OREGON
STATE
TREASURY

# Oregon Investment Council

**December 6, 2023**

**Cara Samples**
Chair

**Tobias Read**
State Treasurer

**Rex Kim**
Chief Investment Officer

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Oregon Investment Council

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

# Agenda

December 6, 2023
8:30 AM

| **Time** | **Tab** | | **Presenter** |
|---|---|---|---|
| 8:30 – 9:00 | | **Executive Session*** | Steven Marlowe<br>Oregon Department of Justice<br>Christy Monson<br>Oregon Department of Justice |
| 9:00 – 9:05 | 1 | **Review & Approval of Minutes**<br>October 25, 2023 | Cara Samples<br>OIC Chair |
| | 2 | **Committee Reports** | Rex Kim<br>Chief Investment Officer |
| 9:05 – 10:00 | 3 | **Market Presentation** | Jason Trennert<br>Managing Partner, Chief Strategist,<br>Strategas Research |
| 10:00 – 10:30 | 4 | **Q3 OPERF Performance** | Allan Emkin<br>Managing Principal, Meketa<br>Eric Larsen<br>Investment Analyst, Meketa |

--- BREAK ---

| | | | |
|---|---|---|---|
| 10:40 – 11:10 | 5 | **OPERF Fixed Income Annual Review** | Rupa Raman<br>Senior Investment Officer, Fixed Income<br>Allan Emkin<br>Managing Principal, Meketa<br>Mika Malone<br>Managing Principal, Meketa |
| 11:10 – 11:30 | 6 | **OST Internal Fixed Income Overview** | Rupa Raman<br>Senior Investment Officer, Fixed Income |
| --- BREAK --- | | | |
| 11:40 – 12:10 | 7 | **OPERF Investment Policy Statement**<br>(Action Item: Approval of IPS) | Mika Malone<br>Managing Principal, Meketa<br>Raneen Jalajel<br>Associate Partner, Aon |
| 12:10 | 8 | **Calendar – Future Agenda Items** | Rex Kim |
| 12:10 | 9 | **Open Discussion** | OIC Members, Staff, Consultants |
| | | **Public Comments** | |

*Executive Session: No admittance unless stated below. Thank you.

The executive session is being held to consider records from the Department of Justice that are exempt from disclosure. The executive session is being held pursuant to ORS 192.660(2)(f), which allows a governing body to hold an executive session to consider information or records that are exempt by law from public inspection. In compliance with ORS 192.660(6), no decisions will be made during this meeting. Representatives of the news media, Treasury staff and Treasury consultants are allowed to attend this executive session. Representatives of the news media are specifically directed not to report on any of the deliberations during executive session, except to state the general subject of the session as previously announced.

# 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

**October 25, 2023**

**Meeting Minutes**

| | |
|---|---|
| Members Present: | Cara Samples, Lorraine Arvin, Pia Wilson-Body, Alline Akintore, Kevin Olineck |
| Staff Present: | Rex Kim, David Randall, Michael Langdon, Karl Cheng, Ben Mahon, Louise Howard, Gloria Gil, Ahman Dirks, Wil Hiles, Rupa Raman, Philip Larrieu, Michel Makale, Chuck Christopher, Bryson Pate, Jennifer Kersgaard |
| Staff Participating Virtually: | Tobias Read, Jaime Alvarez, Ryan Auclair, Sarah Bagdriwicz, Sara Bayes, Tyler Bernstein, Taylor Bowman, Tan Cao, Austin Carmichael, Collin Cousar, Andrew Coutu, Kiara Cruz, Bradley Curran, Ashley Daigle, Debra Day, Eric Engelson, Alli Gordon, Annie Gregori, Julie Hall, Will Hampson, Ania Henton, Ian Huculak, Claire Illo, Roy Jackson, Aliese Jacobsen, Kristi Jenkins, Josh Jones, Michael Kaplan, Young Kim, Amanda Kingsbury, Jeremy Knowles, Paul Koch, John Lutkehaus, Ben Mahon, Michael Makale, Tim Miller, Mike Mueller, George Naughton, Dmitri Palmateer, Jen Plett, Mohammed Quraishi, Rupa Raman, Jo Recht, Peter Rector, Talia Riordan, Andrew Robertson, Scott Robertson, Holly Rohwer, Angela Schaffers, Faith Sedberry, Mark Selfridge, Alli Sorensen, Anna Totdahl, Kottur Vasanth, Andrey Voloshinov, Rachel Wray, Tiffany Zahas |
| Consultants Present: | Allan Emkin, Mika Malone, Colin Bebee, Eric Larsen, Tom Martin, Raneen Jalajel, Paola Nealon, Ashley Woeste, Ryan Fitzgerald, Chip Terhune, Gina Manley, Christopher Doll, Steve Cummings |
| PERS Present: | Kevin Olineck |
| Legal Counsel Present: | Steve Marlowe (Department of Justice) |

The October 25, 2023, OIC meeting was called to order at 9:05 am by Cara Samples, Chair

| **Time** | **Tab** | | **Presenter** |
|---|---|---|---|
| 9:05 | 1 | **Review & Approval of Minutes**<br>September 6, 2023 | Cara Samples<br>OIC Chair |

Chair Samples opened the meeting and asked for approval of the September 6, OIC regular meeting minutes. At 9:06 am Treasurer Read moved approval; Member Pia Wilson-Body seconded the motion which then passed by a 4/0 vote.

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

Private Equity Committee:
None

Real Estate Committee:
None

Opportunity Committee:
None

Alternatives Portfolio Committee:
September 11 Capstone Dispersion Master Fund LP $250M USD

Staff Discretion
None

9:05 – 9:45 3 **State Accident Insurance Fund** — Karl Cheng, Senior Investment Officer, PR&R; Chip Terhune, President, SAIF; Gina Manley, Chief Financial Officer, SAIF

Chip Terhune and Gina Manley from SAIF provided a thorough background information of SAIF, including the objectives and purpose for the organization and the role of the SAIF investment portfolio. SAIF began an asset allocation study in September of this year in partnership with Treasury, and the results will be reviewed and approved in 2024. The portfolio is up 3.78% for the first half of 2023 and outperformed the benchmark by 63 basis points.

9:45 – 10:20 4 **CEM Benchmarking** — Dave Randall, Chief Investment Operating Officer; Christopher Doll, Director, CEM Benchmarking

Christopher Doll with CEM Benchmarking provided a review of OPERF from multiple perspectives including performance and fees. Our 5-year net total return was 7.7%, outperforming the US Public median of 5.9% and the peer median of 6.5%. Our 5-year policy return was 5.7%, outperforming the US Public Median of 4.7% and the peer median of 5.1%. Investment fees were 69.8 basis point, lower cost than the 71.2 basis points of our peers.

--- BREAK ---

10:20 – 10:30 5 **Asset Class Consultant** — Ahman Dirks, Investment Officer, Private Equity
(Action Item: Private Equity Consultant Recommendation)

Ahman Dirks, Investment Officer, presented the recommendation that OIC renew a consulting contract with Aksia beginning 1/1/2024 for an initial 3-year contract and 2 pre-negotiated 2-year extensions at the Council's discretion.
At 10:32 Treasurer Read moved approval; Vice-Chair Lorraine Arvin seconded the motion which then passed by a 5/0 vote.

10:30 – 10:55 | 6 | **Common School Fund Review** | Louise Howard, Senior Investment Officer; Michael Langdon, Director of Private Markets; Wil Hiles, Investment Officer, Public Equity

Michael Langdon, Louise Howard and Wil Hiles presented the Common School Fund Review. The fund adopted an updated asset allocation strategy in November of 2022, which will reduce exposure in Global Equity and Fixed income as well as funding up Real Assets and Private Equity.

As of June 30, 2023, the total fund returned 7.0% for the year, underperforming the benchmark by .1%. The Fund's 3-year relative performance was 8.9%, outperforming the benchmark by 1.2%. Global Equity and Real Assets provided strong returns over the prior year.

10:55 – 11:05 | 7 | **Public Equity** (Action Item: Manager Recommendation) | Louise Howard, Senior Investment Officer

Louise Howard, Senior Investment Officer, presented a recommendation to convert the current EAM US and non-US Micro Cap mandates into US Small Cap and Non-US Small Cap mandates. At 11:20 Treasurer Read moved for approval; Member Pia Wilson-Body seconded the motion which then passes by a vote of 5/0.

--- BREAK ---

11:35 – 12:10 | 8 | **OPERF Investment Policy Statement** | Mika Malone, Managing Principal, Meketa; Raneen Jalajel, Associate Partner, Aon

Consultants Mika Malone, Steve Cummings and Raneen Jalajel discussed the key components of the IPS, received feedback for redlines and edits. A redline IPS will be brought to the December 6 OIC Meeting.

12:10 | 9 | **Calendar – Future Agenda Items** | Rex Kim

Chair Samples requested a special meeting be scheduled in early 2024 dedicated to Net Zero.

**Open Discussion** | OIC Members, Staff, Consultants

**Public Comments**

# TAB 2

# COMMITTEE REPORTS

# TAB 3

# MARKET PRESENTATION

# Investment & Economic Outlook

## *Fear the Cut, Not the Pause*

**December 2023**

**Jason De Sena Trennert**
**Chairman**

**52 Vanderbilt Ave., 19th Fl.**
**New York, New York 10017**

**jtrennert@strategasrp.com**
**212-906-0133**

STRATEGAS

# Bullet Point Base Case

- Recession odds are ~ 75% within next two years; soft landing most consensus view.
- Earnings estimates are likely too high for 2024 (est. +12%) in typical recession reported earnings fall 30%.
- Inflation may be "sticky" due to deficit spending and tight labor markets.
- Higher inflation for longer = shorter duration equities; cash flows paramount.
- Market bottoms usually associated with lower earnings multiples, a higher VIX, and a blowout in high yield spreads. Have not seen that yet.
- Favor value over growth; international over domestic; and large over small.
- ***Overweight:*** Energy, Industrials, Health Care. ***Neutral:*** Tech, Staples, Materials.
- Major themes are: deglobalization, Fed tightening & QT, "sticky" inflation, and economic slowdown.
- Greatest risk to economy and markets may be the Fed's need to keep rates higher for longer.
- Taylor Rule implies Fed Funds rate of 7.7% to achieve 2% inflation.

**Strategas Earnings & Economic Forecasts**

| | 2022 | | | | | 2023 | | | | | 2024 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1Q | 2Q | 3Q | 4Q | FY | 1Q | 2Q | 3QF | 4QF | FY | 1QF | 2QF | 3QF | 4QF | FY |
| **Strategas Earnings Estimates** | $ 54.80 | $ 57.62 | $ 56.02 | $ 53.15 | $ 221.59 | $ 53.00 | $ 54.50 | $ 54.00 | $ 52.25 | $ 213.75 | $ 48.25 | $ 48.75 | $ 54.50 | $ 57.50 | $ 209.00 |
| **Consensus Earnings Estimates** | $ 54.80 | $ 57.62 | $ 56.02 | $ 53.15 | $ 218.09 | $ 53.08 | $ 54.29 | $ 58.20 | $ 55.39 | $ 220.62 | $ 56.85 | $ 60.31 | $ 63.73 | $ 64.48 | $ 245.31 |
| **Real GDP Q/Q% AR** | -2.0% | -0.6% | 2.7% | 2.6% | | 2.2% | 2.1% | 4.9% | 0.0% | | -1.5% | 1.0% | 2.0% | 2.5% | |
| **Core CPI Q/Q% AR** | 6.7% | 6.0% | 6.2% | 5.1% | | 5.0% | 4.7% | 2.8% | 3.5% | | 3.0% | 2.8% | 2.5% | 2.3% | |
| **Fed Funds EOP** | 0.5% | 1.8% | 3.3% | 4.5% | | 5.0% | 5.3% | 5.5% | 5.5% | | 5.5% | 4.8% | 4.0% | 3.5% | |
| **10YR EOP** | 2.35% | 3.01% | 3.83% | 3.88% | | 3.47% | 3.85% | 4.57% | 3.50% | | 3.50% | 3.60% | 3.70% | 4.50% | |

* As of 11/10/2023

# Bull Case vs. Bear Case

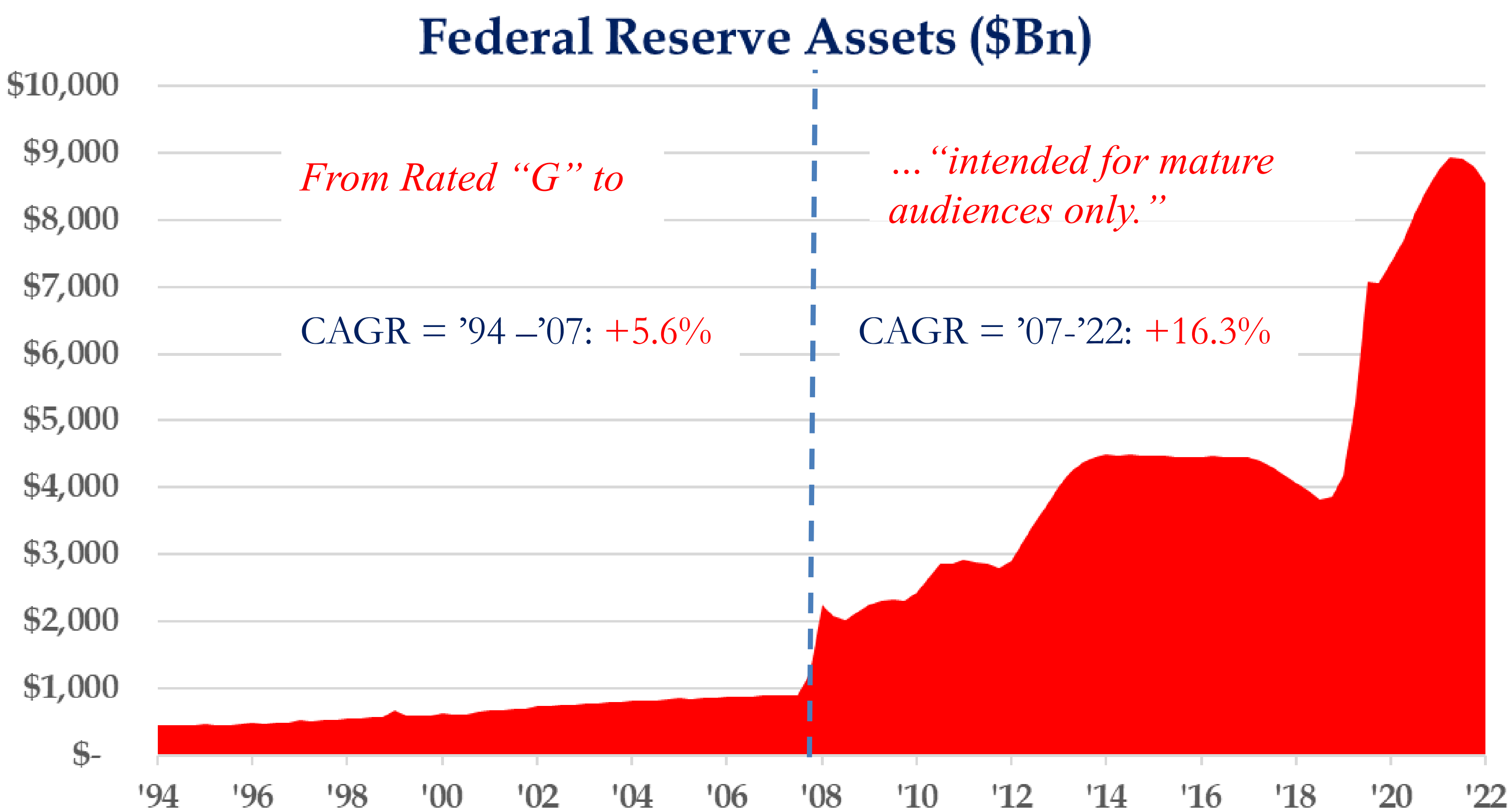
**THE BULL CASE:**

1. M2 has grown by ~40% since Feb. 2020. The Fed has increased the amount of assets on its balance sheet by more than 100% since January 2020. Money growth works with a lag.
2. Inflation has peaked.
3. Consumer balance sheets strong – personal savings rate 3.4% as percentage of disposable income.
4. Companies are currently carrying high levels of cash on their balance sheets.
5. Job openings still plentiful.
6. Credit spreads remain tight.
7. Election year will prompt additional fiscal stimulus by Administration.

**THE BEAR CASE:**

1. Inflation still above Fed's target. The Fed is unlikely to ease soon.
2. M2 growth is -3.6% y/y.
3. Forward valuations remain elevated.
4. The Treasury yield curve (2s-10s) remains inverted.
5. Treasury supply likely to surge as funding costs reset at higher levels.
6. Higher input costs such as labor and commodities may negatively impact profit margins.
7. Administration pursuing regulatory stance toward Financials, Energy, and Health Care.

# "Extraordinary" Monetary Policy Became Ordinary



# The Folly of QE-Forever

1. It was regressive.
2. It led to a massive misallocation of capital.
3. It rewarded financial engineering over capital spending.
4. It changed the concept of risk for policymakers.
5. It changed the concept of risk for fiduciaries & investors.
6. It damaged bank profitability.
7. Did it lead to greater populism?

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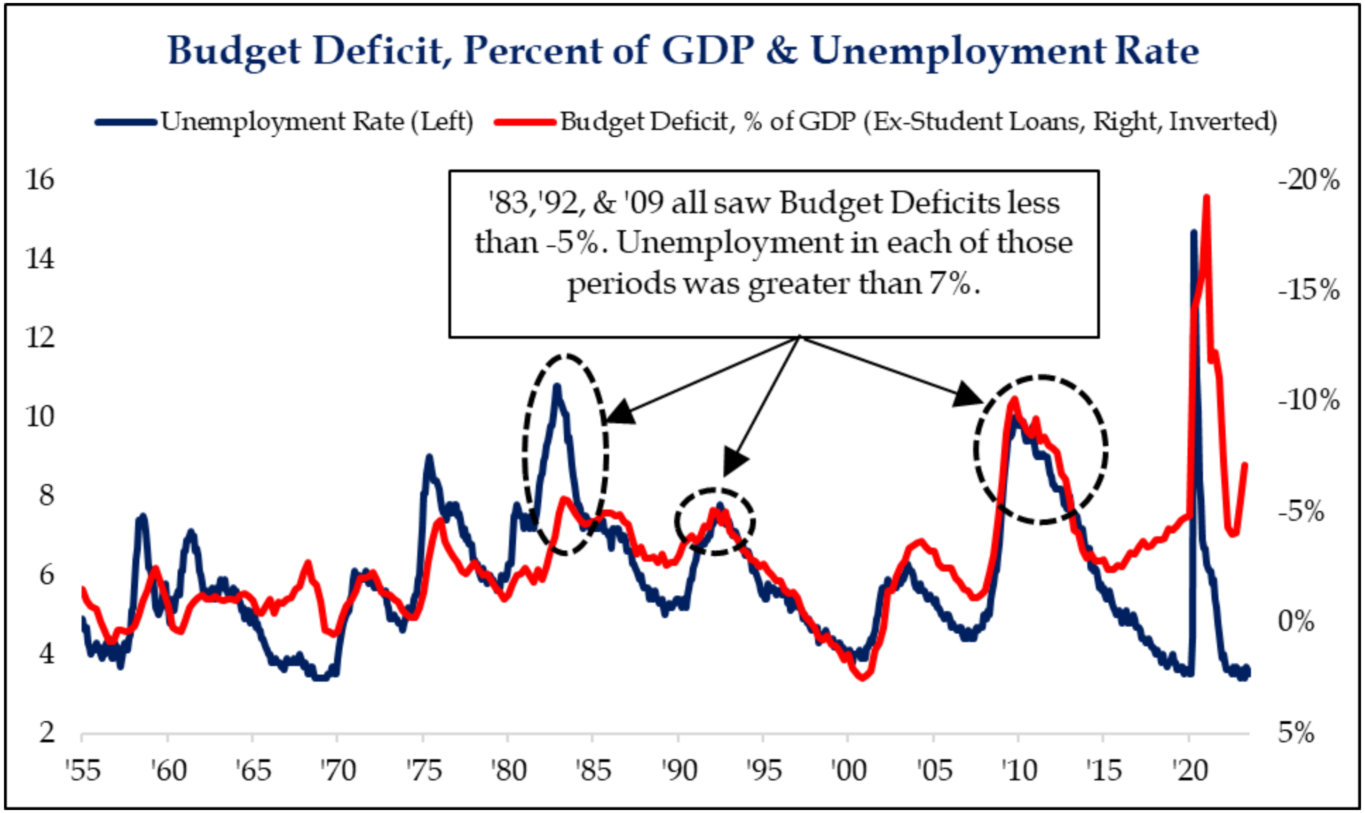
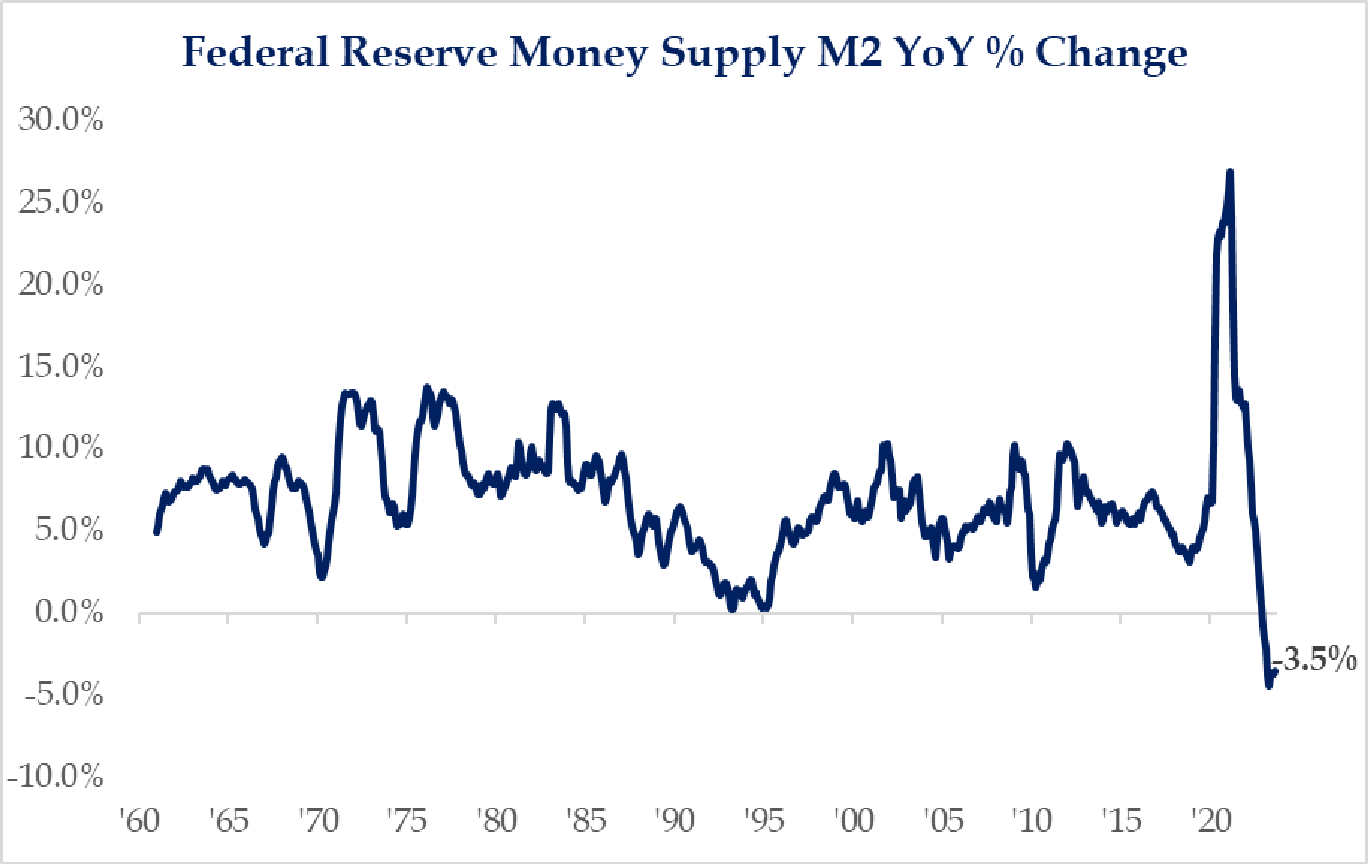
# Budget Deficit Far From Robust to Shocks; Much Too High at Full Employment



# Why an Anticipated Recession Has Not (Yet) Occurred

1. **Tight labor markets.** Profit margins have declined for the S&P 500, but not enough to prompt companies to lay off workers.
2. **Savers' income surged.** Using money market fund data, we estimate that monthly income from savings is running at more than $20 billion per month.
3. **The Fed offset QT in March.** In response to the collapse of Silicon Valley Bank assets on the Fed's balance sheet jumped by roughly $400 billion in three weeks.
4. **A reduction in the TGA.** The Treasury Department drew down its General Account from $580 billion in January to roughly $20 billion by June 1st.
5. **A decline in the Strategic Petroleum Reserve.** The SPR now stands at its lowest level since 1983.
6. **Government spending.** The US budget deficit increased $800bn in 2023. Just $100bn of that is due to interest cost. The rest is lower taxes & higher spending.
7. **The lags associated with monetary policy changes are long and variable.**

# First Decline in Money Growth in 70 Years



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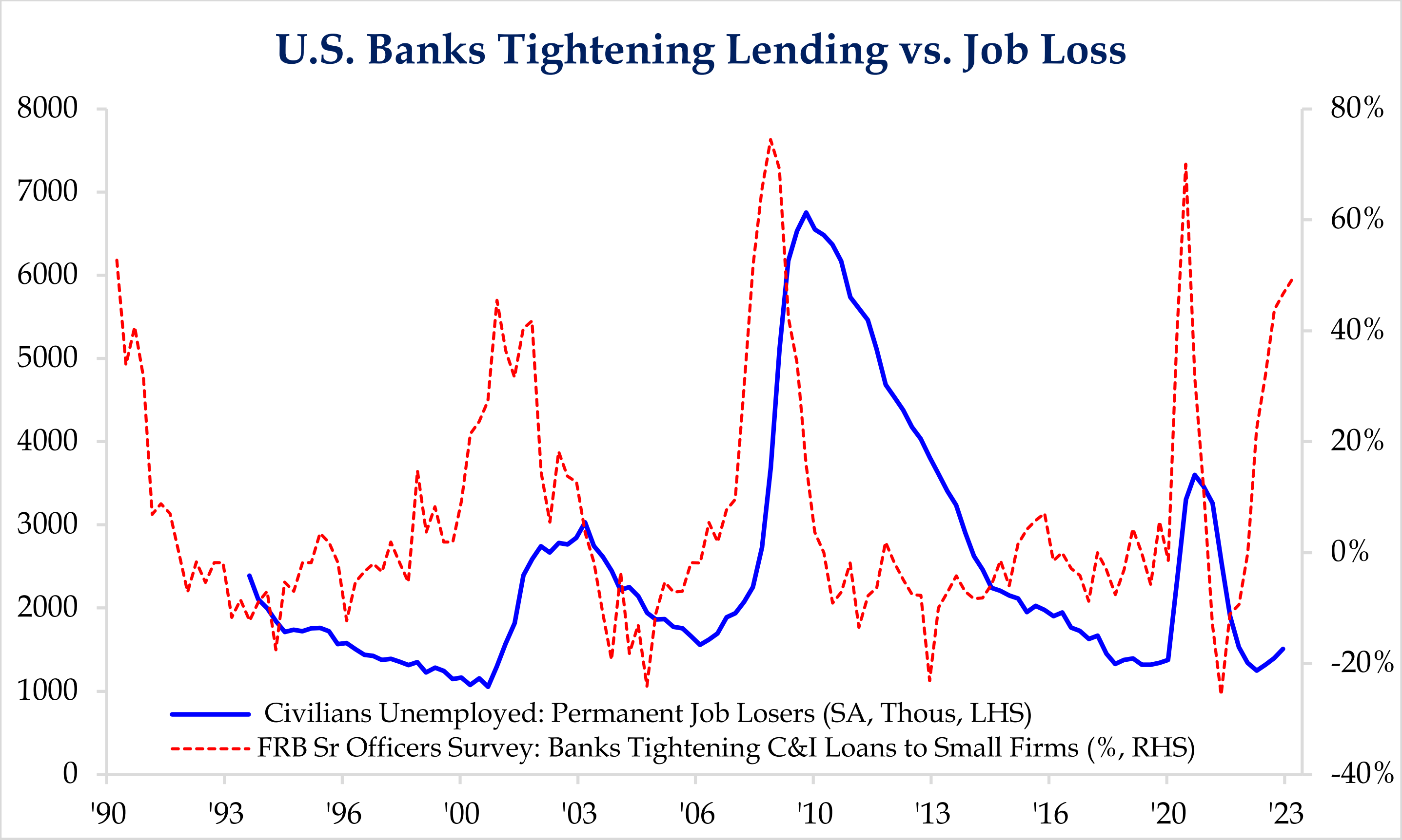
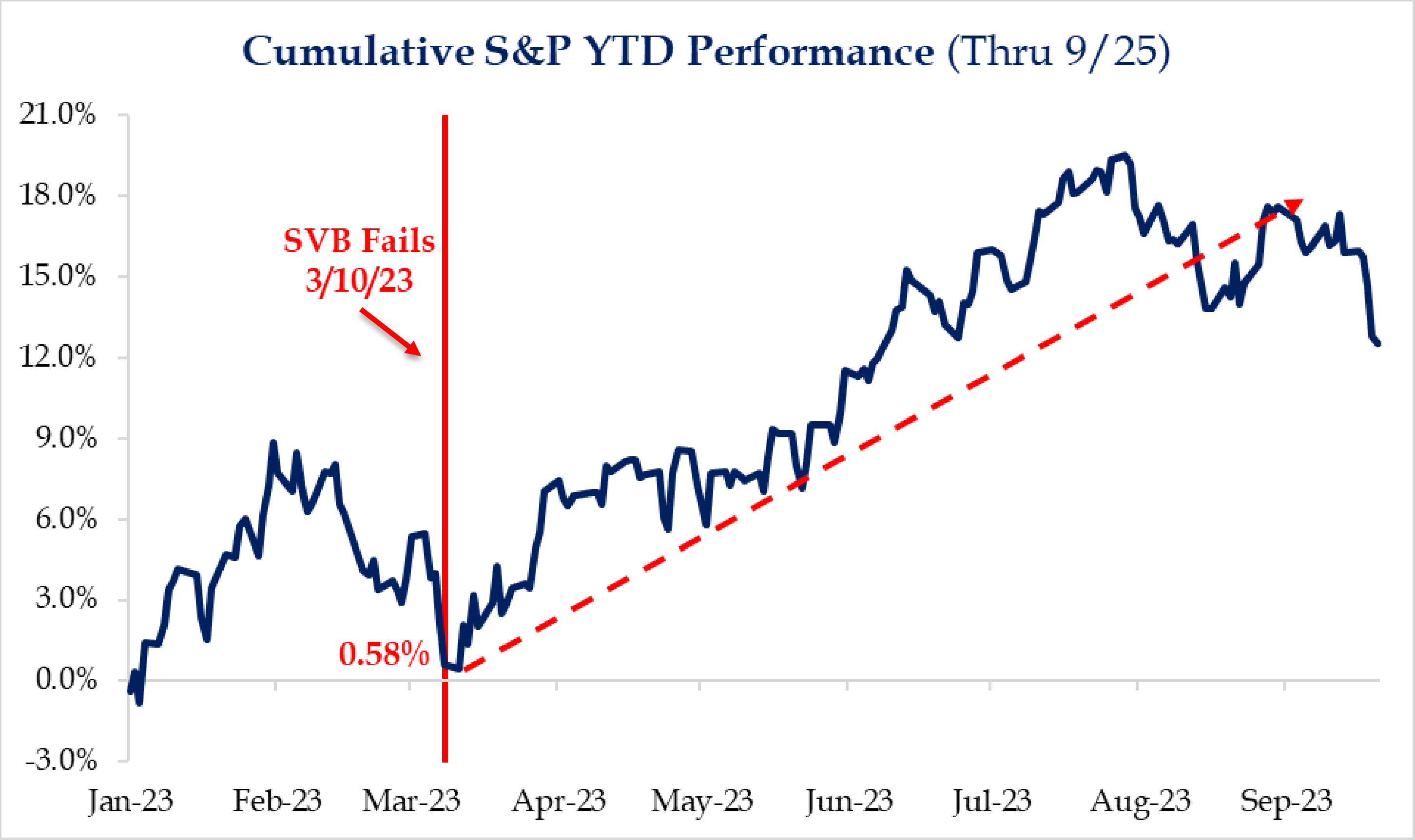
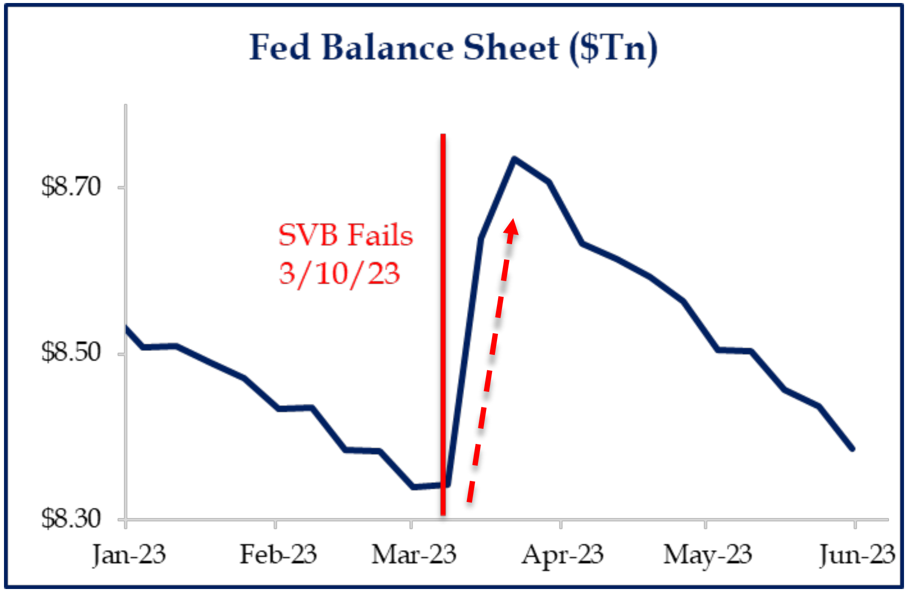
# Banks' Willingness to Lend Leads Employment

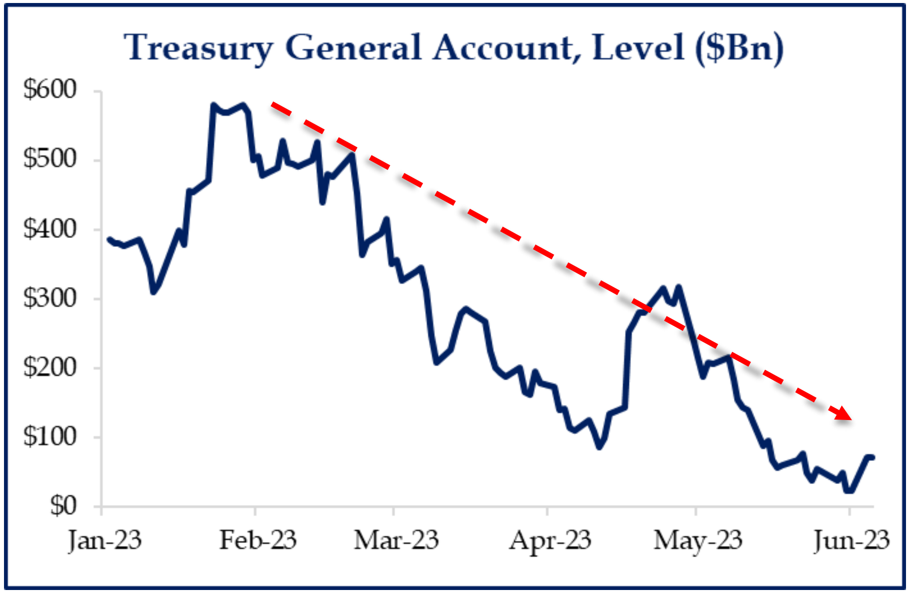


# Bulk of S&P 500 Gains After SVB Failure



# SVB + Debt Ceiling: Double-Barreled Dose of Stimulus



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# Springboard for Risk is Small Currently

| U.S. Economic Data At The Start of a Bull Market | | | |
|---|---|---|---|
| Indicator | Start Historical Average | Oct 12 '22 | Sep '23 |
| Unemployment Rate | 5.7% | 3.5% | 3.8% |
| Initial Claims (Thous.) | 367.2 | 191.0 | 210.0 |
| ISM New Orders | 48.3 | 47.3 | 49.2 |
| Housing Starts (Mil.) | 1.3 | 1.5 | 1.4 |
| CPI Y/Y % | 4.3% | 8.2% | 3.7% |
| Fed Funds Effective (%) | 5.6% | 2.6% | 5.3% |
| Fed Funds Y/Y (BP Chg.) | -73 | 248 | 277 |
| Fed Funds - CPI Y/Y | 1.3% | -5.6% | 1.6% |
| Long-Term Treasury Composite (%) | 6.1% | 3.8% | 4.6% |
| 3-Mo. T-Bill (%) | 4.9% | 3.1% | 5.3% |
| Yield Curve (LT - 3m, BP) | 123 | 63 | -71 |
| M2 Y/Y % | 5.9% | 2.7% | -3.6% |

**Bull Market Start Dates**

*10/22/1957, 6/26/1962, 10/7, 1966, 5/26, 1970, 10/3/1974, 8/12/1982, 12/4/1987, 10/11/1990, 10/9/02, 3/9, 2009, 3/23/2020*

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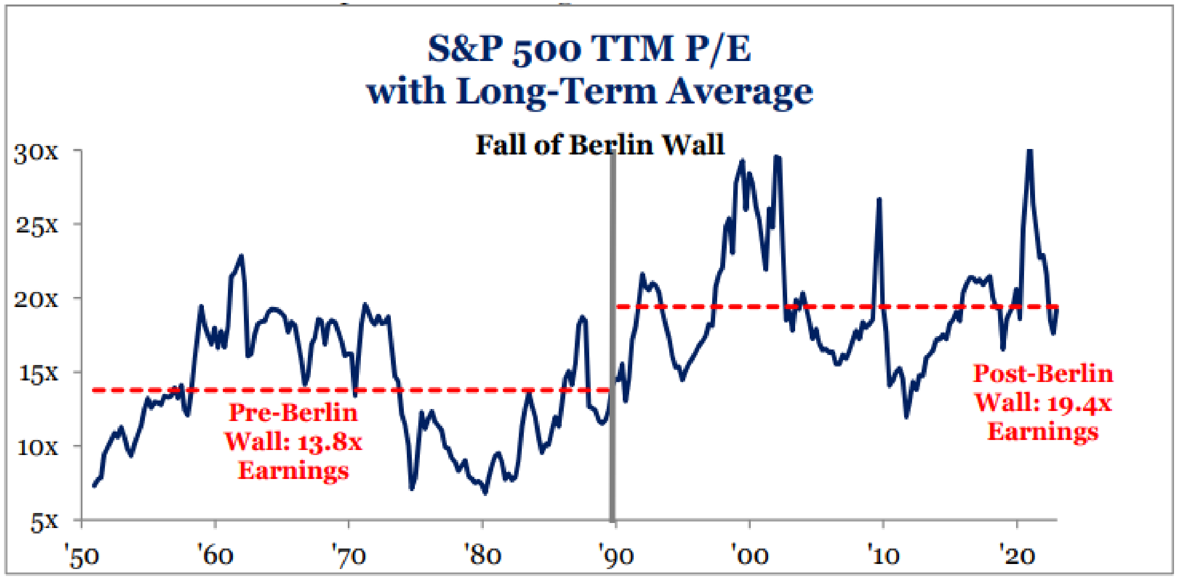
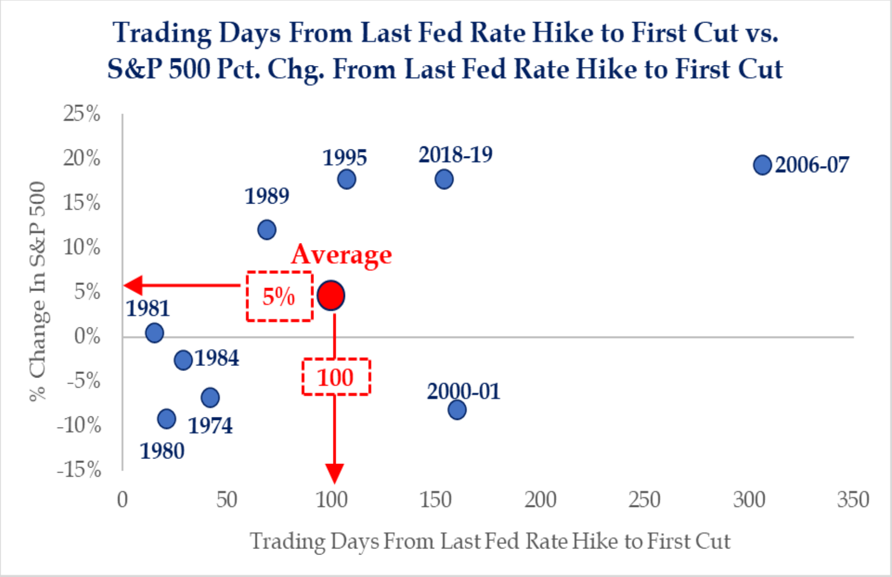
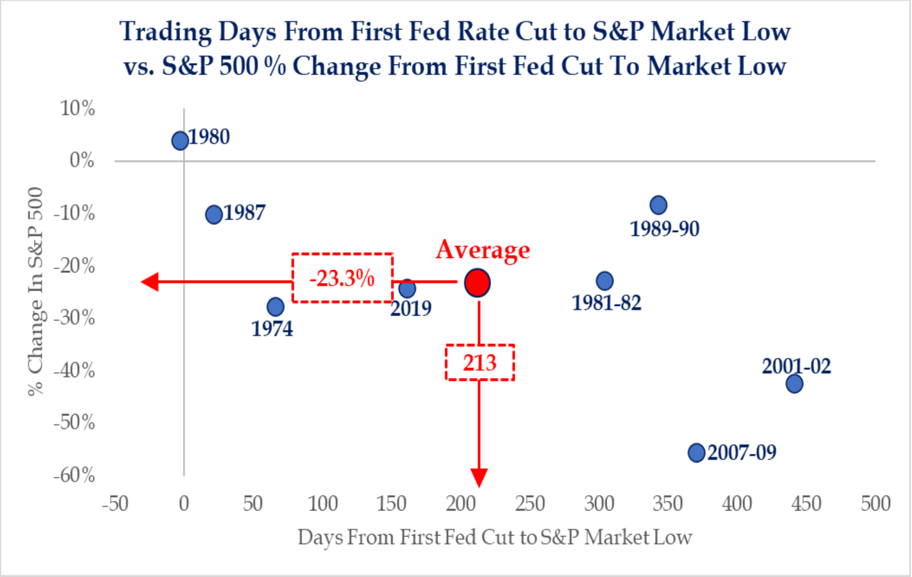
# "Last Mile" in Inflation Will be Tough

