments as of YE 2023, 48% are in SMA structures, 47% are in closed-end commingled funds, and 5% are in open-ended commingled funds.**
- **In SMA and open-ended fund structures (53% of unfunded commitments), Staff has levers available to manage liquidity.**

2024 Plan – Pacing

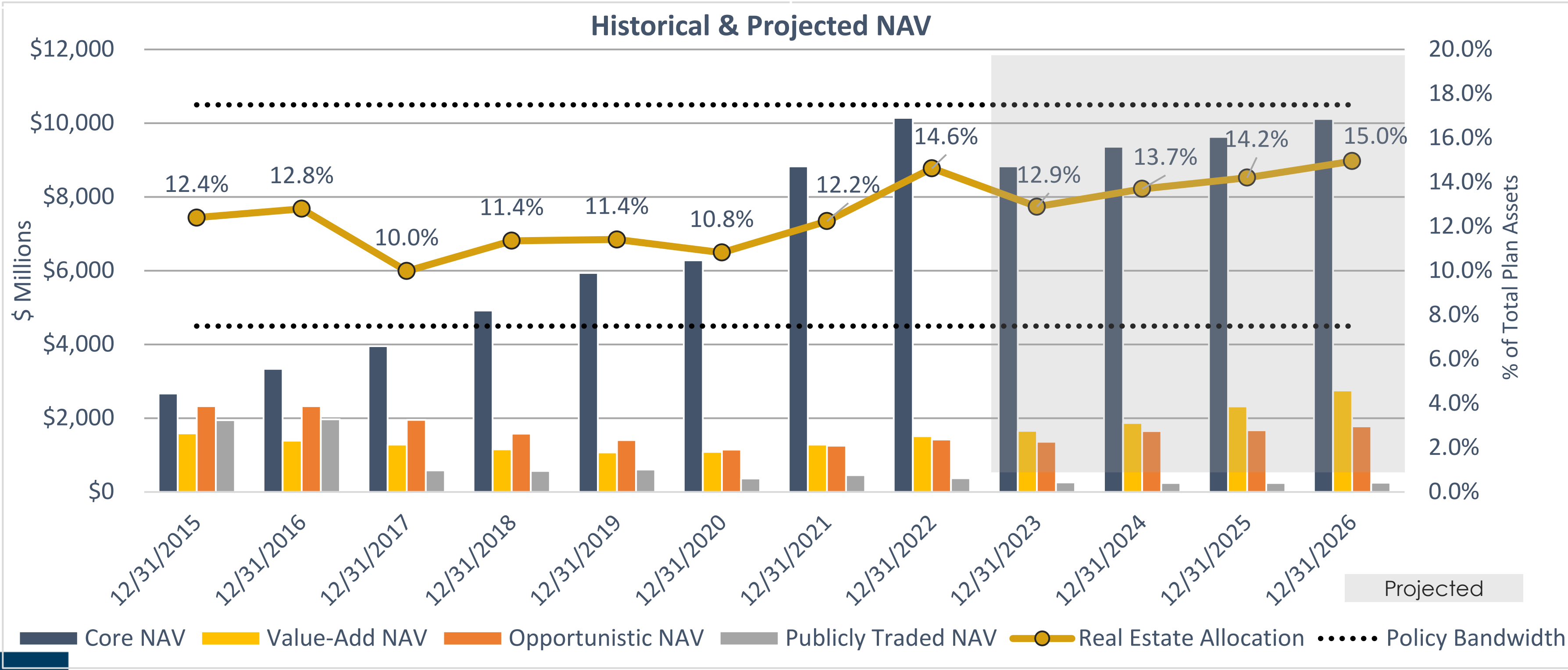
- With >70% of the portfolio weighted towards separate accounts and open-ended structures, Staff has greater control of capital pacing through scaling successful partnerships.

Pacing assumes:

- ~$500 - $600 million of annual new commitments
- Further markdowns of Real Estate NAV through 2024
- Muted Real Estate NAV growth in 2025 and 2026

Pacing Excludes:

- Writedowns beyond 2024
- SMA asset dispositions
- DRIPs / capital recycling in SMAs
- Unfunded commitment reserves in SMAs

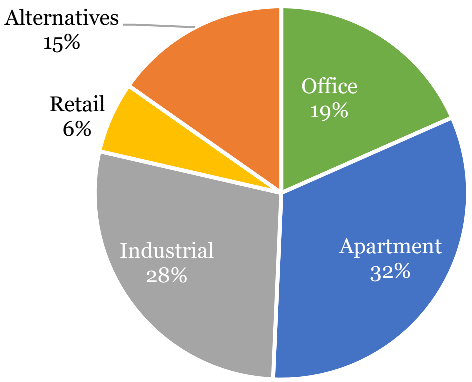


OREGON STATE TREASURY

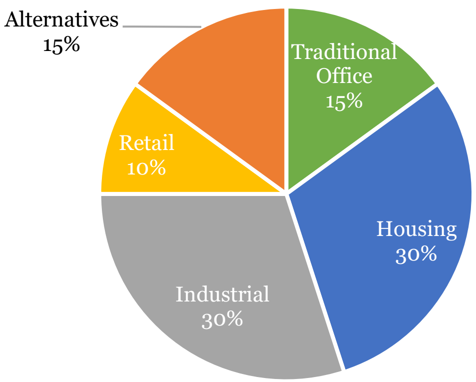
Source: OST

2024 Plan – Property Diversification

Current Real Estate Exposure



Representative Future Real Estate Portfolio



NCREIF Total Returns by Sector

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
13.7%	17.1%	23.0%	21.2%	19.1%	20.5%	-4.1%	-10.9%	18.2%	15.5%	11.6%
8.8%	8.9%	13.0%	20.3%	17.0%	14.9%	-5.8%	-17.5%	12.6%	14.6%	11.2%
6.7%	8.2%	12.1%	20.0%	14.6%	13.5%	-7.3%	-17.9%	11.7%	13.8%	10.7%
2.8%	5.7%	12.0%	19.5%	13.3%	11.4%	-7.3%	-19.1%	9.4%	13.8%	9.5%

2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
12.9%	13.4%	15.3%	12.3%	13.1%	14.3%	13.4%	11.8%	43.3%	14.6%	-0.90%
12.3%	13.1%	14.9%	9.0%	6.2%	6.9%	6.6%	1.8%	19.9%	7.1%	-4.06%
10.4%	11.5%	12.5%	7.3%	6.0%	6.1%	5.5%	1.6%	6.1%	2.7%	-7.33%
9.9%	10.3%	12.0%	6.2%	5.7%	2.2%	1.9%	-7.5%	4.2%	-3.4%	-17.63%

Apartment Industrial Retail Office

Asset Type Diversification

- As demonstrated above, the relative performance of different property types can vary considerably over time, hence the need for diversification of asset types in long-term portfolio construction
- Institutional real estate has expanded beyond the traditional "four food groups." Alternative, lesser correlated and demographically-driven property types will represent a larger portion of the investment portfolio over time
- Staff maintains a long term thematic emphasis on industrial and apartments, which are the top performing property types over the last 5-7 years

OREGON STATE TREASURY

(1) Source: NPI as of December 2023

2024 Initiatives

2024 OST Real Estate Staff Priorities

1. **$500 million - $1.0 billion of new commitments**
   - 4-7 commitments of $100-250 million

2. **Continued strategic portfolio reviews with separate account managers to ensure underlying assets and areas of focus provide long-term alignment with staff objectives**

3. **Continue diligence on core international partnerships and private debt**

4. **Prioritization of in-person diligence, monitoring and collaboration initiatives**

2024 Initiatives

2024 OST Real Estate Staff Priorities

5. Enhancement of Oregon's brand through industry participation:

- Pension Real Estate Association (PREA)
- Editorial Advisory Board Member: Institutional Real Estate Americas
- Board Member: Portland Alternative Investment Association (PAIA)

6. Extension of training and continuing education initiatives, both on an individual basis and by leveraging partner and industry relationships

7. Support Staff transition of analyst to investment officer and onboarding of new analyst

8. Continue integration of underwriting and due diligence for the Common School Fund (CSF) real estate portfolio

Policy Reporting

Responsible Contractor Policy (RCP)

- INV 504 (RCP) was approved by the OIC in January 2020
- Per policy, Staff shall “report on this Policy at a regular meeting of the OIC on an annual basis.”

OPERATIONAL CONTRACTS				
	Payments to Responsible Contractors	Payments to Non-Responsible Contractors	Total Qualified Operating Expenditures	Payments as a % of Total Qualified Operating Expenditures
Total	$ 155,739,536	$ 989,327	$ 156,591,175	99.5%

TENANT IMPROVEMENTS & OTHER CAPITAL EXPENDITURES				
	Payments to Responsible Contractors	Payments to Non-Responsible Contractors	Total Qualified Operating Expenditures	Payments as a % of Total Qualified Operating Expenditures
Total	$ 433,343,747	$ 0	$ 433,343,747	100%

* Qualified expenditures are services or tenant improvements and other capital expenditures greater than $100,000. Total qualified expenditures include payments to both responsible contractors and contractors not meeting the responsible contractor definition.

Non-Mandate Activity

- There was no non-mandate activity in 2023

Closing

Key takeaways…

1. The real estate portfolio is expected to remain cash flow positive as interest rates normalize and transaction volume rises
2. Expect some continued short-term headwinds in valuations as the private markets continue to adjust to higher borrowing costs and some deterioration in fundamentals in select sectors and markets
3. Overall market fundamentals remain relatively healthy, and while near term supply delivery could continue to provide headwinds, forecasts predict a degree of moderation that is expected to strengthen absorption over the longer term
4. Improvement in value-add and opportunistic investment performance is anticipated as assets emerge from protracted value creation phases over the near to intermediate term
5. Unfunded capital commitments provide ample capacity for both core and non-core strategies to take advantage of attractive distressed and/or discounted opportunities during this period of market dislocation.
6. Sector exposures will continue to favor assets that are more dependent on demographic trends than macroeconomic growth, providing the benefit of decreased correlation and more resilient risk adjusted returns over the long term

OREGON
STATE
TREASURY

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Oregon State Treasurer

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TAB 6

REAL ASSETS

ANNUAL REVIEW

March 6, 2024

OPERF Real Assets Portfolio

Annual Review and Forward Plan

OREGON
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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	7-12				X		X												
2023 Review	13-15				X	X	X		X	X			X	X			X		X
Exposures	16-17				X		X		X	X									
Results	17-20				X		X			X									
Pacing Analysis	21				X	X	X		X	X									
2024 Priorities	22				X	X	X		X	X			X	X			X		X
Appendix	24-28				X	X	X		X				X	X			X		X

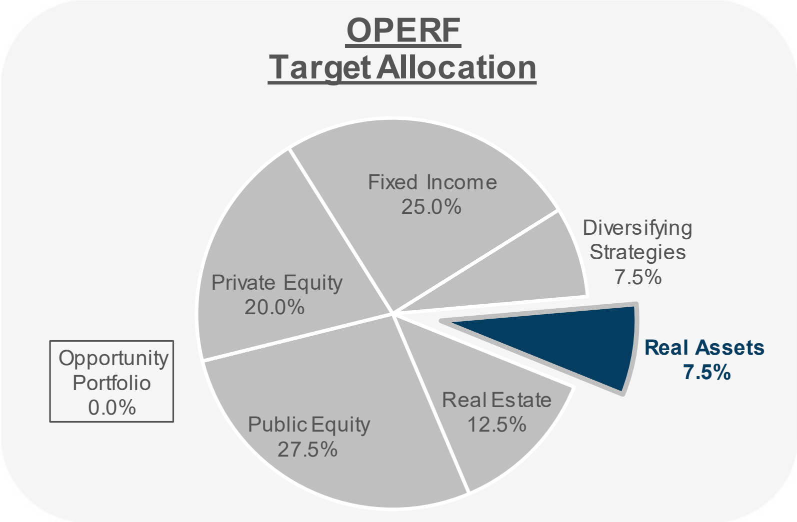
		LEGEND: OIC INVESTMENT AND MANAGEMENT BELIEFS
1		**THE OIC SETS POLICY AND IS ULTIMATELY RESPONSIBLE FOR THE INVESTMENT PROGRAM**
	A.	Investment management is dichotomous -- part art and part science.
	B.	The OIC is a policy-setting council that largely delegates investment management activities to the 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 Overview

Strategic Role

- <u>Portfolio background</u>
  - Alternatives Portfolio (inclusive of Real Assets and Diversifying Strategies) approved at January 2011 OIC meeting; seeded July 2011 with three investments from the Opportunity Portfolio. Portfolio bifurcated into its component parts in June 2021.
  - Initial <5.0% allocation increased to 7.5% in June 2013.
  - Fair market value = $9.3 billion (10% of OPERF) vs. target of $6.9 billion.

- <u>Portfolio objectives</u>
  - 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%.



- <u>Performance</u>

IRR	Q3 2023	YTD	1 Year	3 Year	5 Year	10 Year	ITD
Real Assets Portfolio	**1.4%**	**3.7%**	**7.1%**	**14.5%**	**8.1%**	**7.5%**	**7.3%**
CPI + 4%	1.8%	6.7%	7.7%	9.8%	8.0%	6.8%	6.6%
Difference	*-0.5%*	*-2.9%*	*-0.6%*	*4.8%*	*0.0%*	*0.7%*	*0.7%*

Source: State Street, Aksia. Data as of September 30, 2023.

Real Assets Portfolio Overview
Positioning

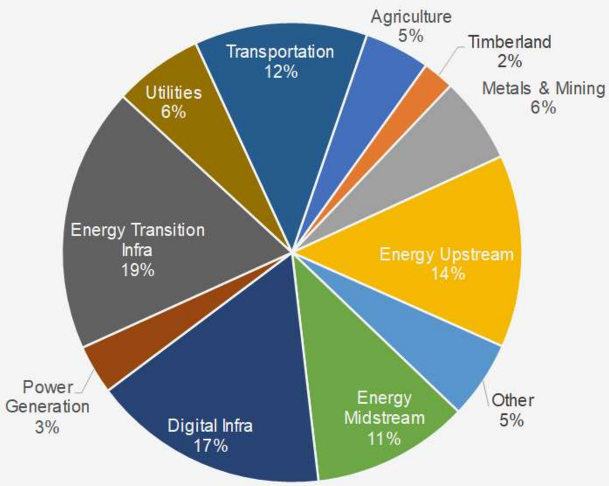
Portfolio Summary[1]

Attribute	9/30/2022	9/30/2023	% Change
GP Relationships	32	31	-3.1%
Holdings	79	94	19.0%
Total Commitment Amount	$12,864.9	$15,029.4	16.8%
Contributions	$10,025.5	$11,719.5	16.9%
Distributions	$4,383.8	$5,448.6	24.3%
Net Asset Value	$8,094.8	$9,316.9	15.1%
Weighted Average Age (yrs)	5.5	6.0	9.0%
Unfunded Commitment	$4,153.9	$4,932.3	18.7%
Net TVPI	1.2x	1.3x	0.0x
ITD IRR	7.3%	7.3%	0.0%

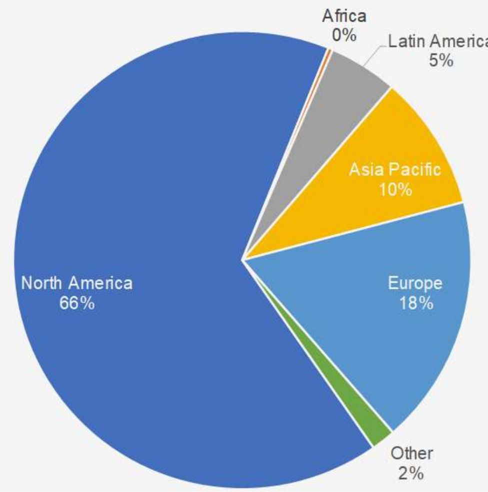
Top 10 Managers

Manager	# of Mandates	$ of Exposure	% of Exposure
Brookfield Asset Management	11	$2,010.3	14.1%
Stonepeak Partners LP	8	$1,889.6	13.3%
Global Infrastructure Management	8	$1,657.9	11.6%
EQT Partners	5	$1,268.7	8.9%
NGP Energy Capital Management	11	$1,103.0	7.7%
LS Power Equity Advisors	4	$735.6	5.2%
Quantum Energy Partners	6	$682.5	4.8%
Blackstone Group	3	$528.5	3.7%
Warwick Investment Group	3	$526.1	3.7%
Harrison Street Advisors	2	$390.5	2.7%

Sector Weights



Geographic Weights



OREGON STATE TREASURY

Source: Aksia. Data as of September 30, 2023. $ in millions. Holdings count includes co-investment and continuation vehicles. Weighted average age is based on contributions.
[1]Data shown is since inception.

Real Assets Portfolio Overview
Executive Summary

- Steady period of performance
  - 1-year IRR = 7.1%, slightly underperforming benchmarks.
  - 3-year IRR = 14.5%, solidly outperforming benchmarks.
    - Strong performance from 2019-2021 VY energy funds (IRR = 32.8%).
  - SI-IRR stands at 7.3%, essentially flat YoY.
- CY 2023 commitment pacing slightly below plan…
  - … and matching long-term average.
  - Larger allocation to evergreen investments plus moderation in forward pipeline leading to a reduction in annual pacing target.
- Co-investment deployment above plan
  - 27% of committed capital over past three years in co-investment vehicles.
  - Given fundraising/market backdrop, quantum of co-investment opportunities expected to persist.
- Portfolio maturation
  - On the heels of strong performance, now above target allocation.
  - Continued evolution of risk profile, steadily increasing exposure to lower risk segments.
  - Portfolio well diversified across sectors, assets, risk profile, etc.
  - Expect annual distributions to continue to grow.
- Team accomplishments
  - Paul and Faith celebrated five years at OST.
  - Amanda recognized as a "Rising Star" by Institutional Investor.
  - Ian and Amanda served on the Board of Directors of the Portland Alternative Investment Association.

Source: Aksia. Data as of September 30, 2023.

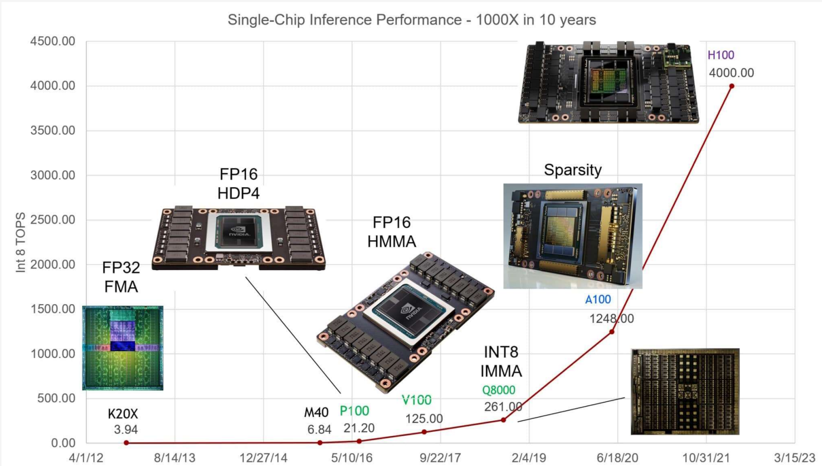
Topics

1. Real Assets Portfolio Overview
2. **Real Assets Portfolio Update**
   A. Markets
   B. 2023 Review
   C. Exposures
   D. Results
   E. Pacing Analysis
   F. 2024 Priorities
3. Appendix

Markets

Digital Infrastructure

Exponential improvements in chip processing performance…



Source: NVIDIA.