1. Globalization - major source of disinflation – is waning in influence
2. Step-function higher in stock of money (M2) – up 40% since February 2020
3. Almost 9 million job openings will continue to put pressure on wages
4. Persistent Budget Deficits of 5%+ of GDP
5. 60%+ of Federal Budget is Indexed to Inflation: Makes Fed's Job More Difficult
6. Environmental policies increase energy prices and the cost of doing business



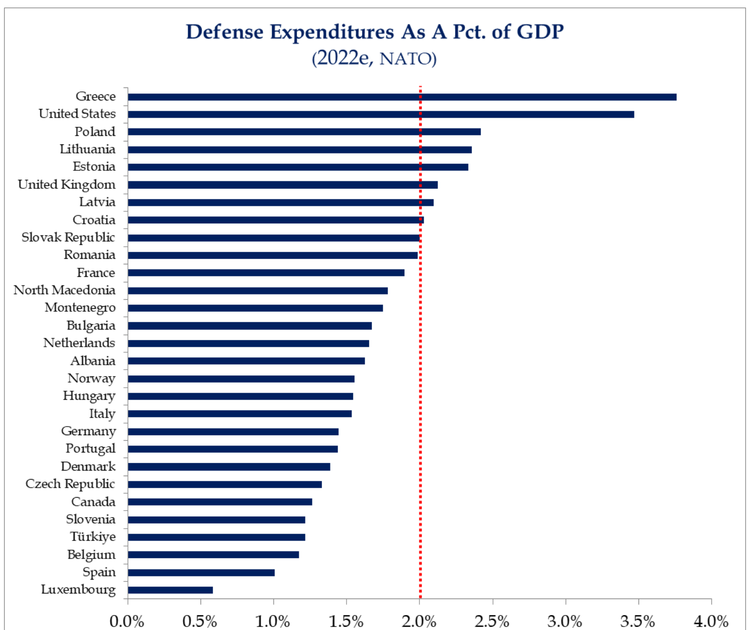
# Fear the Cut, Not the Pause

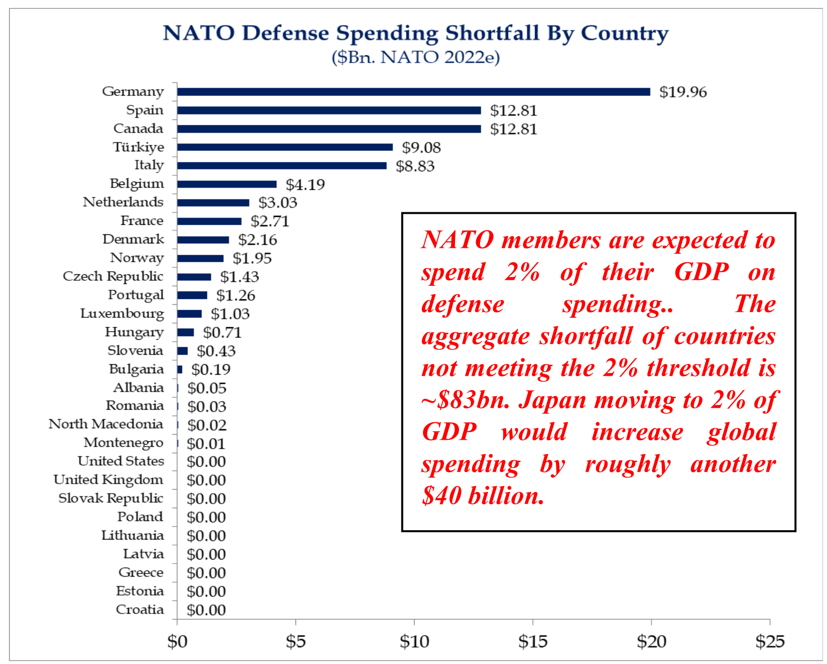


# De-Globalization & Its Discontents

1. **Higher Inflation & Weaker Profit Margins**
2. **Slower Economic Growth**
3. **Greater Global Defense Spending**
4. **Fossil Fuels Will Remain "The Prize"**



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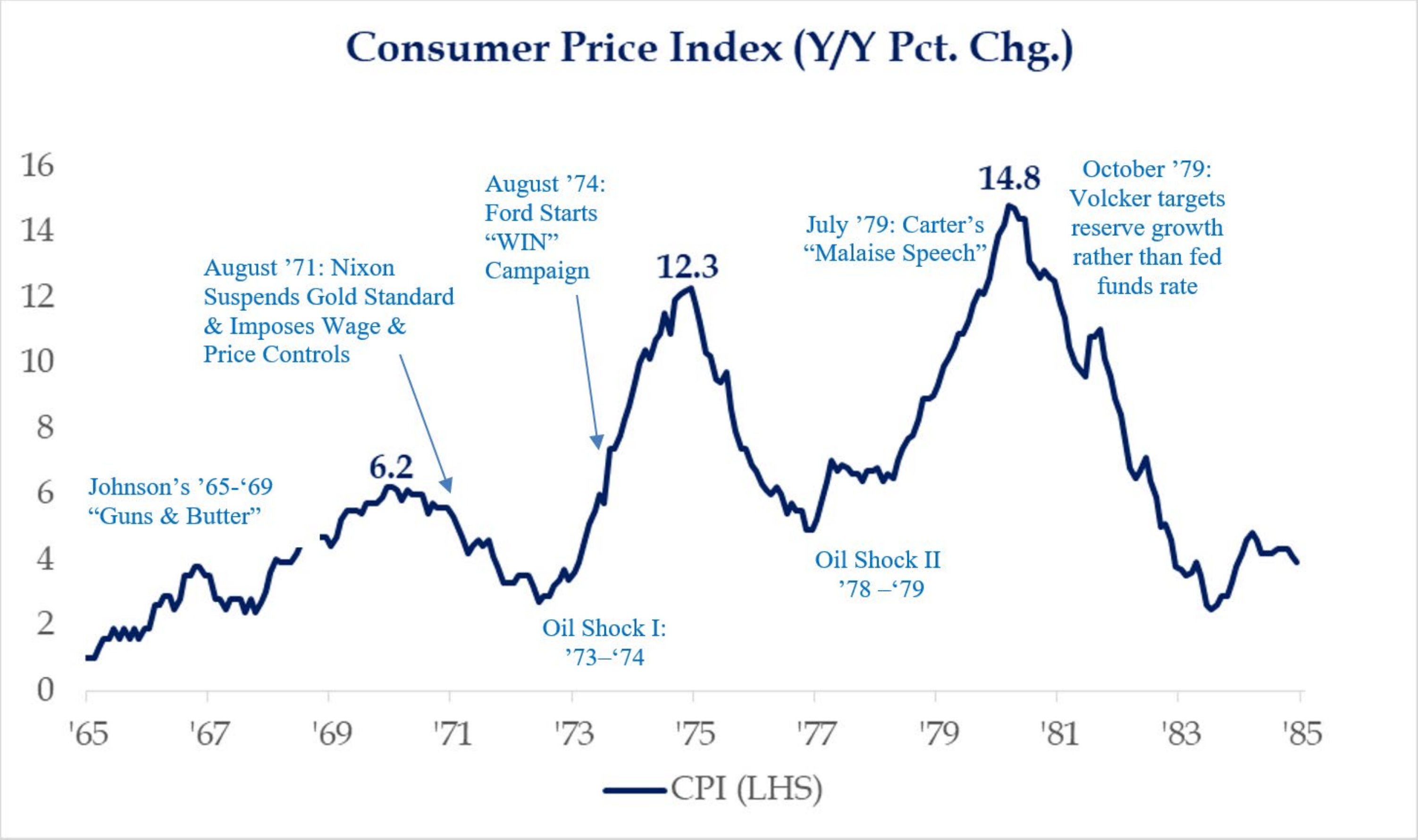
# 3% Inflation is More Typical than 2%; Reversion to the Mean

**REVERSION TO THE MEAN?**
**Average Inflation, Treasury Yields, Valuation, Tax Rates & Nominal GDP by Decade**

| | CPI Y/Y % Change | S&P 500 Operating P/E | 10 Year Treasury Yield | Dividend Tax Rate | Capital Gains Tax Rate | Nominal GDP |
|---|---|---|---|---|---|---|
| 1950s | 2.1% | 12.6 | 3.0% | 91.0% | 25.0% | 7.1% |
| 1960s | 2.3% | 18.1 | 4.7% | 80.3% | 25.4% | 7.0% |
| 1970s | 7.1% | 12.5 | 7.5% | 70.2% | 36.0% | 10.2% |
| 1980s | 5.6% | 11.7 | 10.6% | 48.4% | 23.6% | 7.8% |
| 1990s | 3.0% | 19.5 | 6.7% | 37.0% | 26.0% | 5.6% |
| 2000s | 2.6% | 20.1 | 4.5% | 23.4% | 16.8% | 4.1% |
| 2010s | 1.8% | 17.7 | 2.4% | 21.2% | 21.2% | 4.0% |
| 2020s | 4.6% | 22.6 | 2.1% | 23.8% | 23.8% | 7.2% |
| **Average** | **3.6%** | **16.9X** | **5.2%** | **49.4%** | **24.7%** | **6.6%** |
| **Current** | **3.7%** | **21.2X** | **5.0%** | **23.8%** | **23.8%** | **5.9%** |

# 70s Inflation: Bad Luck & Bad Policy



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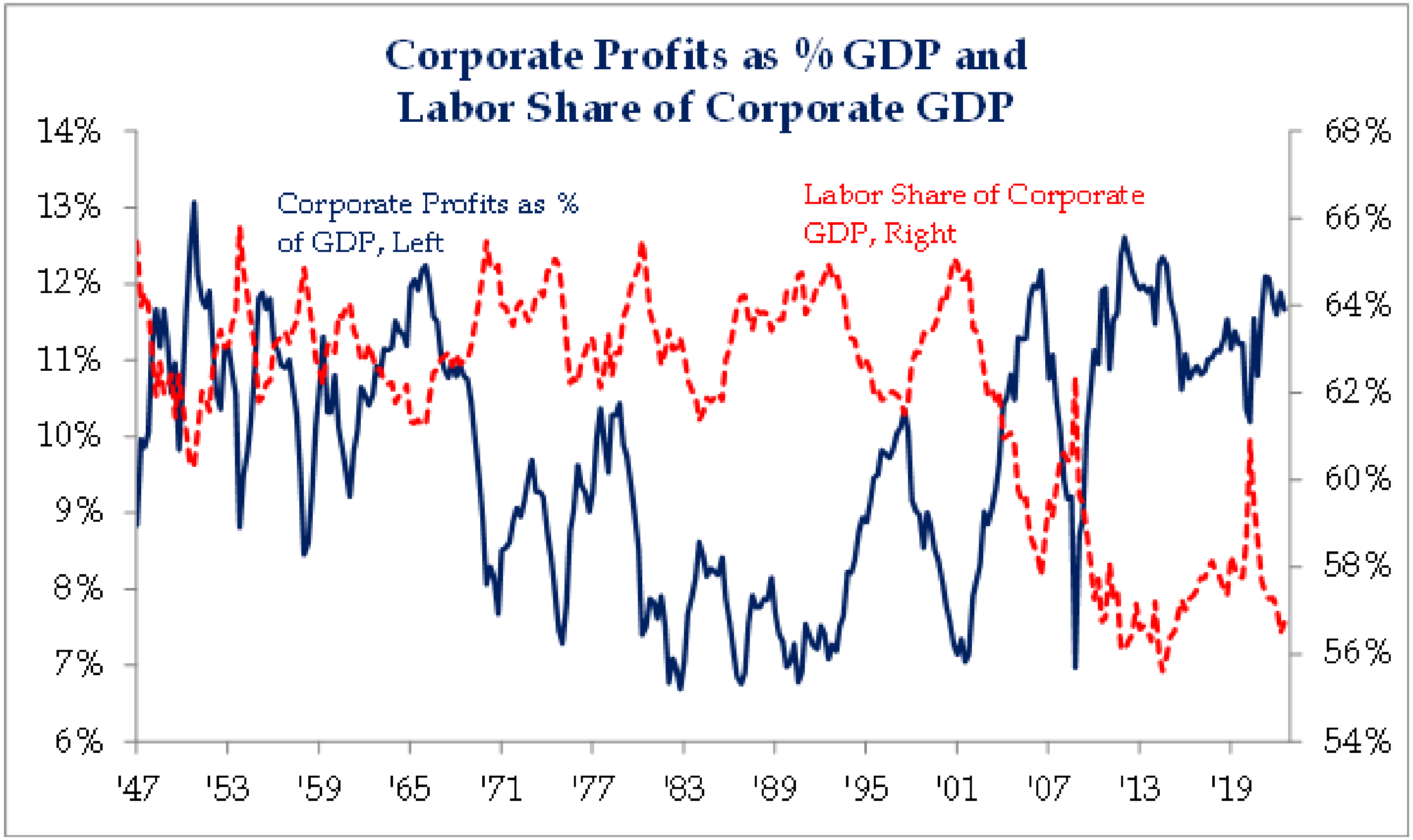
# Labor Seems "Due" vs. Capital



STRATEGAS

# Market Discounting "Goldilocks" Earnings & Multiples

**Implied S&P 500 Fair Value Worksheet:**
**Average S&P TTM P/E by CPI Y/Y Tranche** (1950-2022)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | CPI Tranche | -2-0% | 0-2% | 2-4% | 4-6% | 6-8% | 8-10% | 10-12% |
| | Avg Tranche P/E | 16.8x | 18.6x | 17.4x | 15.1x | 12.0x | 11.6x | 8.5x |
| **Estimates** | | **Fair Value** | | | | | | |
| **Average** EPS Decline in Recession: **-31.6%*** | $152.11 | 2,556 | 2,829 | 2,647 | 2,297 | 1,825 | 1,765 | 1,293 |
| **Median** EPS Decline in Recession: **-22.0%*** | $173.46 | 2,914 | 3,226 | 3,018 | 2,619 | 2,082 | 2,012 | 1,474 |
| Strategas Cycle Low (2Q'24) | $203.25 | 3,415 | 3,780 | 3,537 | 3,069 | 2,439 | 2,358 | 1,728 |
| Strategas CY'24 | $209.00 | 3,511 | 3,887 | 3,637 | 3,156 | 2,508 | 2,424 | 1,777 |
| Strategas CY'23 | $213.75 | 3,591 | 3,976 | 3,719 | 3,228 | 2,565 | 2,480 | 1,817 |
| Consensus CY'23 | $220.60 | 3,706 | 4,103 | 3,838 | 3,331 | 2,647 | 2,559 | 1,875 |
| Cycle Peak (3Q'22)* | $222.39 | 3,736 | 4,136 | 3,870 | 3,358 | 2,669 | 2,580 | 1,890 |
| Consensus CY'24 | $245.30 | 4,121 | 4,563 | 4,268 | 3,704 | 2,944 | 2,845 | 2,085 |

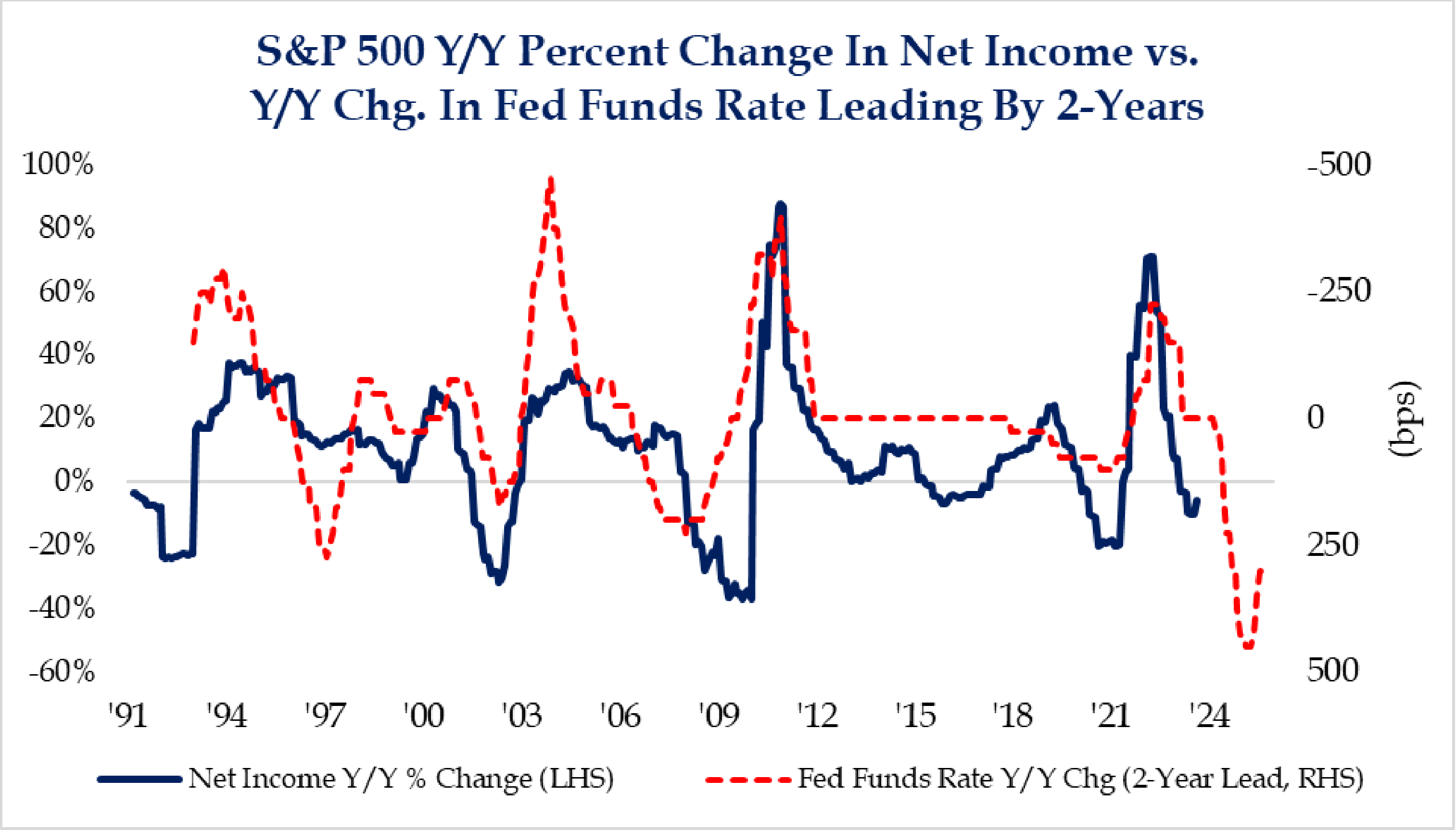
* Recession-related peak-to-trough earnings decline estimates assumes cycle earnings peak in 3Q'22 at $222.39, i.e. the sum of 4Q'21-3Q'22 actual operating EPS

# Earnings at Risk: Typical Recession Sees Earnings Declines of >30%

**S&P 500 Bear Market and Earnings Declines During Prior Economic Cycles & Recessions**

| Full-Cycle Period | Recession Period | Earnings Declines | Associated Bear Market Decline |
|---|---|---|---|
| 1Q'28 - 1Q'33 | 3Q'29 - 1Q'33 | -74.5% | -86.2% |
| 2Q'33 - 2Q'38 | 3Q'37 - 2Q'38 | -49.2% | -60.0% |
| 1Q'46 - 4Q'49 | 4Q'48 - 4Q'49 | -3.3% | -29.6% |
| 3Q'54 - 2Q'58 | 3Q'57 - 2Q'58 | -22.0% | -21.6% |
| 2Q'61 - 4Q'70 | 4Q'69 - 4Q'70 | -12.9% | -36.1% |
| 1Q'71 - 1Q'75 | 4Q'73 - 1Q'75 | -14.8% | -48.2% |
| 4Q'80 - 4Q'82 | 3Q'81 - 4Q'82 | -19.1% | -27.1% |
| 1Q'83 - 1Q'91 | 3Q'90 - 1Q'91 | -36.7% | -33.5% |
| 2Q'91 - 4Q'01 | 1Q'01 - 4Q'01 | -54.0% | -49.1% |
| 1Q'02 - 2Q'09 | 4Q'07 - 2Q'09 | -91.9% | -56.8% |
| 3Q'09 - 2Q'20 | 1Q'20 - 2Q'20 | -32.5% | -33.9% |
| | **Average** | **-31.6%** | **-41.3%** |
| | **Median** | **-22.0%** | **-35.0%** |

# Delayed Impact of Fed Tightening
# A Challenge for Earnings



# Little Risk Diversification in Passive Vehicles

# "Magnificent 7" Largest Sector in Index

| | Weights | | Value |
|---|---|---|---|
| | Earnings | Sector | Difference |
| Financials | 21.6% | 13.2% | 8.4% |
| Energy | 11.1% | 4.6% | 6.5% |
| Industrials | 9.6% | 8.2% | 1.4% |
| Consumer Disc. | 6.2% | 5.5% | 0.7% |
| Materials | 2.7% | 2.3% | 0.4% |
| Utilities | 2.6% | 2.3% | 0.3% |
| Consumer Staples | 6.6% | 7.0% | -0.4% |
| Real Estate | 1.7% | 2.2% | -0.5% |
| Health Care | 12.0% | 12.9% | -0.9% |
| Communications | 1.8% | 3.0% | -1.2% |
| Technology | 7.3% | 10.8% | -3.5% |
| Magnificent 7 | 16.9% | 28.3% | -11.4% |

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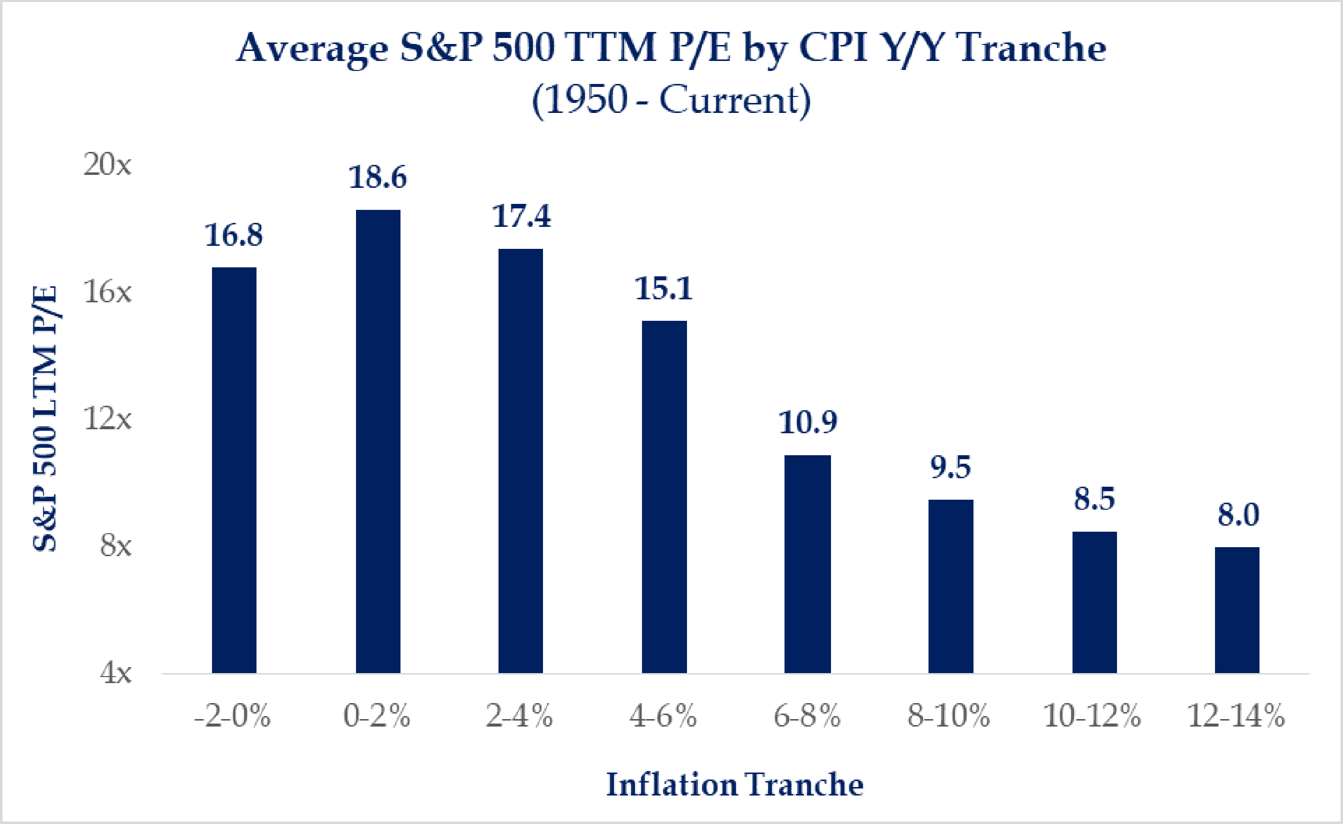
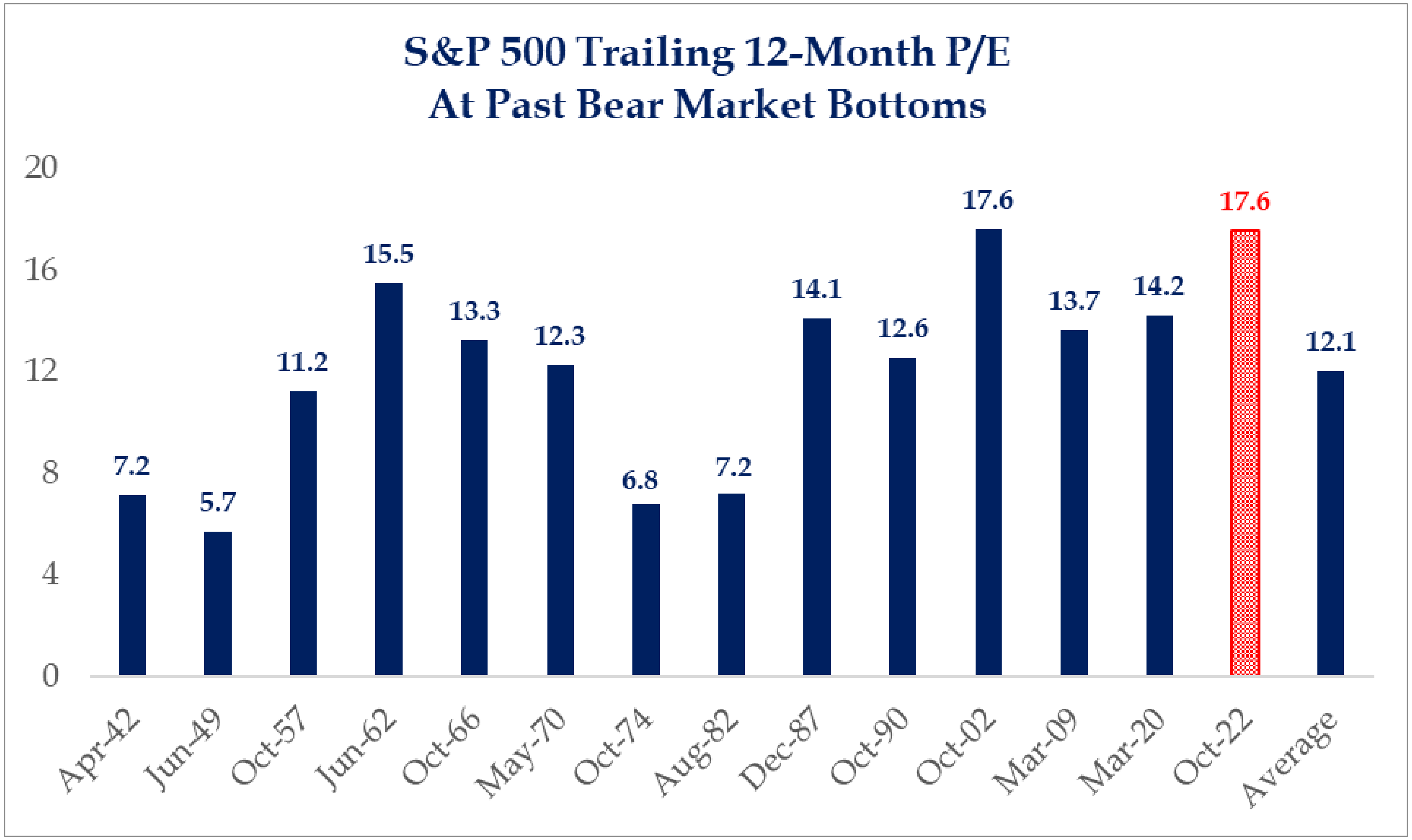
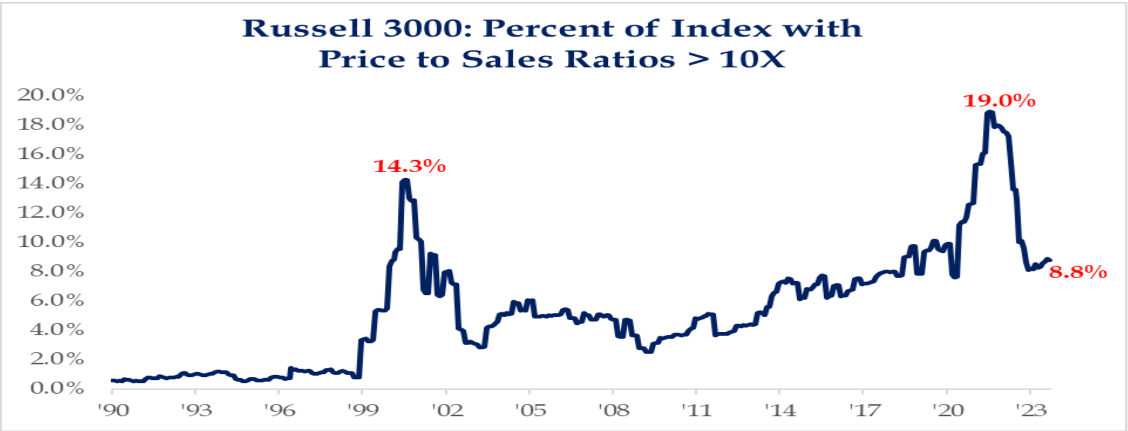
# Inflation: Kryptonite for Multiples



# Multiples at Market Bottoms



# Higher Rates a Risk to Long-Duration Stocks



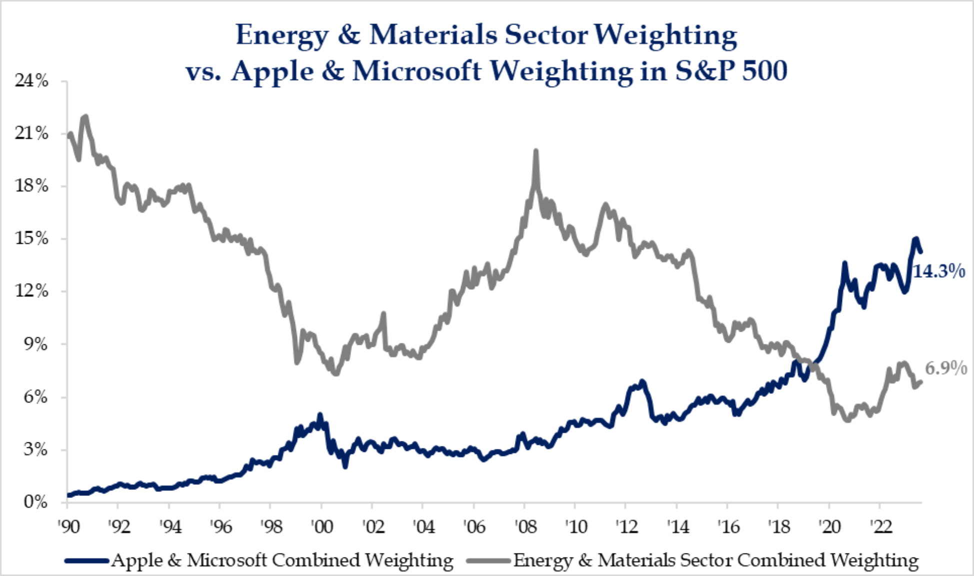

| Percent Of Non-Earning Companies | | | |
|---|---|---|---|
| | Current Reading | Long-Term Average | Highest Reading Since 1990 |
| Russell 1000 Growth | 20.1% | 10.9% | 33.5% |
| Russell 1000 | 15.4% | 11.6% | 28.4% |
| Russell 1000 Value | 13.6% | 12.6% | 37.0% |
| Russell 2000 Growth | 45.3% | 29.5% | 54.8% |
| Russell 2000 | 42.1% | 27.5% | 48.6% |
| Russell 2000 Value | 40.9% | 25.0% | 46.2% |

*"At 10 times revenues, to give you a 10-year payback, I have to pay you 100% of revenues for 10 straight years in dividends. That assumes I can get that by my shareholders. That assumes I have zero cost of goods sold, which is very hard for a computer company. That assumes zero expenses, which is really hard with 39,000 employees. That assumes I pay no taxes, which is very hard. And that assumes you pay no taxes on your dividends, which is kind of illegal. And that assumes with zero R&D for the next 10 years, I can maintain the current revenue run rate. Now, having done that, would any of you like to buy my stock at $64? Do you realize how ridiculous those basic assumptions are? You don't need any transparency. You don't need any footnotes. What were you thinking?"*

**Scott McNealy, Sun Microsystems**

# Reasons to Own Energy Sector

1. American majors are unusually capital disciplined.
2. The sector is institutionally under-owned. The combined weights of the Energy and Materials sectors are less than half the sum of the weights of AAPL & MSFT.
3. The sector's earnings weighting is almost double its market cap weighting.
4. The sector tends to outperform during periods of tighter regulation (Presidents Carter and Biden) than looser regulation (Presidents Reagan and Trump).
5. Short-duration equities in a higher inflation environment.
6. 96% of stocks in the sector are above their 200-day MA.



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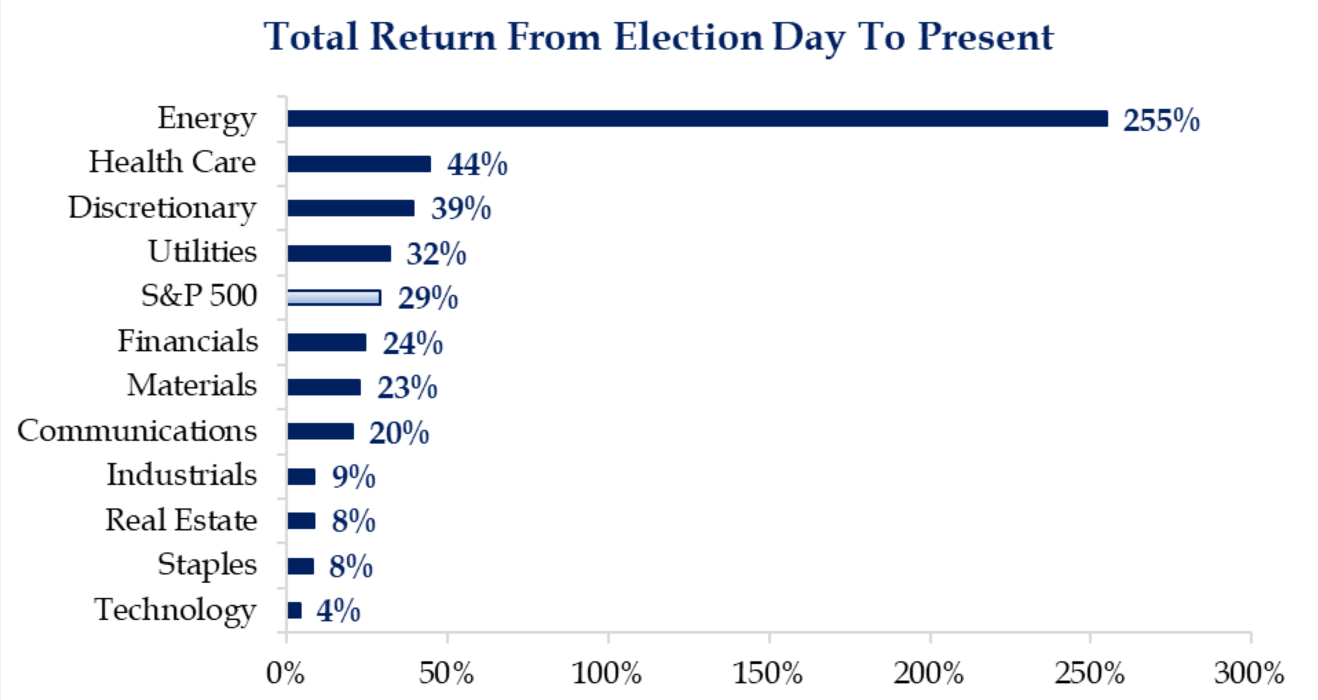
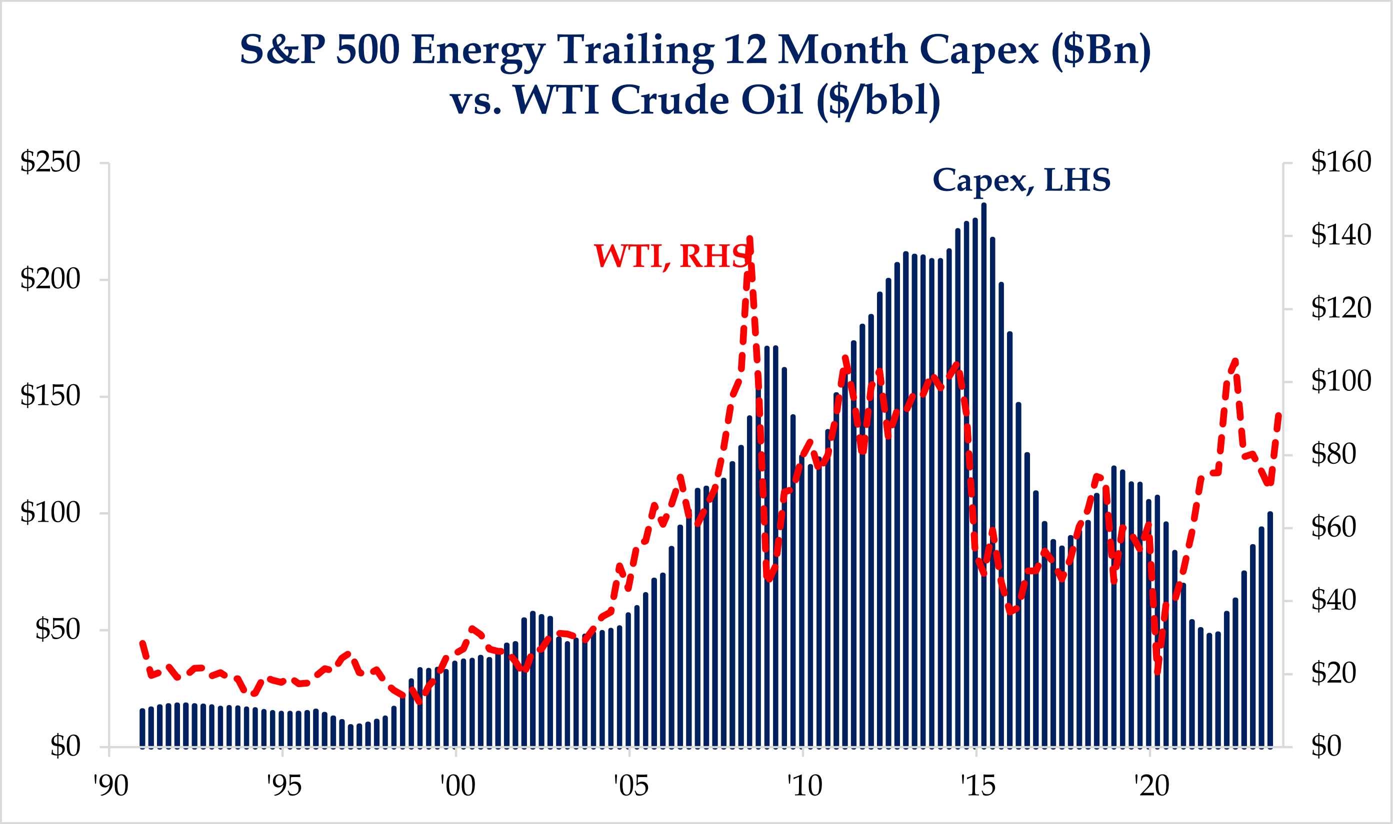
# Tight Regulation Good for Energy Stocks

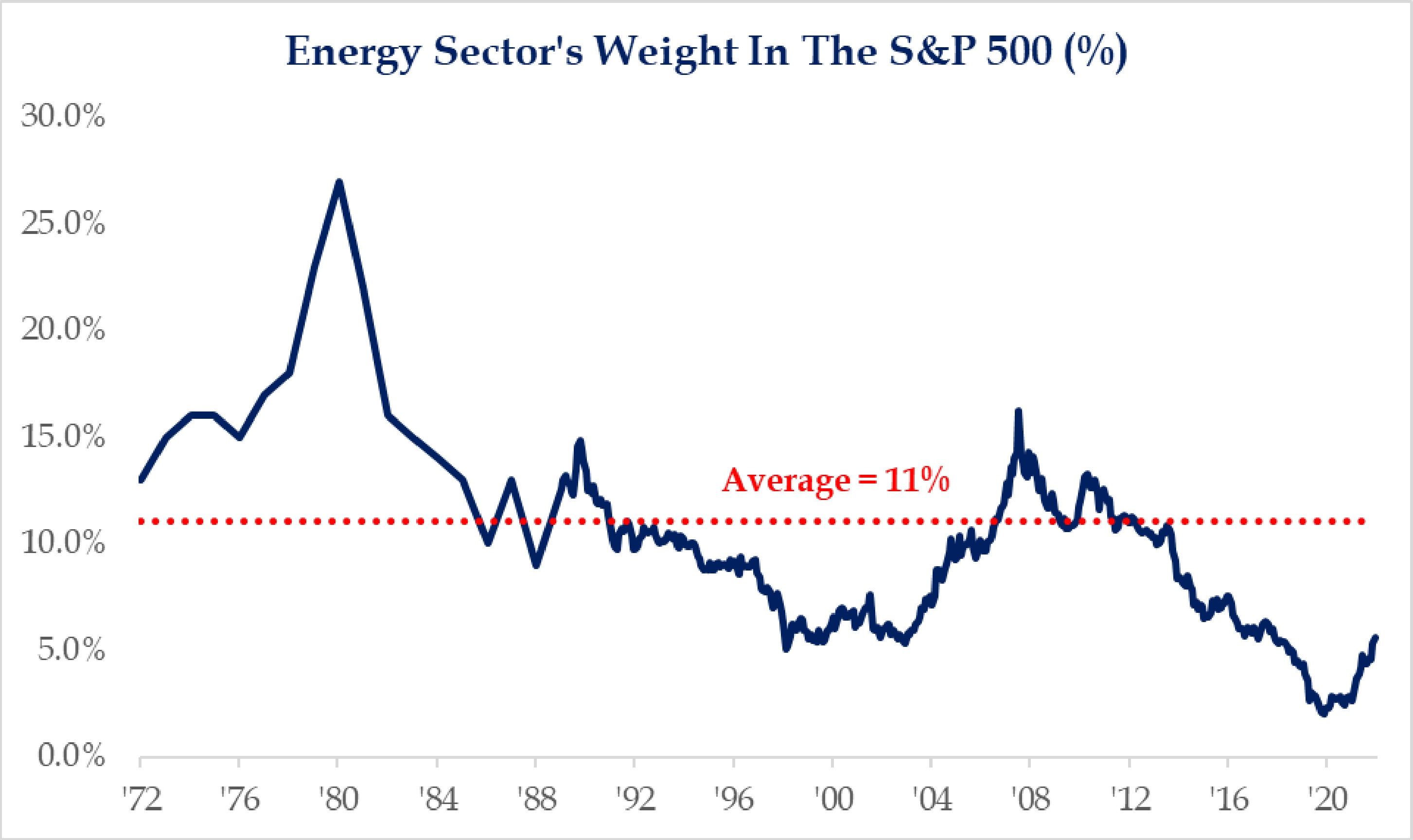



Source: Strategas, FactSet, Total Return Data (11/6/20 - Present)

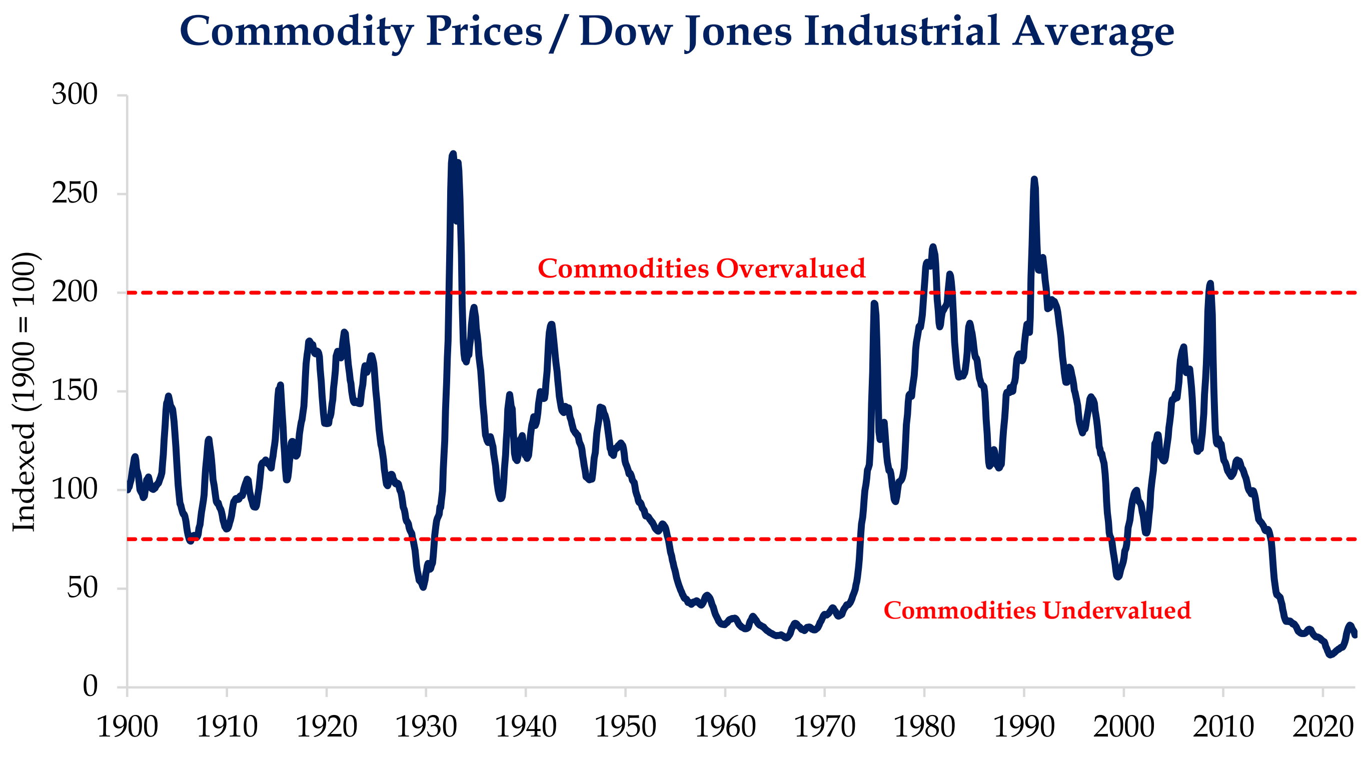
# Yawning Gap Between Price & Capex Beginning To Close



# Energy Sector as % S&P: Reverting to the Mean?



# Hard Assets Historically Cheap Relative to Stocks




Source: Bloomberg & GR Models

# Trifecta for Commodities:
# 1) Regulations 2) EV Subsidies 3) War

*"There is no good substitute for copper wiring. Electric cars require four times as much copper as vehicles with internal combustion engines. Onshore wind farms are four times as copper intensive per megawatt as traditional power plants."*

**Barron's**
February 1, 2021

| | Material Required for 18 Million Vehicles* (Tons) | Total Production 2022 (Tons) | % of Current Production Required | Decade to Date Price Change** |
|---|---|---|---|---|
| Graphite | 925,898 | 1,300,000 | 71.2% | N/A |
| Nickel | 675,369 | 3,300,000 | 20.5% | 47.1% |
| Lithium | 114,572 | 130,000 | 88.1% | 521.2% |
| Copper | 1,638,000 | 22,000,000 | 7.4% | 34.7% |
| Manganese | 18,730 | 20,000,000 | 0.09% | 0.8% |
| Cobalt | 61,484 | 190,000 | 32.4% | 2.0% |
| Aluminum (Battery) | 14,890 | 69,000,000 | 0.0% | 18.8% |
| Aluminum (Vehicle) | 3,042,000 | 69,000,000 | 4.4% | |
| MagREO (NdPr, Dy, Tb) | 16,200 | ***46,000 | 35% | N/A |

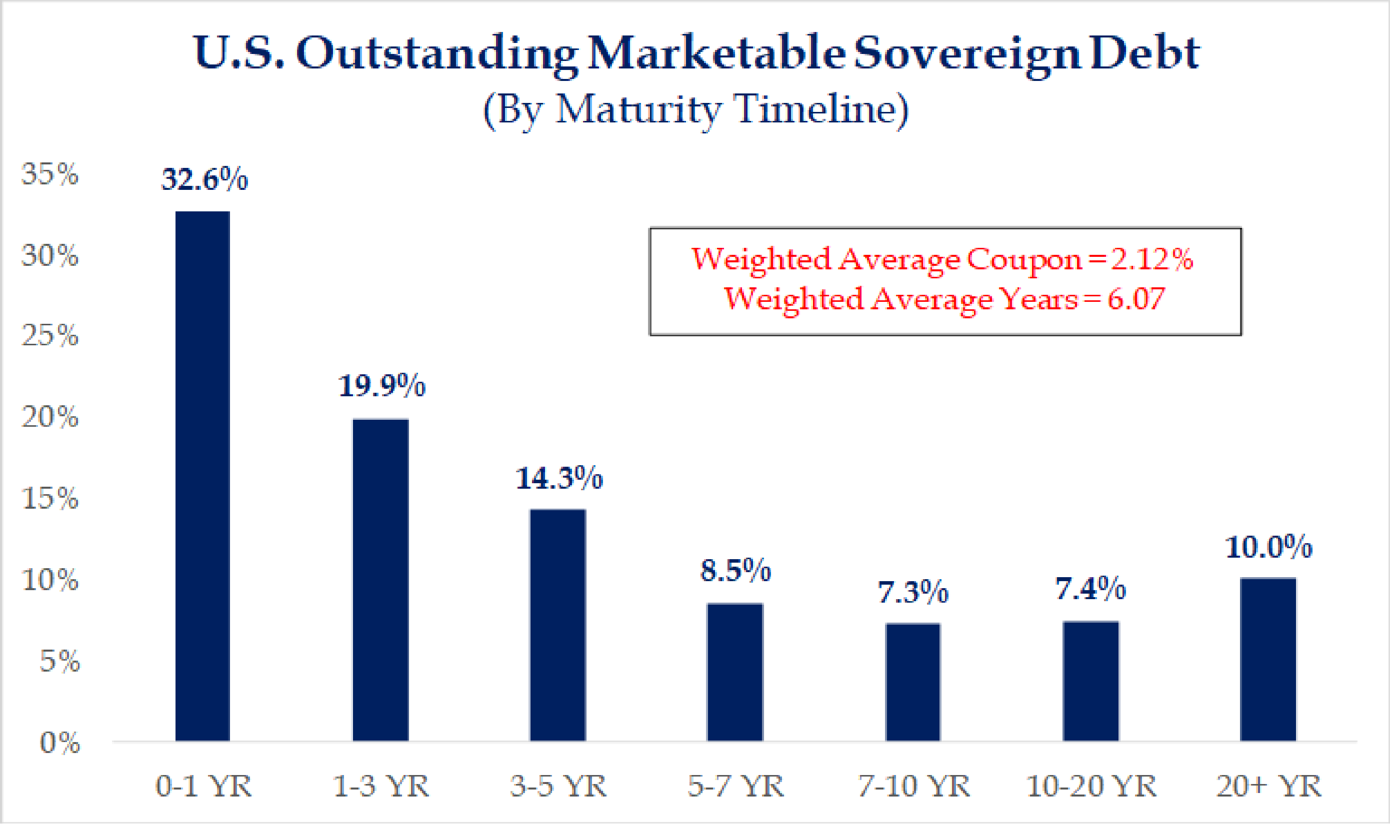
** EV30@30 Campaign - 30% of motor vehicle production to be EV*
** Assumes 1.4% per annum increase in worldwide vehicle production 2020-2030*
*** 12/31/19 - 6/30/23*
**** As of 2019*

***Based on the model presented in this report, large relative increases in demand of up to nearly 500 percent are estimated for certain minerals, especially those concentrated in energy storage technologies, such as lithium, graphite, and cobalt.***

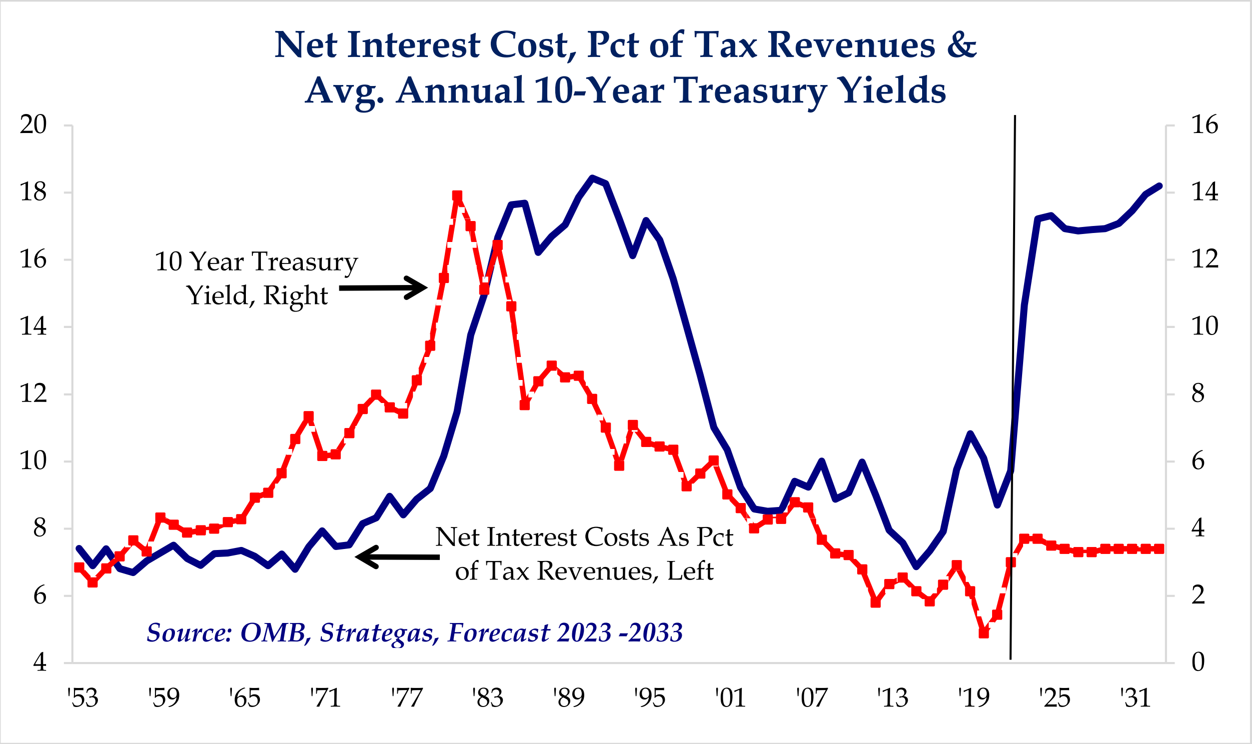
*"Minerals for Climate Action: The Mineral Intensity of the Clean Energy Transition."*
**The World Bank, 2020**

STRATEGAS

# Interest Expense Likely to Be a Greater Portion of Budget and Deficit



# Interest Expense Set to Explode as % of Federal Budget




## CBO's Optimistic 2032 Assumptions

| | |
|---|---|
| CPI % | 2.3% |
| 10-Yr. | 3.8% |
| Fed Fds. | 2.7% |

*For the first year, for every 0.1% the Fed raises rates above the CBO forecast, it adds $10bn in net interest costs to the Fed. We are planning for net interest cost to be $250-300bn higher when the Fed rate increases are fully implemented (timing issues may impact when the cost is realized). Meaning we could have roughly $2.7 trillion in added interest costs over 10 years.*

# Reserve Currency No Divine Right

## Exorbitant Privilege: Graveyard of Empires

| | |
|---|---|
| • Rome | 1st Century BC – 4th Century AD |
| • Byzantine Empire | 5th Century |
| • Arabian Dinar | 7th – 10th Centuries |
| • Florence | 13th - 15th Centuries |
| • Portugal | 1450 – 1530 |
| • Iberian Union | 1530 – 1640 |
| • Netherlands | 1640 – 1720 |
| • France | 1720 – 1815 |
| • U.K. | 1815 – 1920 |
| • U.S. | 1920 - |

# The Political Class & Populism

<u>**The "Average Joe" Now Questioning:**</u>

1. **Nation-building**
2. **"Free" Trade**
3. **Open borders**
4. **The Affordable Care Act**
5. **QE-forever (e.g. fin'l repression; negative interest rates)**
6. **Covid Lockdowns, Mask & Vaccine Mandates**
7. **The "Green Energy" Transition**

<u>***If "Joe" Were on an Investment Committee:***</u>

8. **Over-diversification of investment accounts (e.g. the Yale Model)**

***"I think people in this country have had enough of experts."***

**Michael Gove, MP during Brexit debate.**

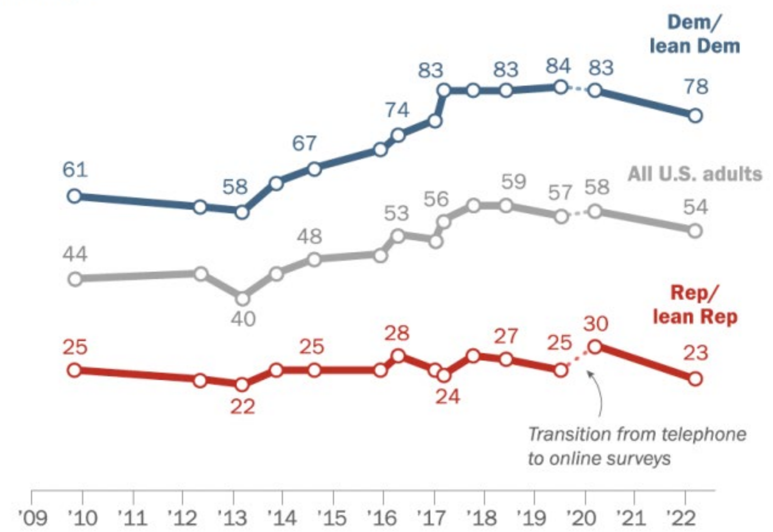
*"We seemed about to enter an Olympian age in this country, brains and intellect harnessed to great force, the better to define a common good… It seems long ago now, that excitement which swept through the country, or at least the intellectual reaches of it, that feeling that America was going to change, that the government had been handed down from the tired, flabby chamber-of-commerce mentality of the Eisenhower years to the best and brightest of a generation."* <u>David Halberstam</u>, <u>*The Best and the Brightest*</u>

# Issues Most Important to American Voters

| 2022 Midterm Issues Ranked Very Important | |
|---|---|
| Economy | 79 |
| Future of Democracy | 70 |
| Education | 64 |
| Health Care | 63 |
| Energy Policy | 61 |
| Violent Crime | 61 |
| Election Issues | 58 |
| Gun Policy | 57 |
| Abortion | 56 |
| Supreme Court | 55 |
| Immigration | 54 |
| Foreign Policy | 54 |
| Size Federal Gov't | 41 |
| Climate Change | 38 |
| Race/Ethnicity Issues | 34 |
| Trump Investigations | 30 |
| Biden Investigations | 29 |
| Coronavirus | 23 |
| % Saying Very Important | |

**54% of Americans view climate change as a major threat, but the partisan divide has grown**

*% of U.S. adults who say global climate change is a major threat to the country*

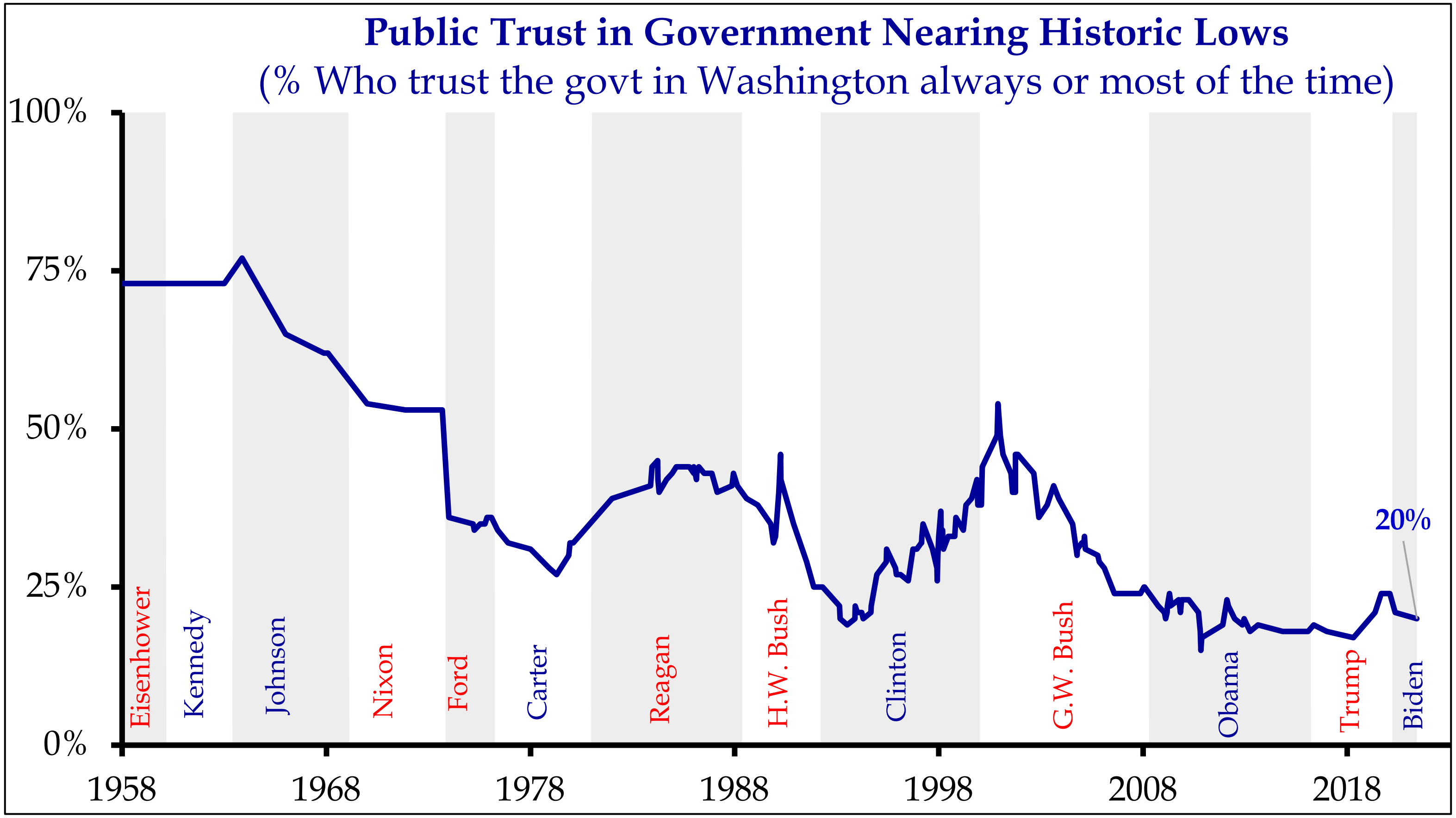



Note: Respondents who gave other responses or did not give an answer are not shown.
Source: Spring 2022 Global Attitudes Survey.

PEW RESEARCH CENTER

STRATEGAS

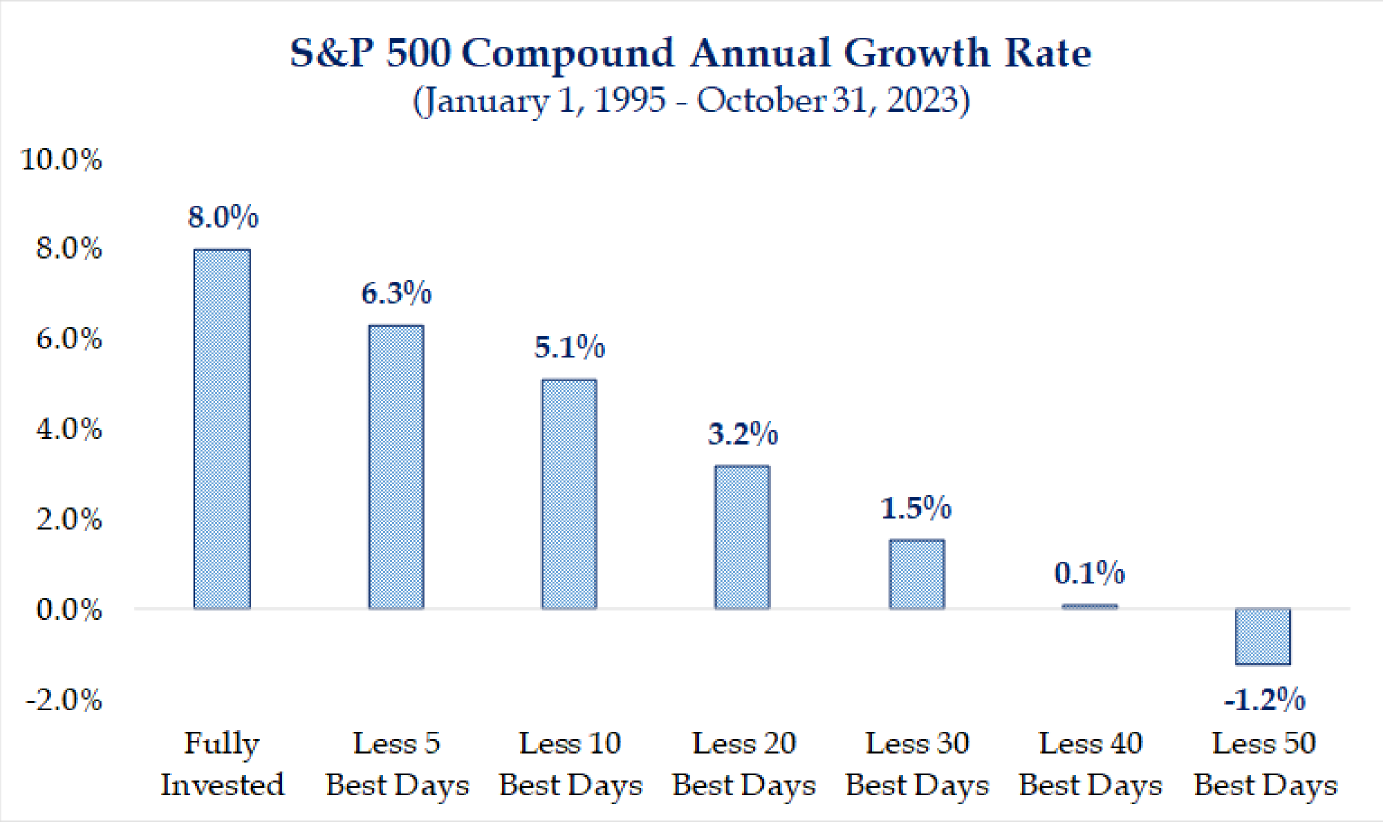
# The Failure of the Political Class & Trust



# Recommended Sector Allocation Favors Value

| Overweight | Neutral Weight | Underweight |
|---|---|---|
| 1. Energy | 1. Technology | 1. Discretionary |
| 2. Industrials | 2. Staples | 2. Utilities |
| 3. Health Care | 3. Materials | 3. Real Estate |
| | | 4. Financials |
| | | 5. Communications |

# The Cost of Missing the "Best" Days



# THE WALL STREET JOURNAL

## Selected Op-eds - Trennert

| | |
|---|---|
| *The Stock Market & The TINA Factor* | April 12, 2013 |
| *In Defense of a Demonized Wall Street* | October 23, 2015 |
| *Red States Tickled Pink Over the Economy* | April 30, 2018 |
| *Why the Bull Has Room to Run* | March 7, 2019 |
| *Modern Monetary Theory is Ancient* | August 14, 2019 |
| *Remember the Forgotten Man?* | October 28, 2020 |
| *Does the Fed Have the Will to Fight Inflation?* | October 3, 2021 |
| *Climate Change 'Solutions" That Are Worse Than the Problem* | April 6, 2022 |
| *New York Smells Like a Declining City* | March 9. 2023 |
| *Poppies for Veterans, an American Tradition* | May 26, 2023 |

# APPENDIX – IMPORTANT DISCLOSURES

TAB 4

Q3 OPERF

PERFORMANCE

MEKETA | 45 YEARS
CELEBRATING A MILESTONE

# Oregon Investment Council

## As of September 30, 2023

## Q3 Performance Update

# Table of Contents

# Introduction

## OPERF Executive Summary – Notable Items

→ The third quarter was marked by a challenged environment for both equities and fixed income. The OPERF portfolio was modestly negative in the period (-0.7%).

→ There is one action item at the meeting- a proposed Investment Policy Statement is provided for potential approval by the Council for the OPERF portfolio- a joint Aon-Meketa and Staff effort, which included feedback from all parties since the last OIC Meeting.

→ The annual Fixed Income asset class review will take place at December's meeting. It is split into an internal portfolio review, and an OPERF review.

→ 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 October 31, 2023

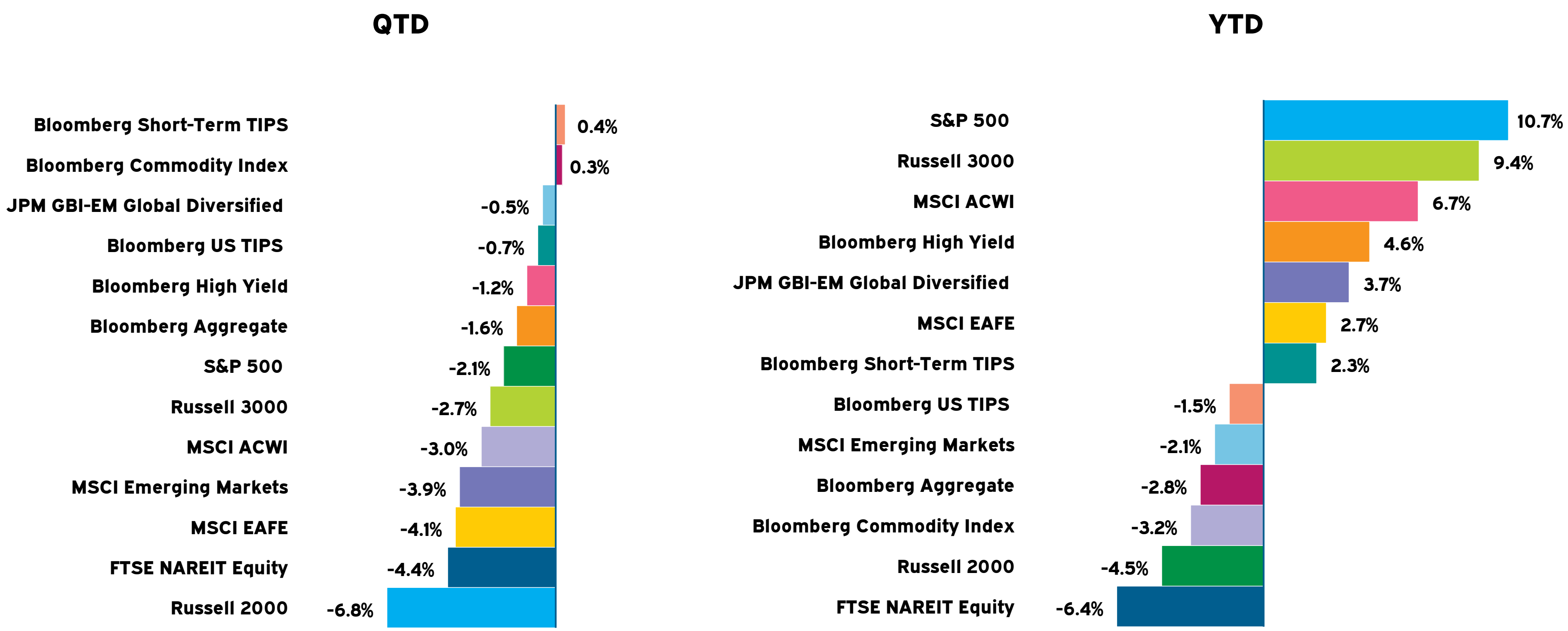
## Commentary

→ Global markets continued to struggle in October, as expectations remained on the Fed keeping interest rates higher for longer due to resilient economic data.

- The Federal Open Markets Committee (FOMC), which increased policy rates in July by 0.25% to a range of 5.25% - 5.5%, has been on pause since. Markets are now largely expecting the FOMC to maintain interest rates at this level through the first half of next year with cuts to follow.
- US equity markets (Russell 3000 index) fell in October (-2.7%), lowering the year-to-date gains to 9.4%. Most sectors except utilities struggled in October.
- Non-US developed equity markets declined more than the US in October (MSCI EAFE -4.1%), with the strength of the US dollar weighing on returns. This widened the gap between US and international developed equities for the year (to 9.4% versus 2.7%).
- Emerging market equities also fell in October (-3.9%), with negative results driven by China and the strong US dollar. Emerging markets continue to significantly trail developed market equities year-to-date, returning -2.1%, again driven by losses from China (-11.2%).
- Interest rates generally rose in October, particularly for longer-dated maturities. The broad US bond market declined (-1.6%) in October falling further into negative territory (-2.8%) year-to-date, as higher income has offset a portion of the capital losses from rising rates.

→ For the rest of this year and into 2024, the paths of inflation and monetary policy, slowing global growth, and the wars in Ukraine and Israel will all be key.

## Index Returns[1]




→ After a strong start to the year, the prospect of higher interest rates for longer given resilient economic data has weighed on markets from August through October.

[1] Source: Bloomberg. Data is as of October 31, 2023.

## Domestic Equity Returns[1]

| Domestic Equity | October (%) | Q3 (%) | YTD (%) | 1 YR (%) | 3 YR (%) | 5 YR (%) | 10 YR (%) |
|---|---|---|---|---|---|---|---|
| S&P 500 | -2.1 | -3.3 | 10.7 | 10.1 | 10.3 | 11.0 | 11.2 |
| Russell 3000 | -2.7 | -3.3 | 9.4 | 8.4 | 9.2 | 10.2 | 10.5 |
| Russell 1000 | -2.4 | -3.1 | 10.3 | 9.5 | 9.5 | 10.7 | 10.9 |
| Russell 1000 Growth | -1.4 | -3.1 | 23.2 | 19.0 | 8.7 | 14.2 | 13.8 |
| Russell 1000 Value | -3.5 | -3.2 | -1.8 | 0.1 | 10.2 | 6.6 | 7.6 |
| Russell MidCap | -5.0 | -4.7 | -1.3 | -1.0 | 6.0 | 7.1 | 8.0 |
| Russell MidCap Growth | -5.1 | -5.2 | 4.3 | 3.3 | 0.8 | 8.1 | 9.1 |
| Russell MidCap Value | -5.0 | -4.5 | -4.4 | -3.6 | 8.8 | 5.7 | 6.9 |
| Russell 2000 | -6.8 | -5.1 | -4.5 | -8.6 | 3.9 | 3.3 | 5.6 |
| Russell 2000 Growth | -7.7 | -7.3 | -2.9 | -7.6 | -1.8 | 2.7 | 5.7 |
| Russell 2000 Value | -6.0 | -3.0 | -6.5 | -9.9 | 9.7 | 3.3 | 5.2 |

### US Equities: The Russell 3000 Index fell 2.7% in October but is up 9.4% YTD.

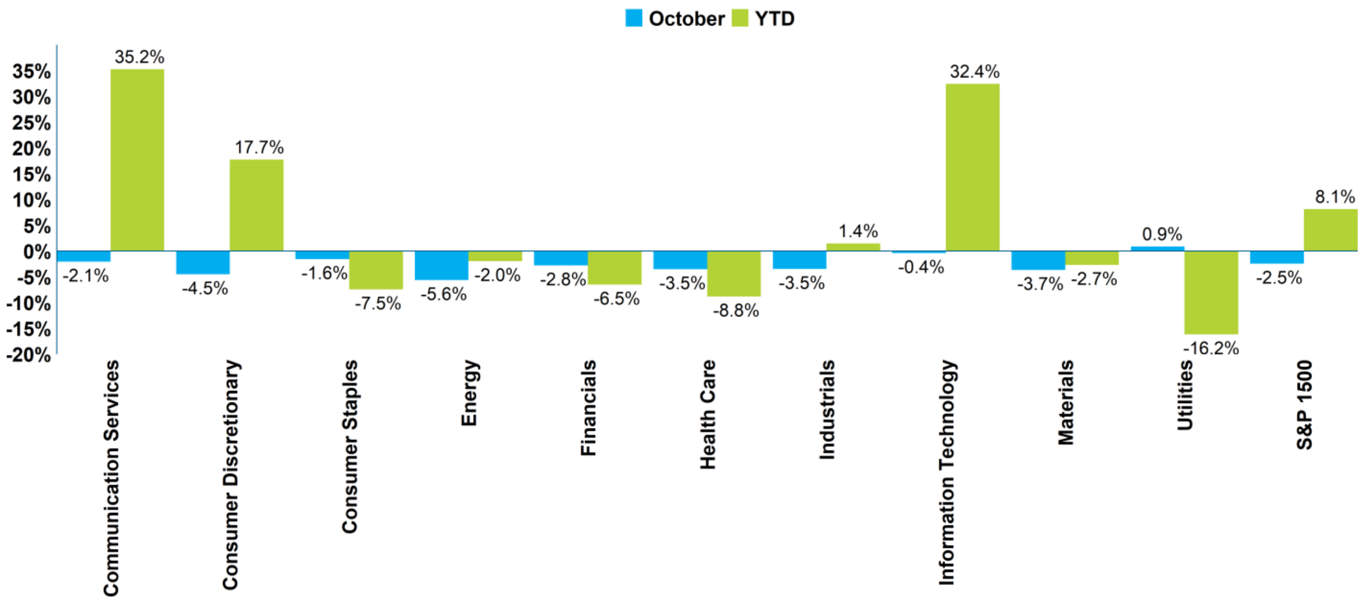
→ A surprisingly strong September jobs report and third quarter GDP reading reinforced investors' expectations that the Federal Reserve will keep interest rates higher for longer and broadly weighed on US equities.

→ The utility sector was the only sector that posted a gain during October. Energy stocks experienced the steepest fall, followed by consumer discretionary stocks.

→ Large cap stocks outperformed small cap stocks during October driven by the technology sector. Microsoft and Amazon, both of which reported stronger than expected third quarter results, were significant contributors to this dynamic.

[1] Source: Bloomberg. Data is as of October 31, 2023.

## S&P 1500 Sector Returns[1]




→ Except for utilities all sectors were down in October.

→ So far in 2023, the communication services (+35.2%) and technology (+32.4%) sectors had the best results, helped by artificial intelligence optimism. Given the continued strength in the US consumer the consumer discretionary sector followed (+17.7%), while more traditionally defensive sectors like utilities (-16.2%), health care (-8.8%), and consumer staples (-7.5%) have trailed.

[1] Source: Bloomberg. Data is as of October 31, 2023.

## Foreign Equity Returns[1]

| Foreign Equity | October (%) | Q3 (%) | YTD (%) | 1 YR (%) | 3 YR (%) | 5 YR (%) | 10 YR (%) |
|---|---|---|---|---|---|---|---|
| MSCI ACWI ex. US | -4.1 | -3.8 | 1.0 | 12.1 | 3.0 | 3.5 | 2.5 |
| MSCI EAFE | -4.1 | -4.1 | 2.7 | 14.4 | 5.7 | 4.1 | 3.1 |
| MSCI EAFE (Local Currency) | -3.4 | -1.3 | 7.0 | 10.4 | 11.0 | 6.4 | 6.0 |
| MSCI EAFE Small Cap | -5.9 | -3.5 | -4.2 | 6.5 | 0.3 | 1.6 | 3.4 |
| MSCI Emerging Markets | -3.9 | -2.9 | -2.1 | 10.8 | -3.7 | 1.6 | 1.2 |
| MSCI Emerging Markets (Local Currency) | -3.6 | -1.4 | 0.3 | 9.8 | -1.1 | 3.6 | 4.2 |
| MSCI China | -4.3 | -1.9 | -11.2 | 21.1 | -16.9 | -2.6 | 1.0 |

**Foreign Equity: Developed international equities (MSCI EAFE) fell 4.1% in October, dropping the YTD gain to 2.7%. Emerging market equities (MSCI EM) fell 3.9% in the period and were down 2.1% YTD.**

→ Non-US equities fell for the third consecutive month with steeper declines compared to the US market. The continued strength of the US dollar contributed to losses, as well as the ongoing geopolitical crisis in the Middle East.

→ European equities struggled due to slowing growth, falling PMI, and a contraction in household and business credit supply. The UK saw greater losses, with sticky inflation, and continued wage growth suggesting that rates will be high for some time. Japan remains the best performing market year-to-date, though the TOPIX lost momentum in October.

→ Emerging market equity performance was slightly better than developed international equities, but the declines for the month brought year-to-date results into negative territory. While there were some positive data out of China on industrial production and retail sales, continued weakness in real estate and new US chip restrictions weighed on market sentiment.