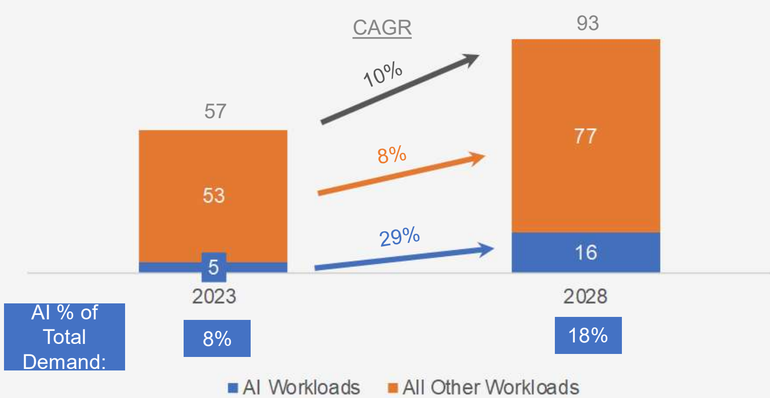
… with massive increases in power consumption/density

Data Center Average Kilowatts ("kW") Per Rack

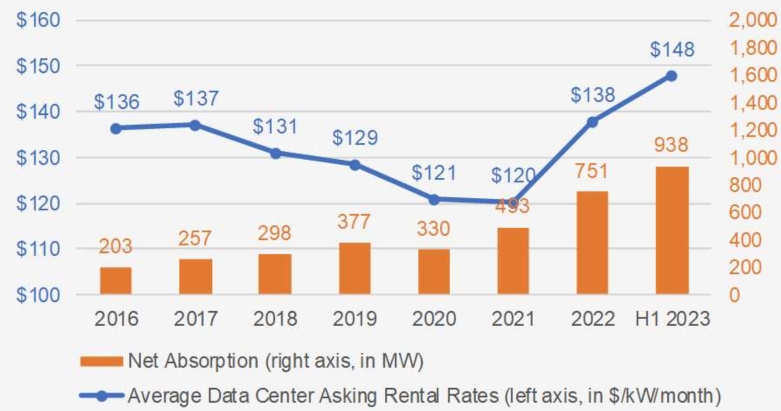
Source Uptime Institute, Schneider Electric.

Cloud services and AI lead to continued growth of data centers, with constraints catalyzing a reversal in pricing trends

Composition of Data Center Demand (GW)



Data Center Absorption and Rental Rates

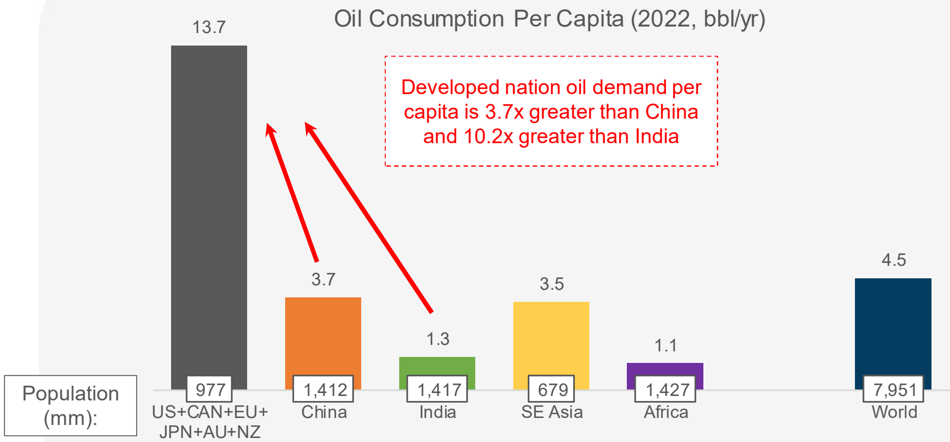


Source: Schneider Electric, CBRE. 2023 data showing annualized H1 2023 absorption figure.

Markets

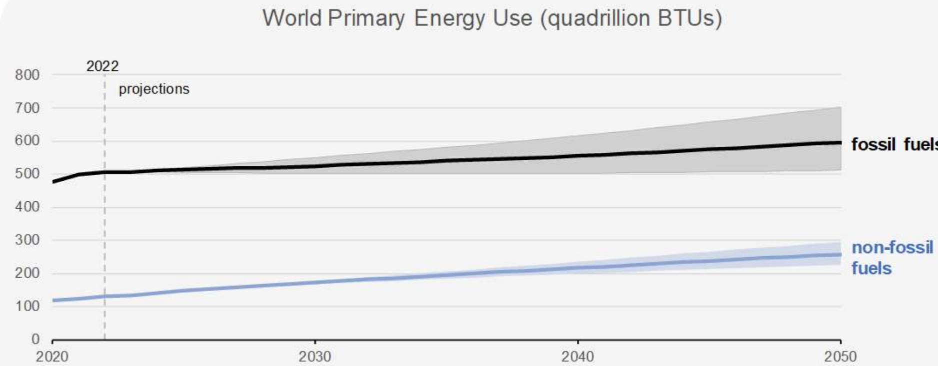
Energy Transition (1)

Upward pressures of population and GDP growth…



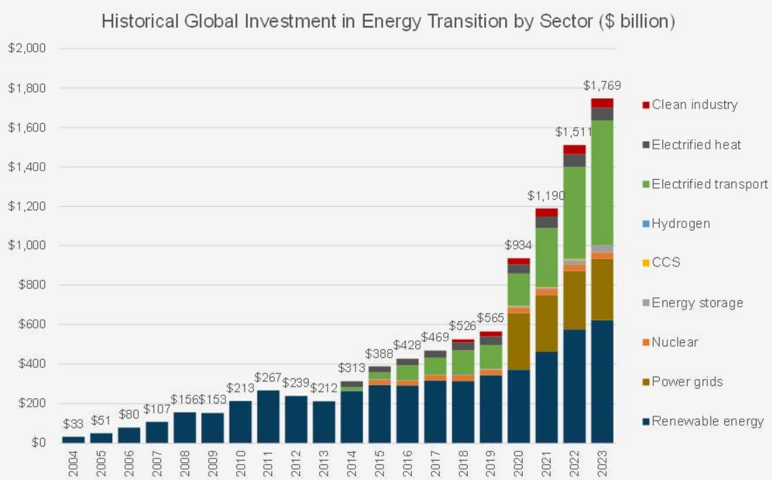
Source: Energy Institute, World Bank.

… lead to increasing energy consumption across sources

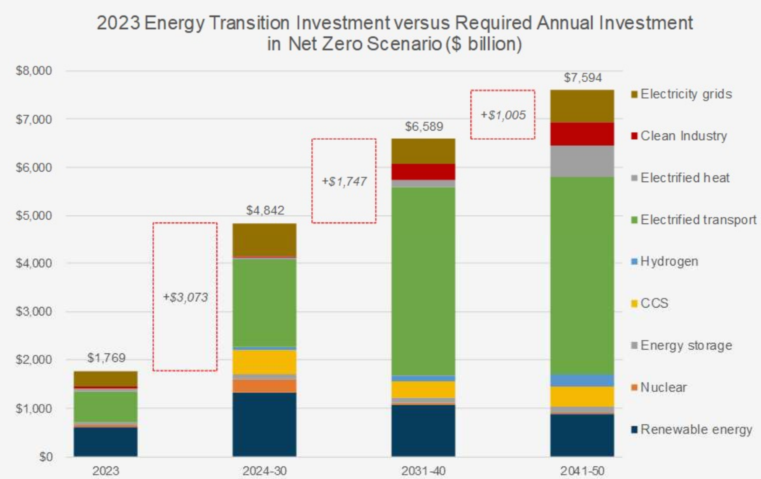


Source: U.S. EIA. Note: Solid lines represent IEO2023 Reference case projections; shaded regions represent maximum and minimum values for each projection year across the IEO2023 Reference case and side cases.

Energy transition investment hit record level in 2023…



… and must almost triple for the rest of the 2020s to get on track for net zero



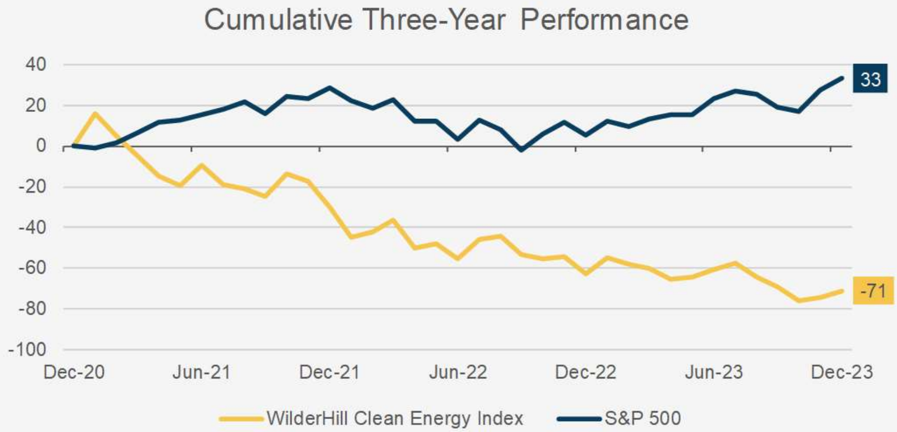
Source: BloombergNEF Energy Transition Investment Trends 2024 (January 2024).

OREGON STATE TREASURY

Markets

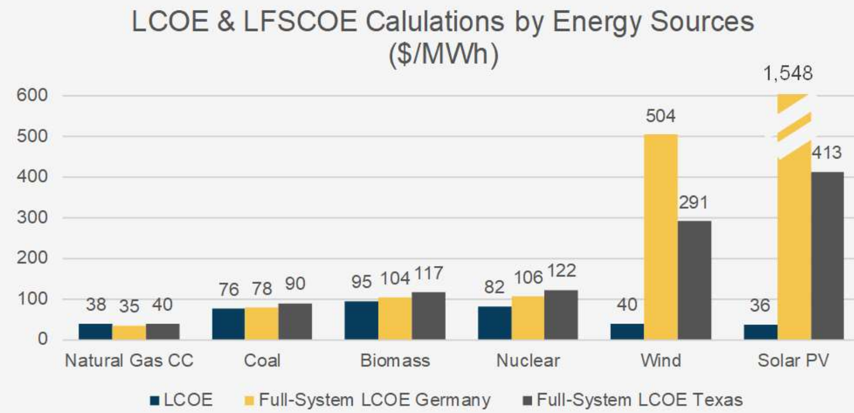
Energy Transition (2)

Clean energy stocks suffer…



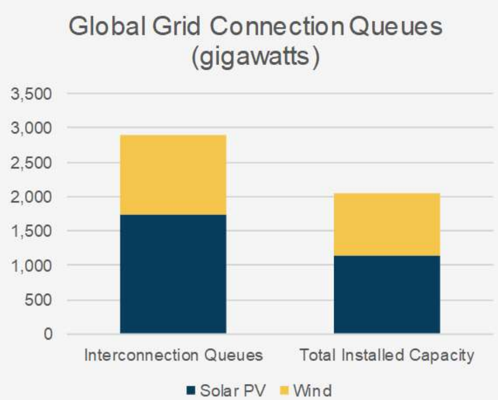
Source: Bloomberg, Nasdaq eVestment.

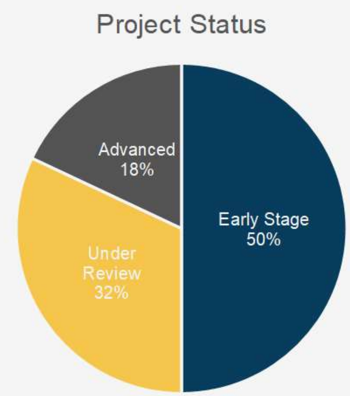
… hurt by higher costs…



Source: Idel 2022. Levelized Full System Costs of Electricity (LFSCOE) compares the costs of serving the entire market using just one source plus storage.

… and inadequate electric transmission infrastructure





More wind/solar projects awaiting grid connection than there are existing wind/solar projects

Source: IEA Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach (September 2023).

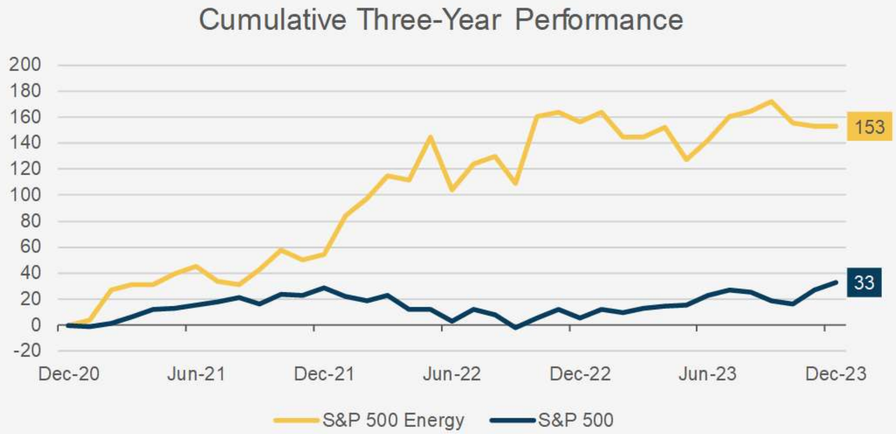
OREGON STATE TREASURY

Markets

Natural Resources (1)

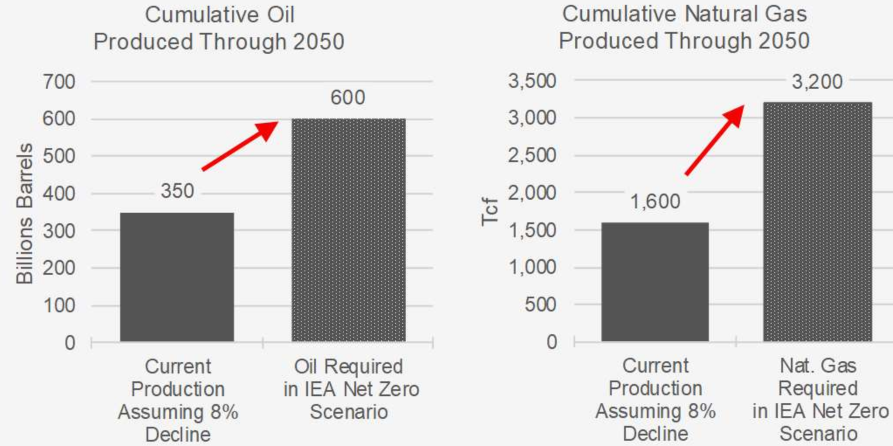
~$7 trillion of incremental oil and gas capital expenditures are needed through 2050

Traditional energy stocks outperform



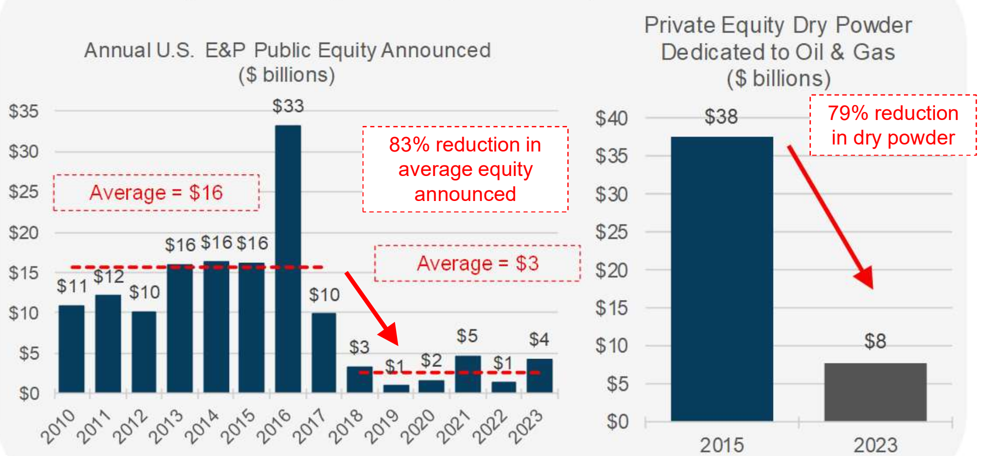
Source: Nasdaq eVestment.

Significant Oil and Gas Required Even in a Net Zero Pathway



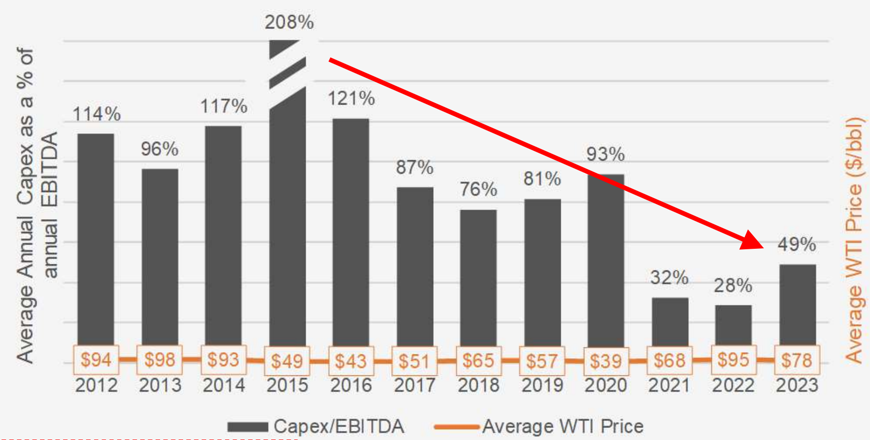
Source: IEA Net Zero by 2050 Report (dated October 2021), EIA.

Capital scarcity in both public and private markets…



Source: Bloomberg, Burgiss.