[1] Source: Bloomberg. Data is as of October 31, 2023.

## Fixed Income Returns[1]

| Fixed Income | October (%) | Q3 (%) | YTD (%) | 1 YR (%) | 3 YR (%) | 5 YR (%) | 10 YR (%) | Current Yield (%) | Duration (Years) |
|---|---|---|---|---|---|---|---|---|---|
| Bloomberg Universal | -1.5 | -2.9 | -2.1 | 1.2 | -5.0 | 0.2 | 1.2 | 6.0 | 5.9 |
| Bloomberg Aggregate | -1.6 | -3.2 | -2.8 | 0.4 | -5.6 | -0.1 | 0.9 | 5.6 | 6.1 |
| Bloomberg US TIPS | -0.7 | -2.6 | -1.5 | -0.7 | -2.0 | 2.3 | 1.6 | 5.2 | 6.6 |
| Bloomberg Short-term TIPS | 0.4 | 0.4 | 2.3 | 2.6 | 2.1 | 3.0 | 1.7 | 5.4 | 2.5 |
| Bloomberg High Yield | -1.2 | 0.5 | 4.6 | 6.2 | 1.2 | 3.0 | 3.9 | 9.5 | 4.0 |
| JPM GBI-EM Global Diversified (USD) | -0.5 | -3.3 | 3.7 | 13.5 | -3.0 | 0.3 | -1.2 | 7.0 | 4.9 |

### Fixed Income: The Bloomberg Universal index declined 1.5% in October and 2.1% YTD.

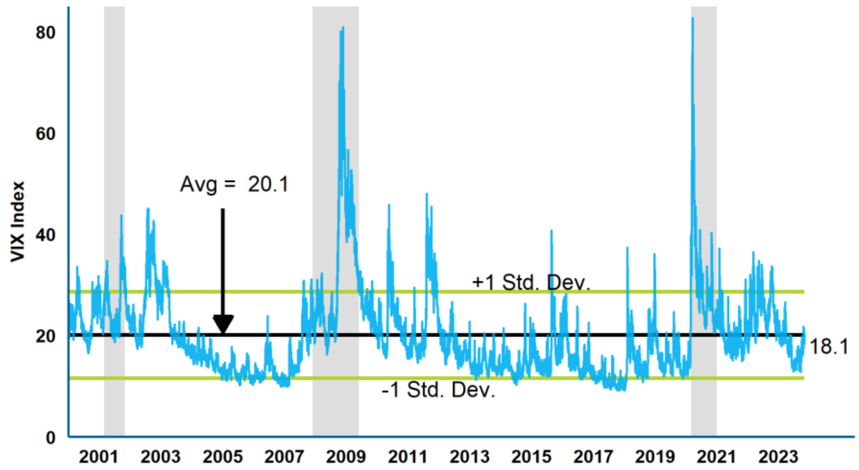
→ Expectations for policy rates to remain higher for longer than previously expected continued to weigh on yields in October.

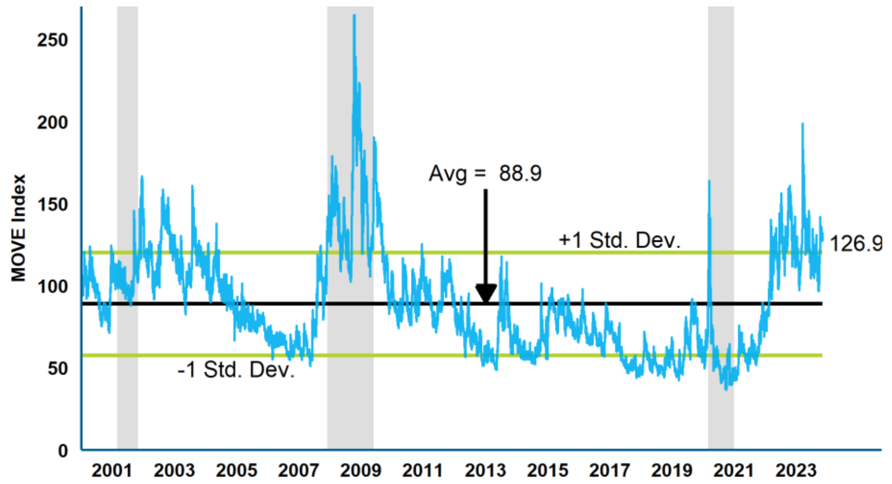
→ The broad US bond market (Bloomberg Aggregate) fell 1.6% in the month, driving year-to-date performance further into negative territory. The broader TIPS index fell by 0.7%, while the less interest-rate-sensitive short-term TIPS index outperformed most sectors, up 0.4%.

→ High yield bonds also weakened, declining 1.2%, and emerging market bonds fell 0.5%. Volatility in both asset classes is being driven by movement in broader interest rates, but also a modest deterioration in risk appetite.

[1] Source: Bloomberg. JPM GBI-EM data is from InvestorForce. Data is as of October 31, 2023. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration respectively.

## Equity and Fixed Income Volatility[1]



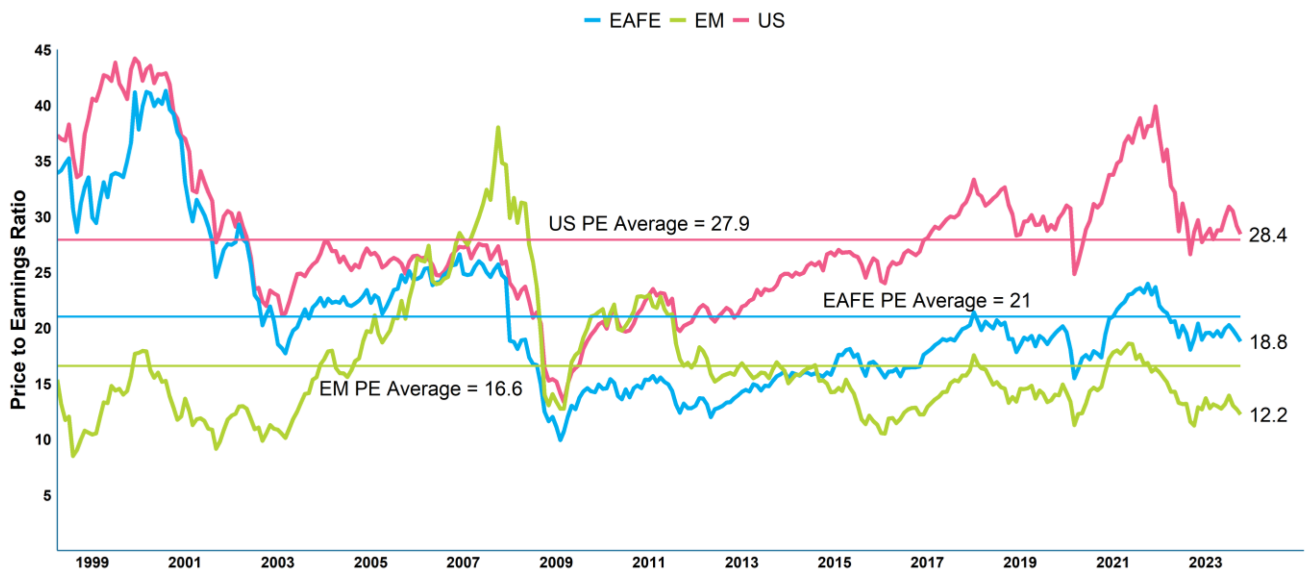




→ Volatility in equities (VIX) increased in October but finished at a level near the long-term average. The recent increase in equity volatility has largely been driven by investors coming to terms that interest rates might remain higher for a longer period.

→ In comparison, volatility in the bond market (MOVE) remains well above its long-run average (88.9) after last year's historic losses and due to continued policy uncertainty. In October, fixed income volatility finished higher compared to where it started, like equities, driven by expectations for rates to stay higher for longer and increased concerns about future US debt issuance.

[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 October 2023. The average line indicated is the average of the VIX and MOVE values between January 2000 and October 2023.

## Equity Cyclically Adjusted P/E Ratios[1]

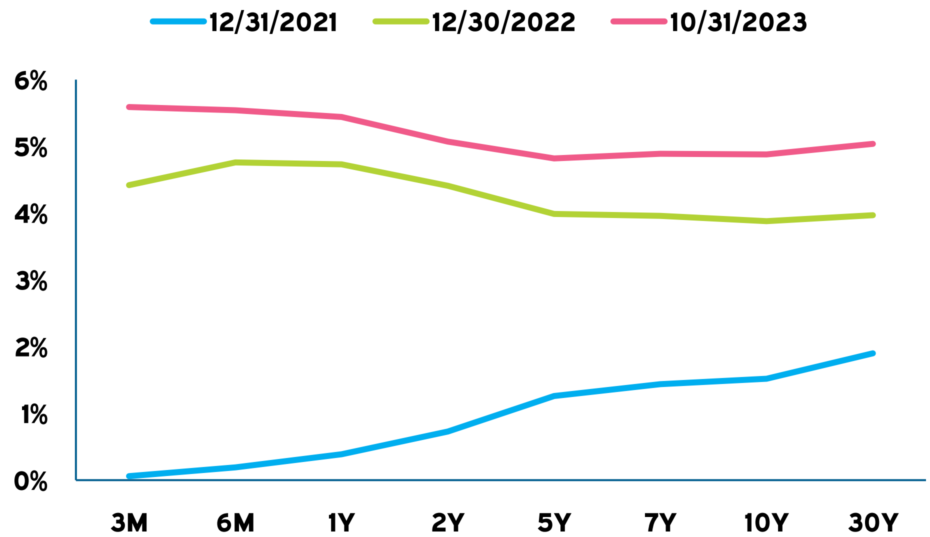



→ Given the strong technology-driven rally this year, the US equity price-to-earnings ratio increased above its long-run (21st century) average. With the equity market decline in August through October, the P/E ratio fell from its recent peak.

→ International developed market valuations are below their own long-term average, with those for emerging markets the lowest and well under the long-term average (close to one standard deviation below).

[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 October 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.

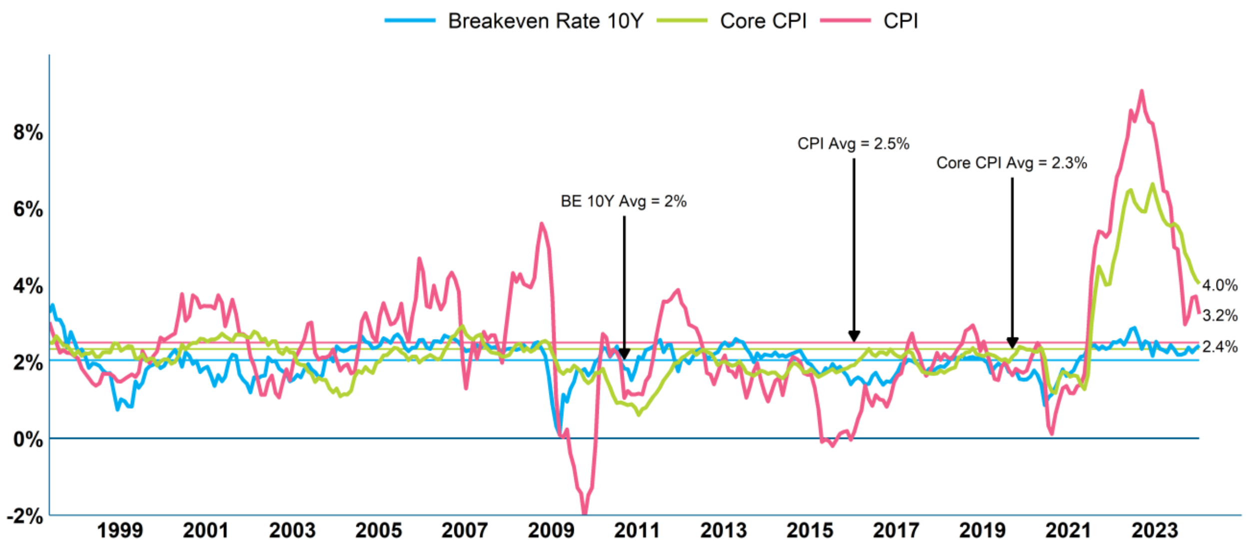
US Yield Curve[1]




- → Overall rates continued to increase this year, particularly at the policy sensitive front-end of the yield curve, but at a much slower pace compared to last year.
- → In October, very short-term interest rates (two years or less) increased only slightly as monetary policy has likely reached close to its terminal rate for this cycle. By contrast, longer-term rates continued their dramatic rise as investors come to terms with rates remaining higher for longer. The ten-year Treasury yield has experienced a significant increase from 3.9% to 4.9% since the beginning of the year.
- → Because of the dynamic above, the yield curve's inversion decreased further with the spread between two-year and ten-year Treasuries at -0.15% at the end of October (it started the third quarter at -1.05%).

[1] Source: Bloomberg. Data is as of October 31, 2023.

## Ten-Year Breakeven Inflation and CPI[1]




→ Year-over-year headline inflation fell from 3.7% to 3.2%, coming in slightly below expectations. Declines were driven by energy, used cars and trucks, and medical services.

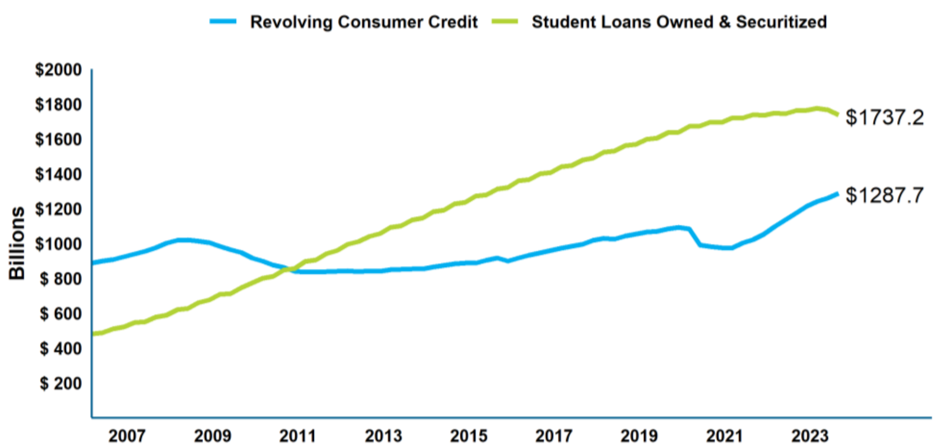
→ Core inflation – excluding food and energy – fell slightly (4.1% to 4.0%) year-over-year. It remains stubbornly high, though, driven by shelter costs (+6.7%), particularly owners' equivalent rent, and transportation services (+9.2%).

→ Inflation expectations (breakevens) remain below current inflation as investors continue to expect inflation to track back toward the Fed's 2% average target.

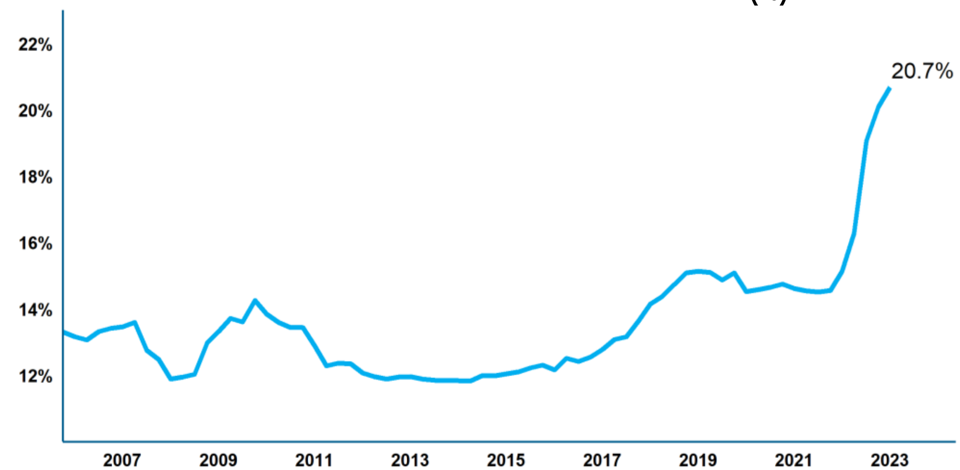
[1] Source: FRED. Data is as October 31, 2023. The CPI and 10 Year Breakeven average lines denote the average values from February 1997 to the present month-end, respectively. Breakeven values represent month-end values for comparative purposes.

## 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 an important driver of economic growth.

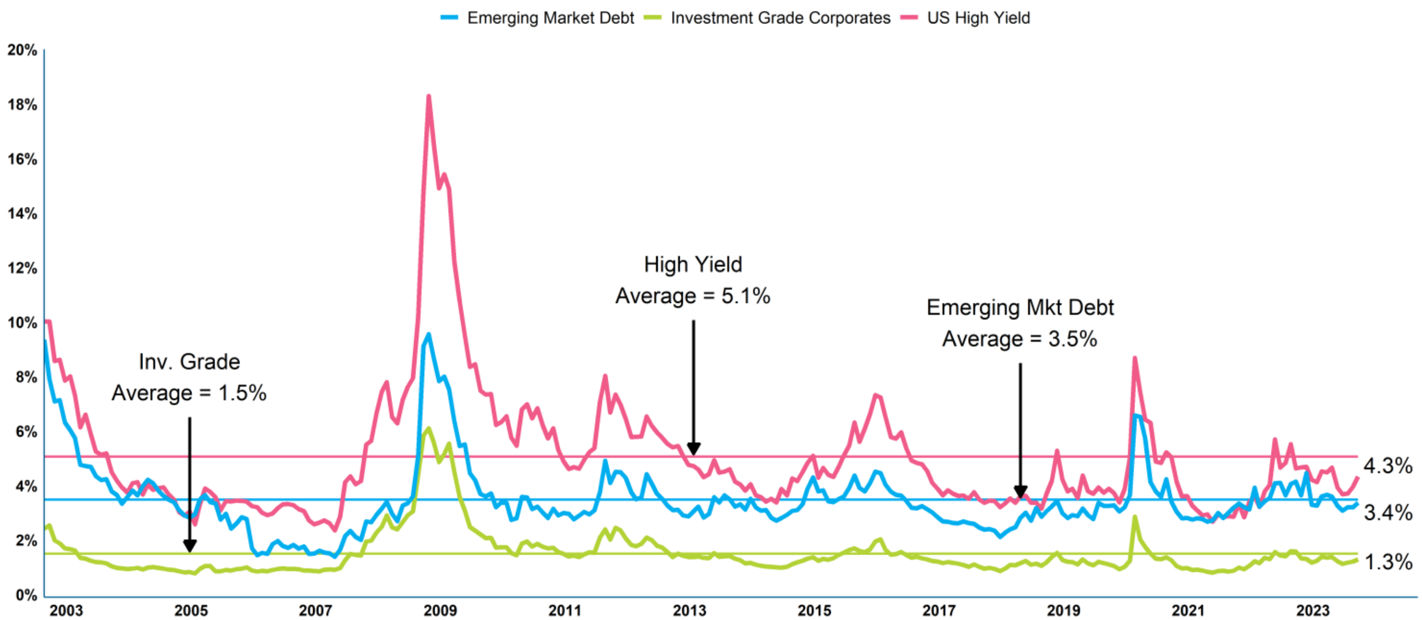
→ Revolving consumer credit surged to new highs in 2023 even as credit card interest rates hit levels not seen before (the prior peak was around 19% in the 1980s).

→ The return of student loan repayments after a three-year pandemic-related reprieve could add to pressures on consumers' budgets. This might be partially balanced 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. Revolving Consumer Credit and Student Loans data is as of September 30,2023. Revolving Consumer Credit data is seasonally adjusted to remove distortions during the holiday season. Consumer Credit Card Interest Rates data is as of June 30,2023.

## Credit Spreads vs. US Treasury Bonds[1]



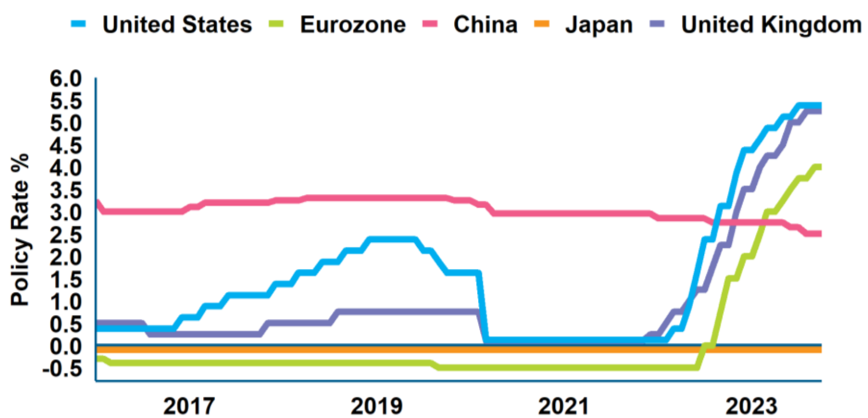

→ Credit spreads (the added yield above a comparable maturity Treasury) increased in October but remained below their respective long run averages.

→ High yield spreads continue to be the furthest below their long-term average given the overall risk appetite this year. Investment-grade and emerging market spreads are also below their respective long-term averages, but by smaller margins.

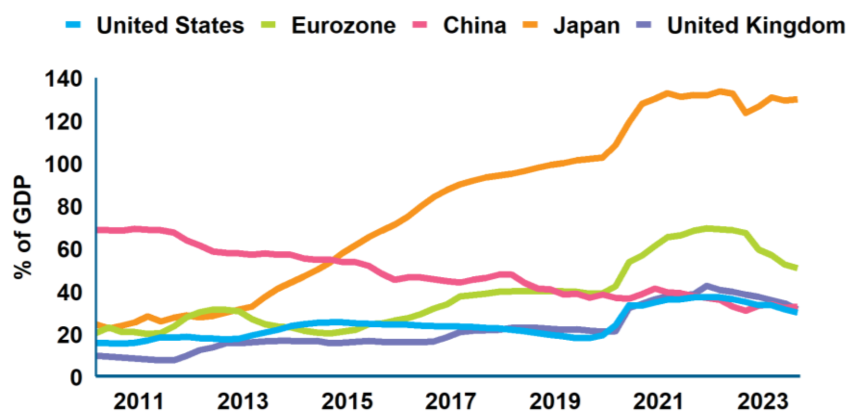
[1] Sources: Bloomberg. Data is as of October 31, 2023. Average lines denote the average of the investment grade, high yield, and emerging market spread values from September 2002 to the recent month-end, respectively.

## Central Bank Response[1]

### Policy Rates



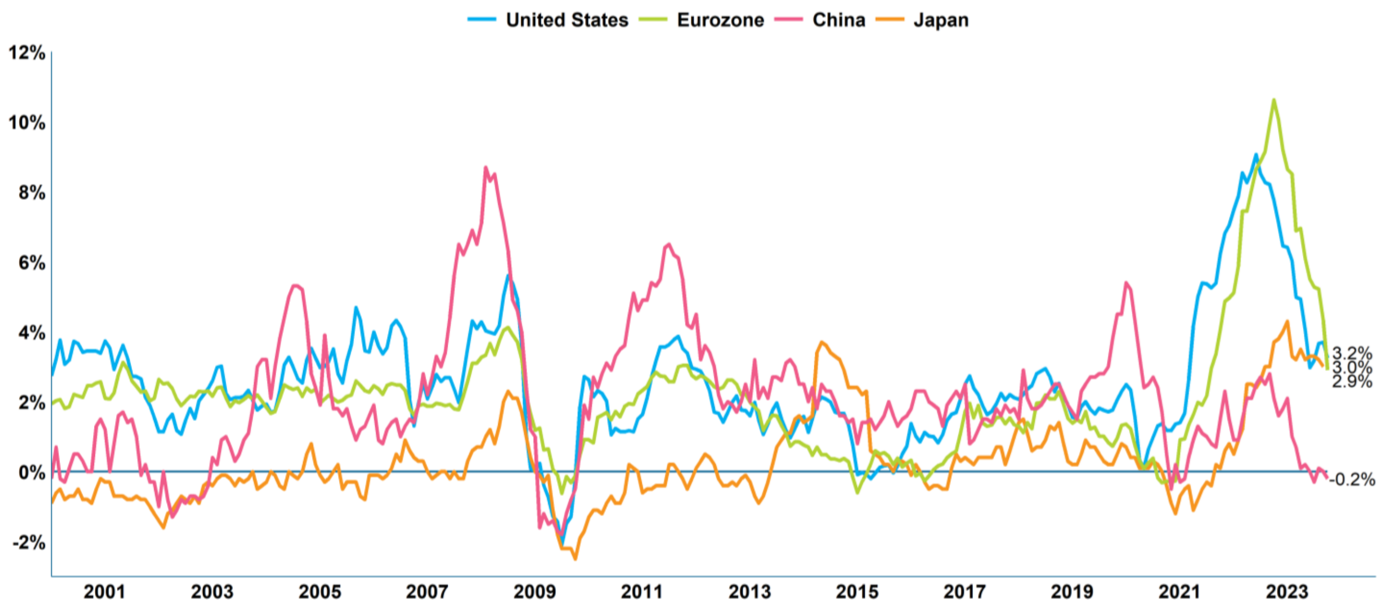

### Balance Sheet as % of GDP




- → Slowing inflation and growth have led to expectations for a reduction in the pace of aggressive policy tightening.
- → In July, the Fed raised rates another 25 basis points to a range of 5.25% to 5.50% and then kept rates at this level at their September and October/November meetings. Markets are not expecting any additional rate hikes.
- → The European Central Bank paused in October, with lower-than-expected inflation and weaker growth. 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 continued to cut interest rates and inject liquidity into the banking system, as weaker than expected economic data appears to indicate a widespread slowdown.
- → Risks remain for a policy error as central banks attempt to balance bringing down inflation, maintaining financial stability, and supporting growth.

[1] Source: Bloomberg. Policy rate data is as of October 31, 2023. China policy rate is defined as the medium-term lending facility 1 year interest rate. Balance sheet as % of GDP is based on quarterly data and is as of September 30, 2023.

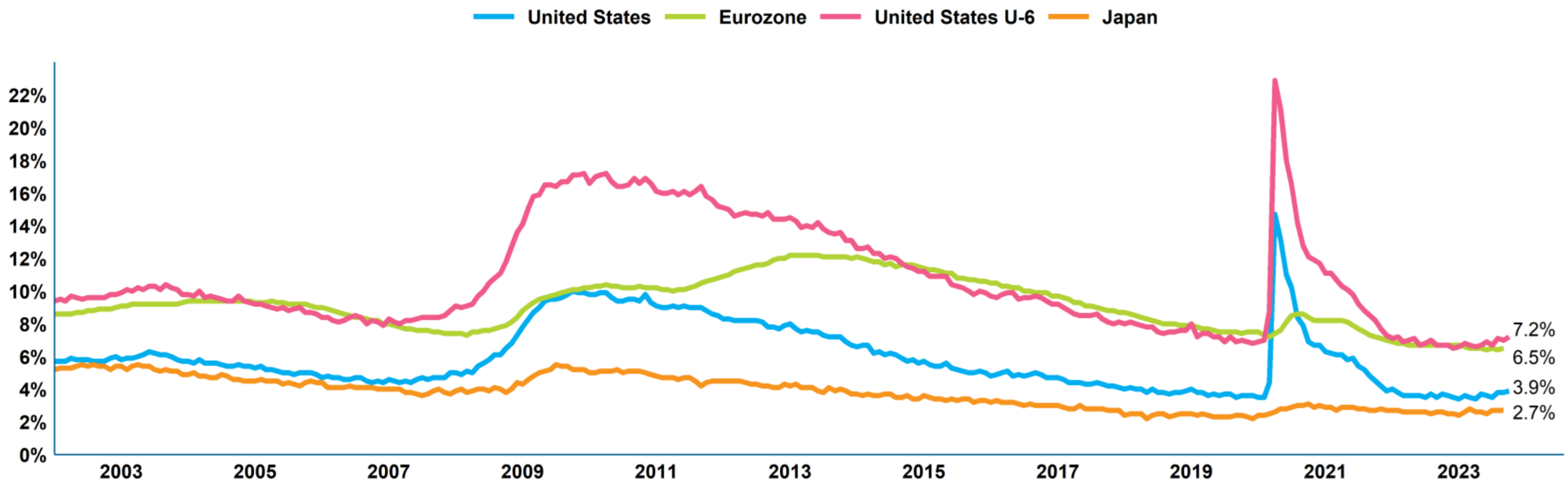
## Inflation (CPI Trailing Twelve Months)[1]




- → The inflation picture remains mixed across the major economies.
- → In the US, inflation fell from 3.7% to 3.2%, driven by falling energy prices. In the eurozone inflation experienced a dramatic decline in October (4.3% to 2.9%), to a level below the US, also driven by a decline in energy prices. Despite 2023's significant declines in the US and Europe, inflation levels remain elevated compared to central bank targets.
- → Inflation in Japan, has increased to levels not seen in almost a decade, driven by food and home related items. In China, deflationary pressures returned in October, as consumption declined after the holiday earlier in the month.

[1] United States CPI and Eurozone CPI – Source: FRED. Japan CPI and China CPI - Source: Bloomberg. Data is as October 31, 2023. The most recent data for Japanese inflation is as of September 30, 2023.

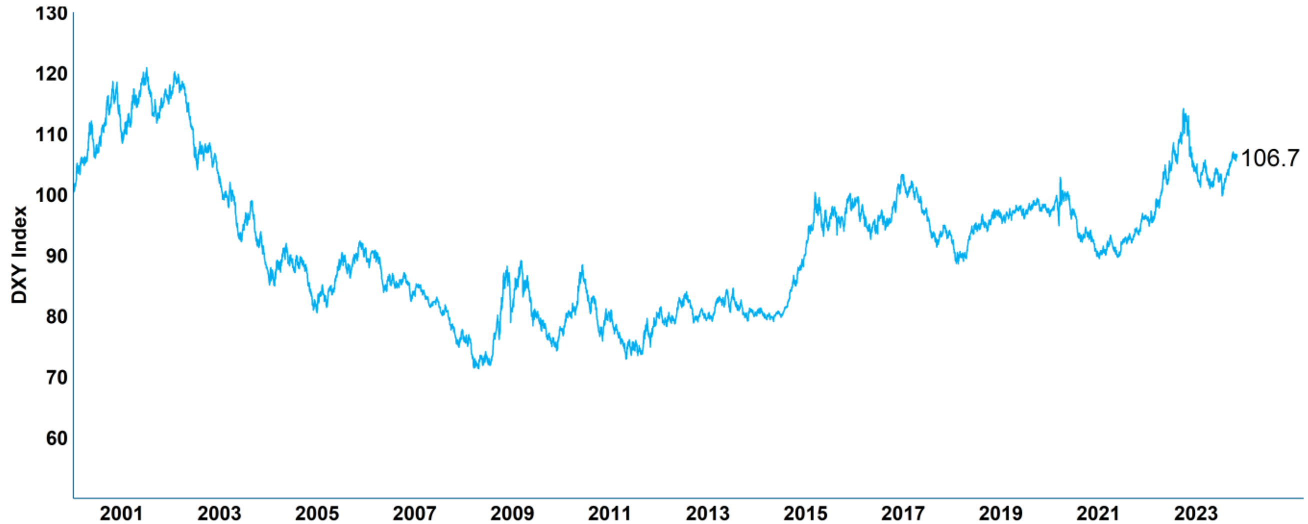
## Unemployment[1]




- → 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. The pace of wage growth has slowed though, and despite remaining elevated, the number of job openings has declined from recent highs.
- → In October, US unemployment increased slightly (3.8% to 3.9%), with job gains of 150,000 coming in below expectations of 180,000. The labor force participation rate declined slightly over the month from 62.8% to 62.7%, well off the lows of the pandemic (60.1%) but not back to pre-pandemic levels (63.3%). Broader measures of unemployment (U-6) finished the quarter at 7.2%, up from the September reading of 7.0%.
- → Unemployment in Europe (6.5%) remains higher than the US, while levels in Japan (2.7%) remained low through the pandemic given less layoffs.

[1] Eurozone Unemployment - Source: Bloomberg. Japan, United States, United States U-6 Unemployment – Source: FRED. Data is as October 31, 2023, for the US. The most recent data for Eurozone and Japan unemployment is as of September 30, 2023.

## US Dollar versus Broad Currencies[1]




- → After a strong 2022, the US dollar declined late last year and into early this year as weaker economic data and lower inflation led to investors anticipating the end of FOMC tightening.
- → Recently though, the dollar reversed course and appreciated against major currencies as relative growth remains strong and investors anticipate the FOMC keeping interest rates higher for longer.
- → For the rest of this year, the track of inflation across economies and the corresponding monetary policies will likely be key drivers of currency moves.

[1] Source: Bloomberg. Data as of October 31, 2023.

## Summary

### Key Trends:

→ The impact of inflation still above policy targets will remain key, 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 reduce persistent inflation while not tipping their economies into recession.

→ Growth is expected to slow globally this year, with many economies forecasted to tip into recession. However, optimism has been building that some economies could experience soft landings. Inflation, monetary policy, and the war will all be key.

→ In the 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.

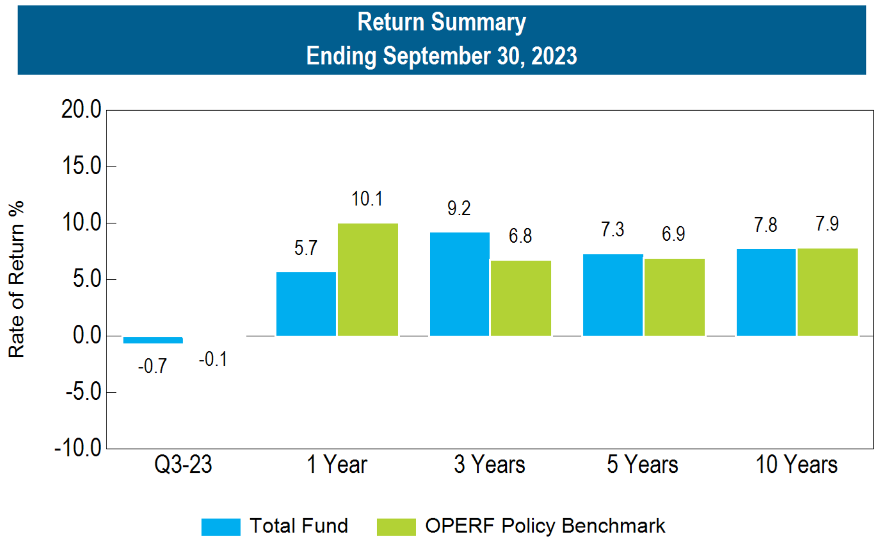
→ The key for US equities going forward will be whether earnings can remain resilient if growth continues to slow. Also, the future paths of the large technology companies that have driven market gains will be important.

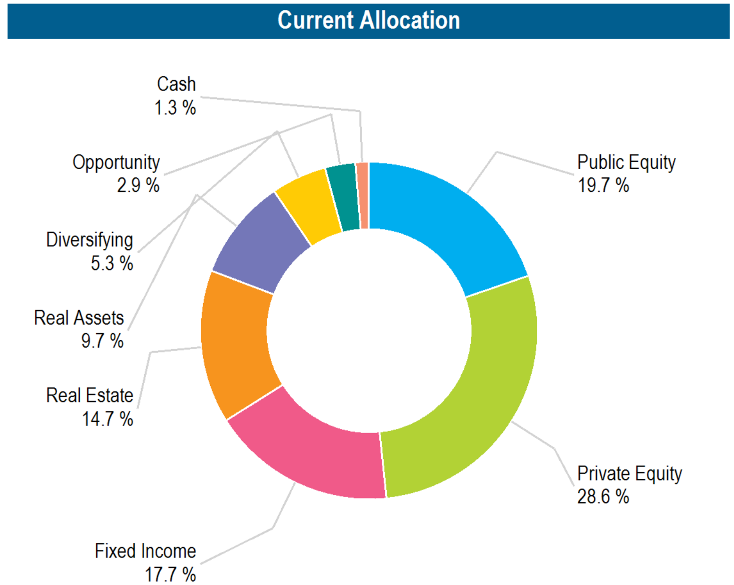
→ Equity valuations remain lower in emerging and developed markets, but risks remain, including the potential for recent strength in the US dollar to persist, higher inflation weighing particularly on Europe, and China's sluggish economic reopening and on-going weakness in the real estate sector. Japan's recent hint at potentially tightening monetary policy along with changes in corporate governance in the country could influence relative results.

→ Recent, heightened tensions in Israel could add to overall uncertainty and drive safe haven flows.

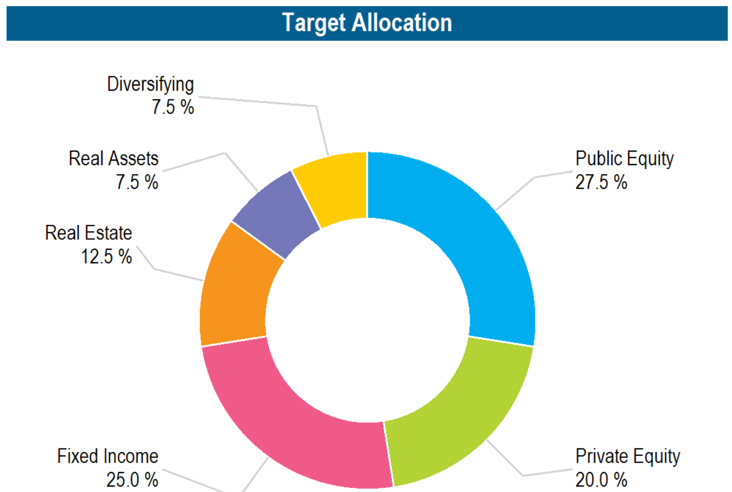
# Executive Summary

## Q3 2023




| | QTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) |
|---|---|---|---|---|---|
| **Total Fund** | **-0.7** | **5.7** | **9.2** | **7.3** | **7.8** |
| *OPERF Policy Benchmark* | *-0.1* | *10.1* | *6.8* | *6.9* | *7.9* |
| Excess Return | -0.6 | -4.4 | 2.4 | 0.4 | -0.1 |
| *InvMetrics All DB > $10B Net Rank* | *15* | *90* | *10* | *8* | *1* |
| *Median* | *-1.3* | *9.7* | *6.7* | *6.1* | *6.8* |

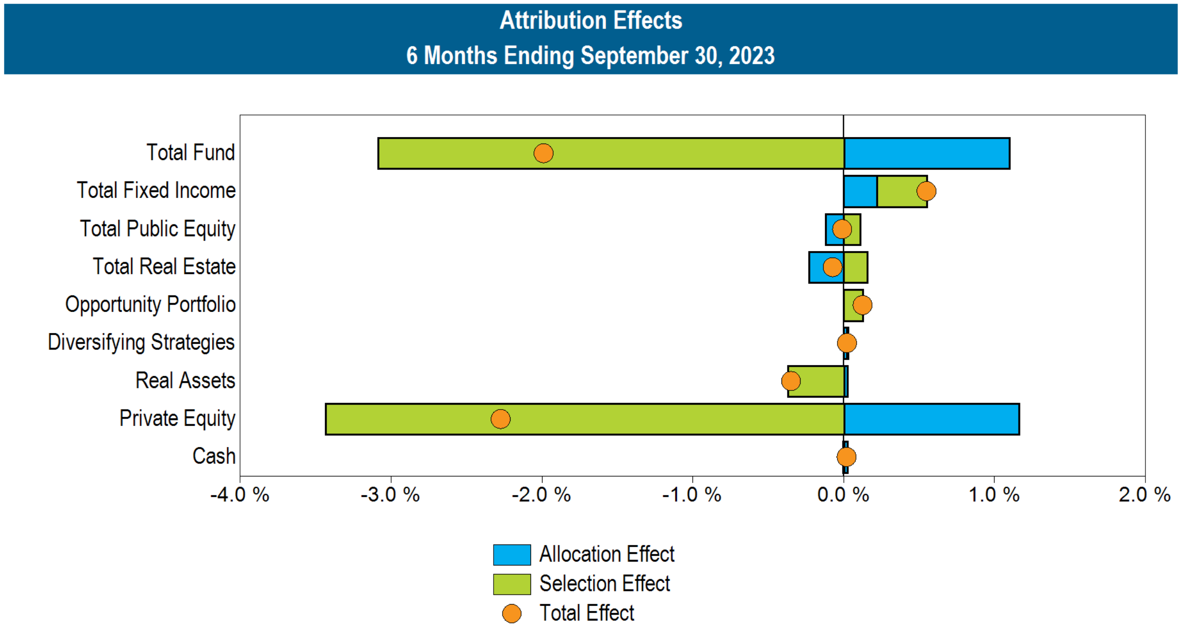


## Performance Review Summary

| Category | QTD Results | 5 Year Results |
|---|---|---|
| Performance vs. OPERF Policy Benchmark | Underperform<br>-0.7% vs. -0.1% | Outperform<br>7.3% vs. 6.9% |
| Performance vs. 6.9% Actuarial Rate | NA | Outperform<br>7.3% vs. 6.9% |
| Performance vs. InvMetrics All DB > $10B Net Median | Outperform<br>-0.7% vs. -1.3% | Outperform<br>7.3% vs. 6.1% |
| Actively Managed Public Markets vs. Benchmarks | 14 of the 30 actively managed stock and bond portfolios outperformed their respective benchmarks (after fees) | 15 of the 25 actively managed stock and bond portfolios outperformed their respective benchmarks (after fees) |

| Category | Quarter-End | Notes |
|---|---|---|
| Compliance with Targets | Out of Compliance | Private Equity remains well above target, while public equity and fixed income are underweight |

## Quarterly Commentary




→ The Total Fund returned -0.7% for the third quarter, underperforming the OPERF Policy Benchmark (-0.1%) by 60 basis points.

- Compared to peers the Total Fund outperformed the peer median return of -1.3%
- The selection (performance) within Private Equity detracted from benchmark relative returns.
- Total Fixed Income (-2.1%) was the largest contributor to benchmark relative returns and outperformed the Oregon Custom FI Benchmark (-3.2%) by 110basis points .

→ Private Equity returned 1.9% for the quarter underperforming the Russell 3000 +300 basis points QTR Lag benchmark (+9.2%) by 730 basis points.

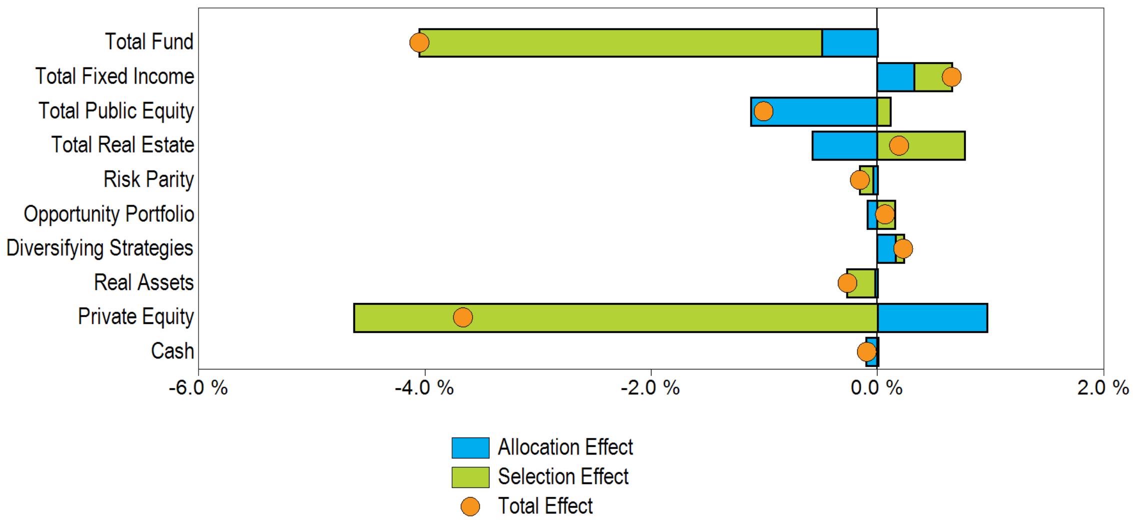
- Private Equity valuations have come down in recent quarters versus the strength in US Equity markets driven by a few large cap growth stocks.

→ Total Fixed Income returns for the quarter were driven by the U.S. Government (-3.0%) and Non-Core Fixed Income (+3.2%) portfolios.

- Oak Hill (+3.8%) exhibited the strongest absolute and benchmark relative returns, and outperformed the Oak Hill Custom Leveraged Loan & Bond Index (+3.0%) by 80 basis points .

## One Year Commentary

**Attribution Effects**
**1 Year Ending September 30, 2023**




→ The Total Fund returned 5.7% for the trailing twelve-month period ending September, 2023. The Fund underperformed the OPERF Policy Benchmark (+10.1%) by 440 basis points and underperformed the peer median return of 9.7% by 400 basis points.

- Relative underperformance was driven primarily by selection (performance) within Private Equity and the underweight to the Total Public Equity portfolio.

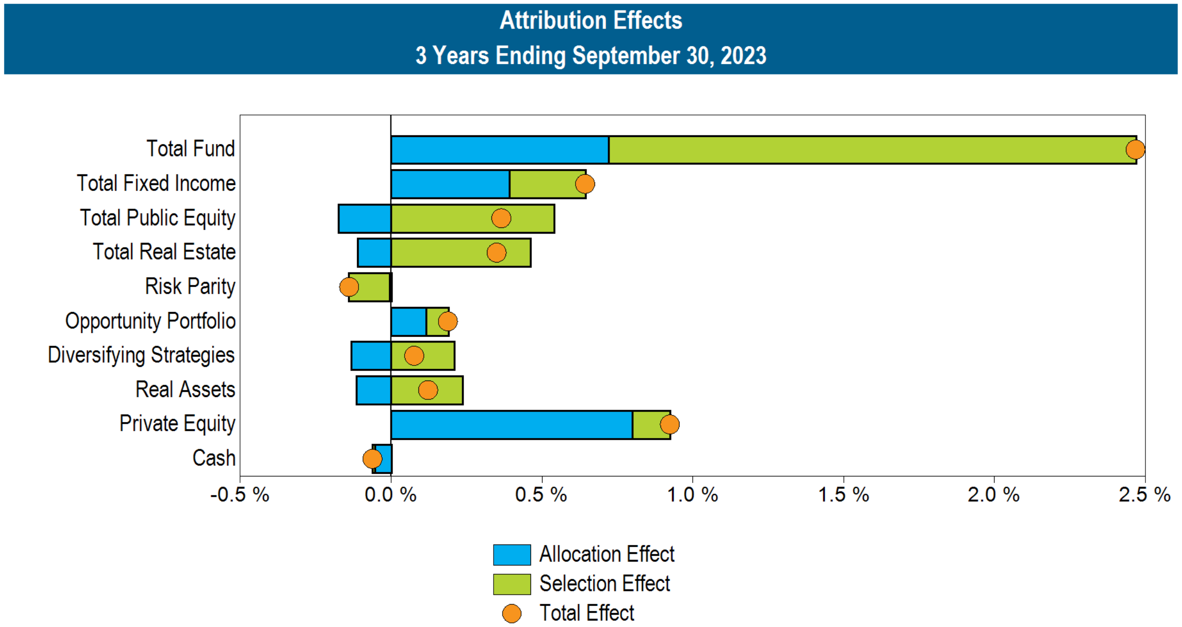
→ Private Equity (+5.1%) underperformed the Russell 3000 + 300 basis points Qtr Lag benchmark (+22.5%).

→ Total Public Equity (+20.8%) outperformed the MSCI ACWI IMI Net (Daily) benchmark (+20.2%) by 60 basis points . The underweight to this asset class has been a headwind for one-year returns.

→ Total Fixed Income (+2.4%) had the strongest positive contribution to trailing twelve-month returns and outperformed the Oregon Custom FI Benchmark (+0.6%) by 180 basis points.

- Both selection (performance) with and the current underweight to the asset class contributed to Total Fund benchmark relative outperformance.

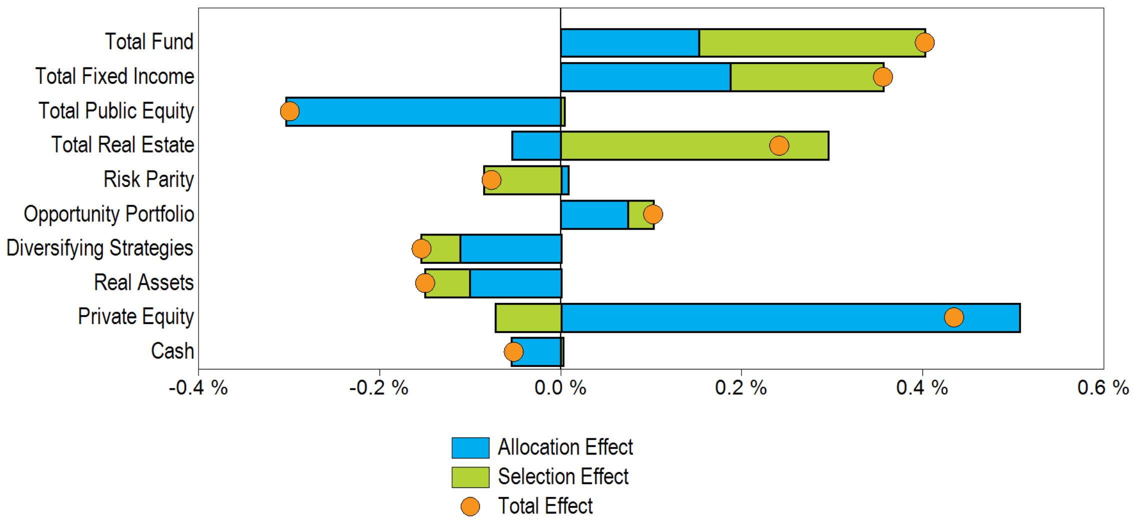
## Three Year Commentary




- → The Total Fund returned 9.2% annualized over the trailing three-year period and has outperformed the OPERF Policy Benchmark (+6.8%) and the peer median return of 6.7% by 240 basis points and 250 basis points respectively.
  - Drivers of outperformance over the three-year period are Total Fixed Income (-3.6%), Total Public Equity (+8.9%), and Private Equity (+17.8%) portfolios.
- → The overweight to Private Equity has been the strongest contributor to benchmark relative performance.
- → Underweight to and selection (performance) within Fixed Income have both been positive contributors to Total Fund performance versus the policy benchmark even though performance of the portfolio has been a headwind on an absolute basis of the 3-year period.
  - Over the same period Non-Core Fixed Income has returned 7.0% versus the Custom Non-Core Fixed Income Index return 5.1%.
- → Total Public Equity has contributed positively to 3-year returns on an absolute and relative basis.
  - Selection (performance) within the asset class has had a positive impact on returns while the underweight to the asset class has been a minor headwind.
  - Over the trialing three-year period U.S. Equity (+10.3%) and more specifically Small Cap Value (+18.2%) have driven performance for the broader asset class.

## Five Year Commentary

**Attribution Effects**
**5 Years Ending September 30, 2023**




→ The Total Fund returned 7.3% annualized over the trailing five-year period and has outperformed the OPERF Policy Benchmark (+6.9%) and the peer median return of 6.1% by 40basis points and 120 basis points respectively.

→ Private Equity (+14.6%) and Total Fixed Income (+0.9%) were the largest contributors to benchmark relative performance while Total Public Equity has been a detractor.

→ The overweight to Private Equity has driven the asset class's contribution to returns.

→ Benchmark relative outperformance within Total Fixed Income (+0.9%) and the relative underweight have both been positive contributors.

- Non-Core Fixed Income returned 5.4% over the trialing five-year period and outperformed the Custom Non-Core Fixed Income Index (+4.1%) by 130 basis points .
- The underweight to Total Fixed Income through a period of low rates and strong equity market performance benefitted the Total Fund.

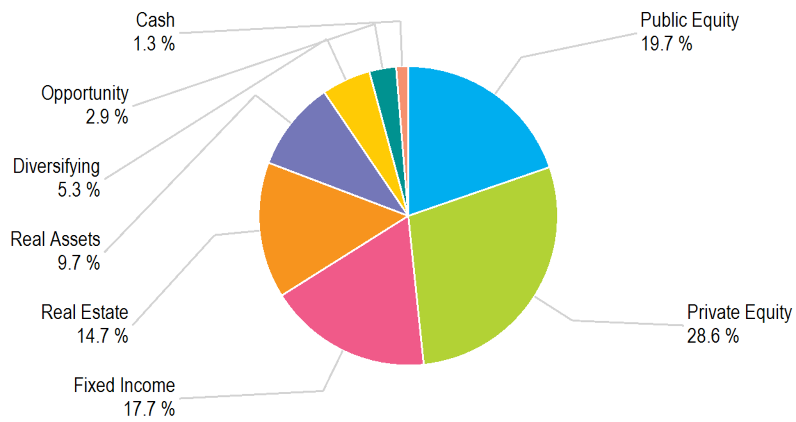
→ Total Public Equity (+6.3%) has performed roughly in line with the MSCI ACWI IMI Net (Daily) index (+6.1%).

- Despite strong five-year returns the underweight to this asset class compared to Policy has detracted from relative returns.

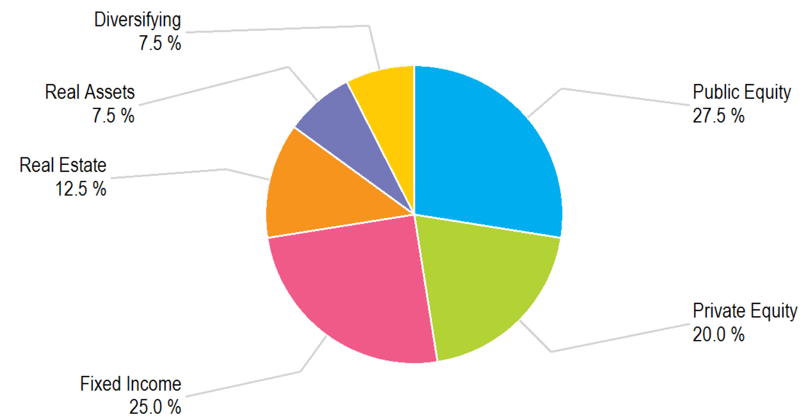
# Performance Update

As of September 30, 2023

Actual Asset Allocation




Target Asset Allocation

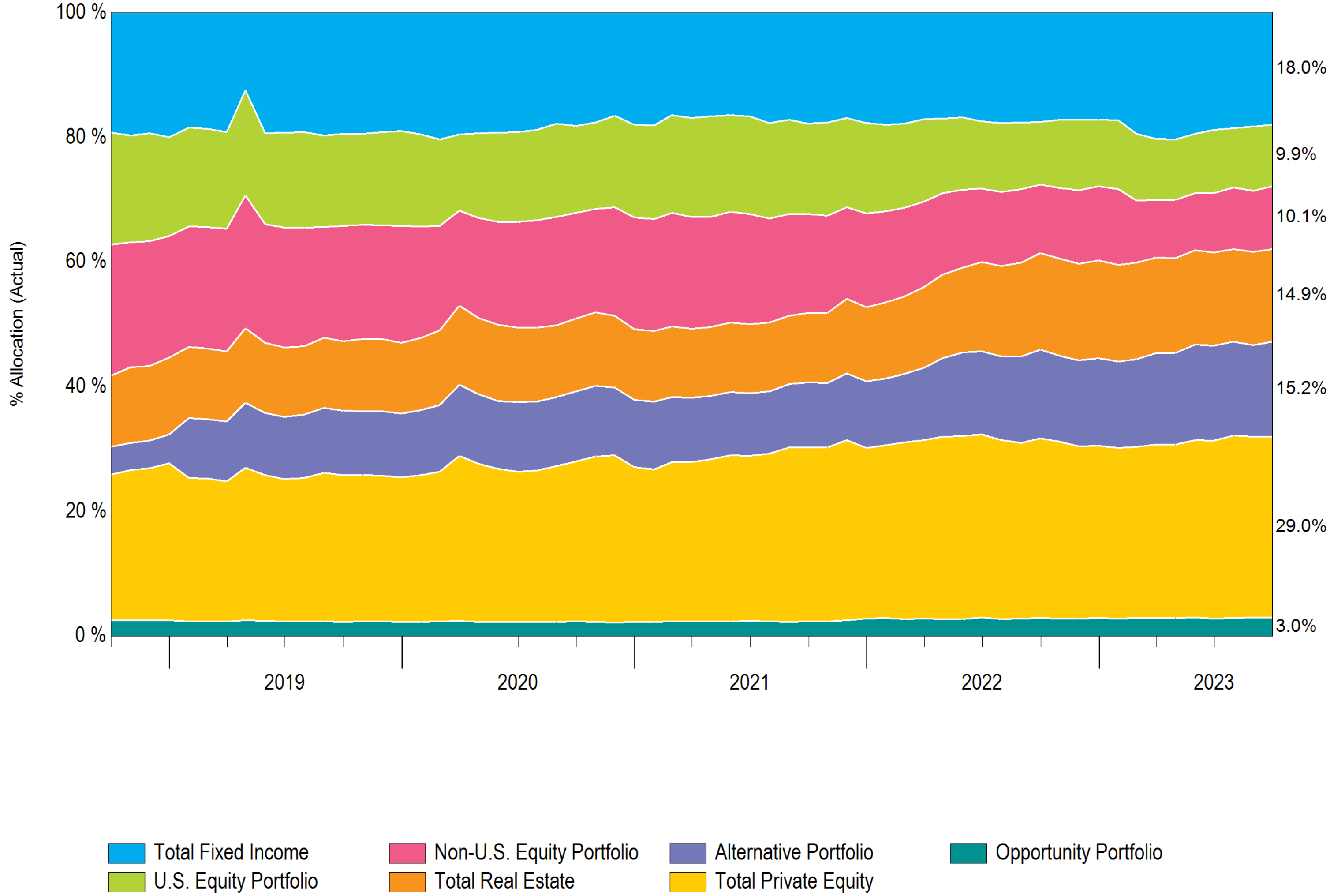


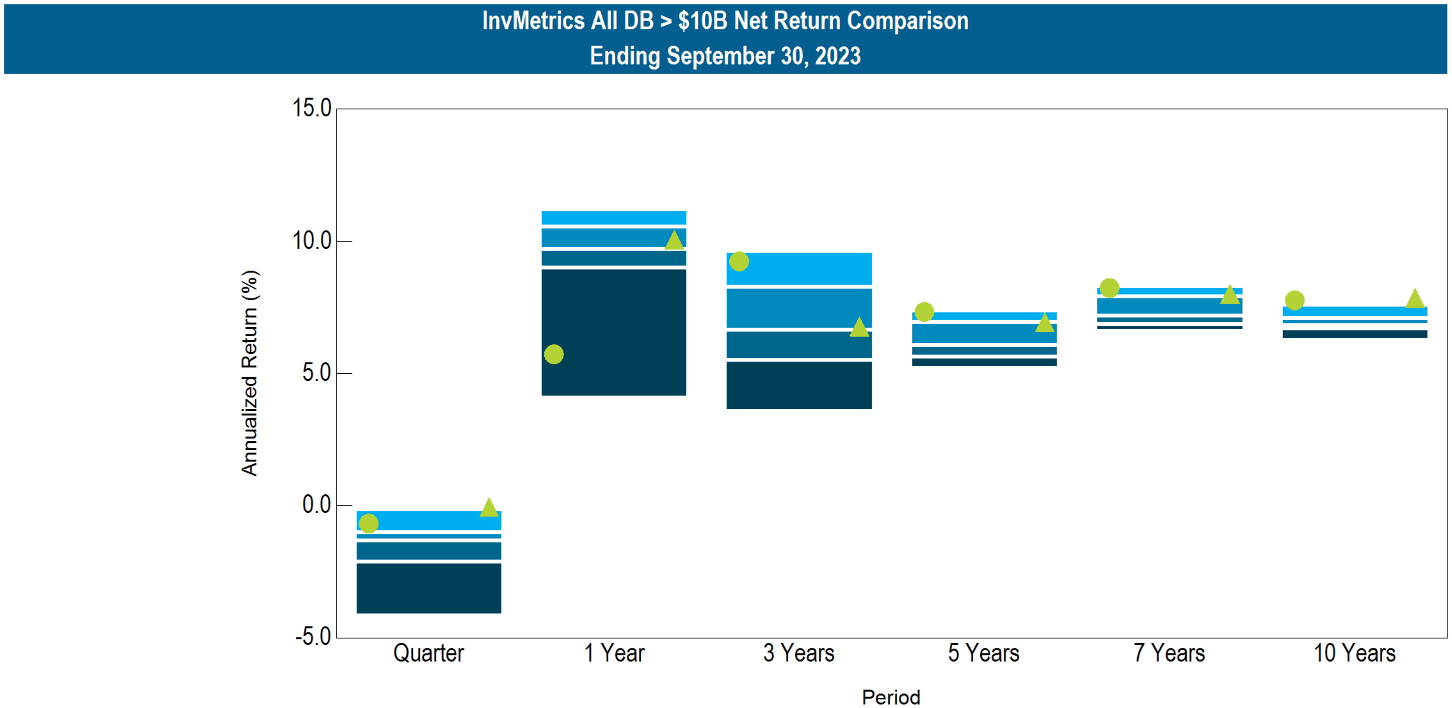

**Asset Allocation vs. Target**
**As Of September 30, 2023**

| | Current | Current | Policy | Difference | Policy Range | Within Range |
|---|---|---|---|---|---|---|
| Public Equity | $18,027,387,761 | 19.7% | 27.5% | -7.8% | 22.5% - 32.5% | No |
| Private Equity | $26,175,916,242 | 28.6% | 20.0% | 8.6% | 17.5% - 27.5% | No |
| Fixed Income | $16,220,766,514 | 17.7% | 25.0% | -7.3% | 20.0% - 30.0% | No |
| Real Estate | $13,440,992,314 | 14.7% | 12.5% | 2.2% | 9.0% - 16.5% | Yes |
| Real Assets | $8,903,571,850 | 9.7% | 7.5% | 2.2% | 2.5% - 10.0% | Yes |
| Diversifying | $4,841,742,059 | 5.3% | 7.5% | -2.2% | 2.5% - 10.0% | Yes |
| Opportunity | $2,693,678,806 | 2.9% | 0.0% | 2.9% | 0.0% - 5.0% | Yes |
| Cash | $1,225,840,235 | 1.3% | 0.0% | 1.3% | 0.0% - 100.0% | Yes |
| **Total** | **$91,529,793,700** | **100.0%** | **100.0%** | | | |

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

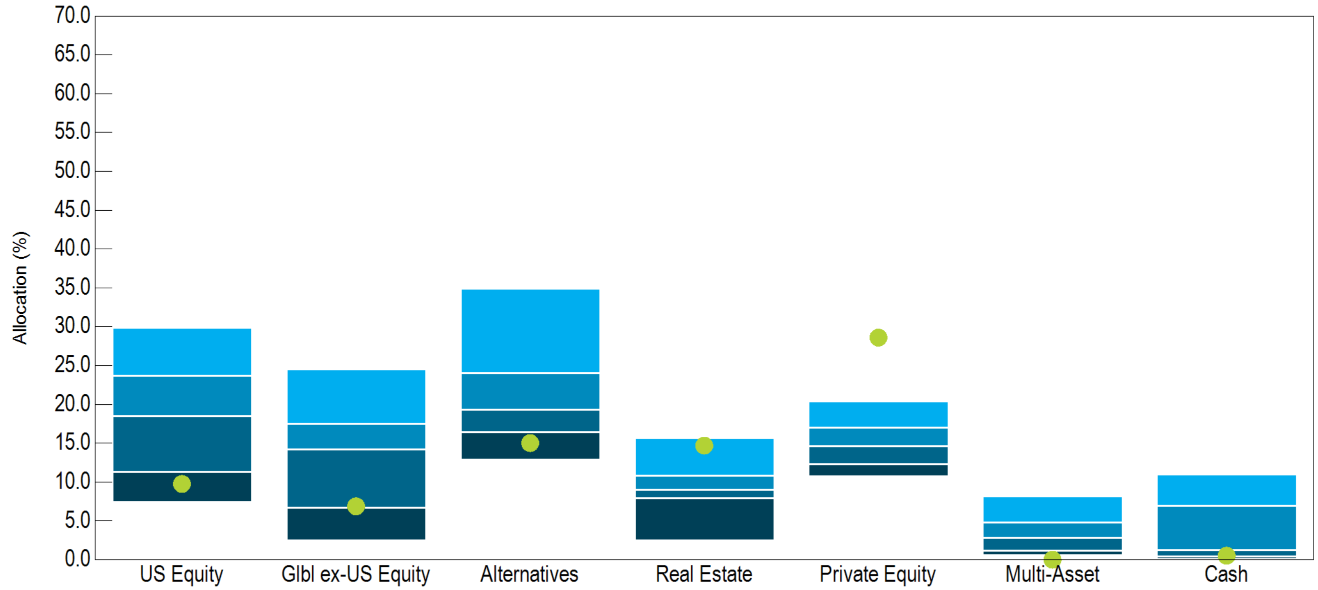
**Asset Allocation History**
**5 Years Ending September 30, 2023**





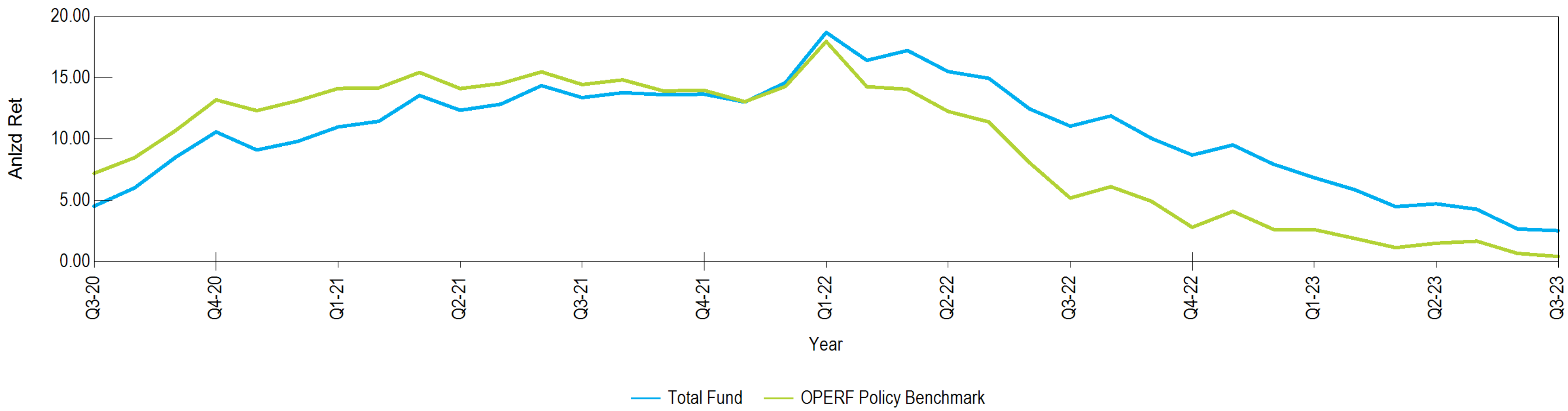

| Return (Rank) | Quarter | | 1 Year | | 3 Years | | 5 Years | | 7 Years | | 10 Years | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **5th Percentile** | -0.1 | | 11.2 | | 9.6 | | 7.4 | | 8.3 | | 7.6 | |
| **25th Percentile** | -1.0 | | 10.6 | | 8.3 | | 7.0 | | 7.9 | | 7.1 | |
| **Median** | -1.3 | | 9.7 | | 6.7 | | 6.1 | | 7.2 | | 6.8 | |
| **75th Percentile** | -2.1 | | 9.0 | | 5.5 | | 5.7 | | 6.9 | | 6.7 | |
| **95th Percentile** | -4.1 | | 4.1 | | 3.6 | | 5.2 | | 6.6 | | 6.3 | |
| **# of Portfolios** | 16 | | 16 | | 16 | | 15 | | 14 | | 13 | |
| **Total Fund** | -0.7 | (15) | 5.7 | (90) | 9.2 | (10) | 7.3 | (8) | 8.2 | (9) | 7.8 | (1) |
| **OPERF Policy Benchmark** | -0.1 | (5) | 10.1 | (36) | 6.8 | (46) | 6.9 | (26) | 8.0 | (16) | 7.9 | (1) |

**Total Plan Allocation vs. InvMetrics All DB > $10B Net**
**As of September 30, 2023**

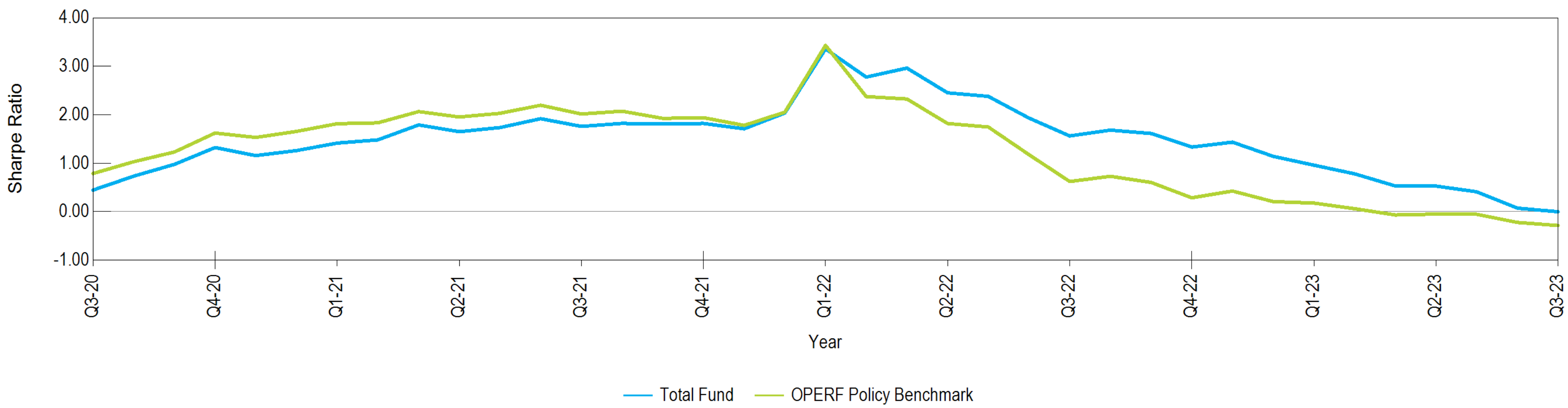



| Allocation (Rank) | US Equity | Glbl ex-US Equity | Alternatives | Real Estate | Private Equity | Multi-Asset | Cash |
|---|---|---|---|---|---|---|---|
| 5th Percentile | 29.9 | 24.5 | 34.9 | 15.7 | 20.4 | 8.2 | 11.0 |
| 25th Percentile | 23.7 | 17.6 | 24.1 | 10.9 | 17.1 | 4.9 | 7.0 |
| Median | 18.6 | 14.2 | 19.4 | 9.1 | 14.7 | 2.9 | 1.3 |
| 75th Percentile | 11.4 | 6.8 | 16.5 | 8.0 | 12.4 | 1.2 | 0.5 |
| 95th Percentile | 7.5 | 2.5 | 12.9 | 2.6 | 10.8 | 0.7 | 0.2 |
| # of Portfolios | 14 | 14 | 15 | 15 | 14 | 6 | 13 |
| ● Total Fund | 9.8 (85) | 6.9 (75) | 15.0 (84) | 14.7 (6) | 28.6 (1) | 0.0 (99) | 0.5 (77) |

**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 (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) |
|---|---|---|---|---|---|---|---|---|---|
| **Total Fund** | 91,529,793,700 | 100.0 | -- | -0.7 | 2.7 | 5.7 | 9.2 | 7.3 | 7.8 |
| *OPERF Policy Benchmark* | | | | -0.1 | 6.9 | 10.1 | 6.8 | 6.9 | 7.9 |
| *InvMetrics All DB > $10B Net Median* | | | | -1.3 | 5.1 | 9.7 | 6.7 | 6.1 | 6.8 |
| *InvMetrics All DB > $10B Net Rank* | | | | 15 | 89 | 90 | 10 | 8 | 1 |
| **Total Fixed Income** | 16,220,766,514 | 17.7 | 17.7 | -2.1 | 0.9 | 2.4 | -3.6 | 0.9 | 1.6 |
| *Oregon Custom FI Benchmark* | | | | -3.2 | -1.2 | 0.6 | -5.0 | 0.0 | 0.9 |
| **Core Fixed Income** | 3,667,148,042 | 4.0 | 22.6 | -3.6 | -0.6 | 1.7 | -5.0 | 0.4 | 1.6 |
| *Oregon Custom External FI BM* | | | | -3.2 | -1.2 | 0.6 | -5.2 | 0.1 | 1.2 |
| **U.S. Government** | 7,051,433,537 | 7.7 | 43.5 | -3.0 | -1.3 | -0.8 | -5.8 | 0.0 | -- |
| *Government Blended Index* | | | | -3.1 | -1.5 | -0.8 | -5.8 | -0.1 | 0.1 |
| **Non-Core Fixed Income** | 1,979,198,829 | 2.2 | 12.2 | 3.2 | 10.3 | 13.4 | 7.0 | 5.4 | 5.1 |
| *Custom Non-Core Fixed Income Index* | | | | 2.7 | 9.1 | 12.4 | 5.1 | 4.1 | 4.3 |
| **Global Sovereign** | 1,082,679,530 | 1.2 | 6.7 | -1.3 | 2.4 | 2.8 | -- | -- | -- |
| *Bloomberg Global Treasury Ex-U.S.* | | | | -1.3 | 2.5 | 2.2 | -3.0 | 0.6 | 2.2 |
| **Emerging Markets Debt** | 319,756,501 | 0.3 | 2.0 | -2.4 | 1.3 | 11.5 | -- | -- | -- |
| *JP Morgan EMBI Global Diversified* | | | | -2.2 | 1.8 | 10.0 | -4.6 | -0.4 | 2.5 |
| **Structured Credit Products** | 1,631,721,857 | 1.8 | 10.1 | -0.9 | 2.8 | 4.0 | -- | -- | -- |
| *Oregon Structured Credit Products FI BM* | | | | -0.8 | 2.1 | 3.2 | -- | -- | -- |
| **Investment Grade Credit** | 488,828,550 | 0.5 | 3.0 | -2.9 | 0.2 | 3.6 | -- | -- | -- |
| *Bloomberg US Credit* | | | | -3.0 | 0.0 | 3.5 | -4.8 | 0.9 | 2.1 |
| **Total Public Equity** | 17,891,423,545 | 19.5 | 19.5 | -2.6 | 8.1 | 20.8 | 8.9 | 6.3 | 7.7 |
| *MSCI ACWI IMI Net (Daily)* | | | | -3.4 | 9.4 | 20.2 | 6.9 | 6.1 | 7.4 |
| **U.S. Equity** | 8,927,819,018 | 9.8 | 49.9 | -3.2 | 7.8 | 18.6 | 10.3 | 7.4 | 9.9 |
| *Russell 3000 TR* | | | | -3.3 | 12.4 | 20.5 | 9.4 | 9.1 | 11.3 |
| **Small Cap Growth** | 224,626,770 | 0.2 | 2.5 | -6.4 | -1.3 | 6.3 | 6.1 | 4.8 | 7.8 |
| *Russell 2000 Growth TR* | | | | -7.3 | 5.2 | 9.6 | 1.1 | 1.6 | 6.7 |
| **Small Cap Value** | 148,118,930 | 0.2 | 1.7 | -3.8 | -1.0 | 10.9 | 18.2 | 4.1 | 7.0 |
| *Russell 2000 Value TR* | | | | -3.0 | -0.5 | 7.8 | 13.3 | 2.6 | 6.2 |

| | Market Value ($) | % of Portfolio | % of Sector | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) |
|---|---|---|---|---|---|---|---|---|---|
| **Market Oriented (CORE)** | 8,555,073,319 | 9.3 | 95.8 | -3.1 | 8.3 | 19.1 | 9.7 | 7.9 | 10.3 |
| *Russell 3000 TR* | | | | -3.3 | 12.4 | 20.5 | 9.4 | 9.1 | 11.3 |
| **Non-U.S. Equity** | 6,288,311,512 | 6.9 | 35.1 | -2.2 | 9.1 | 25.5 | 7.5 | 5.2 | 5.5 |
| *Oregon MSCI ACWI Ex US IMI (Net)* | | | | -3.5 | 5.3 | 20.2 | 3.8 | 2.6 | 3.5 |
| **Total International Overlay Accounts** | 132,231,454 | 0.1 | 2.1 | | | | | | |
| **International Market Oriented (Core)** | 3,193,083,615 | 3.5 | 50.8 | -2.0 | 8.2 | 24.8 | 7.4 | 5.1 | 5.6 |
| *MSCI World ex USA IMI Net Return* | | | | -4.0 | 6.0 | 23.0 | 5.4 | 3.1 | 3.9 |
| **International Value** | 1,291,056,801 | 1.4 | 20.5 | 0.7 | 12.3 | 30.9 | 13.0 | 5.1 | 5.6 |
| *Oregon MSCI ACWI Ex US Value IMI (Net)* | | | | 0.0 | 7.9 | 24.8 | 9.4 | 2.4 | 2.8 |
| **International Growth** | 759,511,499 | 0.8 | 12.1 | -10.2 | 4.5 | 19.9 | 1.0 | 5.2 | 5.9 |
| *Oregon MSCI WORLD Ex US (Net)* | | | | -4.1 | 6.7 | 24.0 | 6.1 | 3.4 | 3.8 |
| **International Small Cap** | 327,604,317 | 0.4 | 5.2 | -1.5 | 9.2 | 28.3 | 9.9 | 4.0 | 4.9 |
| *MSCI World Ex US Small Cap Value (Net)* | | | | -1.0 | 4.2 | 21.7 | 6.9 | 1.7 | 3.8 |
| **Emerging Markets** | 717,055,279 | 0.8 | 11.4 | 1.3 | 14.4 | 26.7 | 6.2 | 6.6 | 5.0 |
| *ORE MSCI Emerging Markets IMI (Net)* | | | | -2.1 | 3.4 | 13.2 | -0.3 | 1.3 | 2.4 |
| **Global Equity** | 2,675,293,528 | 2.9 | 15.0 | -1.6 | 7.7 | 19.1 | 7.7 | 5.5 | 7.5 |
| *MSCI ACWI IMI Net (Daily)* | | | | -3.4 | 9.4 | 20.2 | 6.9 | 6.1 | 7.4 |
| **Global Equity Low Volatility** | 1,588,101,410 | 1.7 | 59.4 | 0.3 | 8.7 | 19.9 | 7.9 | 6.2 | -- |
| *MSCI AC World (Daily Const)* | | | | -3.4 | 10.1 | 20.8 | 6.9 | 6.5 | 7.6 |
| **Other Equity** | 3,630,168 | 0.0 | 0.0 | | | | | | |
| **Total Real Estate** | 13,440,992,314 | 14.7 | 14.7 | -2.1 | -7.4 | -6.4 | 10.7 | 8.0 | 9.2 |
| *NCREIF ODCE (Custom) (Adj.)* | | | | -2.9 | -11.0 | -10.7 | 7.0 | 5.6 | 7.6 |
| **Real Estate excluding REITS** | 13,176,154,522 | 14.4 | 98.0 | -2.0 | -7.6 | -6.6 | 11.0 | 8.3 | 9.8 |
| *NCREIF ODCE (Custom) (Adj.)* | | | | -2.9 | -11.0 | -10.7 | 7.0 | 5.6 | 7.6 |
| **Total REITS** | 264,837,791 | 0.3 | 2.0 | -7.1 | -0.9 | 1.6 | 4.0 | 1.4 | 4.4 |
| **Opportunity Portfolio** | 2,693,678,806 | 2.9 | 2.9 | 3.1 | 10.2 | 12.4 | 13.9 | 9.6 | 8.6 |
| *Opportunity Custom Benchmark* | | | | -0.1 | 5.7 | 7.0 | 10.4 | 8.9 | 7.7 |

| | Market Value ($) | % of Portfolio | % of Sector | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) |
|---|---|---|---|---|---|---|---|---|---|
| **Alternative Portfolio** | 13,745,313,909 | 15.0 | 15.0 | -0.8 | 2.5 | 5.6 | 12.5 | 4.7 | 4.0 |
| *CPI +4%* | | | | *1.9* | *6.8* | *7.8* | *9.9* | *8.1* | *6.8* |
| **Diversifying Strategies** | 4,841,742,059 | 5.3 | 35.2 | 1.4 | 1.6 | 6.1 | 10.7 | 2.0 | 3.0 |
| *HFRI FOF Conservative Index* | | | | *1.5* | *3.2* | *4.7* | *5.6* | *4.0* | *3.5* |
| **Real Assets** | 8,903,571,850 | 9.7 | 64.8 | -2.0 | 3.1 | 5.4 | 13.9 | 7.0 | 5.2 |
| *CPI +4%* | | | | *1.9* | *6.8* | *7.8* | *9.9* | *8.1* | *6.8* |
| **Private Equity** | 26,175,916,242 | 28.6 | 28.6 | 1.9 | 5.4 | 5.1 | 17.8 | 14.6 | 13.8 |
| *Russell 3000 + 300 BPS QTR LAG (Adj.)* | | | | *9.2* | *27.2* | *22.5* | *17.3* | *14.7* | *15.7* |
| **Cash** | 470,416,389 | 0.5 | 0.5 | 1.3 | 3.8 | 4.8 | 1.5 | 1.9 | 1.5 |
| *ICE BofA US 3-Month Treasury Bill* | | | | *1.3* | *3.6* | *4.5* | *1.7* | *1.7* | *1.1* |