… with public companies re-investing less as well



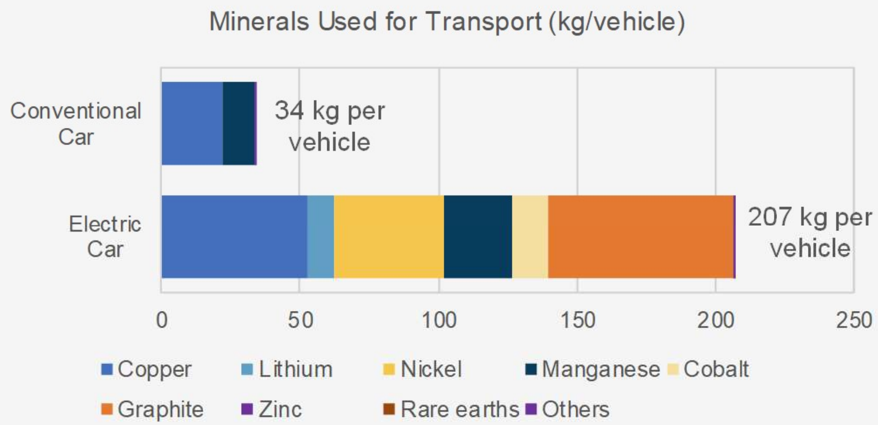
U.S. public E&P independents now supremely focused on free cash flow generation

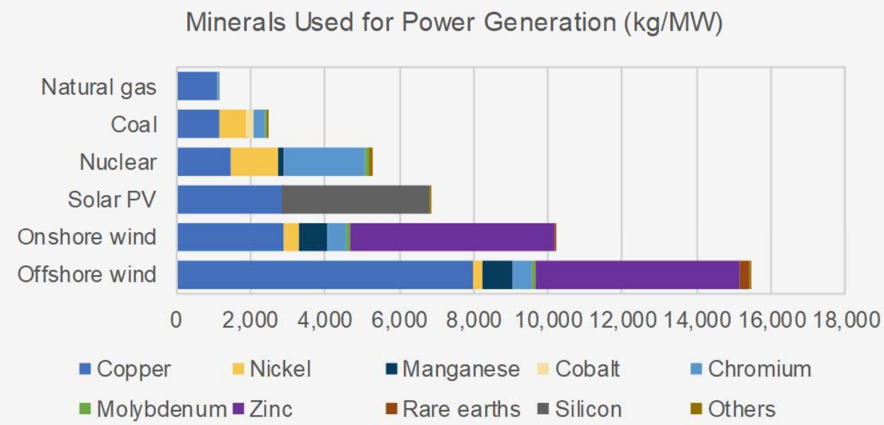
Source: Factset.

OREGON STATE TREASURY

Markets
Natural Resources (2)

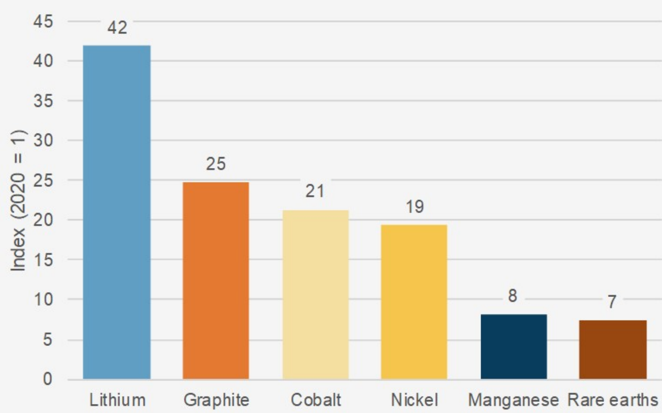
The Clean Energy Transition Implies a Significant Increase in Demand for Minerals





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

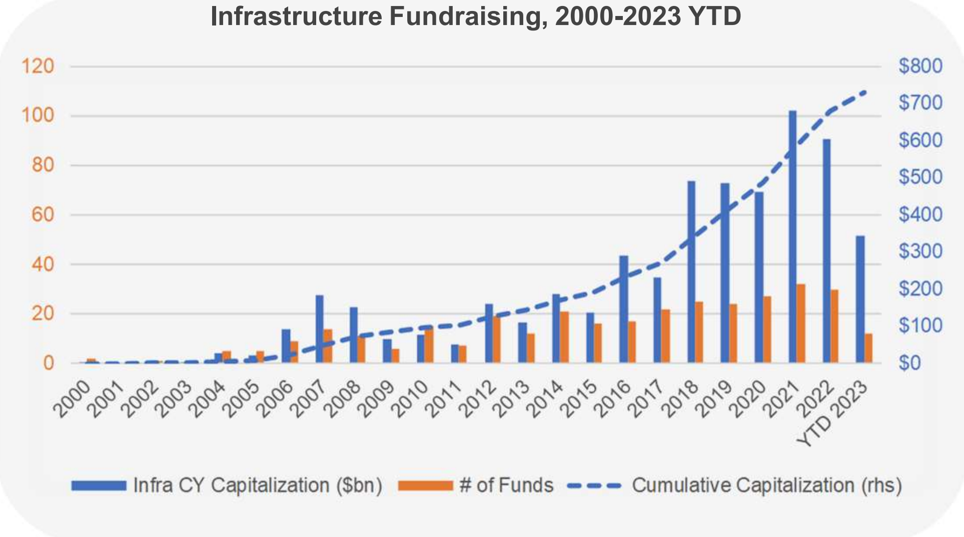
	Country	Nickel	Cobalt	Lithium	Copper	Rare Earths
Extraction	Russia	10%	5%			
	EU	8%				
	Other	51%	25%	90%	62%	30%
	D.R.C.		70%			
	US			1%		10%
	Chile				28%	
	China	**31%**		**9%**	**10%**	**60%**
Processing	Russia					
	EU	13%	17%			
	Other	21%	1%	37%	48%	12%
	D.R.C.					
	US	1%		4%		
	Chile				12%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

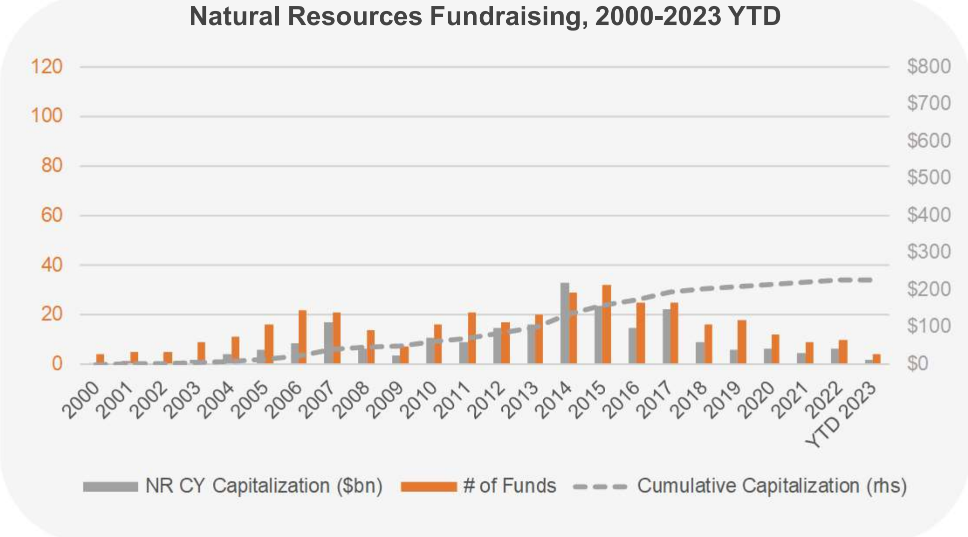
Source: Prepared for Warwick by Evercore, IEA The Role of Critical Minerals in Clean Energy Transitions (dated May 2021).

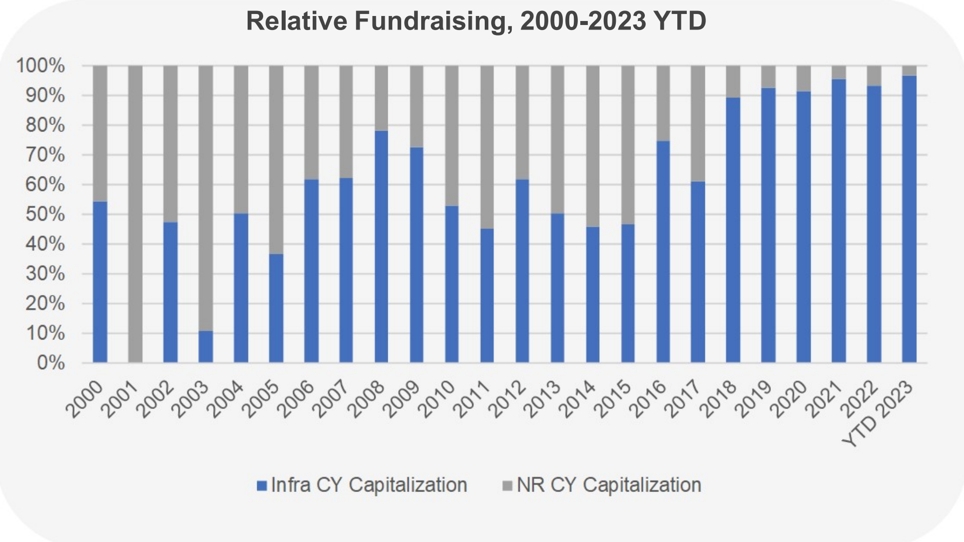
OREGON STATE TREASURY

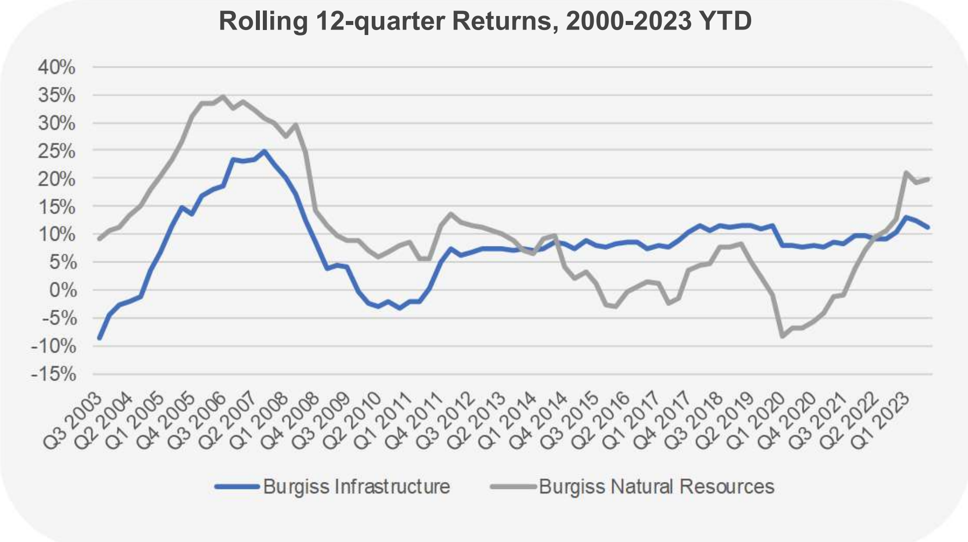
Markets

Fundraising









Source: Burgiss. Data as of September 30, 2023.

2023 Review

Priorities

- 2023 commitment pacing
  - $1.5 - $2.0 billion in aggregate commitments.
  - 5-10 commitments with an average commitment size of ~$250 million.
    - ***$1.4 billion in authorized commitments across 8 approvals. Rolling three-year average of $1.6 billion in-line with target.***

- Co-investment
  - Continue to execute on envisioned structure.
    - ***Received approval for $265 million in co-investment, representing 19% of total 2023 commitments.***

- Consultant contract
  - Initial two-year extension of Aksia agreement ends on December 31, 2023. Targeting Q3/Q4 recommendation.
    - ***Two-year extension approved at September 2023 OIC meeting.***

- 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.
  - Metals & mining.
    - ***Completed (though evaluation is ongoing).***

2023 Review

Approvals

- <u>2023 commitments in-line with historical average</u>
  - $1.4 billion in authorized commitments across 8 approvals.
    - All commitments were re-ups or expansions of existing relationships.
    - $265 million (or 19%) of commitments were to co-investment vehicles.
    - Pacing was slightly below plan ($1.5-2.0 billion per annum range) but in-line with 2014-2023 average of $1.4 billion.
  - Continued progress towards lower fees through tailored partnership structures, early close discounts, and co-investment.

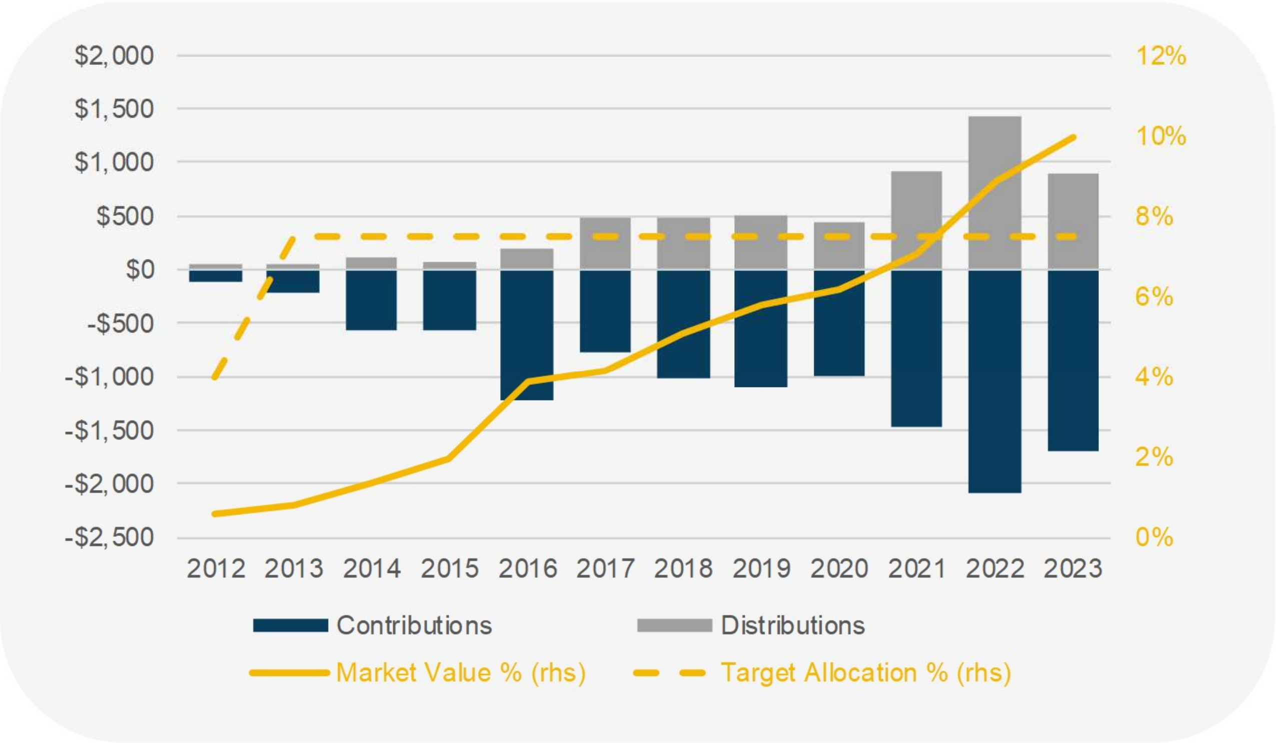
Investment	Strategy	Authorized Date	Commitment Amount
EQT Infra VI + co-invest	Infrastructure	February 2023	$350.0
NGP XIII + co-invest	Natural Resources	February 2023	$250.0
Appian III + co-invest	Natural Resources	March 2023	$150.0
LS Power V	Infrastructure	March 2023	$200.0
Hudson Northern Shipping V	Infrastructure	July 2023	$150.0
QCS II + co-invest	Natural Resources	July 2023	$200.0
Brookfield co-invest top-off	Infrastructure	October 2023	$50.0
Stonepeak co-invest top-off	Infrastructure	October 2023	$50.0
2023 Total			**$1,400.0**

Source: OST Staff. Data as of December 31, 2023. $ in millions.

2023 Review

Cash Flow Activity

- <u>Cash flow activity consistent with expectations</u>
  - 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, 2023, OPERF has funded $12.1 billion of contributions with $4.8 billion of unfunded capital commitments remaining. Since inception, a total of $5.6 billion has been distributed to OPERF.

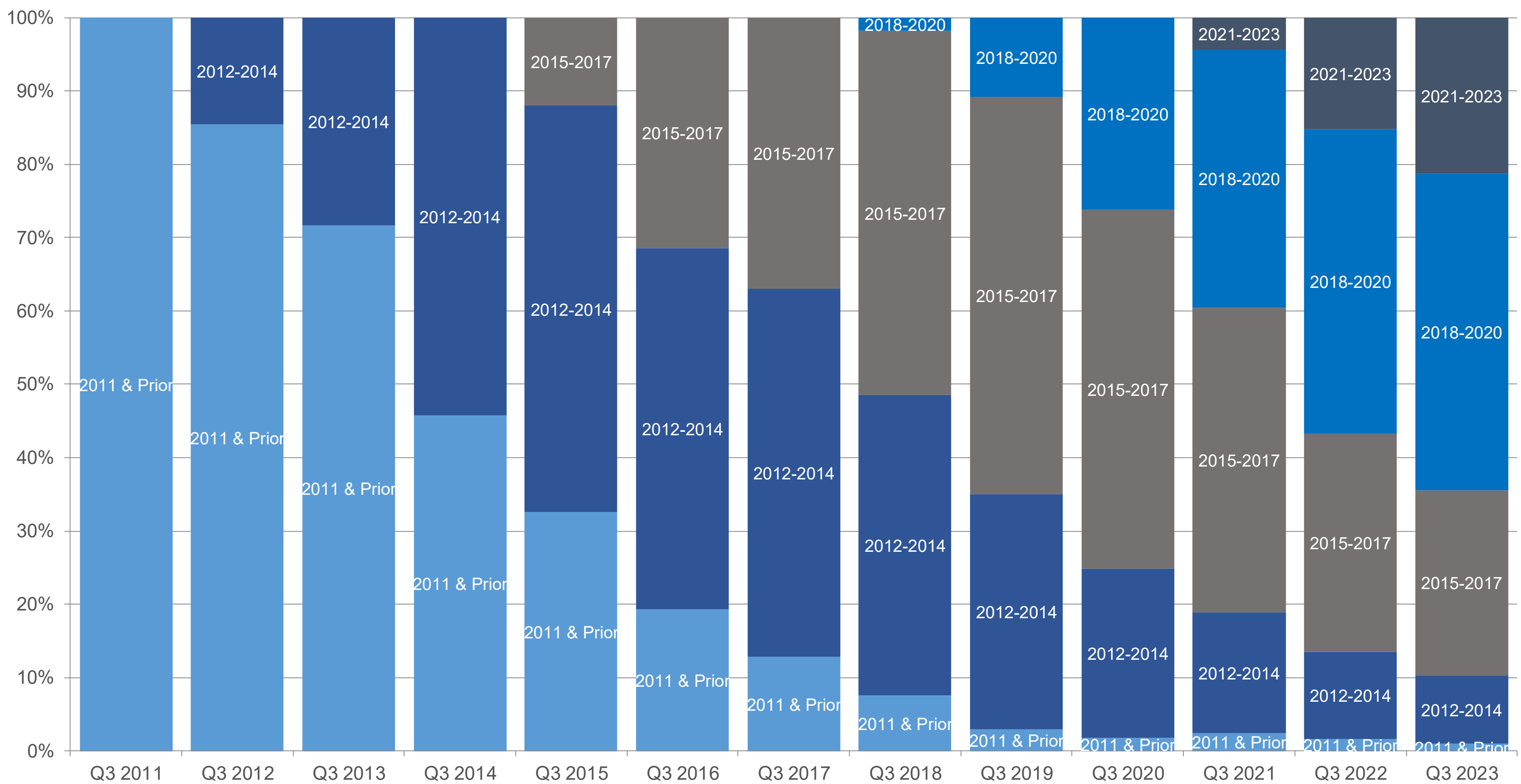


Source: Aksia. Data as of December 31, 2023. $ in millions.

Exposures

Vintage Years

➢ <u>Vintage year cohort exposure by market value</u>



64% of FMV 2018 and later…

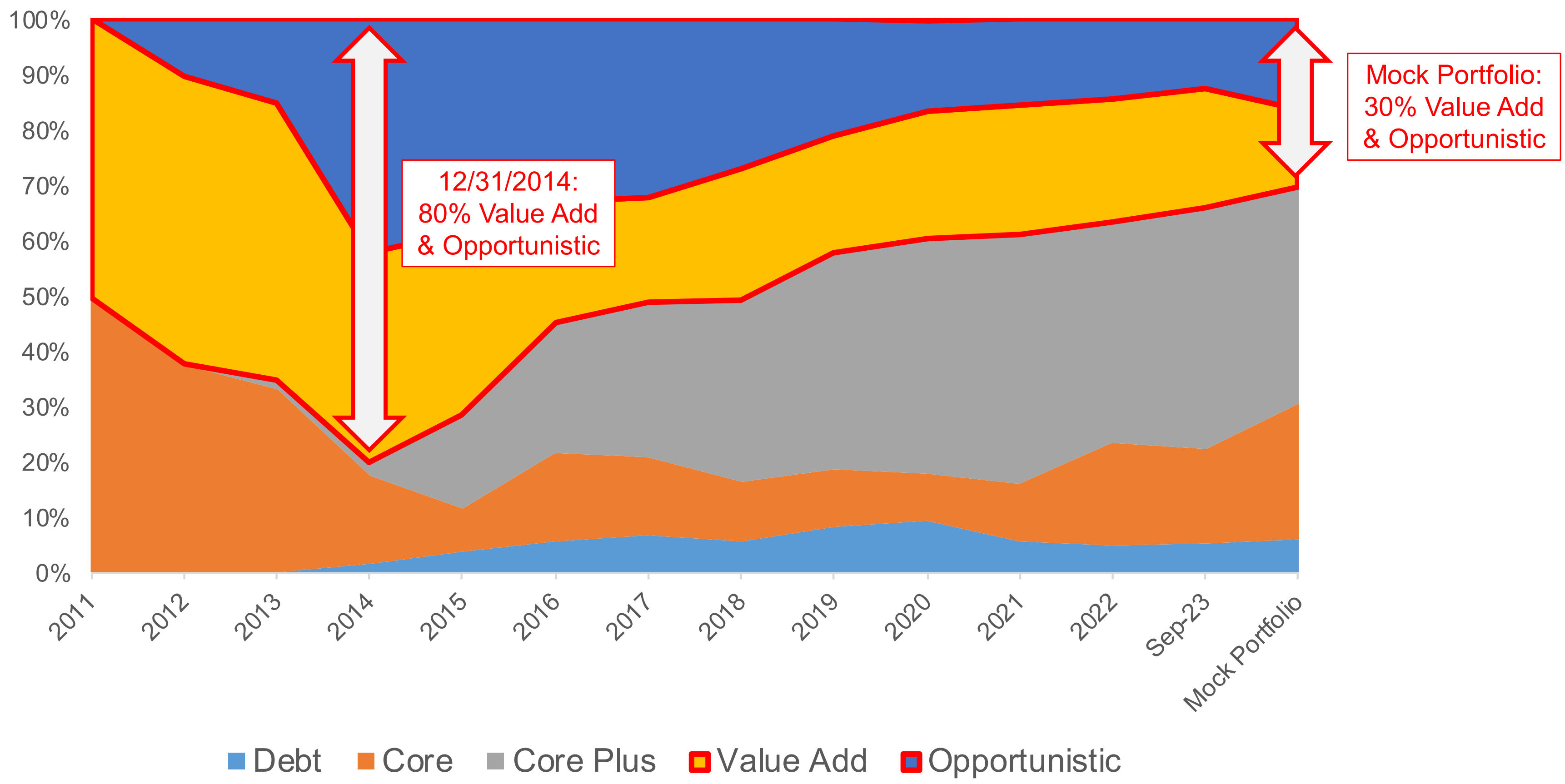
… compares to 51% for Burgiss universe and 51% for PE portfolio

Source: Aksia. Data as of September 30, 2023.

OREGON STATE TREASURY

Exposures
Risk Metrics

➢ Risk categories by market value over time



Source: OST Staff, Aksia. Data as of September 30, 2023.

OREGON STATE TREASURY

Results

Portfolio Returns at 9/30/23

IRR	Q323	YTD	1 Year	3 Year	5 Year	10 Year	ITD	ITD 9/20
Real Assets Portfolio	**1.4%**	**3.7%**	**7.1%**	**14.5%**	**8.1%**	**7.5%**	**7.3%**	**1.8%**
CPI + 4%	1.8%	6.7%	7.7%	9.8%	8.0%	6.8%	6.6%	5.6%
Difference	*-0.5%*	*-2.9%*	*-0.6%*	*4.8%*	*0.0%*	*0.7%*	*0.7%*	*-3.8%*
Burgiss Real Assets (ex-RE)	0.8%	3.2%	7.8%	13.4%	7.6%	7.7%	7.3%	4.6%
Difference	*0.6%*	*0.5%*	*-0.7%*	*1.2%*	*0.5%*	*-0.2%*	*-0.1%*	*-2.8%*

What a difference 3 years can make!

IRR	Q323	YTD	1 Year	3 Year	5 Year	10 Year	ITD	ITD 9/20
Infrastructure	**1.2%**	**4.7%**	**7.8%**	**12.7%**	**10.8%**	**10.7%**	**10.5%**	**8.4%**
CPI + 4%	1.8%	6.7%	7.7%	9.8%	8.0%	6.8%	6.6%	5.6%
Difference	*-0.7%*	*-2.0%*	*0.1%*	*2.9%*	*2.8%*	*3.9%*	*3.9%*	*2.9%*
Burgiss Infrastructure	0.1%	3.7%	8.6%	10.6%	8.8%	9.4%	8.8%	7.9%
Difference	*1.0%*	*1.0%*	*-0.7%*	*2.0%*	*2.0%*	*1.3%*	*1.7%*	*0.5%*
S&P Global Infrastructure	-7.5%	-4.5%	5.9%	6.5%	3.2%	4.2%	4.3%	3.6%
Difference	*8.7%*	*9.2%*	*1.9%*	*6.2%*	*7.6%*	*6.5%*	*6.2%*	*4.8%*

Consistent performer

IRR	Q323	YTD	1 Year	3 Year	5 Year	10 Year	ITD	ITD 9/20
Natural Resources	**1.9%**	**1.5%**	**5.5%**	**18.6%**	**4.0%**	**3.7%**	**3.6%**	**-5.0%**
CPI + 4%	1.8%	6.7%	7.7%	9.8%	8.0%	6.8%	6.6%	5.6%
Difference	*0.1%*	*-5.1%*	*-2.2%*	*8.8%*	*-4.1%*	*-3.1%*	*-3.0%*	*-10.6%*
Burgiss Natural Resources	3.2%	1.5%	5.5%	20.9%	5.2%	5.0%	4.9%	-1.0%
Difference	*-1.2%*	*0.0%*	*0.0%*	*-2.3%*	*-1.3%*	*-1.3%*	*-1.3%*	*-4.0%*
S&P Global Natural Resources	3.6%	-0.1%	17.0%	18.4%	5.7%	4.6%	2.4%	-2.3%
Difference	*-1.6%*	*1.6%*	*-11.5%*	*0.2%*	*-1.7%*	*-0.9%*	*1.2%*	*-2.7%*
S&P GSCI	16.0%	7.2%	10.9%	29.5%	5.6%	-2.5%	-2.4%	-11.0%
Difference	*-14.1%*	*-5.7%*	*-5.5%*	*-10.9%*	*-1.6%*	*6.2%*	*6.0%*	*6.0%*

Less consistent but improving

Source: Aksia, Burgiss, eVestment. Portfolio inception July 1, 2011. Data as of September 30, 2023.

Results

VY Cohort Returns at 9/30/23

IRR	# of Obs	Q323	YTD	1 Year	3 Year	5 Year	ITD	ITD 9/20
RAP All Vintages	**85**	**1.4%**	**3.7%**	**7.1%**	**14.5%**	**8.1%**	**7.3%**	**1.8%**
RAP 2007-2014	22	3.1%	2.8%	5.1%	12.5%	-1.2%	1.4%	-2.0%
RAP 2015-2022	63	1.2%	3.9%	7.5%	15.0%	11.4%	11.5%	6.6%
Burgiss Real Assets (ex-RE) 2007-2014	250	1.3%	2.3%	6.6%	14.5%	4.1%	6.0%	4.7%
Difference vs 2007-2014		*1.9%*	*0.4%*	*-1.5%*	*-2.0%*	*-5.4%*	*-4.7%*	*-6.7%*
Burgiss Real Assets (ex-RE) 2015-2022	340	0.8%	3.5%	8.3%	13.1%	9.8%	10.4%	6.0%
Difference vs 2015-2022		*0.4%*	*0.4%*	*-0.8%*	*1.9%*	*1.6%*	*1.1%*	*0.6%*

IRR	# of Obs	Q323	YTD	1 Year	3 Year	5 Year	ITD	ITD 9/20
Infrastructure All Vintages	**47**	**1.2%**	**4.7%**	**7.8%**	**12.7%**	**10.8%**	**10.5%**	**8.4%**
Infrastructure 2007-2014	10	4.2%	6.7%	9.9%	7.6%	5.2%	7.3%	7.2%
Infrastructure 2015-2022	37	0.9%	4.6%	7.8%	13.5%	12.2%	12.2%	9.9%
Burgiss Infrastructure 2007-2014	105	0.8%	5.5%	10.2%	12.3%	7.7%	8.9%	7.2%
Difference vs 2007-2014		*3.3%*	*1.2%*	*-0.4%*	*-4.7%*	*-2.5%*	*-1.6%*	*0.1%*
Burgiss Infrastructure 2015-2022	193	0.1%	3.7%	8.6%	10.5%	9.4%	9.7%	8.6%
Difference vs 2015-2022		*0.8%*	*0.9%*	*-0.9%*	*3.1%*	*2.7%*	*2.5%*	*1.3%*

IRR	# of Obs	Q323	YTD	1 Year	3 Year	5 Year	ITD	ITD 9/20
Natural Resources All Vintages	**38**	**1.9%**	**1.5%**	**5.5%**	**18.6%**	**4.0%**	**3.6%**	**-5.0%**
Natural Resources 2007-2014	12	2.0%	-1.1%	0.4%	18.7%	-6.3%	-3.3%	-10.4%
Natural Resources 2015-2022	26	1.9%	2.1%	6.7%	18.6%	9.9%	10.2%	2.4%
Burgiss Natural Resources 2007-2014	145	1.7%	-0.3%	3.5%	16.9%	0.6%	2.2%	-0.5%
Difference vs 2007-2014		*0.4%*	*-0.8%*	*-3.1%*	*1.8%*	*-6.9%*	*-5.5%*	*-9.9%*
Burgiss Natural Resources 2015-2022	147	4.1%	2.7%	6.7%	24.7%	10.8%	12.2%	-0.2%
Difference vs 2015-2022		*-2.2%*	*-0.5%*	*0.0%*	*-6.1%*	*-0.9%*	*-1.9%*	*2.6%*

Energy underweight

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

Results
Vintage Year Quartiles at 9/30/23

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	8.5%	1.44x	2.5%	1.10x	-0.6%	0.87x	34
2008	1.9%	1.09x	$129.6	1	10.5%	1.75x	7.2%	1.38x	-1.6%	0.93x	25
2009			$0.0	0	8.8%	1.46x	5.7%	1.30x	0.2%	1.01x	13
2010	-18.1%	0.45x	$221.2	2	6.5%	1.67x	3.3%	1.25x	-2.6%	0.80x	30
2011	13.9%	2.06x	$50.0	1	7.9%	1.54x	0.1%	0.99x	-10.5%	0.59x	28
2012	7.7%	1.37x	$537.5	6	11.9%	1.58x	5.7%	1.27x	0.2%	0.98x	34
2013	2.9%	1.16x	$455.0	4	9.9%	1.69x	6.4%	1.34x	1.3%	1.05x	31
2014	1.0%	1.05x	$1,150.0	7	11.3%	1.66x	8.0%	1.41x	2.8%	1.18x	50
2015	8.2%	1.51x	$601.8	5	14.6%	1.81x	9.2%	1.50x	3.9%	1.16x	48
2016	10.0%	1.43x	$1,675.0	7	12.1%	1.57x	8.5%	1.40x	5.3%	1.20x	42
2017	16.3%	1.59x	$659.4	4	14.7%	1.63x	9.1%	1.39x	6.7%	1.25x	47
2018	12.6%	1.33x	$1,553.0	6	16.2%	1.44x	12.3%	1.36x	8.2%	1.20x	41
2019	12.3%	1.24x	$1,641.1	10	16.6%	1.47x	10.6%	1.27x	5.2%	1.08x	42
2020	23.7%	1.32x	$1,493.1	7	16.5%	1.31x	10.4%	1.16x	7.3%	1.10x	39
2021	9.7%	1.16x	$1,100.0	8	19.7%	1.26x	8.3%	1.09x	-5.4%	0.94x	41
2022	11.9%	1.11x	$2,127.1	16	9.5%	1.09x	-2.2%	0.99x	-17.6%	0.89x	38
2023	N/M	N/M	$1,625.0	15	-0.1%	1.00x	-5.3%	0.96x	-7.2%	0.95x	14

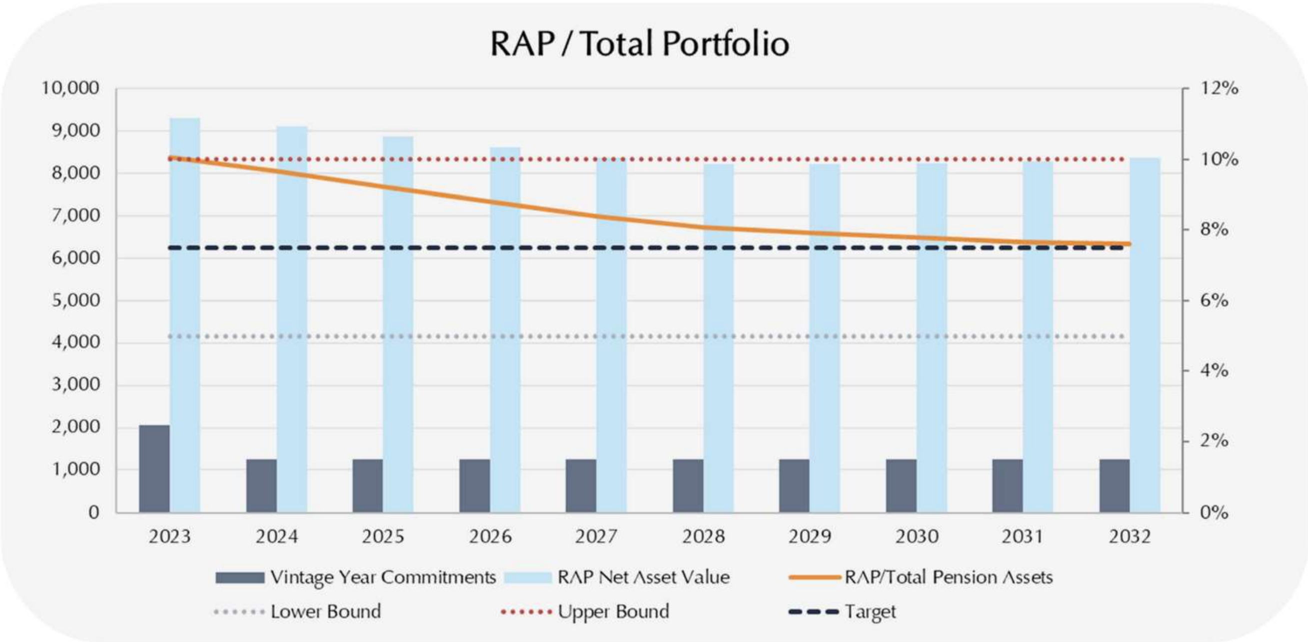
1st	2nd	3rd	4th

Source: Aksia, Burgiss. Data as of September 30, 2023.

Pacing Analysis

➢ <u>Pacing target lowered from prior years</u>

- Targeting $1.25 billion in annual commitments (range of $1.0 - $1.5 billion) versus prior target of $1.75 billion.
    - Reduction reflects current (over)allocation, moderation in forward pipeline, and larger allocation to evergreen investments.
- Assuming base case pension annual growth rate of 2%, expect Portfolio allocation to remain within target range.



Source: Aksia. Data as September 30, 2023. $ in millions.

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2024 Priorities

1. <u>2024 commitment pacing</u>
   - $1.0 - $1.5 billion in aggregate commitments.
   - 3-5 fund commitments with a commitment range between $150 - $350 million.
2. <u>Co-investment</u>
   - Continue to execute on envisioned structure.
3. <u>Monitoring and risk management</u>
   - Continue to pursue enhancements to monitoring and risk management efforts.
   - Further formalize ESG and DE&I integration across the broader Alternatives Program.
4. <u>Conduct research reviews of areas of interest</u>
   - Energy transition.
   - Metals & mining.