## Trailing Net Performance

| | Market Value ($) | % of Portfolio | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) |
|---|---|---|---|---|---|---|---|---|
| **Total Fund** | **91,529,793,700** | **100.0** | **-0.7** | **2.7** | **5.7** | **9.2** | **7.3** | **7.8** |
| *OPERF Policy Benchmark* | | | *-0.1* | *6.9* | *10.1* | *6.8* | *6.9* | *7.9* |
| *60% MSCI ACWI / 40% Bloomberg Aggregate* | | | *-3.3* | *5.5* | *12.5* | *2.1* | *4.2* | *5.2* |
| *70% MSCI ACWI/30% Bloomberg Agg* | | | *-3.3* | *6.6* | *14.5* | *3.3* | *4.8* | *5.8* |
| *InvMetrics All DB > $10B Net Median* | | | *-1.3* | *5.1* | *9.7* | *6.7* | *6.1* | *6.8* |
| *InvMetrics All DB > $10B Net Rank* | | | *15* | *89* | *90* | *10* | *8* | *1* |
| **Total Fixed Income** | **16,220,766,514** | **17.7** | **-2.1** | **0.9** | **2.4** | **-3.6** | **0.9** | **1.6** |
| *Oregon Custom FI Benchmark* | | | *-3.2* | *-1.2* | *0.6* | *-5.0* | *0.0* | *0.9* |
| *Bloomberg US Aggregate TR* | | | *-3.2* | *-1.2* | *0.6* | *-5.2* | *0.1* | *1.1* |
| *Fixed Income Weighted BM* | | | *-2.4* | *0.0* | *1.5* | *-4.3* | *0.5* | *1.4* |
| **Core Fixed Income** | **3,667,148,042** | **4.0** | **-3.6** | **-0.6** | **1.7** | **-5.0** | **0.4** | **1.6** |
| *Oregon Custom External FI BM* | | | *-3.2* | *-1.2* | *0.6* | *-5.2* | *0.1* | *1.2* |
| Blackrock | 1,201,466,708 | 1.3 | -3.2 | -0.7 | 1.5 | -5.0 | 0.5 | 1.5 |
| *Oregon Custom External FI BM* | | | *-3.2* | *-1.2* | *0.6* | *-5.2* | *0.1* | *1.2* |
| Wellington | 1,229,773,856 | 1.3 | -3.1 | -0.3 | 1.7 | -5.0 | 0.6 | 1.8 |
| *Oregon Custom External FI BM* | | | *-3.2* | *-1.2* | *0.6* | *-5.2* | *0.1* | *1.2* |
| Western Asset | 1,233,884,789 | 1.3 | -4.3 | -1.1 | 1.1 | -5.1 | 0.5 | 1.8 |
| *Oregon Custom External FI BM* | | | *-3.2* | *-1.2* | *0.6* | *-5.2* | *0.1* | *1.2* |
| **U.S. Government** | **7,051,433,537** | **7.7** | **-3.0** | **-1.3** | **-0.8** | **-5.8** | **0.0** | **--** |
| *Government Blended Index* | | | *-3.1* | *-1.5* | *-0.8* | *-5.8* | *-0.1* | *0.1* |
| Government Portfolio | 7,051,433,537 | 7.7 | -3.0 | -1.3 | -0.8 | -5.8 | 0.0 | -- |
| *Government Blended Index* | | | *-3.1* | *-1.5* | *-0.8* | *-5.8* | *-0.1* | *0.1* |

| | Market Value ($) | % of Portfolio | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) |
|---|---|---|---|---|---|---|---|---|
| **Non-Core Fixed Income** | **1,979,198,829** | **2.2** | **3.2** | **10.3** | **13.4** | **7.0** | **5.4** | **5.1** |
| *Custom Non-Core Fixed Income Index* | | | *2.7* | *9.1* | *12.4* | *5.1* | *4.1* | *4.3* |
| KKR Asset Management | 29,391,099 | 0.0 | -5.1 | 17.5 | 17.4 | -1.7 | -0.2 | 2.0 |
| *KKR Custom Leveraged Loans & Bond Index* | | | *2.4* | *8.7* | *12.1* | *4.6* | *3.9* | *4.3* |
| Oak Hill | 1,694,509,885 | 1.9 | 3.8 | 11.1 | 14.2 | 7.3 | 6.0 | 5.6 |
| *Oak Hill Custom Lev Loan & Bond Index* | | | *3.0* | *9.5* | *12.7* | *5.5* | *4.3* | *4.3* |
| Beach Point | 255,297,845 | 0.3 | -0.1 | -- | -- | -- | -- | -- |
| **Global Sovereign** | **1,082,679,530** | **1.2** | **-1.3** | **2.4** | **2.8** | **--** | **--** | **--** |
| *Bloomberg Global Treasury Ex-U.S.* | | | *-1.3* | *2.5* | *2.2* | *-3.0* | *0.6* | *2.2* |
| MSIM Global Sovereign | 539,421,640 | 0.6 | -1.4 | 2.2 | 2.5 | -- | -- | -- |
| *Bloomberg Global Treasury Ex-U.S.* | | | *-1.3* | *2.5* | *2.2* | *-3.0* | *0.6* | *2.2* |
| PIMCO Global Sovereign | 543,257,890 | 0.6 | -1.3 | 2.5 | 3.2 | -- | -- | -- |
| *Bloomberg Global Treasury Ex-U.S.* | | | *-1.3* | *2.5* | *2.2* | *-3.0* | *0.6* | *2.2* |
| **Emerging Markets Debt** | **319,756,501** | **0.3** | **-2.4** | **1.3** | **11.5** | **--** | **--** | **--** |
| *JP Morgan EMBI Global Diversified* | | | *-2.2* | *1.8* | *10.0* | *-4.6* | *-0.4* | *2.5* |
| Ashmore EMD | 99,391,227 | 0.1 | -3.0 | -0.2 | 10.7 | -- | -- | -- |
| *JP Morgan EMBI Global Diversified* | | | *-2.2* | *1.8* | *10.0* | *-4.6* | *-0.4* | *2.5* |
| Global Evolution EMD | 110,979,226 | 0.1 | -2.2 | 2.1 | 13.1 | -- | -- | -- |
| *JP Morgan EMBI Global Diversified* | | | *-2.2* | *1.8* | *10.0* | *-4.6* | *-0.4* | *2.5* |
| PGIM EMD | 109,386,048 | 0.1 | -2.0 | 1.7 | 10.4 | -- | -- | -- |
| *JP Morgan EMBI Global Diversified* | | | *-2.2* | *1.8* | *10.0* | *-4.6* | *-0.4* | *2.5* |

| | Market Value ($) | % of Portfolio | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) |
|---|---|---|---|---|---|---|---|---|
| **Structured Credit Products** | **1,631,721,857** | **1.8** | **-0.9** | **2.8** | **4.0** | -- | -- | -- |
| *Oregon Structured Credit Products FI BM* | | | *-0.8* | *2.1* | *3.2* | -- | -- | -- |
| Schroders SCP | 565,726,792 | 0.6 | 0.6 | 4.1 | 5.9 | -- | -- | -- |
| *ICE BofA AA-BBB US Asset Backed Sec Idx* | | | *0.9* | *4.4* | *4.9* | *-0.1* | *1.8* | *2.4* |
| Putnam SCP | 491,397,531 | 0.5 | -4.3 | -0.7 | 1.3 | -- | -- | -- |
| *Bloomberg US MBS TR USD* | | | *-4.1* | *-2.3* | *-0.2* | *-5.1* | *-0.8* | *0.6* |
| Guggenheim SCP | 574,597,535 | 0.6 | 0.7 | 4.7 | 4.4 | -- | -- | -- |
| *ICE BofA AA-BBB US Asset Backed Sec Idx* | | | *0.9* | *4.4* | *4.9* | *-0.1* | *1.8* | *2.4* |
| **Investment Grade Credit** | **488,828,550** | **0.5** | **-2.9** | **0.2** | **3.6** | -- | -- | -- |
| *Bloomberg US Credit* | | | *-3.0* | *0.0* | *3.5* | *-4.8* | *0.9* | *2.1* |
| Fidelity | 488,828,550 | 0.5 | -2.9 | 0.2 | 3.6 | -- | -- | -- |
| *Bloomberg US Credit* | | | *-3.0* | *0.0* | *3.5* | *-4.8* | *0.9* | *2.1* |
| **Total Public Equity** | **17,891,423,545** | **19.5** | **-2.6** | **8.1** | **20.8** | **8.9** | **6.3** | **7.7** |
| *MSCI ACWI IMI Net (Daily)* | | | *-3.4* | *9.4* | *20.2* | *6.9* | *6.1* | *7.4* |
| **U.S. Equity** | **8,927,819,018** | **9.8** | **-3.2** | **7.8** | **18.6** | **10.3** | **7.4** | **9.9** |
| *Russell 3000 TR* | | | *-3.3* | *12.4* | *20.5* | *9.4* | *9.1* | *11.3* |
| **Small Cap Growth** | **224,626,770** | **0.2** | **-6.4** | **-1.3** | **6.3** | **6.1** | **4.8** | **7.8** |
| *Russell 2000 Growth TR* | | | *-7.3* | *5.2* | *9.6* | *1.1* | *1.6* | *6.7* |
| EAM MicroCap Growth | 224,626,770 | 0.2 | -6.4 | -1.3 | 6.3 | 6.1 | 4.8 | 8.4 |
| *Russell Microcap Growth Index ( Daily)* | | | *-12.0* | *-5.6* | *-3.1* | *-4.7* | *-2.8* | *3.1* |
| **Small Cap Value** | **148,118,930** | **0.2** | **-3.8** | **-1.0** | **10.9** | **18.2** | **4.1** | **7.0** |
| *Russell 2000 Value TR* | | | *-3.0* | *-0.5* | *7.8* | *13.3* | *2.6* | *6.2* |
| AQR Capital Management | 0 | 0.0 | 0.0 | -6.0 | 11.8 | 19.9 | 3.1 | 5.6 |
| *Russell 2000 Value TR* | | | *-3.0* | *-0.5* | *7.8* | *13.3* | *2.6* | *6.2* |

| | Market Value ($) | % of Portfolio | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) |
|---|---|---|---|---|---|---|---|---|
| Mellon Asset Management | 148,118,930 | 0.2 | -3.8 | -0.3 | 8.3 | 14.8 | 4.0 | 7.1 |
| *Russell 2000 Value TR* | | | *-3.0* | *-0.5* | *7.8* | *13.3* | *2.6* | *6.2* |
| DFA MicroCap Value | 36,652 | 0.0 | | | | | | |
| **Market Oriented (CORE)** | **8,555,073,319** | **9.3** | **-3.1** | **8.3** | **19.1** | **9.7** | **7.9** | **10.3** |
| *Russell 3000 TR* | | | *-3.3* | *12.4* | *20.5* | *9.4* | *9.1* | *11.3* |
| DFA Large Cap Core | 1,142,387 | 0.0 | 0.0 | 11.7 | 23.7 | 13.2 | 9.0 | -- |
| *Russell 1000 TR* | | | *-3.1* | *13.0* | *21.2* | *9.5* | *9.6* | *11.6* |
| Russell 2000 Synthetic - OST managed | 293,866,757 | 0.3 | -4.9 | 0.9 | 10.2 | 12.1 | 3.3 | 7.5 |
| *S&P 600 Custom* | | | *-4.9* | *0.8* | *10.1* | *12.1* | *3.2* | *7.1* |
| S&P 500 - OST managed | 2,810,077,191 | 3.1 | -3.3 | 13.1 | 21.6 | 10.1 | 10.0 | 12.0 |
| *S&P 500 Index (Daily)* | | | *-3.3* | *13.1* | *21.6* | *10.2* | *9.9* | *11.9* |
| S&P 400 - OST managed | 637,509,950 | 0.7 | -4.2 | 4.3 | 15.6 | 12.1 | 6.1 | 9.1 |
| *S&P 400 Midcap Index (Daily)* | | | *-4.2* | *4.3* | *15.5* | *12.1* | *6.1* | *8.9* |
| OST Risk Premia Strategy | 2,217,826,445 | 2.4 | -2.3 | 6.3 | 18.4 | 7.2 | 6.9 | -- |
| *Risk Premia Custom Index* | | | *-2.3* | *6.3* | *18.4* | *7.2* | *6.9* | *--* |
| BR Russell 3000 | 947,387,608 | 1.0 | -- | -- | -- | -- | -- | -- |
| *Russell 3000 TR* | | | *-3.3* | *12.4* | *20.5* | *9.4* | *9.1* | *11.3* |
| DFA All Cap Core | 1,647,262,981 | 1.8 | -2.8 | -- | -- | -- | -- | -- |
| *Russell 3000 TR* | | | *-3.3* | *12.4* | *20.5* | *9.4* | *9.1* | *11.3* |

| | Market Value ($) | % of Portfolio | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) |
|---|---|---|---|---|---|---|---|---|
| **Non-U.S. Equity** | **6,288,311,512** | **6.9** | **-2.2** | **9.1** | **25.5** | **7.5** | **5.2** | **5.5** |
| *Oregon MSCI ACWI Ex US IMI (Net)* | | | *-3.5* | *5.3* | *20.2* | *3.8* | *2.6* | *3.5* |
| **Total International Overlay Accounts** | **132,231,454** | **0.1** | | | | | | |
| PERS-Adrian Lee Active Currency | 90,654,048 | 0.1 | | | | | | |
| PERS-P/E Global Active Currency | 41,287,149 | 0.0 | | | | | | |
| PERS-Aspect Cap Active Currency | 290,774 | 0.0 | | | | | | |
| **International Market Oriented (Core)** | **3,193,083,615** | **3.5** | **-2.0** | **8.2** | **24.8** | **7.4** | **5.1** | **5.6** |
| *MSCI World ex USA IMI Net Return* | | | *-4.0* | *6.0* | *23.0* | *5.4* | *3.1* | *3.9* |
| Arrowstreet Capital | 1,022,870,964 | 1.1 | -1.0 | 12.3 | 30.1 | 15.7 | 9.2 | 9.4 |
| *Oregon MSCI ACWI Ex US IMI (Net)* | | | *-3.5* | *5.3* | *20.2* | *3.8* | *2.6* | *3.5* |
| Lazard Asset Management | 1,624,314 | 0.0 | | | | | | |
| Lazard International CEF | 861,801,690 | 0.9 | -5.3 | 0.4 | 17.8 | -0.8 | 2.6 | 4.9 |
| *Oregon MSCI ACWI Ex US (Net)* | | | *-3.8* | *5.3* | *20.4* | *3.7* | *2.6* | *3.4* |
| AQR Capital Management | 3,636,146 | 0.0 | | | | | | |
| OST Int'l Risk Premia | 1,303,150,502 | 1.4 | -0.6 | 11.2 | 25.9 | 8.0 | 5.7 | -- |
| *MSCI World x US Custom Div Multiple-Factor* | | | *-0.5* | *10.9* | *25.5* | *7.7* | *5.3* | *--* |
| *MSCI World ex USA Net Index* | | | *-4.1* | *6.7* | *24.0* | *6.1* | *3.4* | *3.8* |
| **International Value** | **1,291,056,801** | **1.4** | **0.7** | **12.3** | **30.9** | **13.0** | **5.1** | **5.6** |
| *Oregon MSCI ACWI Ex US Value IMI (Net)* | | | *0.0* | *7.9* | *24.8* | *9.4* | *2.4* | *2.8* |
| Acadian Asset Management | 778,302,465 | 0.9 | -0.2 | 6.8 | 20.5 | 11.1 | 5.2 | 6.2 |
| *Oregon MSCI ACWI Ex US Value IMI (Net)* | | | *0.0* | *7.9* | *24.8* | *9.4* | *2.4* | *2.8* |
| Brandes Investment Partners | 512,754,336 | 0.6 | 2.1 | 19.6 | 44.5 | 15.5 | 5.2 | 5.0 |
| *Oregon MSCI ACWI Ex US Value (Net)* | | | *-0.1* | *8.2* | *25.2* | *9.6* | *2.3* | *2.6* |

| | Market Value ($) | % of Portfolio | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) |
|---|---|---|---|---|---|---|---|---|
| **International Growth** | **759,511,499** | **0.8** | **-10.2** | **4.5** | **19.9** | **1.0** | **5.2** | **5.9** |
| *Oregon MSCI WORLD Ex US (Net)* | | | *-4.1* | *6.7* | *24.0* | *6.1* | *3.4* | *3.8* |
| Walter Scott Management | 759,511,499 | 0.8 | -10.2 | 4.5 | 19.9 | 1.0 | 5.2 | 6.2 |
| *Oregon MSCI WORLD Ex US (Net)* | | | *-4.1* | *6.7* | *24.0* | *6.1* | *3.4* | *3.8* |
| **International Small Cap** | **327,604,317** | **0.4** | **-1.5** | **9.2** | **28.3** | **9.9** | **4.0** | **4.9** |
| *MSCI World Ex US Small Cap Value (Net)* | | | *-1.0* | *4.2* | *21.7* | *6.9* | *1.7* | *3.8* |
| DFA International Small Cap | 1,249,465 | 0.0 | | | | | | |
| Harris Associates | 181,565,795 | 0.2 | -2.8 | 8.3 | 36.8 | 12.2 | 5.3 | 4.7 |
| *MSCI ACWI ex USA Small Cap Value (Net)* | | | *0.3* | *6.5* | *22.3* | *8.3* | *2.8* | *4.2* |
| EAM International Micro Cap | 143,933,119 | 0.2 | 0.2 | 9.2 | 17.4 | 3.5 | 4.1 | -- |
| *Oregon FTSE Global Ex US Micro Cap* | | | *-1.4* | *5.1* | *16.0* | *5.7* | *4.6* | *--* |
| DFA International Micro Cap | 855,938 | 0.0 | 0.0 | 7.3 | 24.9 | 11.0 | 3.7 | -- |
| *Oregon FTSE Global Ex US Micro Cap* | | | *-1.4* | *5.1* | *16.0* | *5.7* | *4.6* | *--* |
| **Emerging Markets** | **717,055,279** | **0.8** | **1.3** | **14.4** | **26.7** | **6.2** | **6.6** | **5.0** |
| *ORE MSCI Emerging Markets IMI (Net)* | | | *-2.1* | *3.4* | *13.2* | *-0.3* | *1.3* | *2.4* |
| Genesis Emerging Markets | 3,999,528 | 0.0 | 0.0 | 0.1 | 12.7 | -4.4 | 0.2 | 1.7 |
| *ORE MSCI Emerging Markets IMI (Net)* | | | *-2.1* | *3.4* | *13.2* | *-0.3* | *1.3* | *2.4* |
| Arrowstreet Emerging Markets | 428,920,856 | 0.5 | 3.0 | 12.4 | 29.8 | 10.9 | 10.2 | 6.5 |
| *ORE MSCI Emerging Markets IMI (Net)* | | | *-2.1* | *3.4* | *13.2* | *-0.3* | *1.3* | *2.4* |
| Westwood Global Investment | 135,506,993 | 0.1 | 2.4 | 11.4 | 20.5 | 10.5 | 4.4 | 4.8 |
| *MSCI Emerging Markets IMI Net* | | | *-2.1* | *3.4* | *13.2* | *-0.3* | *1.3* | *2.4* |
| William Blair and Company | 148,388,842 | 0.2 | -4.1 | 0.9 | 2.3 | -6.0 | 3.3 | 3.9 |
| *MSCI Emerging Markets Growth Net* | | | *-4.9* | *-1.8* | *7.7* | *-7.2* | *0.6* | *1.7* |

| | Market Value ($) | % of Portfolio | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) |
|---|---|---|---|---|---|---|---|---|
| William Blair Emerging Mkt Small Cap | 112,866 | 0.0 | 0.0 | 4.6 | 2.9 | 2.0 | 6.1 | 4.8 |
| *MSCI Emerging Markets Small Cap Gr Net* | | | *2.1* | *14.9* | *22.7* | *8.5* | *6.4* | *4.5* |
| OST EM Risk Premia ESG | 126,193 | 0.0 | | | | | | |
| **Global Equity** | **2,675,293,528** | **2.9** | **-1.6** | **7.7** | **19.1** | **7.7** | **5.5** | **7.5** |
| *MSCI ACWI IMI Net (Daily)* | | | *-3.4* | *9.4* | *20.2* | *6.9* | *6.1* | *7.4* |
| Alliance Bernstein Global Value | 689,733 | 0.0 | | | | | | |
| **Global Equity Low Volatility** | **1,588,101,410** | **1.7** | **0.3** | **8.7** | **19.9** | **7.9** | **6.2** | **--** |
| *MSCI AC World (Daily Const)* | | | *-3.4* | *10.1* | *20.8* | *6.9* | *6.5* | *7.6* |
| *MSCI ACWI Minimum Volatility Index (Net)* | | | *-2.5* | *1.2* | *9.8* | *3.2* | *3.7* | *6.6* |
| LACM Global Equity Low Volatility | 773,178,564 | 0.8 | -1.3 | 7.2 | 17.4 | 5.4 | 5.8 | -- |
| *MSCI AC World (Daily Const)* | | | *-3.4* | *10.1* | *20.8* | *6.9* | *6.5* | *7.6* |
| *MSCI ACWI Minimum Volatility Index (Net)* | | | *-2.5* | *1.2* | *9.8* | *3.2* | *3.7* | *6.6* |
| Arrowstreet Global Low Volatility | 811,082,643 | 0.9 | 1.9 | 11.6 | 21.3 | 12.4 | 9.3 | -- |
| *MSCI ACWI IMI Net (Daily)* | | | *-3.4* | *9.4* | *20.2* | *6.9* | *6.1* | *7.4* |
| AQR Global Low Volatility | 1,755,246 | 0.0 | | | | | | |
| Acadian Global Low Volatility | 910,355 | 0.0 | 0.0 | 2.2 | 13.0 | 6.3 | 3.4 | -- |
| *MSCI ACWI IMI Net (Daily)* | | | *-3.4* | *9.4* | *20.2* | *6.9* | *6.1* | *7.4* |
| DFA Global Low Volatility | 1,174,603 | 0.0 | | | | | | |
| Cantillion | 748,059,049 | 0.8 | -5.3 | -- | -- | -- | -- | -- |
| *MSCI ACWI IMI Net (Daily)* | | | *-3.4* | *9.4* | *20.2* | *6.9* | *6.1* | *7.4* |
| GQG Global Equity | 338,443,336 | 0.4 | -- | -- | -- | -- | -- | -- |
| *Oregon MSCI ACWI Ex US (Net)* | | | *-3.8* | *5.3* | *20.4* | *3.7* | *2.6* | *3.4* |

| | Market Value ($) | % of Portfolio | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) |
|---|---|---|---|---|---|---|---|---|
| **Other Equity** | **3,630,168** | **0.0** | | | | | | |
| Transitional & Closed Accounts | 3,630,164 | 0.0 | | | | | | |
| PERS- Equity Distribution | 4 | 0.0 | | | | | | |
| **Total Real Estate** | **13,440,992,314** | **14.7** | **-2.1** | **-7.4** | **-6.4** | **10.7** | **8.0** | **9.2** |
| *NCREIF ODCE (Custom) (Adj.)* | | | *-2.9* | *-11.0* | *-10.7* | *7.0* | *5.6* | *7.6* |
| **Real Estate excluding REITS** | **13,176,154,522** | **14.4** | **-2.0** | **-7.6** | **-6.6** | **11.0** | **8.3** | **9.8** |
| *NCREIF ODCE (Custom) (Adj.)* | | | *-2.9* | *-11.0* | *-10.7* | *7.0* | *5.6* | *7.6* |
| **Total REITS** | **264,837,791** | **0.3** | **-7.1** | **-0.9** | **1.6** | **4.0** | **1.4** | **4.4** |
| ABKB - LaSalle Advisors | 250,579,513 | 0.3 | -8.0 | -0.7 | 4.1 | 5.5 | 7.8 | 8.9 |
| *Nareit Equity Share Price Index* | | | *-8.3* | *-5.6* | *-1.7* | *2.7* | *2.8* | *6.2* |
| Woodbourne Investment Management | 14,258,278 | 0.0 | 4.4 | 3.4 | 0.7 | 2.3 | 2.7 | 5.7 |
| *Nareit Equity Share Price Index* | | | *-8.3* | *-5.6* | *-1.7* | *2.7* | *2.8* | *6.2* |
| **Opportunity Portfolio** | **2,693,678,806** | **2.9** | **3.1** | **10.2** | **12.4** | **13.9** | **9.6** | **8.6** |
| *Opportunity Custom Benchmark* | | | *-0.1* | *5.7* | *7.0* | *10.4* | *8.9* | *7.7* |
| *OPERF Policy Benchmark* | | | *-0.1* | *6.9* | *10.1* | *6.8* | *6.9* | *7.9* |
| Portfolio Holdings - Opportunity | 151,590,000 | 0.2 | 5.6 | 26.0 | 44.3 | -- | -- | -- |
| **Alternative Portfolio** | **13,745,313,909** | **15.0** | **-0.8** | **2.5** | **5.6** | **12.5** | **4.7** | **4.0** |
| *CPI +4%* | | | *1.9* | *6.8* | *7.8* | *9.9* | *8.1* | *6.8* |
| **Diversifying Strategies** | **4,841,742,059** | **5.3** | **1.4** | **1.6** | **6.1** | **10.7** | **2.0** | **3.0** |
| *HFRI FOF Conservative Index* | | | *1.5* | *3.2* | *4.7* | *5.6* | *4.0* | *3.5* |

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

| | Market Value ($) | % of Portfolio | QTD (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) |
|---|---|---|---|---|---|---|---|---|
| Diversifiying Strategies | 4,841,742,059 | 5.3 | 1.4 | 1.6 | 6.1 | 10.7 | 2.0 | -- |
| *HFRI FOF Conservative Index* | | | *1.5* | *3.2* | *4.7* | *5.6* | *4.0* | *3.5* |
| **Real Assets** | **8,903,571,850** | **9.7** | **-2.0** | **3.1** | **5.4** | **13.9** | **7.0** | **5.2** |
| *CPI +4%* | | | *1.9* | *6.8* | *7.8* | *9.9* | *8.1* | *6.8* |
| Infrastructure | 6,229,508,903 | 6.8 | -2.6 | 3.1 | 5.2 | 12.1 | -- | -- |
| *CPI +4%* | | | *1.9* | *6.8* | *7.8* | *9.9* | *8.1* | *6.8* |
| Natural Resources | 2,674,062,947 | 2.9 | -0.7 | 3.0 | 5.9 | 17.6 | -- | -- |
| *CPI +4%* | | | *1.9* | *6.8* | *7.8* | *9.9* | *8.1* | *6.8* |
| **Private Equity** | **26,175,916,242** | **28.6** | **1.9** | **5.4** | **5.1** | **17.8** | **14.6** | **13.8** |
| *Russell 3000 + 300 BPS QTR LAG (Adj.)* | | | *9.2* | *27.2* | *22.5* | *17.3* | *14.7* | *15.7* |
| *MSCI ACWI+3% (1 quarter lagged)* | | | *6.9* | *27.8* | *20.0* | *14.3* | *11.3* | *12.0* |
| **Cash** | **470,416,389** | **0.5** | **1.3** | **3.8** | **4.8** | **1.5** | **1.9** | **1.5** |
| *ICE BofA US 3-Month Treasury Bill* | | | *1.3* | *3.6* | *4.5* | *1.7* | *1.7* | *1.1* |
| PERS-Russell Overlay Cash Balance | 755,423,847 | 0.8 | | | | | | |

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

## Calendar Year Performance

| | 2022 (%) | 2021 (%) | 2020 (%) | 2019 (%) | 2018 (%) | 2017 (%) | 2016 (%) | 2015 (%) | 2014 (%) | 2013 (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Fund** | **-1.5** | **20.0** | **7.7** | **13.6** | **0.5** | **15.4** | **7.1** | **2.0** | **7.3** | **15.6** |
| *OPERF Policy Benchmark* | *-8.6* | *15.6* | *12.4* | *14.0* | *1.2* | *15.6* | *9.0* | *1.6* | *8.2* | *15.6* |
| *InvMetrics All DB > $10B Net Median* | *-10.0* | *16.7* | *10.7* | *17.9* | *-2.6* | *15.4* | *8.2* | *0.3* | *6.6* | *14.0* |
| *InvMetrics All DB > $10B Net Rank* | *1* | *14* | *94* | *92* | *8* | *51* | *82* | *3* | *34* | *29* |
| **Total Fixed Income** | **-11.3** | **-0.9** | **7.7** | **8.8** | **0.3** | **3.7** | **2.8** | **0.6** | **3.5** | **1.0** |
| *Oregon Custom FI Benchmark* | *-13.0* | *-0.9* | *7.3* | *8.3* | *0.3* | *3.3* | *2.5* | *0.1* | *3.0* | *0.3* |
| **Core Fixed Income** | **-13.9** | **-1.1** | **8.7** | **9.8** | **-0.2** | **4.6** | **3.4** | **0.6** | **6.9** | **-1.4** |
| *Oregon Custom External FI BM* | *-13.0* | *-1.5* | *7.5* | *8.7* | *0.0* | *3.5* | *2.7* | *0.6* | *6.0* | *-1.9* |
| Blackrock | -13.2 | -1.4 | 9.1 | 8.9 | 0.1 | 3.8 | 2.8 | 0.9 | 6.7 | -1.7 |
| *Oregon Custom External FI BM* | *-13.0* | *-1.5* | *7.5* | *8.7* | *0.0* | *3.5* | *2.7* | *0.6* | *6.0* | *-1.9* |
| Wellington | -14.3 | -0.9 | 9.6 | 9.8 | -0.4 | 4.6 | 4.0 | 0.8 | 6.5 | -1.2 |
| *Oregon Custom External FI BM* | *-13.0* | *-1.5* | *7.5* | *8.7* | *0.0* | *3.5* | *2.7* | *0.6* | *6.0* | *-1.9* |
| Western Asset | -14.9 | -1.2 | 9.4 | 11.6 | -0.7 | 5.6 | 3.7 | 0.4 | 7.0 | -1.0 |
| *Oregon Custom External FI BM* | *-13.0* | *-1.5* | *7.5* | *8.7* | *0.0* | *3.5* | *2.7* | *0.6* | *6.0* | *-1.9* |
| **U.S. Government** | **-12.5** | **-2.3** | **8.1** | **6.9** | **0.9** | **2.3** | **-1.6** | **0.9** | **1.0** | **--** |
| *Government Blended Index* | *-12.5* | *-2.3* | *8.0* | *6.9* | *0.9* | *2.3* | *-1.3* | *0.8* | *0.8* | *--* |
| Government Portfolio | -12.5 | -2.3 | 8.1 | 6.9 | 0.9 | -- | -- | -- | -- | -- |
| *Government Blended Index* | *-12.5* | *-2.3* | *8.0* | *6.9* | *0.9* | *--* | *--* | *--* | *--* | *--* |
| **Non-Core Fixed Income** | **0.3** | **6.4** | **3.7** | **10.5** | **0.1** | **4.9** | **10.1** | **0.2** | **2.4** | **8.1** |
| *Custom Non-Core Fixed Income Index* | *-3.3* | *5.3* | *3.9* | *10.1* | *-0.2* | *5.0* | *12.0* | *-1.7* | *1.8* | *5.8* |

| | 2022 (%) | 2021 (%) | 2020 (%) | 2019 (%) | 2018 (%) | 2017 (%) | 2016 (%) | 2015 (%) | 2014 (%) | 2013 (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| KKR Asset Management | -31.9 | 13.8 | 2.6 | 10.5 | -0.4 | 3.4 | 9.3 | -0.2 | 2.5 | 9.0 |
| *KKR Custom Leveraged Loans & Bond Index* | *-4.4* | *5.2* | *4.3* | *10.6* | *-0.5* | *5.3* | *12.7* | *-2.1* | *1.9* | *6.0* |
| Oak Hill | 1.3 | 5.7 | 4.9 | 10.5 | 0.5 | 6.3 | 11.2 | 0.9 | 2.2 | 6.5 |
| *Oak Hill Custom Lev Loan & Bond Index* | *-2.2* | *5.2* | *3.6* | *9.5* | *0.0* | *4.6* | *11.2* | *-1.3* | *1.7* | *5.6* |
| Beach Point | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **Global Sovereign** | **-9.3** | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *Bloomberg Global Treasury Ex-U.S.* | *-10.1* | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MSIM Global Sovereign | -9.3 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *Bloomberg Global Treasury Ex-U.S.* | *-10.1* | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PIMCO Global Sovereign | -9.3 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *Bloomberg Global Treasury Ex-U.S.* | *-10.1* | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **Emerging Markets Debt** | **-18.4** | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *JP Morgan EMBI Global Diversified* | *-17.8* | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ashmore EMD | -21.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *JP Morgan EMBI Global Diversified* | *-17.8* | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Global Evolution EMD | -16.6 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *JP Morgan EMBI Global Diversified* | *-17.8* | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PGIM EMD | -17.6 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *JP Morgan EMBI Global Diversified* | *-17.8* | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **Structured Credit Products** | **-9.3** | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *Oregon Structured Credit Products FI BM* | *-9.0* | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| | 2022 (%) | 2021 (%) | 2020 (%) | 2019 (%) | 2018 (%) | 2017 (%) | 2016 (%) | 2015 (%) | 2014 (%) | 2013 (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| Schroders SCP | -6.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *ICE BofA AA-BBB US Asset Backed Sec Idx* | *-7.6* | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Putnam SCP | -14.9 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *Bloomberg US MBS TR USD* | *-11.8* | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Guggenheim SCP | -5.9 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *ICE BofA AA-BBB US Asset Backed Sec Idx* | *-7.6* | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **Investment Grade Credit** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *Bloomberg US Credit* | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fidelity | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *Bloomberg US Credit* | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **Total Public Equity** | **-14.3** | **20.0** | **12.7** | **25.3** | **-10.5** | **24.5** | **9.8** | **-1.7** | **3.3** | **26.7** |
| *MSCI ACWI IMI Net (Daily)* | *-18.4* | *18.2* | *16.3* | *26.4* | *-10.1* | *24.0* | *8.3* | *-2.1* | *3.8* | *23.5* |
| **U.S. Equity** | **-16.0** | **27.2** | **13.6** | **29.0** | **-7.9** | **20.3** | **14.9** | **-0.8** | **9.8** | **35.4** |
| *Russell 3000 TR* | *-19.2* | *25.7* | *20.9* | *31.0* | *-5.3* | *21.1* | *12.8* | *0.5* | *12.6* | *33.6* |
| **Small Cap Growth** | **-23.9** | **19.6** | **38.9** | **33.9** | **-4.7** | **26.8** | **6.3** | **-5.0** | **-3.6** | **57.9** |
| *Russell 2000 Growth TR* | *-26.4* | *2.8* | *34.6* | *28.5* | *-9.3* | *22.2* | *11.3* | *-1.4* | *5.6* | *43.3* |

| | 2022 (%) | 2021 (%) | 2020 (%) | 2019 (%) | 2018 (%) | 2017 (%) | 2016 (%) | 2015 (%) | 2014 (%) | 2013 (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| EAM MicroCap Growth | -23.9 | 19.6 | 38.9 | 33.9 | -4.7 | 26.8 | 6.3 | -5.7 | 1.8 | 57.5 |
| *Russell Microcap Growth Index ( Daily)* | *-29.8* | *0.9* | *40.1* | *23.3* | *-14.2* | *16.7* | *6.9* | *-3.9* | *4.3* | *52.8* |
| **Small Cap Value** | **-7.2** | **35.6** | **0.3** | **21.3** | **-14.1** | **7.5** | **31.4** | **-5.2** | **3.0** | **36.8** |
| *Russell 2000 Value TR* | *-14.5* | *28.3* | *4.7* | *22.4* | *-12.9* | *7.8* | *31.7* | *-7.5* | *4.3* | *34.5* |
| AQR Capital Management | -1.8 | 46.3 | -7.1 | 15.2 | -18.1 | -1.2 | 31.7 | -2.5 | 4.7 | 36.9 |
| *Russell 2000 Value TR* | *-14.5* | *28.3* | *4.7* | *22.4* | *-12.9* | *7.8* | *31.7* | *-7.5* | *4.3* | *34.5* |
| Mellon Asset Management | -11.2 | 25.8 | 5.2 | 24.2 | -8.0 | 10.8 | 26.8 | -5.8 | 2.6 | 36.7 |
| *Russell 2000 Value TR* | *-14.5* | *28.3* | *4.7* | *22.4* | *-12.9* | *7.8* | *31.7* | *-7.5* | *4.3* | *34.5* |
| DFA MicroCap Value | | | | | | | | | | |
| **Market Oriented (CORE)** | **-16.3** | **26.6** | **15.2** | **30.1** | **-7.1** | **22.0** | **14.8** | **-1.7** | **11.1** | **33.1** |
| *Russell 3000 TR* | *-19.2* | *25.7* | *20.9* | *31.0* | *-5.3* | *21.1* | *12.8* | *0.5* | *12.6* | *33.6* |
| DFA Large Cap Core | -12.9 | 27.8 | 12.7 | 29.1 | -9.0 | 21.1 | 15.6 | -4.6 | -- | -- |
| *Russell 1000 TR* | *-19.1* | *26.5* | *21.0* | *31.4* | *-4.8* | *21.7* | *12.1* | *0.9* | *--* | *--* |
| Russell 2000 Synthetic - OST managed | -16.2 | 27.1 | 11.8 | 23.4 | -11.3 | 14.5 | 23.4 | -3.6 | 5.8 | 39.9 |
| *S&P 600 Custom* | *-16.1* | *26.8* | *11.3* | *22.8* | *-11.0* | *14.7* | *21.3* | *-4.4* | *4.9* | *38.8* |
| S&P 500 - OST managed | -18.2 | 28.7 | 18.4 | 31.7 | -4.4 | 21.8 | 12.0 | 1.5 | 13.7 | 32.5 |
| *S&P 500 Index (Daily)* | *-18.1* | *28.7* | *18.4* | *31.5* | *-4.4* | *21.8* | *12.0* | *1.4* | *13.7* | *32.4* |
| S&P 400 - OST managed | -13.0 | 24.6 | 13.5 | 26.6 | -10.9 | 16.7 | 21.1 | -2.0 | 10.0 | 33.9 |
| *S&P 400 Midcap Index (Daily)* | *-13.1* | *24.8* | *13.7* | *26.2* | *-11.1* | *16.3* | *20.7* | *-2.2* | *9.8* | *33.5* |

| | 2022 (%) | 2021 (%) | 2020 (%) | 2019 (%) | 2018 (%) | 2017 (%) | 2016 (%) | 2015 (%) | 2014 (%) | 2013 (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| OST Risk Premia Strategy | -17.6 | 24.3 | 15.8 | 31.3 | -5.5 | 27.1 | 10.8 | 4.5 | 13.0 | -- |
| BR Russell 3000 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *Russell 3000 TR* | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DFA All Cap Core | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *Russell 3000 TR* | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **Non-U.S. Equity** | **-14.3** | **12.7** | **13.5** | **22.6** | **-14.9** | **30.4** | **4.6** | **-2.6** | **-2.9** | **18.6** |
| *Oregon MSCI ACWI Ex US IMI (Net)* | *-16.6* | *8.5* | *11.1* | *21.6* | *-14.8* | *27.8* | *4.4* | *-4.6* | *-3.9* | *15.8* |
| **Total International Overlay Accounts** | | | | | | | | | | |
| PERS-Adrian Lee Active Currency | | | | | | | | | | |
| PERS-P/E Global Active Currency | | | | | | | | | | |
| PERS-Aspect Cap Active Currency | | | | | | | | | | |
| **International Market Oriented (Core)** | **-13.5** | **13.1** | **12.5** | **23.2** | **-14.3** | **31.0** | **2.5** | **-1.2** | **-2.6** | **21.3** |
| *MSCI World ex USA IMI Net Return* | *-15.3* | *12.4* | *8.3* | *22.9* | *-14.7* | *25.2* | *2.9* | *-1.9* | *-4.5* | *21.6* |
| Arrowstreet Capital | -5.5 | 24.5 | 9.1 | 23.2 | -10.3 | 35.4 | 4.7 | 0.4 | 0.8 | 26.2 |
| *Oregon MSCI ACWI Ex US IMI (Net)* | *-16.6* | *8.5* | *11.1* | *21.6* | *-14.8* | *27.8* | *4.4* | *-4.6* | *-3.9* | *15.8* |
| Lazard Asset Management | | | | | | | | | | |
| Lazard International CEF | -25.7 | 4.5 | 30.2 | 29.0 | -17.2 | 39.8 | 0.1 | -0.2 | 0.6 | -- |
| *Oregon MSCI ACWI Ex US (Net)* | *-16.0* | *7.8* | *10.7* | *21.5* | *-14.2* | *27.2* | *4.5* | *-5.5* | *-3.9* | -- |
| AQR Capital Management | | | | | | | | | | |

| | 2022 (%) | 2021 (%) | 2020 (%) | 2019 (%) | 2018 (%) | 2017 (%) | 2016 (%) | 2015 (%) | 2014 (%) | 2013 (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| OST Int'l Risk Premia | -11.5 | 15.6 | 7.7 | 22.8 | -12.0 | -- | -- | -- | -- | -- |
| *MSCI World x US Custom Div Multiple-Factor* | *-11.8* | *15.0* | *7.3* | *22.4* | *-12.3* | -- | -- | -- | -- | -- |
| **International Value** | **-10.9** | **18.0** | **4.9** | **17.8** | **-12.4** | **25.7** | **9.8** | **-4.5** | **-4.3** | **25.0** |
| *Oregon MSCI ACWI Ex US Value IMI (Net)* | *-9.3* | *11.0* | *-0.1* | *16.3* | *-14.6* | *23.6* | *8.8* | *-8.9* | *-5.0* | *15.7* |
| Acadian Asset Management | -13.9 | 21.7 | 11.5 | 19.4 | -15.4 | 35.1 | 11.8 | -7.2 | -3.7 | 21.9 |
| *Oregon MSCI ACWI Ex US Value IMI (Net)* | *-9.3* | *11.0* | *-0.1* | *16.3* | *-14.6* | *23.6* | *8.8* | *-8.9* | *-5.0* | *15.7* |
| Brandes Investment Partners | -7.4 | 14.1 | -1.3 | 16.4 | -9.4 | 16.3 | 7.9 | -1.6 | -5.0 | 28.3 |
| *Oregon MSCI ACWI Ex US Value (Net)* | *-8.6* | *10.5* | *-0.8* | *15.7* | *-14.0* | *22.7* | *8.9* | *-10.1* | *-5.1* | *15.0* |
| **International Growth** | **-21.0** | **12.4** | **19.9** | **28.1** | **-6.4** | **27.5** | **1.3** | **1.9** | **-4.3** | **18.8** |
| *Oregon MSCI WORLD Ex US (Net)* | *-14.3* | *12.6* | *7.6* | *22.5* | *-14.1* | *24.2* | *2.8* | *-3.0* | *-4.3* | *21.0* |
| Walter Scott Management | -21.0 | 12.4 | 19.9 | 28.0 | -6.3 | 27.5 | 6.4 | 1.2 | -3.1 | 13.1 |
| *Oregon MSCI WORLD Ex US (Net)* | *-14.3* | *12.6* | *7.6* | *22.5* | *-14.1* | *24.2* | *2.8* | *-3.0* | *-4.3* | *21.0* |
| **International Small Cap** | **-15.0** | **18.1** | **9.3** | **24.1** | **-24.3** | **30.2** | **4.9** | **6.1** | **-6.5** | **29.1** |
| *MSCI World Ex US Small Cap Value (Net)* | *-14.0* | *13.3* | *2.6* | *22.8* | *-18.4* | *27.9* | *7.9* | *1.1* | *-5.9* | *27.7* |
| DFA International Small Cap | | | | | | | | | | |
| Harris Associates | -13.8 | 20.1 | 5.0 | 33.4 | -24.1 | 27.2 | 7.1 | 1.0 | -6.7 | 30.9 |
| *MSCI ACWI ex USA Small Cap Value (Net)* | *-13.6* | *14.1* | *4.7* | *20.3* | *-18.2* | *29.9* | *8.2* | *-1.2* | *-4.5* | *20.9* |
| EAM International Micro Cap | -25.2 | 17.8 | 38.4 | 20.3 | -33.6 | 45.3 | 2.2 | 23.5 | -- | -- |
| *Oregon FTSE Global Ex US Micro Cap* | *-21.1* | *18.0* | *27.9* | *16.6* | *-20.0* | *31.4* | *6.0* | *2.9* | -- | -- |
| DFA International Micro Cap | -10.3 | 17.1 | 5.7 | 18.5 | -22.0 | 30.9 | 11.9 | -1.8 | -- | -- |
| *Oregon FTSE Global Ex US Micro Cap* | *-21.1* | *18.0* | *27.9* | *16.6* | *-20.0* | *31.4* | *6.0* | *2.9* | -- | -- |