Topics

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

Appendix

Investment Process (1)

- 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

Fit

-Low expected overlap and correlation with other strategies
-Sources of risk/return
-Scope of mandate
-Pacing
-Relationship target
***Additive to the Portfolio**

Skill Assessment

-Firm, team, strategy evaluation
-Investment performance evaluation
-Differentiated
-Culture
-Financial discipline
-Effective implementation
***Confidence manager will achieve their objectives**

Timing/Opportunity Set

-Valuations
-Fundraising activity
-Contrarian approach
-Asymmetric return profile
-Manager assessment of opportunity set
***Awareness of cycles**

Governance

-Ownership
-Economics
-Protections/remedies
-Transparency
-GP commitment
-ESG + DE&I
***GP/LP alignment and spirit of partnership**

Internal Review
ATL/CML > CIO > Consultant

Underwriting Package
Scorecard > Reference Calls > Track Record > Memo

Legal Review
Terms and Conditions

Portfolio

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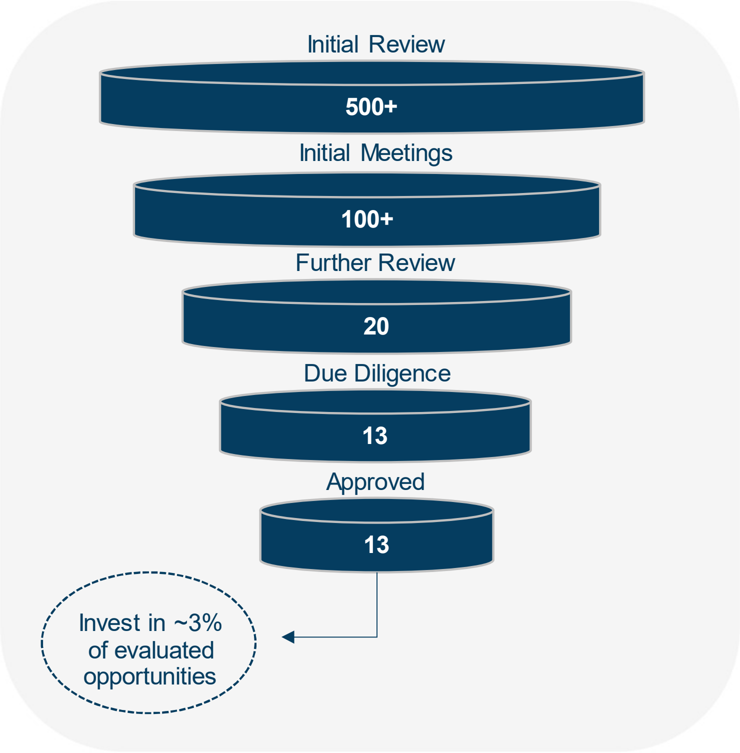
Appendix

Investment Process (2)

- <u>2023 Alternatives Portfolio meeting activity</u>
  - 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 10 in infrastructure agriculture, energy, commodities, and hedge funds.
  - Over 3,300 notes and other correspondence deposited in research management system.
  - After screening approximately 500 opportunities, held initial meetings (in-person or virtual) with ~100 distinct prospective managers/investments.
  - "Deep dives" on 20 opportunities.
  - Ultimately sought approval for 13 investments.



*Source: P&I. Market values as of September 30, 2023.

Appendix

Defining Real Assets (1)

- "Real Assets" are broadly defined as long-lived, capital intensive, physical or "hard" assets that provide essential products and services to the global economy or generally serve as the inputs to economic production. Real assets typically share three key characteristics:
  - Tangible, with intrinsic value.
  - Relatively stable demand and/or revenue profile.
  - Inflation-linkage.
- Real Assets offer investment characteristics and risk profiles that are differentiated from other asset classes, and which therefore provide valuable diversification benefits. These differentiations include the potential for capital preservation, long-term growth, current income, low volatility, and inflation protection.
  - The primary driver for the low correlation of real assets to other asset classes is the relatively low cyclicality and volatility of their demand profiles, and the consequent stability of their cash flows and earnings. This stability is a function of the essential nature of real assets and their contracted, regulated, or commodity-linked revenues.
  - Underpinning their role in economic and social activity, real assets also stand to benefit from long-term macro trends such as population growth, urbanization, and economic development.

Appendix

Defining Real Assets (2)

➢ Composition of Real Assets universe is broad; sub-sectors themselves include a wide range of assets, characteristics, and risk profiles:

ASSET CLASS	SUB-SECTORS OF INTEREST	ASSET DESCRIPTIONS	GP EXAMPLES generalists	GP EXAMPLES specialists
Infrastructure	Transportation	Assets and networks that move freight, bulk commodities, and passengers, including: airports, seaports, rail, toll roads, bridges, and tunnels	Brookfield Cube EQT GIP Stonepeak Westbourne	Northern Shipping
	Power	Generation and storage of electricity from renewable and conventional sources		LS Power Stonepeak GRF
	Energy	Encompasses pipelines, processing, storage, and district energy systems		Blackstone EnCap Flatrock
	Utilities	Transmit and distribute essential products and services, including: electricity transmission and distribution, natural gas, water processing and treatment, and waste management		Brookfield BSIP
	Communication	Includes towers, fiber networks, distributed network systems, spectrum, subsea cables, and data centers		Digital Colony
	Social	Encompasses public transportation, housing, education and healthcare facilities		Harrison Street
Natural Resources	Energy	Includes land, facilities, and related interests involved in the extraction of energy resources	NGP, Quantum, Warwick	
	Metals & Mining	Companies or projects, with rights to extract metal and mineral resources	Appian, Silver Creek, Sprott, Taurus	
	Timber	Investment in the ownership or lease of timberland	Twin Creeks	
	Agriculture	Encompasses land, production, processing, storage, and trading & distribution	Teays River	

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Appendix

Defining Real Assets (3)

- Each sector plays a distinct role in achieving the Portfolio's objectives.

ASSET CLASS	SOURCES OF RETURN	MACROECONOMIC SENSITIVITIES	Capital Protection	Diversification	Current Income	Inflation-Linkage
Infrastructure	Cash flows are generated by long-lived assets that deliver essential products or services. These cash flows tend to be a function of price (often tied to a regulatory or concession framework) and volume (throughput generally tied to underlying economic conditions). Additional sources of return through improvement and/or expansion to operations.	The cash flows from infrastructure assets tend to be contracted under terms with periodic price escalators tied to inflation. Since cash flows are generally contracted or feature monopolistic-like pricing power, and are therefore inelastic, infrastructure can be defensive in periods of economic contraction.	Primary objective	Secondary objective	Secondary objective	Secondary objective
Natural Resources	Cash flows are generally derived from the production, processing, and distribution of commodities or globally traded goods coming from these resources. Additional sources of return through resource expansion and/or improvement to operations.	The essential nature of natural resources (i.e., food) generally results in inelastic demand. Factors such as weather and overproduction, however, can significantly impact short-term supply and demand. Implicit inflation linkage arises because natural resources include many of the underlying components of inflation (i.e., the production inputs that determine the cost of many goods and services).	Not an objective	Secondary objective	Secondary objective	Primary objective

= Primary objective = Secondary objective = Not an objective

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Tobias Read
Oregon State Treasurer

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

TAB 7

COMMON SCHOOL FUND 2023

PERFORMANCE REVIEW

March 6, 2024

Common School Fund Review

Michael Langdon
Director of Private Markets

Jamie McCreary
Service Model Program Manager

Wil Hiles
Investment Officer, Public Equity

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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**
Fund Objectives	3					X	X	X	X	X	X	X	X	X					
Fund Evolution	4					X	X	X	X	X	X	X	X	X					
Asset Allocation	5					X	X												
Total Fund Performance	6						X	X	X	X	X	X	X	X					
Strategic Priorities	7					X	X	X	X	X	X	X	X	X					
Appendix	8-16						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.
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**
A.	Asset allocation is the OIC's primary policy tool for managing the investment program's long-term risk/return profile.
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**
A.	The OIC can capitalize on its status as a true, long-term investor by making meaningful allocations to illiquid, private market investments.
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**
A.	All fees, expenses, commissions, and transaction costs should be diligently monitored and managed in order to maximize net investment returns.
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**
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**
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.

Fund Objectives

Investment Policy

- The Oregon Investment Council (OIC) formulates policies for the investment of funds under the control and administration of the Department of State Lands, known as the Common School Fund (the Fund)
- Investment policy provides guidance to Oregon State Treasury staff and investment consultants regarding approved asset classes, asset allocation, and reporting requirements
- The primary objective of the Common School Fund is to generate a real (inflation-adjusted) rate of return that is sufficient to support the mission of the Fund and its spending needs into perpetuity

Distribution Policy

- On an annual basis, the Common School Fund distributes 3.5% of the Fund's trailing three-year average market value to the Department of Education to support the State's K-12 education programs
- In addition, with the passage of SB 1566, certain funds (subject to a formula) are distributed to the State to pay down some of the PERS unfunded liability

Fund Evolution

2017 2018 2019 2020 2021 2022 2023 2024 2025

Updated Strategic Asset Allocation: Added Real Estate & Alternatives (solely Diversifying Strategies) Asset Classes

Initial Build out of Real Estate & Alternatives (solely Diversifying Strategies) Portfolios

Reviewed Asset Allocation in response to passing of SB 1566

Reviewed Investment Policy Statement

Conducted Distribution Study & Reviewed Asset Allocation

Updated Strategic Asset Allocation: Bifurcated Alternatives into Diversifying Strategies & Real Assets

Increased Private Equity Allocation

Updated Investment Policy Statement

Implemented Asset Allocation Changes

Built out Alternative Asset Classes

Enhanced Manager Composition within Asset Class Portfolios

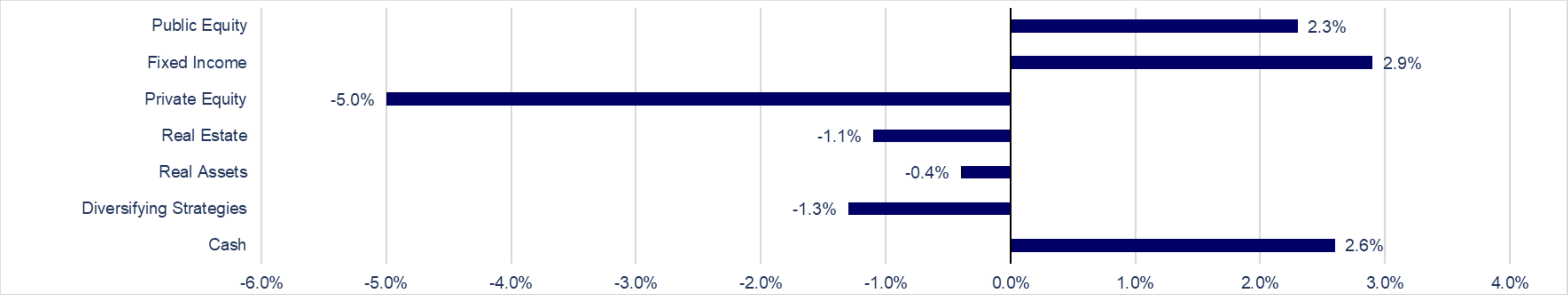
Implement remainder of Asset Allocation changes

Build out Alternative Asset Classes

Enhance Underlying Asset Class Portfolios

Conduct Distribution Study & Review Asset Allocation

Asset Allocation



Asset Class	Market Value	Current Allocation	Interim Target	Long-Term Target	Active Weight	Approved Range
Public Equity	$1.1B	49.8%	47.5%	45.0%	2.3%	40%-50%
Fixed Income	$572.8M	25.4%	22.5%	20.0%	2.9%	15%-25%
Private Equity	$168.4M	7.5%	12.5%	15.0%	-5.0%	10%-20%
Real Estate	$201.4M	8.9%	10.0%	10.0%	-1.1%	5%-15%
Real Assets	$48.1M	2.1%	2.5%	5.0%	-0.4%	0%-10%
Diversifying Strategies	$83.1M	3.7%	5.0%	5.0%	-1.3%	0%-10%
Cash	$57.5M	2.6%	0.0%	0.0%	2.6%	0%-3%
Total Fund	**$2.3B**	**100%**				

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Please see endnotes for source information. Active Weights shown vs. Interim Targets.

Performance – Total Fund

- In 2023, the Common School Fund (Total Fund) returned 11.0%, underperforming its policy benchmark
- Over longer, trailing time periods, the Common School Fund continues to provide positive absolute returns, generally in-line with its policy benchmark
- Despite negative headlines, the global economy proved to be more resilient than expected in 2023, as most asset classes (aside from Real Estate) generated positive absolute returns

	Market Value	3 Months	1 Year	3 Years	5 Years	10 Years
Total Fund	$2.3B	7.1%	11.0%	5.4%	8.0%	6.5%
Policy Benchmark		6.4%	13.3%	4.4%	7.8%	6.7%
Excess Return		**0.7%**	**-2.3%**	**1.0%**	**0.2%**	**-0.2%**

Total Fund	Long-Term Target
10-Year Expected Nominal Return	7.1%
10-Year Expected Standard Deviation	12.5%

Please see endnotes for source information. Expected Return and Risk provided by Aon.

Accomplishments and Strategic Priorities

- State Land Board and Oregon Investment Council Presentations in October 2023
- Cash Raises for Department of Education distribution on 12/1/2023 and PERS (SB 1566) distribution on 1/2/2024
- The Real Assets and Diversifying Strategies portfolios have been restructured, reducing manager concentration risk
- Continue Implementing new asset allocation (approved by the OIC in 2022) – notably funding up Real Assets and Private Equity, while reducing Public Equity and Fixed Income
- Working with asset class teams and committees to review portfolio construction and refine investment manager composition
  - Public Equity restructure approved and underway, with aim to increase manager diversification and decrease active risk
- Previously finalized Investment Policy Statement with intent to consolidate asset class guidelines over coming year(s)

Appendix:
Asset Class Performance

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Performance – Public Equity

- For the quarter ended December 31, 2023, the Public Equity portfolio underperformed its benchmark, while continuing to outperform over longer, trailing time periods
- After a reversal in Q3, public equity markets marched higher in Q4 with a risk-on rally, as bond yields declined, and investors pushed back on the Fed's "higher for longer" narrative
- The U.S. stock market (represented by the S&P 500) returned 11.7%, while developed international countries (MSCI World Ex US Index) gained 9.8%, and emerging markets (MSCI EM Index) returned 7.9%
- The market advance in Q4 was broad based, with energy being the sole area of weakness
- Value lagged Growth in (U.S. and Non-U.S.) developed markets but outperformed Growth in emerging markets
- Globally, small caps led in the fourth quarter, but U.S. large cap growth stocks (Mag 7) still dominated calendar year 2023

	Market Value	Current Allocation	3 Months	1 Year	3 Years	5 Years	10 Years
Public Equity	$1.1B	49.8%	10.7%	21.2%	8.0%	12.5%	8.3%
MSCI ACWI IMI (Net)			11.1%	21.6%	5.5%	11.5%	7.8%
Excess Return			**-0.5%**	**-0.4%**	**2.6%**	**1.0%**	**0.5%**

Performance – Fixed Income

- For the quarter ended December 31, 2023, the Fixed Income portfolio outperformed its benchmark
- The Fixed Income portfolio is currently comprised of 2 Core bond managers at roughly equal weight
- Interest rate positioning contributed to performance for the quarter; in particular, the portfolio's long duration positioning was a positive contributor, as yields fell considerably across the curve
- With inflation moderating, the Federal Open Market Committee (FOMC) kept the fed funds rate range at 5.25% to 5.50% during its November and December meetings and indicated it might not need to raise rates further. Currently, markets are pricing in 1.00% to 1.25% of rate cuts in 2024
- Credit spreads tightened due to expectations of a more accommodative Fed policy and generally healthy credit fundamentals. During the quarter, BBB spreads tightened from 165 to 134 basis points
- The Bloomberg Global Aggregate Bond Index had its strongest quarterly performance in several decades

	Market Value	Current Allocation	3 Months	1 Year	3 Years	5 Years	10 Years
Fixed Income	$572.8M	25.4%	7.5%	7.1%	-3.3%	1.7%	2.3%
BBG US Aggregate			6.8%	5.5%	-3.3%	1.1%	1.8%
Excess Return			**0.6%**	**1.6%**	**0.0%**	**0.6%**	**0.5%**

Please see endnotes for source information.

Performance – Private Equity

- For the quarter ended December 31, 2023, the Private Equity (PE) portfolio outperformed its benchmark by 3.2%, and is underperforming over longer, trailing time periods
- Six of the 24 funds in the portfolio did not call capital over the previous 12-month period
- As we scale into the new pacing plan in a period of low activity the j-curve effect is deeper and more pronounced
- GPs have struggled to sell assets at a rate reminiscent of ’21, but there has been growing activity on the buy-side albeit still sparse
- General Partners (GPs) fund raising efforts have become more strenuous over recent years and fund closing timeframes have lengthened, accordingly
- IPO markets, which seemed poised to re-open with a bit more emphasis in the later part of ’23, have appeared to retrench with total IPOs just at or near ’22 levels

	Market Value	Current Allocation	3 Months	1 Year	3 Years	5 Years	10 Years
Private Equity	$168.4M	7.5%	0.7%	0.7%	11.3%	11.3%	12.3%
Russell 3000 +300bps (Qtr Lag)			-2.5%	24.0%	12.6%	12.4%	14.6%
Excess Return			**3.2%**	**-23.3%**	**-1.4%**	**-1.1%**	**-2.3%**

Performance – Real Estate

- For the quarter ended December 31, 2023, the Real Estate portfolio slightly outperformed its benchmark, and is also outperforming over longer, trailing time periods
- The Real Estate portfolio is currently comprised of 6 managers – anchored by 3 managers in the Core/Core-plus space, with another 3 in the Non-Core space, where substantial committed capital is yet to be called due to the slow transaction environment
- In the Core portfolio, both funds posted positive income returns (~1.0%) that were offset by negative appreciation. The funds maintain high allocations to residential and industrial sectors where vacancy rates remain below long-term averages and fundamentals show signs of stabilization. Cumulative quarterly distributions for both funds totaled $1.4 million, consistent with prior quarters
- Walton Street Core-Plus provided a total quarterly return of -6.6% with further increases in capitalization and discount rates have continued to drive depreciation. The fund made a distribution of $194K for the quarter
- Non-core managers remain early in their respective investment periods, having collectively called less than 30% of committed capital. As such, the managers are not expected to report meaningful results until the bulk of committed capital is substantially deployed

	Market Value	Current Allocation	3 Months	1 Year	3 Years	5 Years	10 Years
Real Estate	$201.4M	8.9%	-2.0%	-11.0%	7.3%	6.0%	N/A
NCREIF ODCE (Custom) (Adj.)			-2.1%	-12.9%	6.2%	4.7%	N/A
Excess Return			**0.1%**	**1.9%**	**1.1%**	**1.3%**	**N/A**

Performance – Real Assets

- For the quarter ended December 31, 2023, the Real Assets portfolio slightly outperforming its benchmark
- The Real Assets portfolio is currently comprised of 5 Infrastructure managers and 3 Natural Resources managers
- The Real Assets portfolio is still early in its lifecycle (initial funding in 2018), with approved managers still calling capital, resulting in an underweight to its long-term target allocation (currently 2.1% vs. 5.0% target)
- Additional managers/funds are expected to be approved and funded over the coming year

	Market Value	Current Allocation	3 Months	1 Year	3 Years	5 Years	10 Years
Real Assets	$48.1M	2.1%	1.8%	10.3%	13.5%	N/A	N/A
CPI +4%			0.6%	7.3%	9.8%	N/A	N/A
Excess Return			**1.2%**	**2.9%**	**3.7%**	**N/A**	**N/A**

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Please see endnotes for source information.