| | 2022 (%) | 2021 (%) | 2020 (%) | 2019 (%) | 2018 (%) | 2017 (%) | 2016 (%) | 2015 (%) | 2014 (%) | 2013 (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| **Emerging Markets** | **-16.9** | **4.3** | **23.5** | **22.1** | **-17.4** | **35.7** | **10.3** | **-14.5** | **1.2** | **-0.1** |
| *ORE MSCI Emerging Markets IMI (Net)* | *-19.8* | *-0.3* | *18.4* | *17.6* | *-15.0* | *37.0* | *9.9* | *-13.9* | *-1.8* | *-2.2* |
| Genesis Emerging Markets | -22.8 | -6.6 | 17.5 | 29.3 | -15.9 | 33.6 | 12.0 | -14.9 | -1.0 | 0.7 |
| *ORE MSCI Emerging Markets IMI (Net)* | *-19.8* | *-0.3* | *18.4* | *17.6* | *-15.0* | *37.0* | *9.9* | *-13.9* | *-1.8* | *-2.2* |
| Arrowstreet Emerging Markets | -10.5 | 9.6 | 32.1 | 23.7 | -19.5 | 35.4 | 11.2 | -15.8 | 1.1 | -1.0 |
| *ORE MSCI Emerging Markets IMI (Net)* | *-19.8* | *-0.3* | *18.4* | *17.6* | *-15.0* | *37.0* | *9.9* | *-13.9* | *-1.8* | *-2.2* |
| Westwood Global Investment | -4.1 | 3.6 | 10.1 | 9.8 | -9.3 | 29.5 | 19.0 | -16.1 | 0.2 | 0.6 |
| *MSCI Emerging Markets IMI Net* | *-19.8* | *-0.3* | *18.4* | *17.6* | *-15.0* | *37.3* | *11.2* | *-14.9* | *-2.2* | *-2.6* |
| William Blair and Company | -33.3 | 4.4 | 41.4 | 29.1 | -21.6 | 50.2 | 1.9 | -14.1 | 5.7 | 0.9 |
| *MSCI Emerging Markets Growth Net* | *-24.0* | *-8.4* | *31.3* | *25.1* | *-18.3* | *37.3* | *11.2* | *-14.9* | *-2.2* | *-2.6* |
| William Blair Emerging Mkt Small Cap | -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* | *-23.3* | *20.4* | *25.6* | *12.0* | *-20.0* | *33.8* | *2.3* | *-6.8* | *1.0* | -- |
| OST EM Risk Premia ESG | | | | | | | | | | |
| **Global Equity** | **-9.8** | **15.5** | **7.4** | **21.6** | **-7.9** | **22.3** | **9.4** | **-3.3** | **6.9** | **35.6** |
| *MSCI ACWI IMI Net (Daily)* | *-18.4* | *18.2* | *16.3* | *26.4* | *-10.1* | *24.0* | *8.3* | *-2.1* | *3.8* | *23.5* |
| Alliance Bernstein Global Value | | | | | | | | | | |
| **Global Equity Low Volatility** | **-9.2** | **15.2** | **7.9** | **21.7** | **-5.5** | **22.5** | -- | -- | -- | -- |
| *MSCI AC World (Daily Const)* | *-18.4* | *18.5* | *16.3* | *26.6* | *-9.4* | *24.0* | -- | -- | -- | -- |
| LACM Global Equity Low Volatility | -14.9 | 15.4 | 15.0 | 23.1 | -6.6 | 22.7 | -- | -- | -- | -- |
| *MSCI AC World (Daily Const)* | *-18.4* | *18.5* | *16.3* | *26.6* | *-9.4* | *24.0* | -- | -- | -- | -- |
| Arrowstreet Global Low Volatility | -2.7 | 15.1 | 12.6 | 22.3 | -2.7 | -- | -- | -- | -- | -- |
| *MSCI ACWI IMI Net (Daily)* | *-18.4* | *18.2* | *16.3* | *26.4* | *-10.1* | -- | -- | -- | -- | -- |

| | 2022 (%) | 2021 (%) | 2020 (%) | 2019 (%) | 2018 (%) | 2017 (%) | 2016 (%) | 2015 (%) | 2014 (%) | 2013 (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| AQR Global Low Volatility | | | | | | | | | | |
| Acadian Global Low Volatility | -7.7 | 17.5 | -1.9 | 20.2 | -7.0 | -- | -- | -- | -- | -- |
| *MSCI ACWI IMI Net (Daily)* | *-18.4* | *18.2* | *16.3* | *26.4* | *-10.1* | -- | -- | -- | -- | -- |
| DFA Global Low Volatility | | | | | | | | | | |
| Cantillion | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *MSCI ACWI IMI Net (Daily)* | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| GQG Global Equity | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| *Oregon MSCI ACWI Ex US (Net)* | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **Other Equity** | | | | | | | | | | |
| Transitional & Closed Accounts | | | | | | | | | | |
| PERS- Equity Distribution | | | | | | | | | | |
| **Total Real Estate** | **20.0** | **19.0** | **2.7** | **7.2** | **8.0** | **10.0** | **7.9** | **9.9** | **14.2** | **12.8** |
| *NCREIF ODCE (Custom) (Adj.)* | *21.0* | *13.6* | *0.6* | *4.7* | *7.7* | *6.7* | *8.9* | *13.5* | *11.3* | *11.0* |
| **Real Estate excluding REITS** | **21.6** | **18.6** | **3.0** | **7.3** | **8.9** | **11.2** | **10.0** | **12.7** | **12.0** | **15.8** |
| *NCREIF ODCE (Custom) (Adj.)* | *21.0* | *13.6* | *0.6* | *4.7* | *7.7* | *6.7* | *8.9* | *13.5* | *11.3* | *11.0* |

| | 2022 (%) | 2021 (%) | 2020 (%) | 2019 (%) | 2018 (%) | 2017 (%) | 2016 (%) | 2015 (%) | 2014 (%) | 2013 (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total REITS** | **-16.4** | **28.2** | **-0.9** | **7.2** | **-2.0** | **9.8** | **1.1** | **2.0** | **22.2** | **2.2** |
| ABKB - LaSalle Advisors | -18.6 | 36.2 | 3.0 | 29.9 | 3.2 | 7.4 | 5.4 | 2.9 | 32.1 | 1.6 |
| *Nareit Equity Share Price Index* | *-24.9* | *41.3* | *-5.2* | *28.7* | *-4.0* | *8.7* | *8.6* | *2.8* | *28.0* | *2.8* |
| Woodbourne Investment Management | -10.3 | 9.9 | 0.6 | 18.5 | -4.8 | 10.6 | 4.3 | 8.6 | 19.5 | -1.8 |
| *Nareit Equity Share Price Index* | *-24.9* | *41.3* | *-5.2* | *28.7* | *-4.0* | *8.7* | *8.6* | *2.8* | *28.0* | *2.8* |
| **Opportunity Portfolio** | **1.3** | **22.7** | **10.2** | **6.2** | **5.8** | **10.5** | **6.1** | **2.1** | **8.8** | **15.0** |
| *Opportunity Custom Benchmark* | *11.7* | *12.4* | *6.4* | *7.4* | *7.0* | *7.2* | *7.2* | *5.8* | *5.8* | *6.6* |
| Portfolio Holdings - Opportunity | -15.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **Alternative Portfolio** | **19.1** | **14.8** | **-6.6** | **-1.3** | **-2.4** | **8.3** | **6.6** | **-4.3** | **4.4** | **6.0** |
| *CPI +4%* | *10.4* | *11.3* | *5.4* | *6.4* | *6.0* | *6.2* | *6.2* | *4.8* | *4.8* | *5.6* |
| **Diversifying Strategies** | **21.4** | **8.7** | **-12.1** | **-1.0** | **-11.5** | **8.0** | **0.5** | **6.4** | **9.0** | **6.8** |
| *HFRI FOF Conservative Index* | *0.1* | *7.6* | *6.5* | *6.3* | *-0.9* | *4.1* | *1.9* | *0.4* | *3.1* | *7.7* |
| Diversifiying Strategies | 21.4 | 8.7 | -12.1 | -1.0 | -11.5 | 8.0 | -- | -- | -- | -- |
| *HFRI FOF Conservative Index* | *0.1* | *7.6* | *6.5* | *6.3* | *-0.9* | *4.1* | -- | -- | -- | -- |
| **Real Assets** | **18.2** | **19.0** | **-2.0** | **-1.6** | **4.9** | **8.4** | **9.0** | **-7.9** | **3.1** | **5.4** |
| *CPI +4%* | *10.4* | *11.3* | *5.4* | *6.4* | *6.0* | *6.2* | *6.2* | *4.8* | *4.8* | *5.6* |
| Infrastructure | 13.9 | 16.6 | 5.6 | 8.9 | -- | -- | -- | -- | -- | -- |
| *CPI +4%* | *10.4* | *11.3* | *5.4* | *6.4* | -- | -- | -- | -- | -- | -- |
| Natural Resources | 27.7 | 23.9 | -12.8 | -12.5 | -- | -- | -- | -- | -- | -- |
| *CPI +4%* | *10.4* | *11.3* | *5.4* | *6.4* | -- | -- | -- | -- | -- | -- |
| **Private Equity** | **1.2** | **41.8** | **12.7** | **11.1** | **18.1** | **17.3** | **6.3** | **7.3** | **15.9** | **16.2** |
| *Russell 3000 + 300 BPS QTR LAG (Adj.)* | *-15.1* | *35.7* | *18.4* | *6.0* | *21.1* | *22.2* | *18.4* | *2.5* | *21.2* | *25.2* |

# Disclaimer, Glossary, and Notes

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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%.

| 5% (discount) / 5 (yrs. to maturity) | = | 1% pro rata, plus 5.26% (current yield) | = | 6.26% (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

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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.

OREGON STATE TREASURY

Tobias Read
Oregon State Treasurer

Michael Kaplan
Deputy State Treasurer

**To:** **The Oregon Investment Council**

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

**Re:** **Third 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 September 30, 2023, OPERF has an estimated return volatility of 15.1%, higher than that for the latest OIC-approved target allocation 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 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

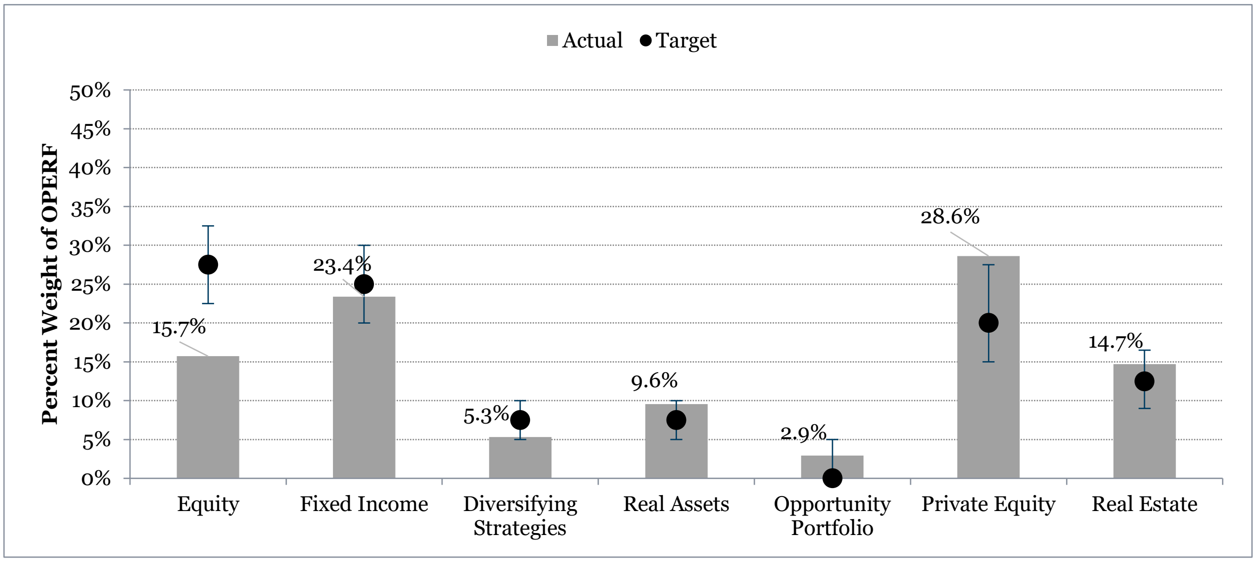
Investment Belief #2 in INV 1201: Statement of OIC Investment and Management Beliefs states: "*Asset Allocation Drives Risk and Return*". Shown in the table below are OPERF's target allocations approved by the Council at the December 2022 meeting.

**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.

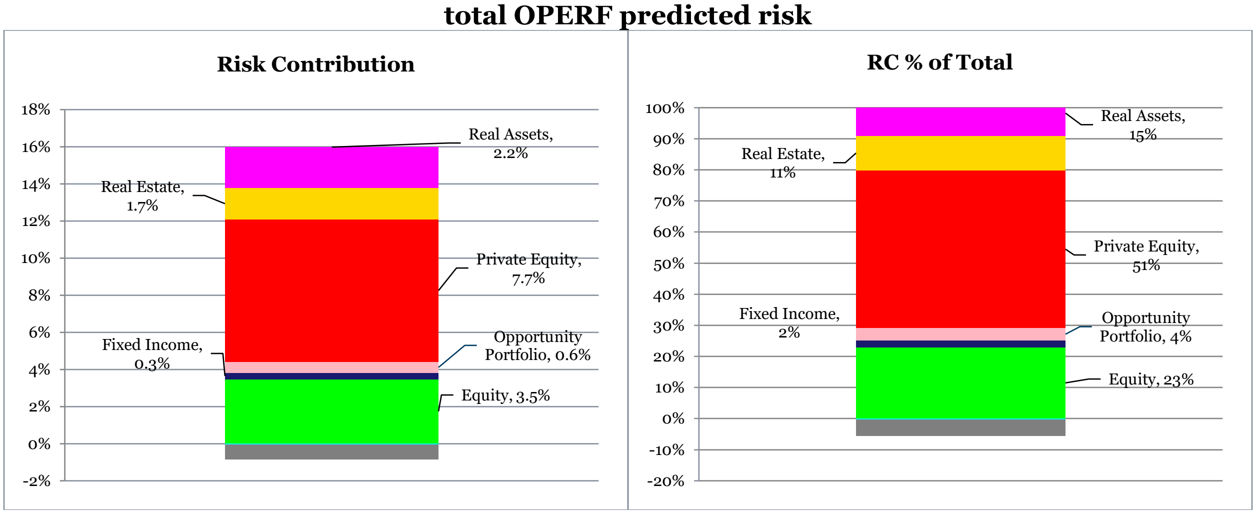
**Figure 1. OPERF Actual Allocation versus Target**




## 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**

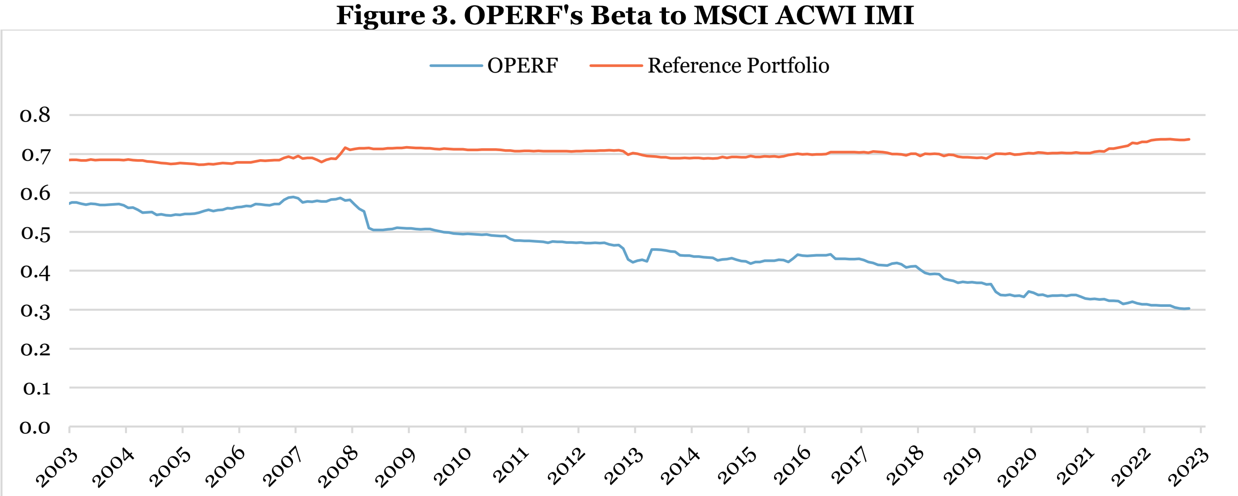


The total predicted **standard deviation**, or **volatility**, for OPERF is 15.1% as of September 30, 2023. To put that in context, Meketa, the OIC's investment consultant, estimates OPERF's long-term volatility to be 11.4% using their 2022 Capital Market Assumptions, which are a blend of 10- to 20-year 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 matching those of the Strategic Asset Allocation results in a predicted risk of 13.9%. A very rough interpretation is that, relative to the Capital Market Assumptions, the current market environment added 2.5% (13.9% minus 11.4%) to the estimated risk and the Fund's misweights result added another 1.2% (15.1% minus 13.9%).

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 was recently updated to 67.5% MSCI ACWI IMI & 32.5% Bloomberg U.S. Aggregate Index blend from a previous 70/30 blend. 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.

**Figure 3. OPERF's Beta to MSCI ACWI IMI**

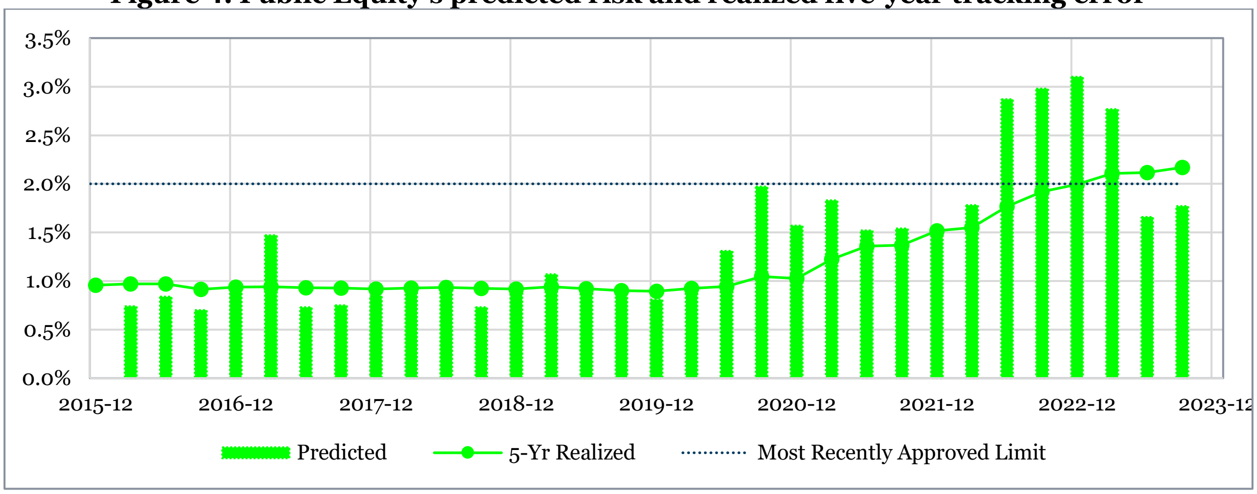


## Capital Markets

### *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 five-year *ex post* tracking error through September 30, 2023 for the Portfolio is 2.2%, slightly above the upper end of the approved range. However, Aladdin estimates an *ex ante* active risk of 1.8%, down from 3.1% the end of 2022. Since 2022, the Public Equity team has meaningfully rebalanced the Portfolio to reduce the active factor exposures. That implementation, in conjunction with the moderation of factor correlations, lowered the predicted active risk of the Portfolio.

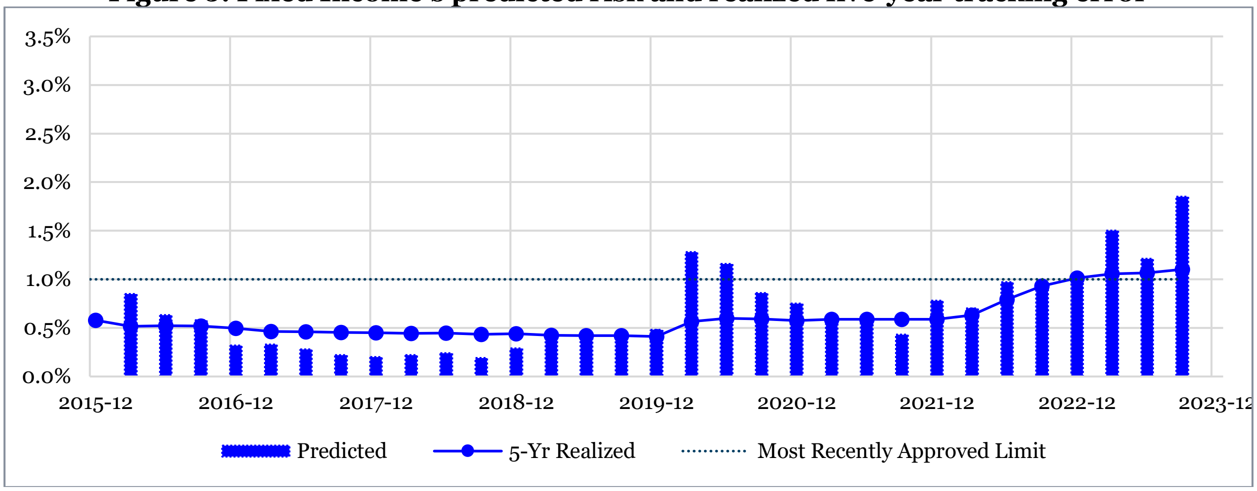
**Figure 4. Public Equity's predicted risk and realized five-year tracking error**




### *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 through September 30, 2023 for the Portfolio is 1.1%, slightly above the upper end of the approved range. The predicted active risk of 1.9% is significantly above the approved range. This elevation in predicted active risk is mainly due to the Portfolio's short duration exposure of -0.5 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 | 3,755 | 3,327 | 4,047 | 3,436 | 2,813 | 3,544 |
| Private Equity | -557 | 464 | 2,503 | 50 | 285 | 1,103 |
| Fixed Income | -1,442 | -1,544 | -2,653 | 3,154 | 327 | 61 |
| Real Estate | -648 | -883 | -396 | 15 | -48 | -28 |
| Real Assets | -640 | -706 | -572 | -509 | -578 | -524 |
| Diversifying Strategies | -253 | -11 | 381 | -621 | -490 | -1,349 |
| Opportunity | 57 | -165 | -248 | 86 | 26 | 156 |
| Other* | 802 | 663 | -227 | -2,249 | 283 | -15 |
| **Total Fund** | **1,075** | **1,144** | **2,836** | **3,362** | **2,617** | **2,948** |
| *Net Pension* | *-2,742* | *-2,605* | *-1,743* | *-3,041* | *-2,659* | *-2,774* |

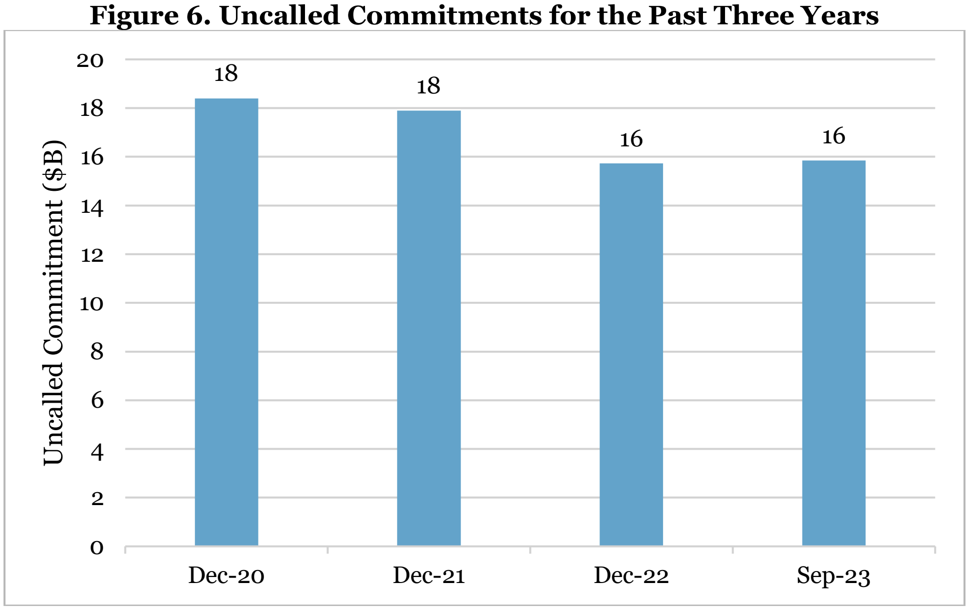
*Including cash flows from the terminated OPERF Risk Parity Portfolio.

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 | $6.9 |
| Real Assets | $4.0 |
| Real Estate | $3.6 |
| Opportunity | $1.3 |
| **Total** | **$15.9** |

**Figure 6. Uncalled Commitments for the Past Three Years**



TAB 5

OPERF FIXED INCOME

ANNUAL REVIEW

December 6, 2023

# OPERF Fixed Income Portfolio 2023 Annual Review


Rupa Raman
Senior Investment Officer, Fixed Income, OST

Allan Emkin
Managing Principal, Meketa Investment Group

Mika Malone
Managing Principal, Meketa Investment Group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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 |
| Agenda | 2 | | | | | | | | | | | | | | | | | | |
| Fixed Income Role in OPERF | 3 | | | | | | | | | | | | | | | | | | |
| Fixed Income Performance | 4 | | | | | | | | | | | | | | | | | | |
| Overview of Fixed Income Asset Class | 7 | | | | | | | | | | | | | | | | | | |
| Asset Allocation Study 2022 | 9 | | | | | | | | | | | | | | | | | | |
| Fixed Income Portfolio Evolution | 10 | | | | | | | | | | | | | | | | | | |
| Fixed Income Benchmark | 11 | | | | | | | | | | | | | | | | | | |
| 2023 Changes | 14 | | | | | | | | | | | | | | | | | | |
| 2024 Goals | 17 | | | | | | | | | | | | | | | | | | |

**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.

**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.

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# Fixed Income Role

## Strategic Role

OIC INV 1203 - Statement of OIC Investment and Management Beliefs and OIC Policy

OIC INV 401 – Strategic Role of Fixed Income within OPERF.

*As outlined in those policy documents, the strategic role of fixed income is to provide diversification opportunities, as well as liquidity to help meet OPERF's cash flow requirements.*

*OPERF's fixed income allocation is managed with the objective of earning 15 basis points in annualized, net excess returns relative to the Bloomberg U.S. Aggregate Index over rolling, consecutive five-year periods.*

*Relative to that same benchmark, active risk within the OPERF fixed income allocation is managed to up to 1.0 percent annualized tracking error target.*

# Fixed Income Performance

## Trailing Performance

| | Market Value | 3 Months | YTD | 1 Year | 3 Years | 5 Years | 10 Years |
|---|---|---|---|---|---|---|---|
| **OPERF Fixed Income Portfolio** | **$16.2B** | **-2.10%** | **0.88%** | **2.39%** | **-3.65%** | **0.93%** | **1.60%** |
| Oregon Custom FI Benchmark | | -3.23% | -1.21% | 0.64% | -4.97% | -0.01% | 0.91% |
| **Excess Return** | | **1.13%** | **2.08%** | **1.74%** | **1.33%** | **0.94%** | **0.69%** |

## Risk Statistics

| | | 3 Months | YTD | 1 Year | 3 Years | 5 Years | 10 Years |
|---|---|---|---|---|---|---|---|
| **OPERF Fixed Income Tracking Error** | | **N/A** | **N/A** | **1.35%** | **1.24%** | **1.08%** | **0.82%** |
| **OPERF Fixed Income Information Ratio** | | **N/A** | **N/A** | **1.29** | **1.07** | **0.87** | **0.83** |

- From a performance standpoint, the Fixed Income portfolio has achieved its objectives.
- However, this outperformance has been achieved with variable levels of active risk, including a tracking error above the target maximum of 1% over the last three years.

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

# Key Takeaways

- For OPERF, Fixed Income serves as one of the primary diversifiers relative to equity and equity-like asset classes.
  - This diversification is predominantly present during deflationary/disinflationary market environments.
- The Fixed Income portfolio has generated strong relative returns, albeit with an active risk level at or above the target maximum.
- Recent and future portfolio modifications were/are aimed at reducing the portfolio's tracking error while maintaining yields, duration, and credit quality that are in-line with the benchmark.
- Due to the current interest rate environment, the Fixed Income portfolio can generate a meaningful return (>5%) on a go-forward basis.
  - Combined with the liquidity of the asset class, Fixed Income can help meet the portfolio's net negative cash flow needs/benefit payments.

# OPERF Fixed Income Structure

- Fixed income represented 17.8% of OPERF (23.2% including the Russell overlay) as of September 30, 2023, with a stated Policy target of 25.0%
- Internally-managed portfolios comprise 43.5% of OPERF fixed income assets

Total Fixed Income
$16.2 Billion
15 Accounts

Core
$3.7B
3 Accounts

Investment Grade Credit
$0.5B
1 Account

U.S. Government
$7.0B
1 Account (Internally managed)

Bank Loans/ High Yield
$2.0B
2 Accounts

Structured Credit
$1.6B
3 Accounts

Global Sovereign
$1.1B
2 Accounts

Emerging Markets Debt
$0.3B
3 Accounts



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

# Role of Fixed Income as an Asset Class

- Safest/lowest risk assets in portfolio
- Cashflow generation
- Diversifier/low correlation to equities
  - While this was not experienced in 2022, this was within expectations given the inflationary backdrop.
- Current yields drive expected return at maturity
  - However, assets are marked to market, and price variability impacts fixed income, as well as other portfolios

# Benefit Payments

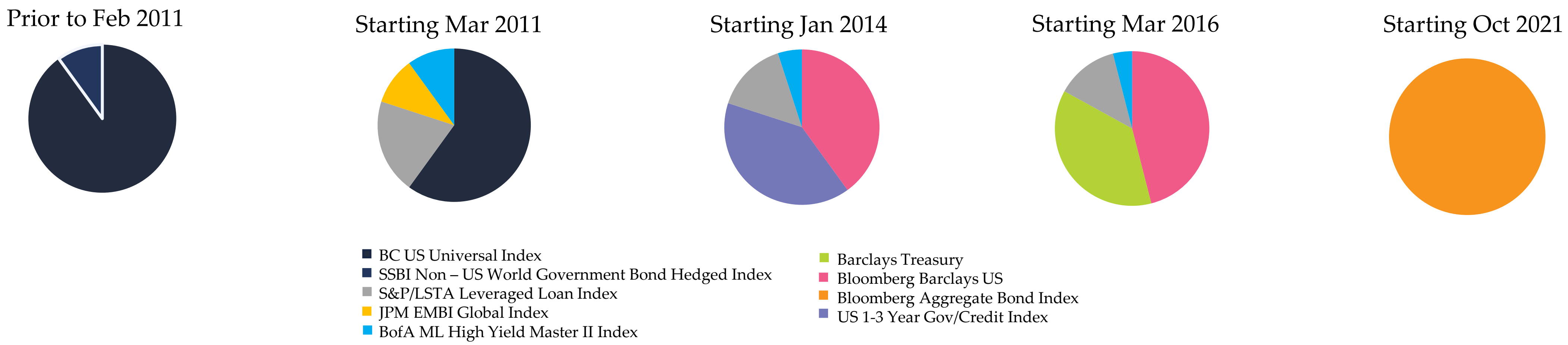
- Given current yields, Fixed Income will be a meaningful source of liquidity to pay a portion of the $3.9 billion annual benefit payment outflow
- Staff Estimates that $1 billion could be generated via income to the portfolio over the next year
  - However, using the Fixed Income portfolio as a liquidity source will be an additional headwind to achieving the policy target allocations
- Global Equity is the other natural source for liquidity to pay benefits, so every dollar fixed income contributes is one less for equities.

# OPERF Asset Allocation Study 2022

- During the last OPERF Asset Allocation Study, the OIC voted to increase the target allocation to Fixed Income. "Fixed Income" was modeled as the Bloomberg US Aggregate, which aligns with the asset class benchmark, for the study. The expected return of the asset class used for the study was 3.4%
- The portfolio itself does not match the benchmark perfectly, but we feel is reasonably represented by the benchmark from a risk/return standpoint.
- As the Council is aware, a meaningful overweight to illiquid/private assets means that Fixed Income remains underweight its target.
- We discussed the increasing yields in fixed income making that asset class more attractive on a relative basis than it has been for many years. (Easier to get to actuarial assumed rate of return when FI assets are yielding 5%+).
- Given the historic increase in interest rates/yields on fixed income since the last AA review, Meketa believes it is appropriate to discuss the current environment and its impact on expected returns in 2024.

# Fixed Income Portfolio Evolution

## Changes in the Custom Fixed Income Index




### Significant Changes

- The fixed income portfolio has undergone several meaningful shifts to its benchmark over the last decade
- Since 2021, the full fixed income portfolio is benchmarked to the Bloomberg US Aggregate Bond Index, which simplifies measurement. However, it should be noted that the underlying exposures are more diverse than the benchmark.

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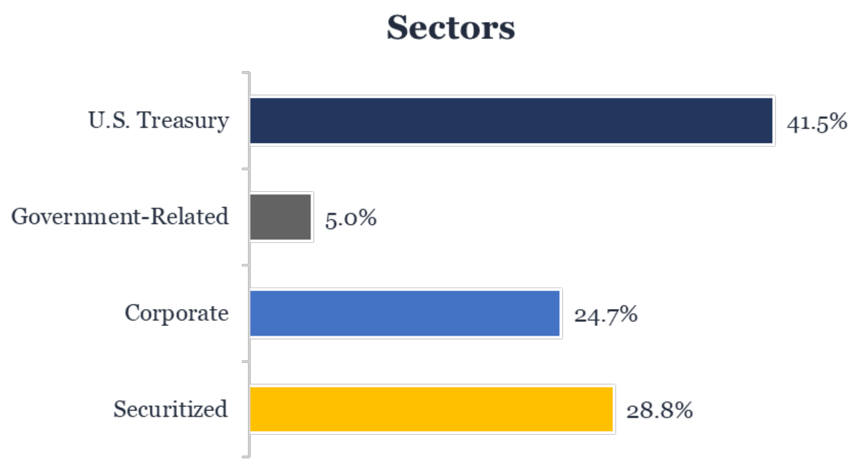
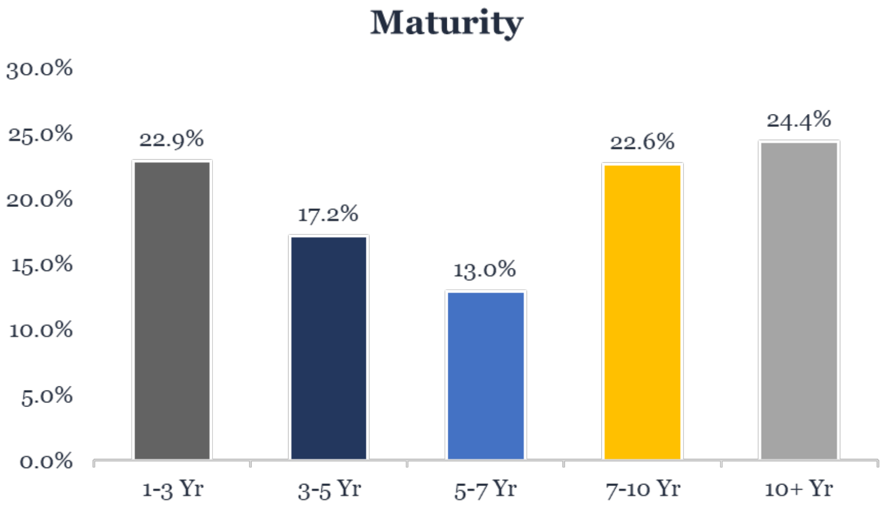
# Current Public Fixed Income Benchmark

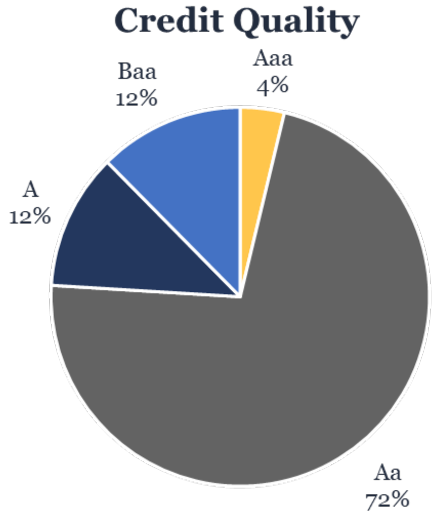
## Bloomberg US Aggregate (AGG)

**Index Characteristics**

| | |
|---|---|
| Number Issues (Returns) | 13,370 |
| Returns Modified Duration | 6.08 |
| Duration (Mod. Adj.) | 6.15 |
| Market Value (MM) | 24,775,790 |
| Quality | AA2/AA3 |
| Yield to Worst | 5.39 |

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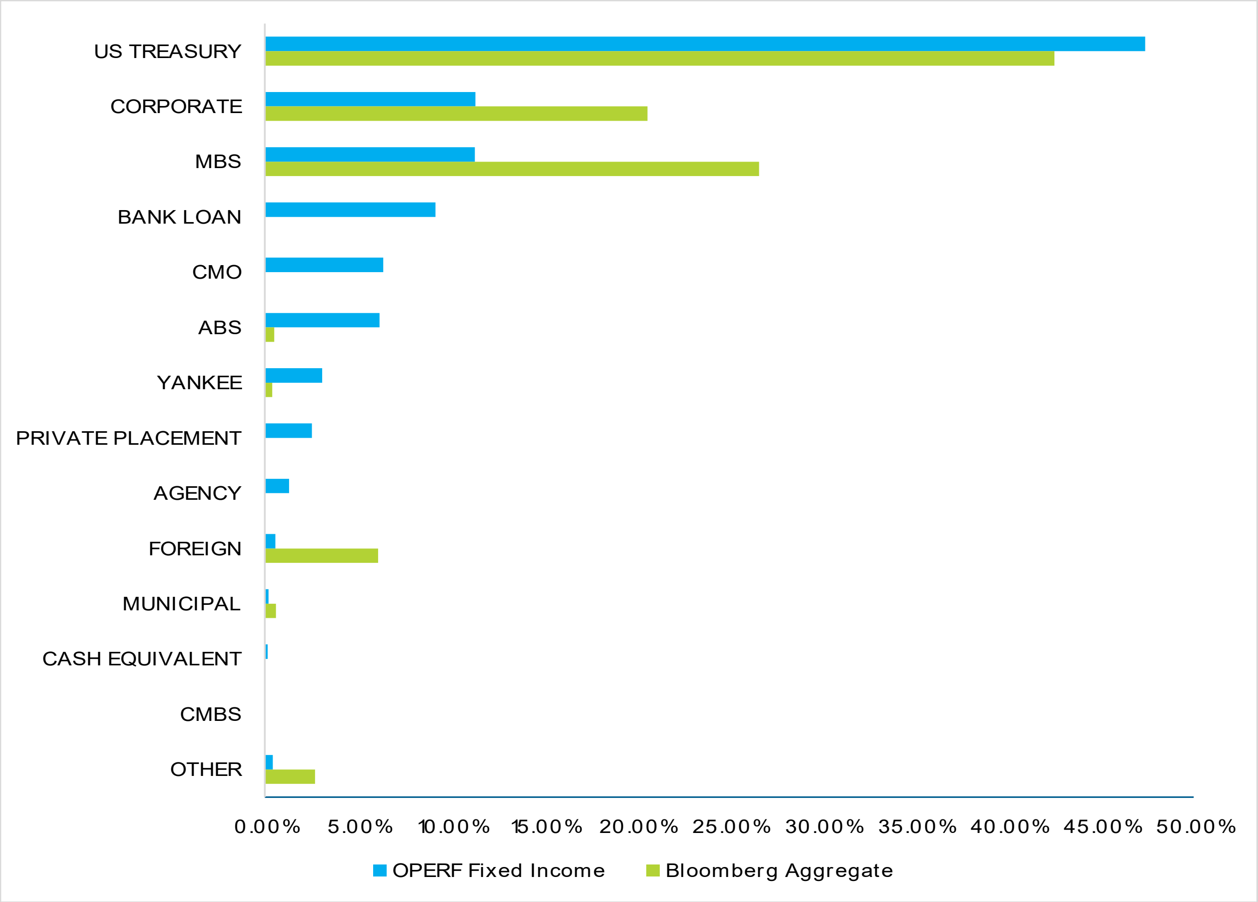
Source: Bloomberg as of September 30, 2023

# Composition of Portfolio vs Benchmark - Q3




- The Bloomberg US Aggregate is an investment grade index.
- It is dominated by Treasuries, Corporates, and Agency Mortgage-backed Securities (“MBS”).
- Primary portfolio vs. index differences:
  - Overweight Treasuries
  - Underweight Corporates
  - Underweight MBS
  - Overweight sectors with low or no benchmark weight such as Bank Loans, CMO, and ABS.
- Portfolio effective average credit quality of AA- vs. AA for the index.
- Portfolio effective duration is 4.79 years vs. 6.01 years for the index.