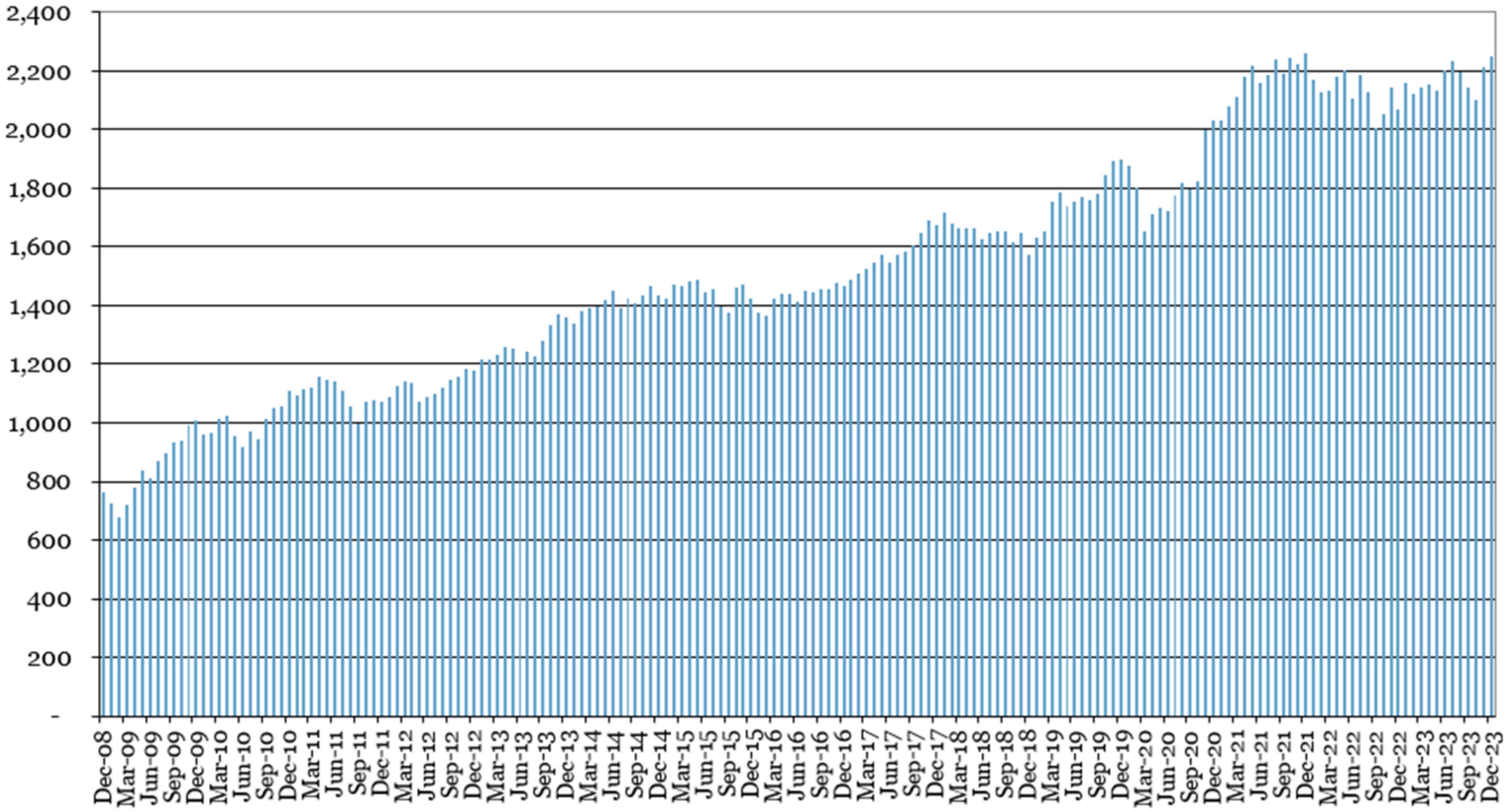
Performance – Diversifying Strategies

- For the quarter ended December 31, 2023, the Diversifying Strategies portfolio outperformed its benchmark, while generating mixed results over longer time periods
- The Diversifying Strategies portfolio is still relatively early in its lifecycle (initial funding in 2018) and is nearing its long-term target allocation of 5.0% (3.7% as of quarter end)
- Medium-term (3 and 5 year) performance can almost entirely be attributed to pronounced long/short Value style factor exposures; all legacy managers have been liquidated and the portfolio was restructured during Q4 2022
- The Diversifying Strategies portfolio now consists of 10 managers, with one potential addition to come (pending capacity)
- Macro-driven managers drove performance during the quarter, stemming from stock selection in the Value factor and shorting US bonds, as yields continued to rise

	Market Value	Current Allocation	3 Months	1 Year	3 Years	5 Years	10 Years
Diversifying Strategies	$83.1M	3.7%	1.2%	4.0%	7.2%	-0.5%	N/A
HFRI FOF- Conservative Index			1.1%	4.6%	4.1%	5.0%	N/A
Excess Return			**0.1%**	**-0.6%**	**3.1%**	**-5.5%**	**N/A**

Appendix:
Total Fund Net Asset Value (NAV)

Total Fund NAV ($ Millions)



Oregon State Treasury Team

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Michael Langdon
Director of Private Markets
Tenure: 2015

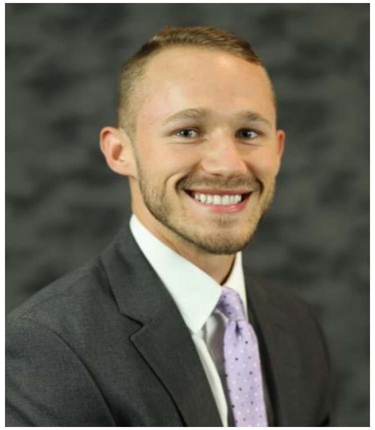
As the Director of Private Markets, Mike manages teams with oversight of OPERF's private equity, real estate, real asset and opportunities portfolios with current net asset value of nearly $50 billion. Mike also Co-Leads the Oregon Common School Fund.
- Oversee $5-7 billion per annum of commitment pacing
- Chair OST's internal investment committee for private market portfolio
- Day to day portfolio manager for OPERF's ~$24 billion private equity portfolio
- Manage select, strategic external manager relationships

Education: BS Clemson University, CFA Charterholder

Wil Hiles
Investment Officer
Tenure: 2016

As Investment Officer, Wil supports the Public Equity team's day-to-day activities surrounding OPERF. Wil also Co-Leads the Oregon Common School Fund and assists in overseeing the Oregon Savings Growth Plan.
- Monitors and evaluates current and prospective investment managers
- Evaluates portfolio structure and makes recommendations to improve risk-adjusted returns
- Coordinates new account fundings, terminations, portfolio transitions, and cash raise activity
- Serves as internal equity portfolio manager and trader
- Conducts market research and analysis

Education: BA in Finance from Linfield College; Master of Science in Finance (MSF) from Pacific University



Louise Howard
Director of Capital Markets
Tenure: 2022

As the Director of Capital Markets, Louise oversees multiple asset class teams and their respective OPERF portfolios, including Public Equity, Fixed Income, and Diversifying Strategies. She also Co-leads the Common School Fund, SAIF and Oregon Savings Growth Plan.
- Chairs Capital Markets Leadership Committee
- Leads monitoring and evaluation efforts for external investment managers
- Evaluates portfolio structure and makes recommendations to improve risk-adjusted returns
- Responsible for managing and coordinating the liquidity needs of OPERF
- Participates in private market Committee Meetings (Real Estate, Private Equity, Alternative, and Opportunistic)
- Leads the oversight of Public Equity programs, including internal and external investment strategies

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

Jamie McCreary
Service Model Program Manager
Tenure: 2023

As the Service Model Program manager, Jamie is responsible for creating and/or maintaining centralized services model standards and manages all aspects of client account relationships with various state managed programs.
- Ongoing monitoring and oversight of state managed programs and investment portfolios
- Supports the application of industry and fiduciary best practice standards across all areas of the Investment Program
- Investment Policy Statement Review

Education: BS Southern Oregon University, CERTIFIED FINANCIAL PLANNER™ professional

Endnotes

- Market value and performance source: State Street, as of December 31, 2023. Performance shown is net of investment management fees and annualized for periods longer than one year. Alternative data is typically lagged 1-3 months.
- Policy Benchmark:
  - From February 1, 2012 to June 30, 2016, policy benchmark was 30% Russell 3000, 30% MSCI ACWI ex US Net, 30% BC Universal Index, and 10% Russell 3000+300 bps QTR lag. From July 1, 2016 to December 31, 2017, policy benchmark was 30% Russell 3000, 30% MSCI ACWI ex US Net, 30% BC US Aggregate, and 10% Russell 3000+300 bps QTR lag. From January 1, 2018 to December 31, 2022 policy benchmark was dynamically weighted and uses each asset class' value relative to the total market value as its percentage of the total policy benchmark.
  - From January 1, 2023 to present, policy benchmark is 47.5% MSCI ACWI IMI Net (Daily), 12.5% Russell 3000+300 bps quarter lag, 22.5% BBG US Agg, 10% NCREIF ODCE (Custom) (Adj.), 2.5% CPI +4%, and 5% HFRI FOF: Conservative Index.
- Fixed Income Policy Index, as represented by the BBG US Aggregate:
  - Prior to November 1, 2005, index is BC Aggregate. From November 1,2015 to June 30,2016 the benchmark was BC Universal Index.
  - From July 1, 2016 to present the benchmark is BBG Aggregate
- Real Estate Policy Index , as represented by the NCREIF ODCE (Custom) (Adj.):
  - From January 1, 1990 to March 31, 2016, the NCREIF ODCE (Custom) was weighted 100% NCREIF Property Index QTR Lag. From April 1, 2016 to present, the benchmark is weighted 100% - NFI-ODCE QTR LAG Net of Fees. Starting July 1, 2017, methodology for monthly return is calculated by geometrically linking prior months returns and then deriving the monthly returns by calculating the geometric average. Returns are not actual monthly, but rather equivalent for all intra-quarter months, in order to match the actual quarterly return.
- Private Equity Policy Index, as represented by the Russell 3000 +300bps (Qtr Lag):
  - Prior to May 1, 2005, index is R3000+500 bps, Qtr Lag. Until June 30, 2017 the index is R3000+300 bps, Qtr Lag. From July 1, 2017, the monthly return is calculated as the geometrically linked monthly portion of the quarterly return. Returns are not actual monthly, but rather equivalent for all intra-quarter months, in order to match the actual quarterly return.
- Any information provided herein has been prepared from sources believed to be reliable but is not guaranteed and is for informational purposes only. The information provided herein should not be regarded as an offer to sell or as a solicitation of an offer to buy the products mentioned. No representation is made that any returns will be achieved. Past performance is not indicative of future results. Opinions expressed herein are subject to change without notice.

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Oregon State Treasurer

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OREGON STATE TREASURY

Tobias Read
Oregon State Treasurer

Michael Kaplan
Deputy State Treasurer

To: The Oregon Investment Council

From: Jen Plett, Investment Officer, Portfolio Risk & Research

Re: Fourth Quarter 2023 Risk Report for the Common School Fund (CSF)

Executive Summary

This memo summarizes CSF's predicted volatility, as estimated by Aladdin, Treasury's end-to-end investment analytics platform built by BlackRock. As of December 31, 2023, Aladdin estimated a return volatility of 12.8% for CSF, in-line with staff's expectation. Therefore, staff recommends no additional action at this point.

CSF Asset Allocation

Investment Belief #2 in INV 1201: Statement of OIC Investment and Management Beliefs states: "*Asset Allocation Drives Risk and Return*". CSF's current Strategic Asset Allocation (SAA) was approved at the OIC meeting on July 20, 2022.

Applying AON's 10-Year Capital Market Assumptions to CSF's current target allocations produces an estimated return volatility of 12.5%. A "Reference Portfolio" can be constructed with 70% in the MSCI ACWI IMI and 30% in the Bloomberg U.S. Aggregate Bond Index that would reach a similar level of estimated volatility. Prior to current allocations, CSF's Reference Portfolio was approximated to be a 65/35 split between public equity and fixed income indices.

Shown in the table below are CSF'S target allocations as of 12/31/2023.

Table 1. CSF Target Asset Allocation as of 12/31/2023

Asset Class	Target Allocation (%)	Interim Target (%)	Rebalancing Range (%)
Global Equity	45	47.5	40 - 50
Private Equity	15	12.5	10 - 20
Fixed Income	20	22.5	15 - 25
Real Estate	10	10.0	5 - 15
Real Assets	5	2.5	0 - 10
Diversifying Strategies	5	5.0	0 - 10
Cash	0	0	0 - 3
Total Fund	**100**	**100.0**	

Figure 1 below shows CSF's actual allocation as of 12/31/2023.

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Salem, OR 97301
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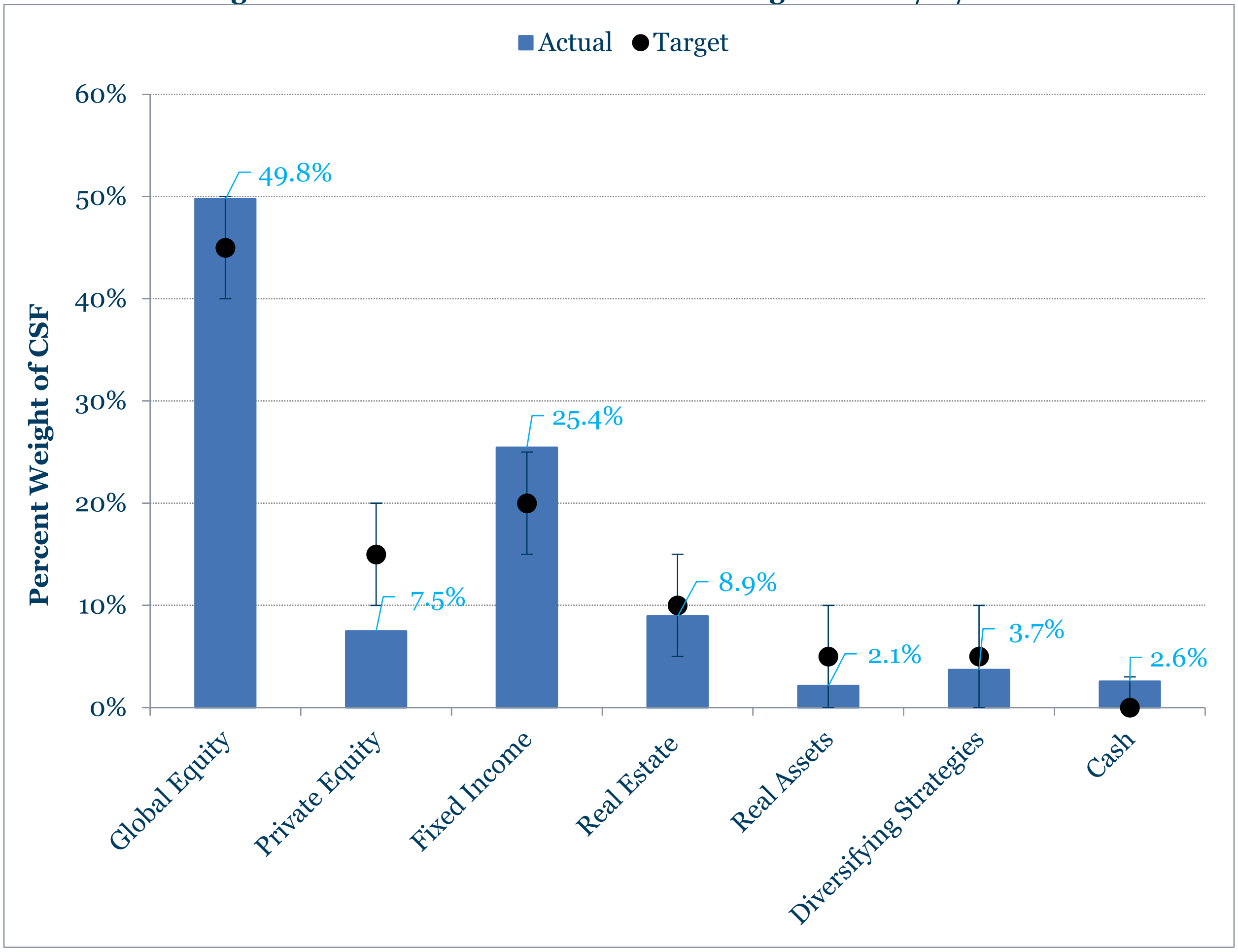
Figure 1. CSF Actual Allocation versus Target as of 12/31/2023

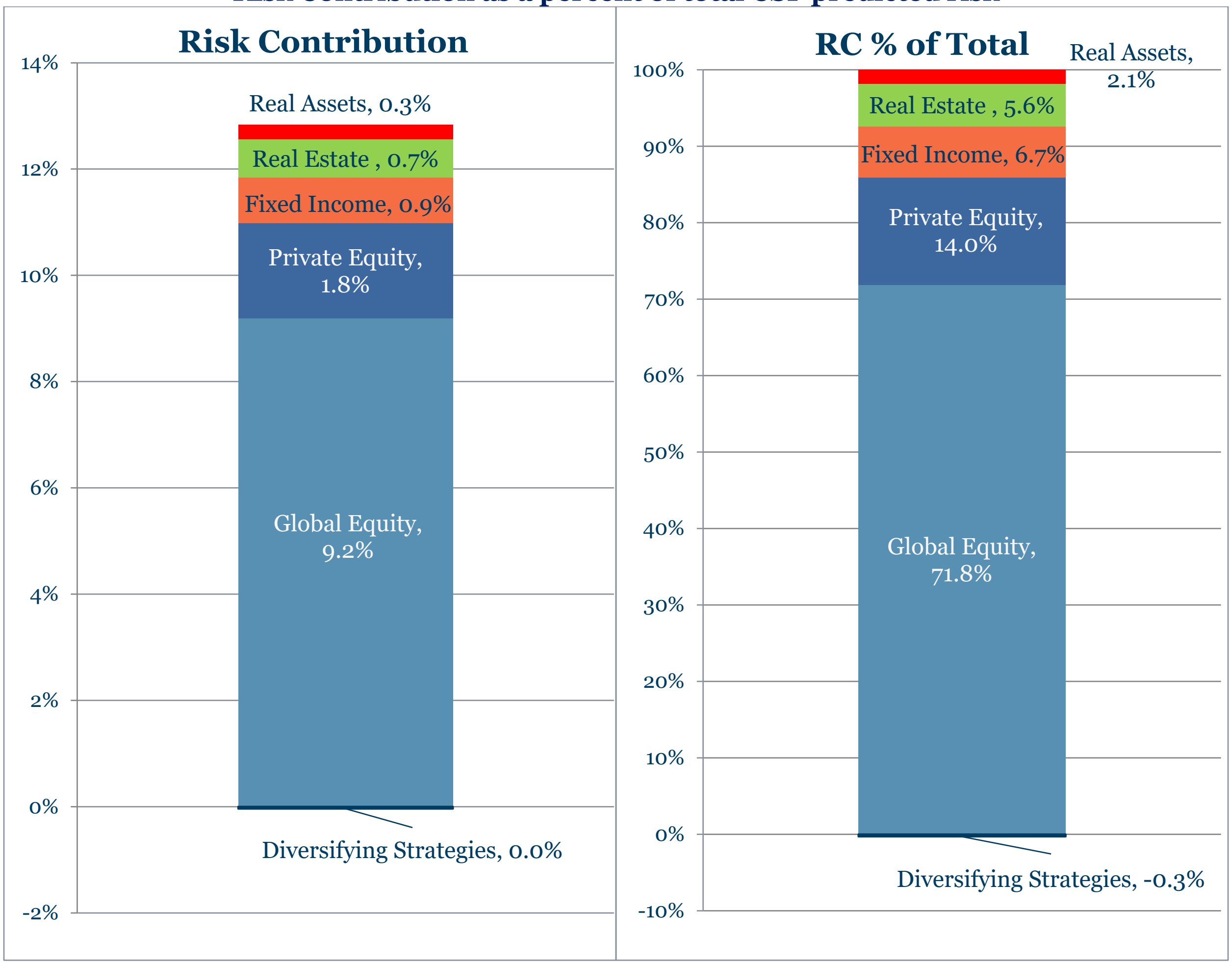


As of December 31, 2023, actual CSF asset allocations were within the policy tolerances relative to the established targets, except for Fixed Income and Private Equity.

CSF Predicted Risk

The risk estimates are shown in the charts below.

Figure 2. CSF Risk Contribution by Asset Class and
Risk Contribution as a percent of total CSF predicted risk



The total predicted **standard deviation**, or **volatility**, for CSF is 12.8% as of December 31, 2023. Aladdin's risk model uses a medium-term, five-year lookback.

Another item of note from Figure 2 is that "equity" risk, that is the predicted risk contributions from Global Equity and Private Equity, is estimated to be 86% of CSF's predicted risk. Equity risk has always been the largest risk contributor to CSF. OIC Investment Belief #3 summarizes the Council's objective for investing in equity: "*Over the long-term, equity-oriented investments provide reliable return premiums relative to risk-free investments*." However, equity investments are much more volatile than investment grade fixed income and U.S. Treasuries.

Over time the OIC-approved asset allocation changes have reduced CSF's volatility. Figure 3 below plots CSF's rolling 20-quarter realized beta to MSCI ACWI IMI as well as that of the Reference Portfolio of 70% MSCI ACWI IMI and 30% Bloomberg U.S. Aggregate Bond Index. CSF's realized beta was elevated during the Great Financial Crisis from 2007 to 2009 before steadily trending down. Part of that decline is due to an increasing allocation to illiquid investments, which have smoothed performances, but the other cause is the improved diversification.

Figure 3. CSF's Beta to MSCI ACWI IMI

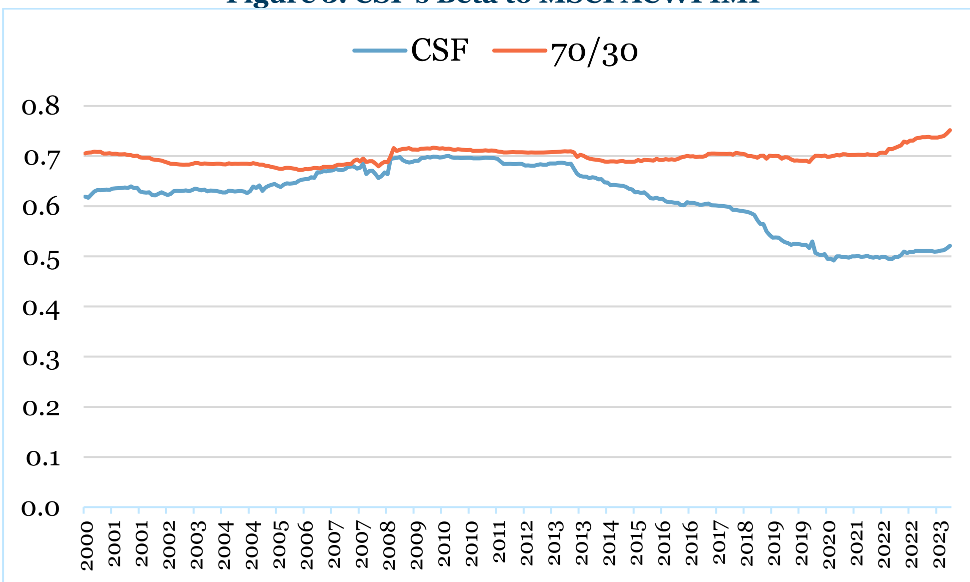
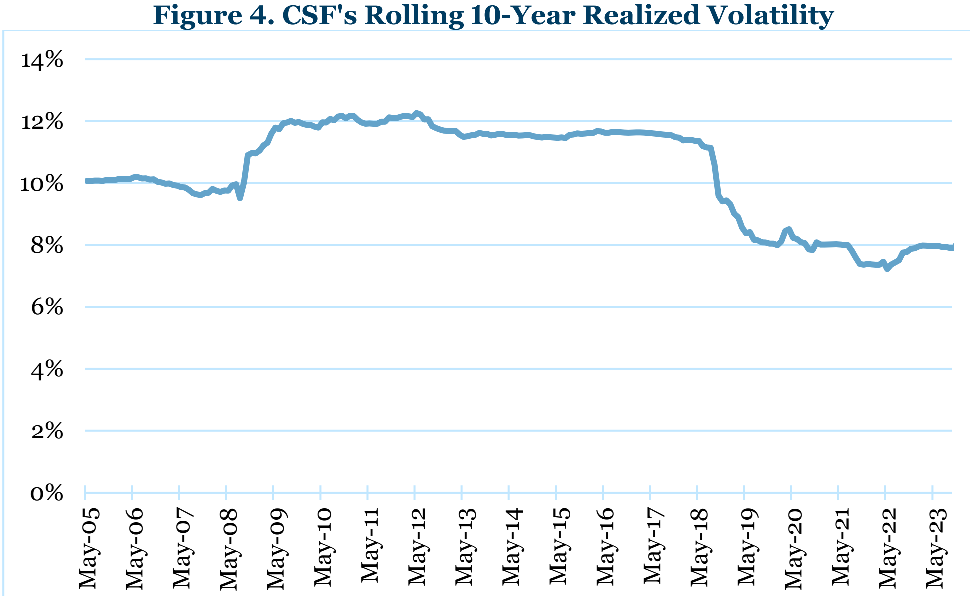


Figure 4. CSF's Rolling 10-Year Realized Volatility



TAB 8

OREGON SHORT TERM FUND

UPDATE AND POLICY

March 6, 2024

Oregon Short Term Fund

Policy Update to Short Term Investments Portfolio Rules

Louise Howard, CFA, CAIA - Director of Capital Markets

Will Hampson, CFA - Fixed Income Investment Officer

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Agenda

1. Overview of the Oregon Short Term Fund
2. Governance: Statutes and OIC Policy
3. Repurchase Agreements
4. Credit Quality Score
5. Staff Recommendation

Oregon Short Term Fund

Objective – The investment objectives of the Oregon Short Term Fund ("OSTF") are, in priority order, preservation of principal, liquidity and yield

Strategy – Staff invests OSTF capital consistent with the fund's investment objectives by creating a diversified portfolio of a broad range of fixed income investments. All securities are denominated in U.S. dollars.

Benchmark – 3-Month U.S. T-Bill Index

Primary Investors – OPERF, Oregon Local Govt's (appx 1,000+), Common School Fund, SAIF, DAS, DCBS, Veterans' Affairs, ODOT

Fund Characteristics as of 12/31/2023	
Net Asset Value	$36,629,023,802
Fund NAV/OSTF Balance	$1.0072
Weighted Average Credit Quality	AA/Aa2/AA
Book Yield	5.04%
Rate Paid (effective 10/16/2023)	5.00%
Duration (years)	0.31
Spread Duration (years)	0.58
Weighted Average Maturity	127 days

	QTD	1 Year	3 Years	5 Years	7 Years	Inception
OSTF	1.63%	5.46%	1.98%	2.16%	2.03%	3.20%
3-Month U.S. T-Bill Index	1.37%	5.02%	2.15%	1.88%	1.73%	2.81%
Excess Return	***0.26%***	***0.44%***	***-0.17%***	***0.28%***	***0.30%***	***0.39%***

Source: Bloomberg, State Street, and Aladdin. All data as of December 31, 2023, unless otherwise noted.

Governance: Statutes and OIC Policy

ORS 293.728: Established the Oregon Short Term Fund

ORS 294.885: Created the Oregon Short Term Fund Board

ORS 294.895: Duties of the Oregon Short Term Fund Board

INV 301: Staff to the Oregon Short Term Fund Board (OSTFB)

- Consisting of seven members
- Advise the Oregon Investment Council and the investment officer in the management of the investment pool and in the investment of moneys deposited in the Oregon Short Term Fund
- Review the rules promulgated by the investment officer
- Consult with the council and the investment officer on any matter relating to the investment and reinvestment of funds in the investment pool and on any matter relating to the investment or reinvestment of moneys deposited in the Oregon Short Term Fund and invested by the State Treasurer

Governance: OIC Policy

INV 303: Short Term Investments: Portfolio Rules

The primary objectives of investment activities, in priority order, shall be preservation of principal, liquidity, and yield.

- **Preservation of Principal**: Capital preservation is the OSTF's foremost objective, and all OSTF investments shall be made in a manner consistent therewith. Credit and interest rate risks will be carefully managed and mitigated
- **Liquidity**: The OSTF shall remain sufficiently liquid to meet all state, agency and local government operating requirements as may be reasonably anticipated. The OSTF should consist largely of securities with active secondary or resale markets
- **Yield**: The OSTF shall be designed with the objective of attaining a market rate of return throughout budgetary and economic cycles, taking into account the aforementioned investment risk constraints and liquidity needs

Repurchase Agreements

- Repurchase Agreements (Repo) are a form of secured lending in money markets that compete with unsecured lending products like Commercial Paper (CP)
- The Fed estimates the market size of Repo approximately $6T
- Repo is what underlies SOFR (Secured Overnight Financing Rate) the risk-free rate created by the Fed to replace LIBOR (London Interbank Offered Rate)
- SEC regulated money market funds typically invest approximately 20%-80% of assets in Repo

Source: Bloomberg, Fed Z1, SIFMA, SEC, Fidelity, Bloomberg, BofA.

OSTF Interest in Repo

Risk Reduction

- Secured lending is always safer than unsecured lending <u>all else equal</u>

Flexibility

- Repo and CP dominate **<u>daily</u>** volumes in money markets for overnight t+0 trades
- T-Bills don't mature daily, almost always mature on Tuesdays and Thursdays only
- CP Market can dry up at certain times of year leaving OSTF with fewer options for safe overnight cash settled investments

Implementation

- INV 303, Section IV. Diversification and Portfolio Limitations, bullet A which details OSTF eligible securities seeks to remove language ambiguity for Repo.

OSTF Credit Quality Score

- INV 303, Section IV. Diversification and Portfolio Limitations, bullet F establishes a credit quality scoring methodology for the OSTF with a provision that the target weighted average credit quality shall be AA (or >26.50)
- Investment and Compliance staff agreed that the US Treasury and Agency portion of the table could be made clearer through the insertion of a footnote stating:
    - "US Treasury & Agency securities shall have a numeric value of 29 for the purpose of calculating the weighted average portfolio credit score"

Staff Recommendation

Update INV 303: Short Term Investments: Portfolio Rules

Staff seek changes intended to remove terminology ambiguity associated with:

1. Buying Repurchase Agreements as cash investments in the Oregon Short Term Fund
2. Memorializing the US Treasury and Agency security credit score as equal to 29 (AAA equivalent) for the purpose of calculating the OSTF weighted average credit score

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Oregon Short Term Fund
INV 303: Short Term Investments: Portfolio Rules
Staff Recommendation for Policy Revisions

Purpose

OST Fixed Income Staff is seeking to make changes to *INV 303: Short Term Investments: Portfolio Rules*. The Oregon Short Term Fund Board reviewed the proposed changes at the January 2024 meeting and has supported their advancement for OIC approval without further comment.

The changes to IV. Diversification and Portfolio Limitations and V. Reinvestment of Securities Lending Cash are twofold. The first change is intended to remove terminology ambiguity associated with buying Repurchase Agreements as cash investments in the Oregon Short Term Fund (OSTF).

The second change is intended to make more explicit that the US Treasury and Agency Security credit score equals '29' (AAA equivalent) for the purpose of calculating the portfolio weighted average credit score. The clarification of the US Treasury and Agency Security credit score is necessary following changes in the US Sovereign rating by a nationally recognized statistical rating organization.

Staff Recommendation

Staff recommends revisions to INV 303: Short Term Investments: Portfolio Rules as summarized above and provided in the accompanying documents.

INTRODUCTION & OVERVIEW

Summary Policy Statement

The Oregon Investment Council has, with advice from the State Treasurer, from OST investment staff, and from the Oregon Short Term Fund Board, adopted specific rules for investing the Oregon Short Term Fund.

Applicability

Classified represented, management service, unclassified executive service

Authority

ORS Chapter 293

POLICY PROVISIONS - Portfolio Rules for the Oregon Short Term Fund

I. **Scope**
These rules apply to the investment of cash from all state and eligible local government participants in the Oregon Short Term Fund (OSTF). These rules are established under the authority of, and shall not supersede the requirements established under, ORS Chapter 293.

II. **Investment Objectives**
The primary objectives of investment activities, in priority order, shall be preservation of principal, liquidity, and yield.
   A. **Preservation of Principal**: Capital preservation is the OSTF's foremost objective, and all OSTF investments shall be made in a manner consistent therewith. Credit and interest rate risks will be carefully managed and mitigated (see specific guidelines below).
   B. **Liquidity**: The OSTF shall remain sufficiently liquid to meet all state, agency and local government operating requirements as may be reasonably anticipated. The OSTF should consist largely of securities with active secondary or resale markets.
   C. **Yield:** The OSTF shall be designed with the objective of attaining a market rate of return throughout budgetary and economic cycles, taking into account the aforementioned investment risk constraints and liquidity needs.

III. **Maturity Distribution of Portfolio**
   A. 50% of the OSTF must mature within 93 days.
   B. A maximum of 25% of the OSTF may mature over one year.
   C. No investment may mature later than 3 years from its settlement date.
   D. For purposes of this policy, maturity date will be calculated by using the following proxies, and if a security contains more than one of the following attributes, the shortest attribute will be used as the maturity date proxy:
      1. For securities that have been called by the issuer, the effective call date will be used as the maturity date proxy;
      2. For securities with a put option, the date upon which the put option is fully exercisable for a value of at least 100% of the investment's par or face amount will be used as the maturity date proxy;
      3. For variable rate securities, the period remaining to the next reset date will be used as the maturity date proxy; and
      4. For asset-backed securities, the weighted average life (WAL) will be used as the maturity date proxy.

5.

IV. Diversification and Portfolio Limitations

A. Eligible Securities:

Issue Type	**Maximum Holdings % or $**	**Minimum Ratings S&P/Moody's/Fitch**
U.S. Treasury Obligations (1.)	100%	None
U.S. Agency Securities (1.) Per Issuer	100% 33%	None None
Foreign Government & Instrumentalities (1.) Per Issuer	25% 10%	AA-/Aa3/AA-
Corporate Securities (Total) Corporate Bonds Commercial Paper (2.) Per Issuer	50% 50% 50% 5%	A-/A3/A- A-1/P-1/F-1
Asset-Backed Securities Per Issuing Trust	25% 5%	AAA/Aaa/AAA A-1+/P-1/F-1+
Negotiable Certificates of Deposit Per Issuer	20% 5%	A-1/P-1/F-1
Bankers' Acceptances Per Issuer	20% 5%	A-1/P-1/F-1
Time Certificates of Deposit (3.) Per Issuer	20% 5%	None
Municipal Debt (Total) Municipal Commercial Paper Short Term Municipal Obligations Per Issuer	25% 25% 25% 10%	AA-/Aa3/AA- A-1/P-1/F-1 SP-1/(V)MIG1/F-1
Repurchase Agreements (4.) Per Counterparty	100% 5%	None
~~Reverse Repurchase Agreements (5.)~~ ~~Per Counterparty~~	~~100%~~ ~~5%~~	~~None~~
Oregon Local Government Intermediate Fund ("OLGIF")	$250 Million	A-/A3/A-

1. Securities guaranteed by the U.S. Treasury, a U.S. Agency or a Foreign Government or its Instrumentality will be considered a U.S. Treasury, a U.S. Agency or a Foreign Government or its Instrumentality for the purposes of this policy.
2. Commercial Paper (CP) must have top-tier short term ratings by at least two of the nationally recognized statistical rating organizations (NRSROs) at the time of purchase.
3. Permitted Time Certificates of Deposit (TCDs) will be limited to qualified depositories as defined

in ORS Chapter 295. Maximum TCD exposure per depository must be no more than 5% of the issuing bank's total deposits, or $250,000, whichever is greater. Maximum credit union exposure per depository shall be $250,000.

4. Repurchase Agreements must meet the following criteria:
    1. Maximum maturity will be 93 days;
    2. Counterparties must be a Primary Dealer as recognized by the Federal Reserve Bank of New York;
    3. Counterparties must have a fully executed Master Repurchase Agreement with the Office of the State Treasurer ("Master Repurchase Agreement");
    4. Collateral must be delivered on a tri-party basis to a mutually agreed upon third party custodian; and
    5. Collateral securing Repurchase Agreements must be maintained at not less than 102% of the amount of the Repurchase Agreement.
    6. ~~5.~~ Represent an investment in the form of lending cash against securities collateral equivalently represented in this case by a purchase of securities (collateral) coupled with an agreement to sell the securities (collateral) at a specified price on a later date.

~~5. Reverse Repurchase Agreements must meet the following criteria:~~
  ~~1. Maximum maturity will be 93 days;~~
  ~~2. Counterparties must be a Primary Dealer as recognized by the Federal Reserve Bank of New York;~~
  ~~3. Counterparties must have a signed Master Repurchase Agreement;~~
  ~~4. Acceptable reinvestment vehicles include securities that may otherwise be purchased outright;~~
  ~~5. Securities will be reversed on a fully collateralized basis; and~~
  ~~6. Reverse repurchase investments for interest rate arbitrage shall only be done on a matched book basis.~~

B. All OSTF investments must be denominated in U.S. dollar.

C. Total foreign exposure (government and corporate indebtedness) limited to 25% of OSTF.

D. Any one individual issuer of securities or support commitments limited to 10% of OSTF with the exception of the U.S. Treasury (100% maximum) and U.S. government agency securities (33% per issuer).

E. Securities that have been downgraded below the minimum ratings will be sold or held at the Fixed Income Senior Investment Officer's (SIO) or SIO designee's discretion.

F. A single rating will be determined for each investment based on the following methodology:

i. When three nationally recognized statistical rating organizations (NRSROs) rate an issue, a median rating is used to determine eligibility by dropping the highest and/or lowest rating;
ii. When a rating from only two NRSROs is available, the lower ("most conservative") of the two ratings will be used; and
iii. When a rating from only one NRSRO is available, that rating will be used. To determine average rating for each security, a numeric value will be assigned to each NRSRO rating based on the following scheme:

Value	S&P Rating	Moody's Rating	Fitch Rating
29	U.S. Treasury & Agency/ AAA/A-1+(1)	U.S. Treasury & Agency/ Aaa/P-1(1)	U.S. Treasury & Agency/ AAA/F-1+(1)
28	AA+	Aa1	AA+
27	AA/A-1+/SP-1+	Aa2	AA/F-1+
26	AA-	Aa3/P-1/ MIG1/VMIG1	AA-
25	A+	A1	A+
24	A/A-1/SP-1	A2	A/F-1
23	A-	A3	A-
22	BBB+/A-2/SP-2	Baa1/P-2/ MIG2/VMIG2	BBB+/F-2
21	BBB	Baa2	BBB
20	BBB-/A-3/SP-3	Baa3/P-3/ MIG3/VMIG3	BBB-/F-3

1. US Treasury & Agency securities shall have a numeric value of 29 for the purpose of calculating the weighted average portfolio credit score.

~~1.~~2. Limited to Asset-Backed Securities rated A-1+, P-1 and F-1+ by Standard & Poor's, Moody's and Fitch respectively.

G. The target weighted average credit quality of the OSTF shall be AA (or > 26.50), excluding repurchase agreements.

H. For newly issued securities, and absent assigned ratings, "expected ratings" may be used as a proxy for actual ratings for not more than 30 business days after the anticipated settlement date.

I. No commitments to buy or sell securities may be made more than 14 business days prior to the anticipated settlement date, or receive a fee other than interest for future deliveries.

J. For purposes of compliance, eligible funds will be treated as a single investment and exempt from maturity or exposure restrictions except for maximum exposure and minimum ratings.

V. Reinvestment of Securities Lending Cash Collateral

A. Acceptable reinvestment vehicles include securities that may otherwise be purchased outright in accordance with the diversification and portfolio limitations described above in Section IV. Within the securities lending program only, cash collateral may also be reinvested in:

1. Repurchase agreements collateralized by U.S. Treasury or U.S. Government Agency securities with a maximum original maturity of 30 years. No more than 25% of assets shall be placed with the same counterparty. Repurchase agreements may also be placed with the Federal Reserve Bank's Repo facility.

B. Net capital of lending counterparties must be over $100 million.

C. Securities will only be loaned on a fully collateralized basis.
D. Lending counterparties must be a Primary Dealer as recognized by the Federal Reserve Bank, and have a signed master securities lending agreement.

E. The market value of the delivered collateral must be maintained at not less than 102% of the market value of the securities loaned.

~~F. Notwithstanding Section IV.A.5 hereof, Reverse Repurchase Agreements are prohibited within the securities lending program.~~

PROCEDURES

I. Standards of Care

A. **Prudence**: Investment officers shall use the "prudent investor" standard to guide their OSTF management efforts. Pursuant to ORS 293.726:
   1. The investment funds shall be invested and the investments of those funds managed as a prudent investor would do, under the circumstances then prevailing and in light of the purposes, terms, distribution requirements and laws governing each investment fund; and
   2. The standard in subsection (1) of this section requires the exercise of reasonable care, skill and caution, and is to be applied to investments not in isolation but in the context of the investment portfolio and as a part of an overall investment strategy, which should incorporate risk and return objectives reasonably suitable to the particular investment fund.

B. **Ethics and Conflicts of Interest**: Officer involved in the investment process shall refrain from personal business activity that could conflict with the proper execution and management of the investment program or that could impair their ability to make impartial decisions. Officers and employees shall, at all times, comply with the State of Oregon Government Standards and Practices code of ethics set forth in ORS Chapter 244, as well as all policies of the OST.

C. **Delegation of Authority**: The Senior Investment Officer and Investment Officer(s) (or the Investment Analyst acting under the direction of the Investment Officers) of the Fixed Income team shall act in accordance with established written procedures and internal controls for the operation of the investment program consistent with these Portfolio Rules. No person may engage in an investment transaction except as provided under the terms of these Portfolio Rules and the procedures established by OST staff. The Senior Investment Officer and Investment Officer(s) are jointly responsible for all transactions undertaken, and shall establish a reasonable system of controls to regulate the activities of subordinate employees.

II. Compliance

A. **Compliance Monitoring:** OST shall provide an investment compliance program to accomplish the following objectives: a) monitor and evaluate portfolios, asset classes, and other investment funds to determine compliance with OST policies and contractual obligations; b) identify instances of non-compliance and develop appropriate resolution strategies; c) provide relevant compliance information and reports to OST management and the Oregon Investment Council, as appropriate; and d) verify resolution by the appropriate individual or manager within the appropriate time frame.

B. **Correction of Non-compliance:** If the OSTF is found to be out of compliance with one or more adopted investment guidelines or is being managed inconsistently with its policy and objectives, investment staff shall bring the OSTF portfolio into compliance as soon as is prudently feasible. Actions to bring the portfolio back into compliance and justification for such actions, including documentation of proposed and actual resolution strategies shall be coordinated with the OST investment compliance program.

III. Safekeeping and Custody

A. **Authorized Financial Dealers and Institutions:** All financial institutions and broker/dealers who desire to become qualified for investment transactions must supply, as appropriate:
   1. Audited financial statements,
   2. Licensing Representation form provided to OST, and
   3. Understanding and acknowledgment of OSTF Portfolio Rules.

B. **Internal Controls:** The Senior Investment Officer and Investment Officer(s) jointly collaborate to establish and maintain an adequate internal control structure designed to reasonably protect the assets of the OSTF from loss, theft or misuse.

C. **Delivery vs. Payment**: All trades where applicable will be executed by delivery vs. payment (DVP) to ensure that securities are deposited in an eligible financial institution prior to the release of funds.

D. **Safekeeping:** Securities will be held by a third-party custodian as evidenced by safekeeping receipts.

Exceptions

None.

Failure to Comply

Failure to comply with this policy may be cause for disciplinary action up to and including dismissal.

PROCEDURES AND FORMS

1. Upon approval of changes to this policy, the policy owner shall contact the Banking Operations Manager to update the Oregon Short Term Fund Finance and Investment pages on the external OST website.

ADMINISTRATION

Feedback

Your comments are extremely important to improving the effectiveness of this policy. If you would like to comment on the provisions of this policy, you may do so by e-mailing the Policy Owner. To ensure your comments are received without delay, *please list the policy number and name in your e-mail's subject*. Your comments will be reviewed during the policy revisions process and may result in changes to the policy.

INTRODUCTION & OVERVIEW

Summary Policy Statement

The Oregon Investment Council has, with advice from the State Treasurer, from OST investment staff, and from the Oregon Short Term Fund Board, adopted specific rules for investing the Oregon Short Term Fund.

Applicability

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II. **Investment Objectives**
The primary objectives of investment activities, in priority order, shall be preservation of principal, liquidity, and yield.

   A. **Preservation of Principal**: Capital preservation is the OSTF's foremost objective, and all OSTF investments shall be made in a manner consistent therewith. Credit and interest rate risks will be carefully managed and mitigated (see specific guidelines below).
   B. **Liquidity**: The OSTF shall remain sufficiently liquid to meet all state, agency and local government operating requirements as may be reasonably anticipated. The OSTF should consist largely of securities with active secondary or resale markets.
   C. **Yield:** The OSTF shall be designed with the objective of attaining a market rate of return throughout budgetary and economic cycles, taking into account the aforementioned investment risk constraints and liquidity needs.

III. **Maturity Distribution of Portfolio**

   A. 50% of the OSTF must mature within 93 days.
   B. A maximum of 25% of the OSTF may mature over one year.
   C. No investment may mature later than 3 years from its settlement date.
   D. For purposes of this policy, maturity date will be calculated by using the following proxies, and if a security contains more than one of the following attributes, the shortest attribute will be used as the maturity date proxy:
      1. For securities that have been called by the issuer, the effective call date will be used as the maturity date proxy;
      2. For securities with a put option, the date upon which the put option is fully exercisable for a value of at least 100% of the investment's par or face amount will be used as the maturity date proxy;
      3. For variable rate securities, the period remaining to the next reset date will be used as the maturity date proxy; and
      4. For asset-backed securities, the weighted average life (WAL) will be used as the maturity date proxy.

IV. **Diversification and Portfolio Limitations**

A. Eligible Securities:

Issue Type	**Maximum Holdings % or $**	**Minimum Ratings S&P/Moody's/Fitch**
U.S. Treasury Obligations (1.)	100%	None
U.S. Agency Securities (1.) Per Issuer	100% 33%	None None
Foreign Government & Instrumentalities (1.) Per Issuer	25% 10%	AA-/Aa3/AA-
Corporate Securities (Total) Corporate Bonds Commercial Paper (2.) Per Issuer	50% 50% 50% 5%	A-/A3/A- A-1/P-1/F-1
Asset-Backed Securities Per Issuing Trust	25% 5%	AAA/Aaa/AAA A-1+/P-1/F-1+
Negotiable Certificates of Deposit Per Issuer	20% 5%	A-1/P-1/F-1
Bankers' Acceptances Per Issuer	20% 5%	A-1/P-1/F-1
Time Certificates of Deposit (3.) Per Issuer	20% 5%	None
Municipal Debt (Total) Municipal Commercial Paper Short Term Municipal Obligations Per Issuer	25% 25% 25% 10%	AA-/Aa3/AA- A-1/P-1/F-1 SP-1/(V)MIG1/F-1
Repurchase Agreements (4.) Per Counterparty	100% 5%	None
Oregon Local Government Intermediate Fund ("OLGIF")	$250 Million	A-/A3/A-

1. Securities guaranteed by the U.S. Treasury, a U.S. Agency or a Foreign Government or its Instrumentality will be considered a U.S. Treasury, a U.S. Agency or a Foreign Government or its Instrumentality for the purposes of this policy.
2. Commercial Paper (CP) must have top-tier short term ratings by at least two of the nationally recognized statistical rating organizations (NRSROs) at the time of purchase.
3. Permitted Time Certificates of Deposit (TCDs) will be limited to qualified depositories as defined in ORS Chapter 295. Maximum TCD exposure per depository must be no more than 5% of the issuing bank's total deposits, or $250,000, whichever is greater. Maximum credit union exposure per depository shall be $250,000.

4. Repurchase Agreements must meet the following criteria:
    1. Maximum maturity will be 93 days;
    2. Counterparties must be a Primary Dealer as recognized by the Federal Reserve Bank of New York;
    3. Counterparties must have a fully executed Master Repurchase Agreement with the Office of the State Treasurer ("Master Repurchase Agreement");
    4. Collateral must be delivered on a tri-party basis to a mutually agreed upon third party custodian; and
    5. Collateral securing Repurchase Agreements must be maintained at not less than 102% of the amount of the Repurchase Agreement.
    6. Represent an investment in the form of lending cash against securities collateral equivalently represented in this case by a purchase of securities (collateral) coupled with an agreement to sell the securities (collateral) at a specified price on a later date.

B. All OSTF investments must be denominated in U.S. dollar.

C. Total foreign exposure (government and corporate indebtedness) limited to 25% of OSTF.

D. Any one individual issuer of securities or support commitments limited to 10% of OSTF with the exception of the U.S. Treasury (100% maximum) and U.S. government agency securities (33% per issuer).

E. Securities that have been downgraded below the minimum ratings will be sold or held at the Fixed Income Senior Investment Officer's (SIO) or SIO designee's discretion.

F. A single rating will be determined for each investment based on the following methodology:

i. When three nationally recognized statistical rating organizations (NRSROs) rate an issue, a median rating is used to determine eligibility by dropping the highest and/or lowest rating;
ii. When a rating from only two NRSROs is available, the lower ("most conservative") of the two ratings will be used; and
iii. When a rating from only one NRSRO is available, that rating will be used. To determine average rating for each security, a numeric value will be assigned to each NRSRO rating based on the following scheme:

Value	S&P Rating	Moody's Rating	Fitch Rating
29	U.S. Treasury & Agency/ AAA/A-1+(1)	U.S. Treasury & Agency/ Aaa/P-1(1)	U.S. Treasury & Agency/ AAA/F-1+(1)
28	AA+	Aa1	AA+
27	AA/A-1+/SP-1+	Aa2	AA/F-1+
26	AA-	Aa3/P-1/ MIG1/VMIG1	AA-
25	A+	A1	A+
24	A/A-1/SP-1	A2	A/F-1
23	A-	A3	A-
22	BBB+/A-2/SP-2	Baa1/P-2/ MIG2/VMIG2	BBB+/F-2
21	BBB	Baa2	BBB
20	BBB-/A-3/SP-3	Baa3/P-3/ MIG3/VMIG3	BBB-/F-3

1. US Treasury & Agency securities shall have a numeric value of 29 for the purpose of calculating the weighted average portfolio credit score.
2. Limited to Asset-Backed Securities rated A-1+, P-1 and F-1+ by Standard & Poor's, Moody's and Fitch respectively.

G. The target weighted average credit quality of the OSTF shall be AA (or > 26.50), excluding repurchase agreements.

H. For newly issued securities, and absent assigned ratings, "expected ratings" may be used as a proxy for actual ratings for not more than 30 business days after the anticipated settlement date.

I. No commitments to buy or sell securities may be made more than 14 business days prior to the anticipated settlement date, or receive a fee other than interest for future deliveries.

J. For purposes of compliance, eligible funds will be treated as a single investment and exempt from maturity or exposure restrictions except for maximum exposure and minimum ratings.

V. Reinvestment of Securities Lending Cash Collateral

A. Acceptable reinvestment vehicles include securities that may otherwise be purchased outright in accordance with the diversification and portfolio limitations described above in Section IV. Within the securities lending program only, cash collateral may also be reinvested in:
   1. Repurchase agreements collateralized by U.S. Treasury or U.S. Government Agency securities with a maximum original maturity of 30 years. No more than 25% of assets shall be placed with the same counterparty. Repurchase agreements may also be placed with the Federal Reserve Bank's Repo facility.

B. Net capital of lending counterparties must be over $100 million.

C. Securities will only be loaned on a fully collateralized basis.

D. Lending counterparties must be a Primary Dealer as recognized by the Federal Reserve Bank, and have a signed master securities lending agreement.

E. The market value of the delivered collateral must be maintained at not less than 102% of the market value of the securities loaned.

PROCEDURES

I. Standards of Care

A. **Prudence**: Investment officers shall use the "prudent investor" standard to guide their OSTF management efforts. Pursuant to ORS 293.726:
   1. The investment funds shall be invested and the investments of those funds managed as a prudent investor would do, under the circumstances then prevailing and in light of the purposes, terms, distribution requirements and laws governing each investment fund; and
   2. The standard in subsection (1) of this section requires the exercise of reasonable care, skill and caution, and is to be applied to investments not in isolation but in the context of the investment portfolio and as a part of an overall investment strategy, which should incorporate risk and return objectives reasonably suitable to the particular investment fund.

B. **Ethics and Conflicts of Interest**: Officer involved in the investment process shall refrain from personal business activity that could conflict with the proper execution and management of the investment program or that could impair their ability to make impartial decisions. Officers and employees shall, at all times, comply with the State of Oregon Government Standards and Practices code of ethics set forth in ORS Chapter 244, as well as all policies of the OST.

C. **Delegation of Authority**: The Senior Investment Officer and Investment Officer(s) (or the Investment Analyst acting under the direction of the Investment Officers) of the Fixed Income team shall act in accordance with established written procedures and internal controls for the operation of the investment program consistent with these Portfolio Rules. No person may engage in an investment transaction except as provided under the terms of these Portfolio Rules and the procedures established by OST staff. The Senior Investment Officer and Investment Officer(s) are jointly responsible for all transactions undertaken, and shall establish a reasonable system of controls to regulate the activities of subordinate employees.

II. Compliance

A. **Compliance Monitoring:** OST shall provide an investment compliance program to accomplish the following objectives: a) monitor and evaluate portfolios, asset classes, and other investment funds to determine compliance with OST policies and contractual obligations; b) identify instances of non-compliance and develop appropriate resolution strategies; c) provide relevant compliance information and reports to OST management and the Oregon Investment Council, as appropriate; and d) verify resolution by the appropriate individual or manager within the appropriate time frame.

B. **Correction of Non-compliance:** If the OSTF is found to be out of compliance with one or more adopted investment guidelines or is being managed inconsistently with its policy and objectives, investment staff shall bring the OSTF portfolio into compliance as soon as is prudently feasible. Actions to bring the portfolio back into compliance and justification for such actions, including documentation of proposed and actual resolution strategies shall be coordinated with the OST investment compliance program.

III. Safekeeping and Custody

A. **Authorized Financial Dealers and Institutions:** All financial institutions and broker/dealers who desire to become qualified for investment transactions must supply, as appropriate:
    1. Audited financial statements,
    2. Licensing Representation form provided to OST, and
    3. Understanding and acknowledgment of OSTF Portfolio Rules.

B. **Internal Controls:** The Senior Investment Officer and Investment Officer(s) jointly collaborate to establish and maintain an adequate internal control structure designed to reasonably protect the assets of the OSTF from loss, theft or misuse.

C. **Delivery vs. Payment**: All trades where applicable will be executed by delivery vs. payment (DVP) to ensure that securities are deposited in an eligible financial institution prior to the release of funds.

D. **Safekeeping:** Securities will be held by a third-party custodian as evidenced by safekeeping receipts.

Exceptions

None.

Failure to Comply

Failure to comply with this policy may be cause for disciplinary action up to and including dismissal.

PROCEDURES AND FORMS

1. Upon approval of changes to this policy, the policy owner shall contact the Banking Operations Manager to update the Oregon Short Term Fund Finance and Investment pages on the external OST website.

ADMINISTRATION

Feedback

Your comments are extremely important to improving the effectiveness of this policy. If you would like to comment on the provisions of this policy, you may do so by e-mailing the Policy Owner. To ensure your comments are received without delay, *please list the policy number and name in your e-mail's subject*. Your comments will be reviewed during the policy revisions process and may result in changes to the policy.

TAB 9

CALENDAR – FUTURE

AGENDA ITEMS

2024-25 OIC Forward Calendar and Planned Agenda Topics

April 17, 2024	Diversifying Strategies Portfolio Review Opportunity Portfolio Review Individual Account Program (IAP) Review OSGP Annual Review
May 29, 2024	Q1 Performance Review: OPERF
July 17, 2024	OST Fixed Income Program Review
September 4, 2024	Q2 Performance Review: OPERF, CSF, SAIF
October 23, 2024	Operations Annual Review
December 4, 2024	Q3 OPERF Performance Fixed Income Portfolio Review: OPERF Diversifying Strategies Portfolio Review
January 22, 2025	Public Equity Portfolio Review Private Equity Portfolio Review 2026 OIC Calendar Approval
March 5, 2025	2023 Performance Review: OPERF, CSF, SAIF Real Assets Portfolio Review Real Estate Portfolio Review

TAB 10

OPEN DISCUSSION

TAB 11

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