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# Current Fixed Income Manager Roster

<u>Core Fixed Income</u>
*BlackRock*
*Wellington*
*Western Asset*

<u>U.S. Government</u>
*Government Portfolio*
*(Internally managed)*

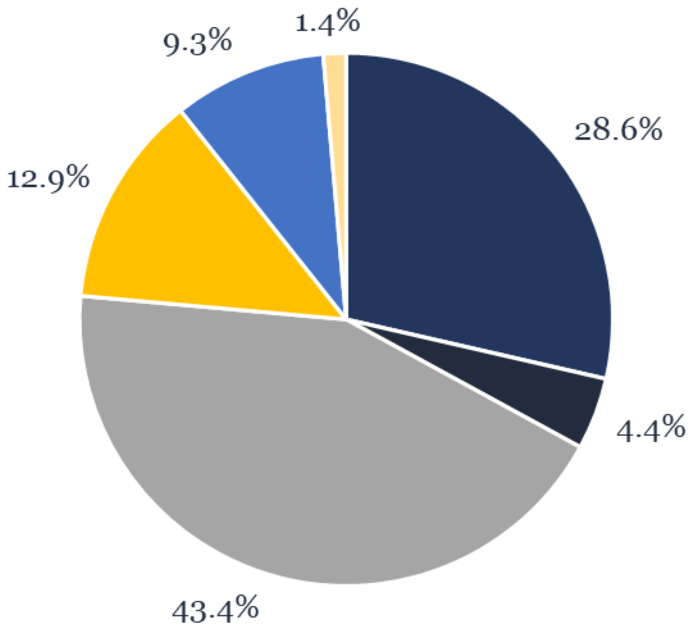
<u>Investment Grade Credit</u>
*Fidelity*

<u>Structured Credit</u>
*Guggenheim*
*Schroders*

<u>Bank Loans/ High Yield</u>
*Beach Point*
*Oak Hill*

<u>Emerging Markets Debt</u>
*Global Evolution*
*Prudential (PGIM)*

**OPERF Fixed Income Allocation**

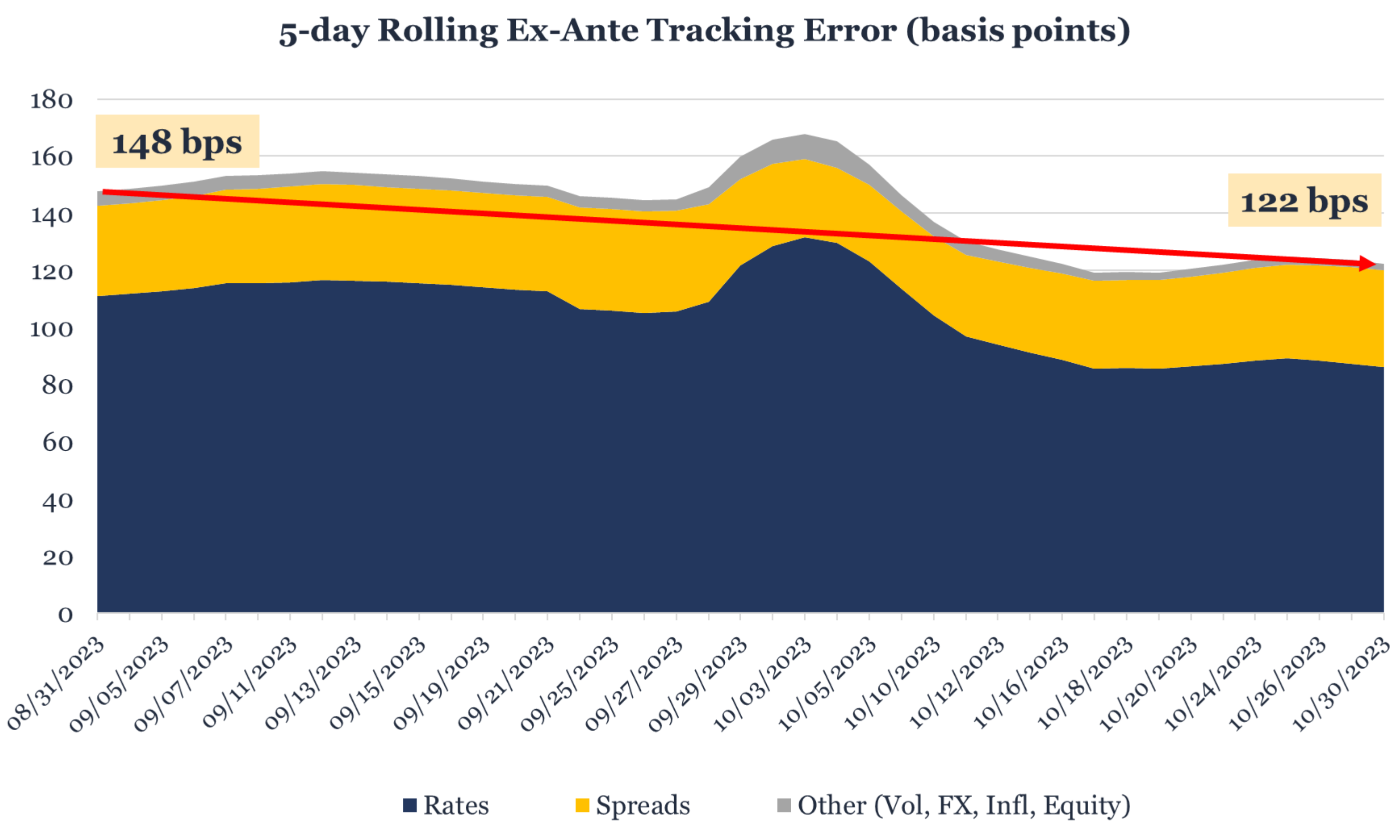



Source: State Street, as of October 31, 2023.

# 2023 Portfolio Changes

- Priority #1: Address above-target tracking error
- Portfolio adjustments made to reduce tracking error without deviating substantially from the current structure (to be reviewed in 2024).
  - Added benefits:
    - → Modestly lower fees from consolidation/scale
    - → Modestly higher yield
- Specific Changes:
  - Removed Global Sovereign mandates and redeployed into Core mandates
  - Consolidated Emerging Markets Debt and Structured Credit mandates and redeployed within Structured Credit, Investment Grade Corporate, and High Yield

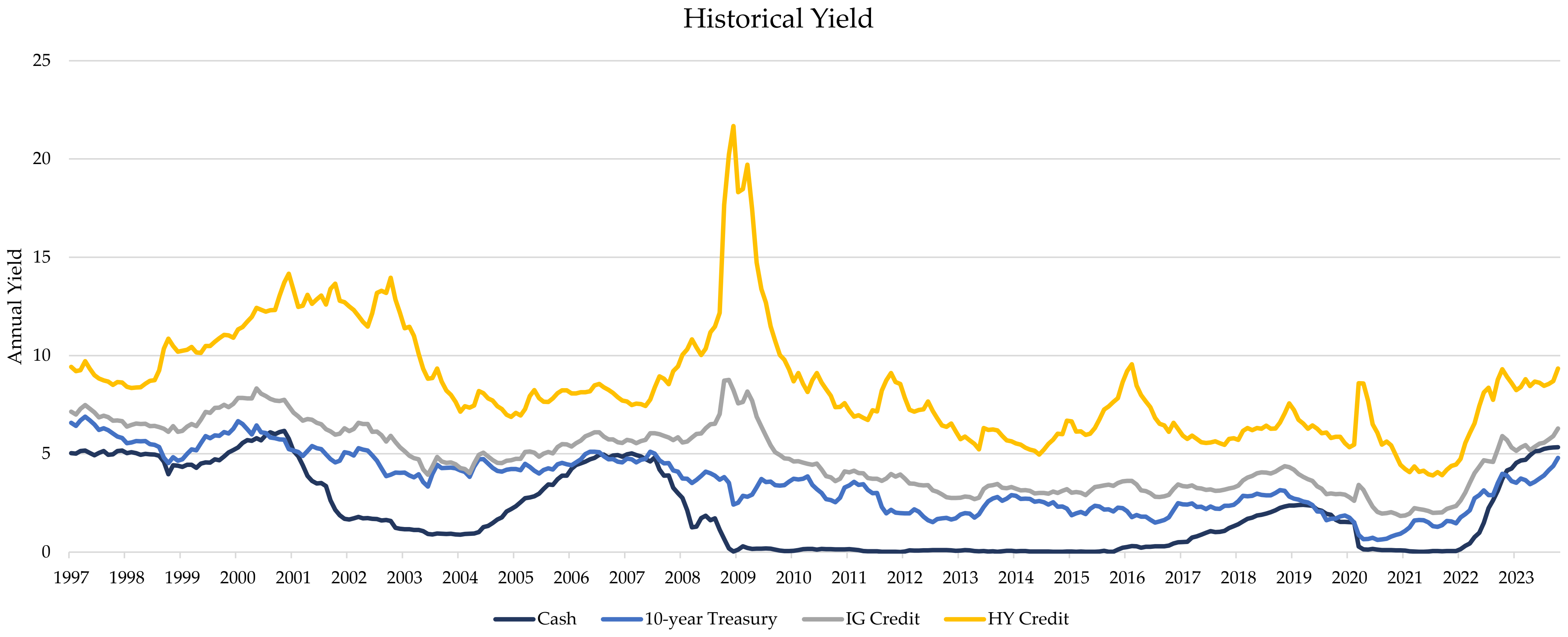
# 2023 Portfolio Changes (cont'd)




- Tracking Error mostly captures the difference in key rate durations between the portfolio and the benchmark.
- Most of the tracking error in the OPERF fixed income portfolio has been due to being short longer duration exposures, which has been beneficial in a rising rate environment.
- Reducing tracking error requires us to match durations so that the portfolio performs if rates decline, especially in the longer end.

Source: Aladdin

# Fixed Income Opportunity Going Forward
# Highest yields since pre-GFC provide opportunity for the asset class




Source: FRED

Fixed Income Markets in 2023

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# 2024 Goals

- Fixed Income Strategy Review
  - Income and Liquidity
  - Tracking Error
  - Risk vs Return in the context of the broader OPERF portfolio
  - Streamlining strategies and managers
- Fixed Income can be a necessary source of liquidity due to the current interest rate environment

# TAB 6

# OST INTERNAL FIXED INCOME OVERVIEW

December 6, 2023

# Fixed Income Portfolio Management (Internal)
# 2023 Annual Review

**Rupa Raman**
*Senior Investment Officer, Fixed Income*

OREGON
STATE
TREASURY

# Internally-managed Fixed Income Policy

**INV 402:**

- Summary policy statement:
  - Internally-managed, publicly-traded investments in debt securities are permitted in the Oregon Investment Council ("OIC") Statement of Fund Governance, and the strategic role of those investments is delineated in the OIC Statement of Investment Objectives and Policy Framework for the Oregon Public Employees Retirement Fund ("OPERF").

**INV 402A-E:**

- Overall Policy Objectives and Strategies
  - Achieve a stable and predictable yield with principal preservation while providing sufficient liquidity to meet agency-related cash flow requirements.
  - Investment objectives, constraints, compliance and reporting requirements for individual Agency participants are presented in the form of an Investment Policy Statement and attached to this policy. Oregon State Treasury fixed income investment staff will maintain a well-diversified portfolio, managed to maximize yield or total return as mandated in each Agency's Investment Policy Statement.

# Fixed Income Team

**Rupa Raman, CFA**
Senior Investment Officer
Team Lead / PM / Trader
6 months with OST / 22 years Industry

**John Lutkehaus, CFA**
Investment Officer 3
PM / Trader for OITP, PUF Core Bond, and Government Portfolio
4 years with OST / 23 years Industry

**Perrin Lim**
Investment Officer 3
PM / Trader for OSTF
22 years with OST / 35 years Industry

**Will Hampson, CFA**
Investment Officer 1
PM / Trader for OSTF, OITP, PUF Core Bond, and Government Portfolio
5 years with OST / 14 years Industry

**Andrew Coutu**
Senior Investment Analyst
Trade Support for OSTF
7 years with OST / 24 years Industry

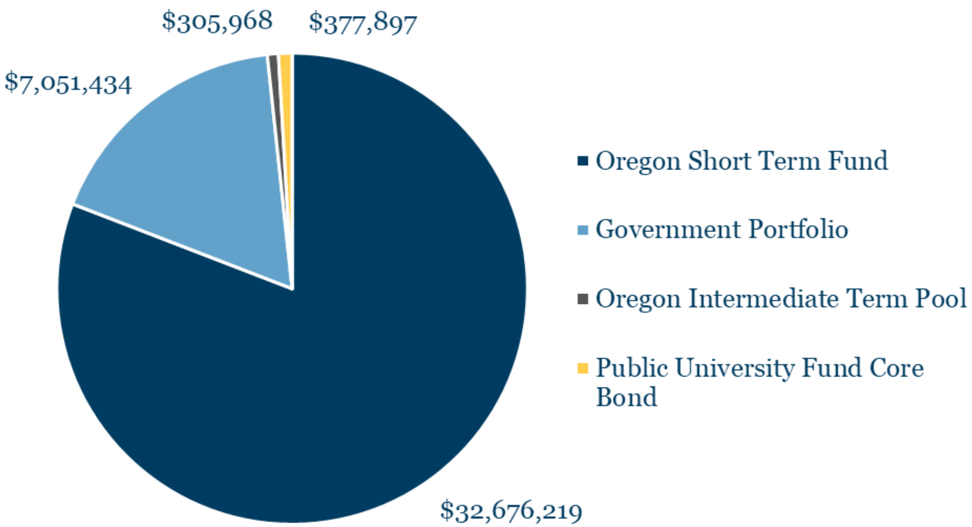
**Tan Cao, CFA, CIPM**
Investment Analyst 3
Trade Support for OSTF
3 years with OST / 8 years Industry

OREGON STATE TREASURY

# Internal Actively Managed Fixed Income

- More than **$40 billion** in internally managed fixed income assets

## Fund Assets (000s)




## Primary Investors

| Oregon Short Term Fund | Government Fund | Oregon Intermediate Term Pool | Public University Fund Core Bond |
|---|---|---|---|
| OPERF<br>Oregon Local Govt's*<br>Common School Fund<br>SAIF<br>DAS<br>DCBS<br>Veterans' Affairs<br>ODOT | OPERF | DAS<br>DCBS<br>Veterans' Affairs<br>ODOT<br>Oregon Cultural Trust<br>Special Public Works Fund<br>OR Institute of Technology | OR University System |

* 1,066 Oregon local government participants as of September 30, 2023.

| Fund | Short Name | Primary Objective | Current Benchmark |
|---|---|---|---|
| Oregon Short Term Fund | OSTF | Capital Preservation | 91-Day T-Bill |
| Government Fund | Government Portfolio | U.S. Treasury | BBG US Treasury |
| Oregon Intermediate Term Pool | OITP | Total Return | BBG US Intermediate US Gov't/Credit |
| Public University Fund Core Bond | PUF | Total Return | BBG US Intermediate US Gov't/Credit |

OREGON STATE TREASURY

Source: Bloomberg, State Street, and Aladdin. All data as of September 30, 2023 unless otherwise noted.

# Oregon Short Term Fund (OSTF)

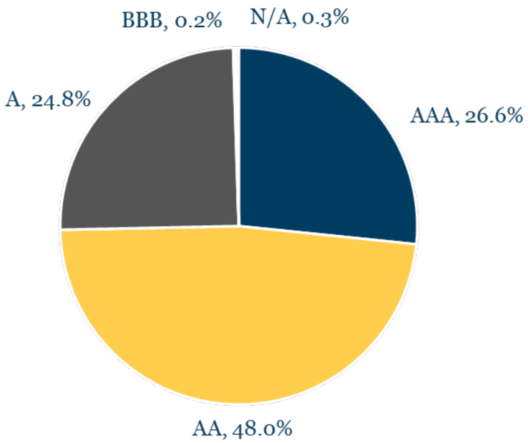
**Objective –** The investment objectives of the Oregon Short Term Fund ("OSTF") are, in priority order, preservation of principal, maintenance of a sufficient level of liquidity to meet all state agency and local government operating requirements and attainment of a yield greater than money market and other short-term alternatives through investments in high-quality, U.S. dollar-denominated fixed income securities. The fund serves as a short-term cash investment vehicle for agencies and local government entities in the State of Oregon, including OPERF.

**Strategy –** OSTF is invested consistent with the fund's objectives by creating a diversified portfolio of a broad range of fixed income investments. Securities may include the following: U.S. government securities, including U.S. Treasuries and securities issued by U.S. Agencies and instrumentalities; securities issued by foreign governments and instrumentalities; certificates of deposit and time deposits in certain qualified depositories; commercial paper; corporate bonds; asset-backed securities; municipal securities; bankers' acceptances; repurchase agreements; and investments in the Oregon Local Government Intermediate Fund. Investments may be made in securities that are issued at a discount or pay interest based on a fixed or floating rate coupon. All securities are denominated in U.S. dollars.

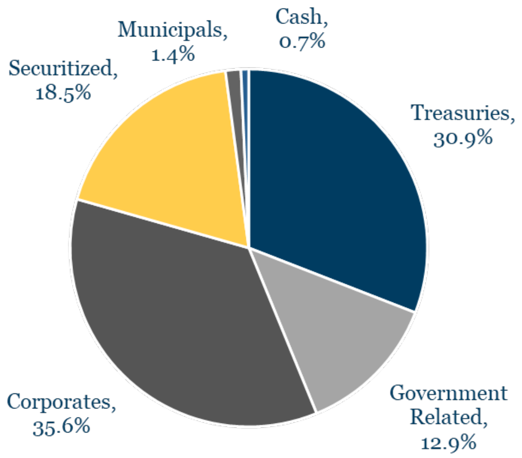
**Benchmark –** 3-Month U.S. T-Bill Index

| Fund Characteristics | |
|---|---|
| Net Asset Value (000s) | $32,676,219 |
| Fund NAV/OSTF Balances | $1.0052 |
| Wtd. Avg. Credit Quality | AA/Aa2/AA |
| Book Yield | 5.00% |
| Wtd. Avg. Maturity (days) | 151 |
| Duration (years) | 0.37 |
| Spread Duration (years) | 0.66 |
| Rate Paid (effective 10/16/23) | 5.00% |

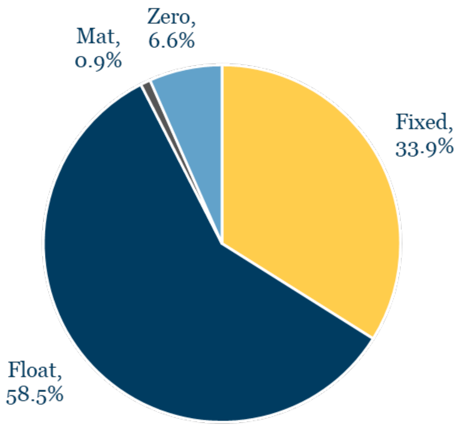
## Credit Quality




## Sectors




## Coupon Type




| | Market Value (000s) | 1 Mth | 3 Mth | YTD | 1 Year | 2 Year | 3 Year | 5 Year | 10 Year |
|---|---|---|---|---|---|---|---|---|---|
| **Oregon Short Term Fund** | **$32,676,219** | **0.39%** | **1.34%** | **3.77%** | **4.78%** | **2.06%** | **1.48%** | **1.95%** | **1.49%** |
| 91-Day Treasury Bill | | 0.46% | 1.31% | 3.60% | 4.47% | 2.53% | 1.70% | 1.72% | 1.11% |
| *Excess Return* | | *-0.07%* | *0.03%* | *0.17%* | *0.31%* | *-0.47%* | *-0.22%* | *0.23%* | *0.38%* |

OREGON STATE TREASURY

Source: Bloomberg, State Street, and Aladdin. All data as of September 30, 2023 unless otherwise noted.

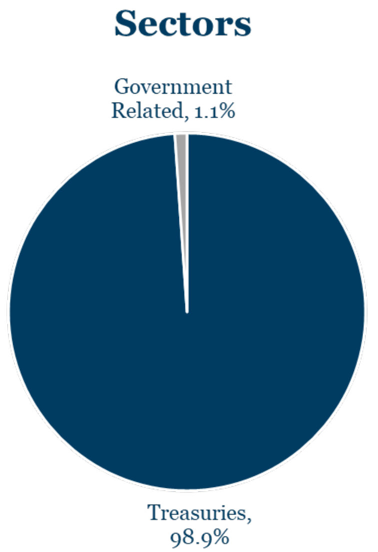
# OPERF Government Portfolio

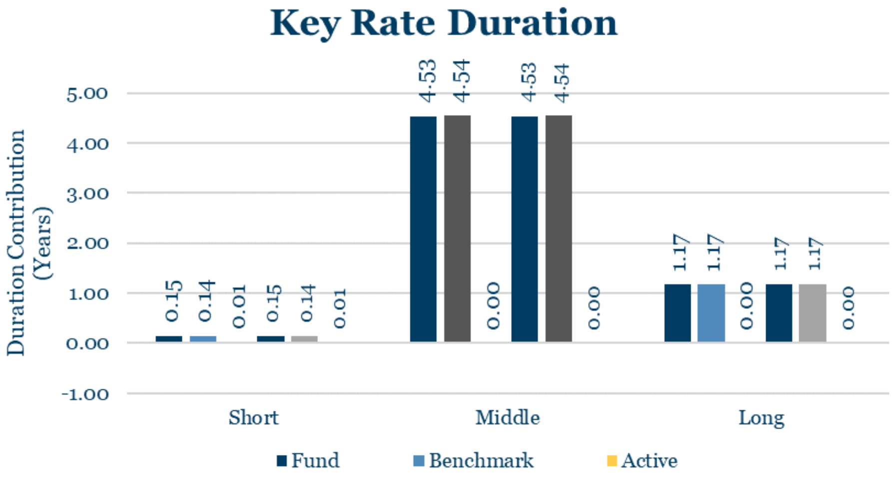
**Objective –** The Government Portfolio's objective is to enhance the diversification benefit of the OPERF fixed income portfolio versus OPERF's otherwise large allocation to risk assets (e.g., Public Equity, Private Equity, Real Estate and Alternatives) and to provide a reliable source of liquidity.

**Strategy –** The Government Portfolio is managed to closely match the benchmark with minimal active risk. To achieve this goal, staff seeks to maintain a key rate duration profile similar to the benchmark while holding fewer positions than the benchmark in order to reduce trading costs.

**Benchmark –** Bloomberg Barclays U.S. Treasury Index

| Fund Characteristics | |
|---|---|
| Net Asset Value (000s) | $7,051,434 |
| Number of Securities | 154 |
| Duration (Years) | 5.86 |
| Yield-to-Maturity | 4.85% |
| Effective Credit Rating | AA+ |




| | Market Value (000s) | 1 Mth | 3 Mth | YTD | 1 Year | 2 Year | 3 Year | 5 Year |
|---|---|---|---|---|---|---|---|---|
| **Government Portfolio** | **$7,051,434** | **-2.22%** | **-3.04%** | **-1.34%** | **-0.78%** | **-7.04%** | **-5.78%** | **-0.01%** |
| Government Blended Index | | -2.21% | -3.06% | -1.52% | -0.81% | -7.07% | -5.83% | -0.07% |
| *Excess Return* | | *-0.01%* | *0.02%* | *0.18%* | *0.03%* | *0.03%* | *0.05%* | *0.06%* |

OREGON STATE TREASURY

Source: Bloomberg, State Street, and Aladdin. All data as of September 30, 2023 unless otherwise noted.

# Oregon Intermediate Term Pool (OITP)

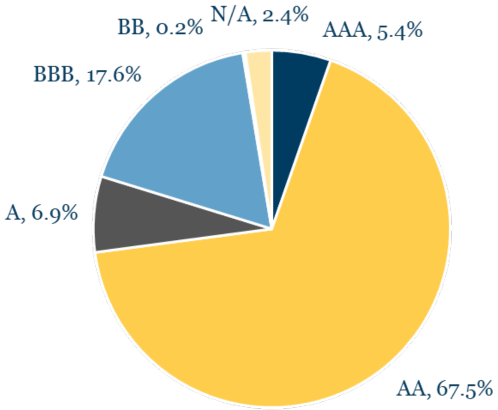
**Objective –** The Oregon Intermediate Term Pool ("OITP") is a high-quality, intermediate-duration investment pool that is offered to Oregon State Agencies. The OITP investment objective is to maximize total return (i.e., principal and income) within stipulated risk parameters. OITP is not appropriate for funds needed to cover short-term (i.e., less than 1 year) needs. The OITP performance goal portfolio is to meet or outperform the total return of the BBG US Intermediate Government/Credit.

**Strategy –** OITP is actively managed and comprises a diversified portfolio of investment grade fixed income investments as prescribed in the portfolio guidelines. OITP may have exposures, subject to diversification requirements, to several types of investment grade public debt market instruments denominated in U.S. dollars.

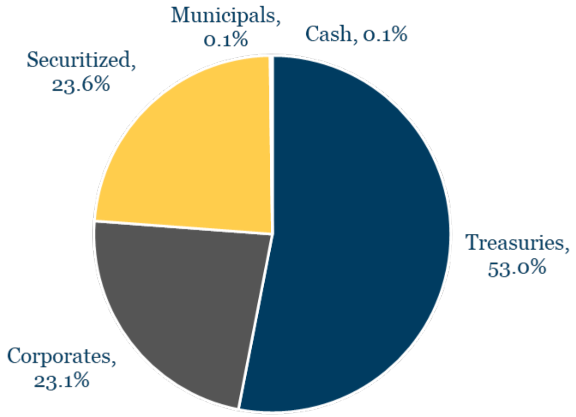
**Benchmark –** BBG US Intermediate Government/Credit

| Fund Characteristics | |
|---|---|
| Net Asset Value (000s) | $305,968 |
| Number of Securities | 89 |
| Duration (Years) | 3.98 |
| Yield-to-Maturity | 5.56% |
| Option Adjusted Spread (bps) | 63 |
| Effective Credit Rating | AA- |

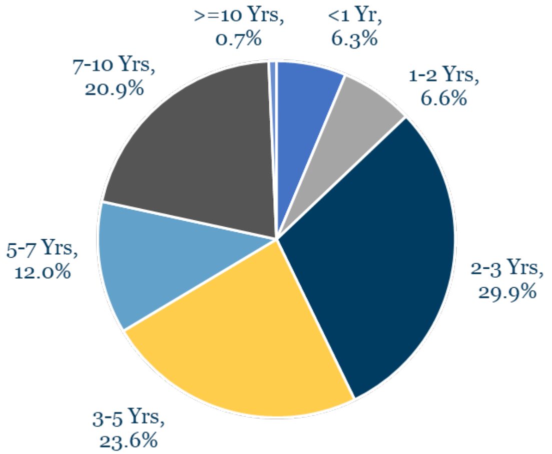
## Credit Quality




## Sectors




## WAL to Worst




| | Market Value (000s) | 1 Mth | 3 Mth | YTD | 1 Year | 2 Year | 3 Year | 5 Year | 10 Year |
|---|---|---|---|---|---|---|---|---|---|
| **Oregon Intermediate Term Pool** | **$305,968** | **-1.11%** | **-0.73%** | **1.12%** | **2.42%** | **-3.85%** | **-1.88%** | **1.36%** | **1.41%** |
| OITP Custom Benchmark | | -1.08% | -0.83% | 0.65% | 2.20% | -4.17% | -2.97% | 0.77% | 0.99% |
| *Excess Return* | | *-0.03%* | *0.10%* | *0.47%* | *0.22%* | *0.32%* | *1.09%* | *0.59%* | *0.42%* |

OREGON STATE TREASURY

Source: Bloomberg, State Street, and Aladdin. All data as of September 30, 2023 unless otherwise noted.

# Oregon Public University Fund (PUF)

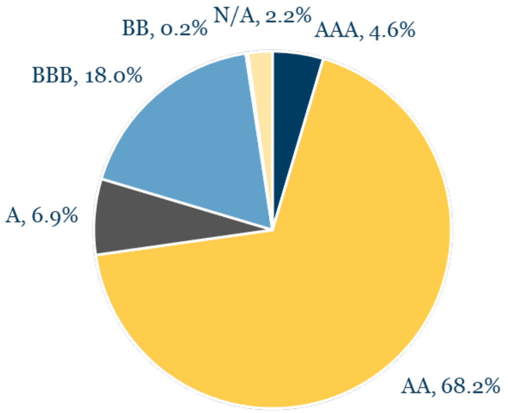
**Objective –** The objective for the Public University Fund ("PUF") is a high-quality fixed income portfolio that maximizes total return over a long-term horizon within stipulated risk parameters while providing adequate liquidity to meet participant cash flow needs. Based on historical market performance, total returns generated over extended periods are anticipated to be greater than returns realized in shorter-maturity strategies.

**Strategy –** PUF is actively managed to create a diversified portfolio of investment grade bonds invested over longer horizons than permitted in OSTF.

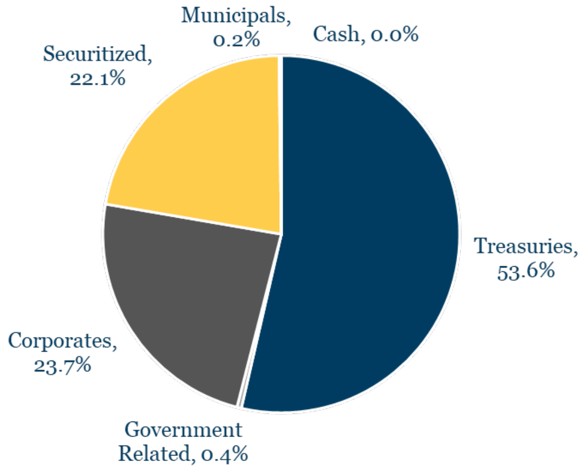
**Benchmark –** BBG US Intermediate Government/Credit

| Fund Characteristics | |
|---|---|
| Net Asset Value (000s) | $377,897 |
| Number of Securities | 96 |
| Duration (Years) | 3.94 |
| Yield-to-Maturity | 5.53% |
| Option Adjusted Spread (bps) | 61 |
| Effective Credit Rating | AA- |

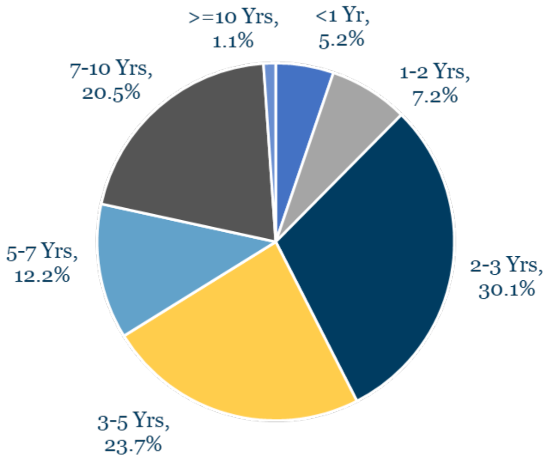
## Credit Quality




## Sectors




## WAL to Worst




| | Market Value (000s) | 1 Mth | 3 Mth | YTD | 1 Year | 2 Year | 3 Year | 5 Year |
|---|---|---|---|---|---|---|---|---|
| **Public University Fund Core Bond** | **$377,897** | **-1.10%** | **-0.69%** | **1.14%** | **2.49%** | **-3.75%** | **-1.84%** | **1.57%** |
| PUF Custom Benchmark | | -1.08% | -0.83% | 0.65% | 2.20% | -4.17% | -2.87% | 0.99% |
| *Excess Return* | | *-0.02%* | *0.14%* | *0.49%* | *0.29%* | *0.42%* | *1.03%* | *0.58%* |

OREGON STATE TREASURY

Source: Bloomberg, State Street, and Aladdin. All data as of September 30, 2023 unless otherwise noted.

TAB 7

OPERF INVESTMENT POLICY

STATEMENT

## Memo

| | |
|---|---|
| To | Oregon Investment Council |
| From | Mika Malone, CAIA, Meketa Investment Group<br>Raneen Jalajel, CFA, Aon Investments USA, Inc. |
| Date | December 6, 2023 |
| Re | OPERF Investment Policy Statement |

**Background**

Aon and Meketa conducted a comprehensive review of the various Oregon Public Employees Retirement Fund (OPERF) policy statements and have drafted a new Investment Policy Statement (IPS) with the following objectives in mind:

- Develop an Investment Policy Statement based on best practices and key components of an effective IPS
- Key content sourced from the following OIC and OPERF policy documents:
    - Statement of Funds Governance, Statement of Investment Objectives and Policy Framework, and Statement of Investment and Management Beliefs
- Streamline language/remove redundancies
- Clarify ambiguous language across documents
- Ensure all language aligns with Oregon state statutes
- Compare to industry best practices, including similar-sized peers to ensure all pertinent sections are reflected in the IPS
- Account for updated roles and responsibilities surrounding delegation of manager selection

On October 25th, 2023, the Oregon Investment Council, reviewed a draft of the new IPS for OPERF.

Since the October 25th OIC Meeting, Aon and Meketa have gathered feedback on the new IPS from the OIC, OST investment staff and general counsel, and the General Counsel Division of the Department of Justice. Aon and Meketa have incorporated the feedback to the attached redline version of the IPS for the OIC's review and adoption.

**Investment Policy Statement Template**

**Oregon Public Employees Retirement Fund**

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CONTENTS

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# I. OVERVIEW AND PURPOSE

**General**

This Investment Policy Statement (“Policy”) defines the investment objectives, policies and procedures that have been established by the Oregon Investment Council (“OIC” or the “Council”). The OIC is responsible for the investment and management of the investment funds entrusted to it, including assets of the Oregon Public Employees Retirement Fund ("OPERF" or the "Fund"). The objectives, policies and procedures outlined in this document were created as a framework for the management of the Fund and the statements contained in this document are intended to allow for sufficient flexibility in the investment process to capture opportunities, yet ensure prudence and care are maintained in the execution of the investment program. This Policy is intended to:

- Provide a mechanism to establish and review the Fund’s investment objectives
- Set forth an investment “structure” for managing assets. This structure includes various asset classes that, in aggregate, are expected to produce a prudent level of diversification and investment return over time
- Provide a single document identifying the roles of those responsible for selecting, monitoring, and reviewing the Fund’s investments; and
- Establish measurement standards and monitoring procedures to be used in evaluating the performance of investment funds

The investment of retirement assets is one aspect of the activity involved in the overall administration of the OPERF. The Public Employees Retirement System Board (PERB) administers the Oregon Public Employees Retirement System (PERS), which is funded from OPERF. The PERB implements and administers policy decisions made by the legislature. The Oregon Legislature, as Plan Sponsor, has the responsibility of setting the PERS benefit structure.

The OIC has adopted a long-term investment horizon such that the chances and duration of investment losses are carefully weighed against the long-term potential for appreciation of assets. The assets will be invested in a manner that provides the safeguards and diversity that a prudent investor would adhere to for the purposes of providing benefits to the Fund participants and beneficiaries and defraying reasonable expenses of administering the Fund.

***Authority:***

ORS Chapters 293.721, 726, 706, and 701. Article VIII of the Oregon Constitution.

## II. ROLES AND RESPONSIBILITIES

Oregon Investment Council

Pursuant to the applicable provisions of ORS 293, the Council retains ultimate responsibility for Investment Program policies.

Three principles guide the Council's development of the Investment Program:

1. To fulfill its role as primary governing fiduciary for the investment and management of the investment program
2. To ensure that investment fund assets are prudently, profitably, and efficiently managed on a day-to-day basis, Council delegates certain aspects of the investment management to Oregon State Treasury ("OST" or "Treasury") Staff and other qualified professionals, who are subject to corresponding fiduciary obligations, in accordance with Oregon Constitution.
3. To ensure effective oversight of delegates, the Council requires timely reporting.

The Council retains direct oversight of the following:

- Formulates and reviews policies for the (a) investment and reinvestment of statutory investment funds and (b) the acquisition, retention, management and disposition of investments
- OPERF investment activities through the IPS, Assets Class Specific policies and other ancillary investment program policies.
- Review and approve Policy target asset allocation and asset class ranges
- Review and approve total fund policy-level leverage (as established by the asset allocation)
- Asset allocation re-balancing framework/policies
- Total fund investment objectives and asset class performance benchmarks
- Approving any public or private investment that exceeds 1% of total Plan assets as defined by the estimated market value on the first day of the preceding calendar year

Other functions include, but are not limited to:

- Receipt and review of periodic reports from the OST, consultants, investment managers and other experts
- General policy and governance on matters related to delegated authority
- Response to legislative and or regulatory action that impacts its policies
- Oversight of OST Staff's due-diligence processes
- Approving all consulting contracts related to investment activities under the purview of the OIC.

Oregon State Treasury Staff

OST staff manage the Fund in accordance with the applicable provisions of ORS 293, including maintaining their fiduciary obligations under ORS 293.726.

The Council has delegated to qualified Treasury staff the following:

- Manage day-to-day investment activities of the Fund
- Work with the Council-retained investment consultants to compile information on the investment return and performance for the OIC review
- Re-balancing of total fund to ensure assets are within the asset allocation ranges, properly

notifying the OIC when breaches occur and providing recommendations

- Retaining and terminating investment managers within each asset class
- Hiring of investment managers within each asset class, not to exceed the 1% threshold as defined on the prior page. Based on internal guidelines and procedures for manager diligence and selection, Treasury staff will ensure that the manager selection is supported by a satisfactory level of analysis and due diligence, including review by the appropriate outside consultant
- Preparing, negotiating, and executing investment manager mandates, guidelines, and fee agreements
- Overseeing individual investment managers to ensure their portfolios comply with their respective portfolio mandates and guidelines
- Providing oversight of the master custodian to ensure that the Fund's rights to pursue securities class action litigation are appropriately protected
- Reporting requirements associated with the delegation of authority
- Management of internal funds within the public equity and fixed income asset classes; and
- In making the above decisions, Treasury staff shall seek as needed the advice, guidance and recommendations from Council-retained investment consultants, investment managers and other experts and sources as considered prudent by Treasury staff.

<u>Investment Consultants</u>

- The Investment Consultants report to the OIC, while supporting the responsibilities of Treasury staff, as needed and pursuant to the contractual obligations agreed to by the parties. These responsibilities include, but may not be limited to:
  - Review and develop investment policies and asset class guidelines
  - Recommend asset allocation strategy by conducting Asset Liability and Asset Allocation Studies
  - Establish long-term capital market assumptions
  - Review asset class benchmarks as well as performance and risk objectives
  - Quarterly performance reporting
  - Assistance with manager searches, manager due diligence, and manager monitoring
  - Market Research, Economic Outlook, and Investment and Trustee Education

<u>Investment Professionals</u>

- Investment decisions may be delegated to qualified investment managers and monitored by Treasury staff in accordance with the applicable provisions of ORS 293 and under the portfolio management guidelines approved by the Council.
- The Treasury staff has delegated to a qualified independent third-party the voting of shareholder proxies that accompany the securities and/or investments held by the portfolio in accordance with Council voting guidelines.

<u>Custodian</u>

- Custodian has the duties and obligations pursuant to the contract agreed to with Treasury staff

## III. INVESTMENT PHILOSOPHY

The following statements represent the investment principles and philosophy governing the investment of assets held by the Fund. These statements describe the core values and beliefs that will form the basis for investment decisions.

These commonly held fundamental investment beliefs are:

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

**A. Investment management is dichotomous -- part art and part science.**

- To calibrate both governance and daily operating activities with the appropriate balance between art and science, the Beliefs will be anchored where and whenever possible to industry best practices as illuminated by academic research and experiential rigor.

**B. The OIC is a policy-setting council that largely delegates implementation of investment management activities to the OST and qualified external fiduciaries.**

- The OIC sets strategic policy which includes, but is not limited to, Asset Allocation, Portfolio Construction, Risk Measurement and Performance Monitoring.
- The OIC's purview also includes establishing and defining the Statement of Investment and Management Beliefs
- The OIC tasks OST staff, external managers, consultants and other service providers with policy implementation.

**C. The OIC is vested with the authority to set and monitor portfolio risk. Both short-term and long-term risks are critical.**

- The OIC should weigh the short-term risk of principal loss against the long-term risk of failing to meet return expectations.

**D. To exploit market inefficiencies, the OIC should be long term, contrarian, innovative, and**

**opportunistic in its investment approach.**

- The OIC should generally prepare for and accept periods of extreme price/valuation volatility and/or related market dislocations and endeavor to act expeditiously during such periods if and when deemed advantageous.

**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.**

- Decisions regarding strategic asset allocation will have the largest impact on the investment program's realized return and risk.
- The timing and magnitude of projected employer contributions and future benefit payments have significant cash flow implications and thus will receive explicit consideration during the OIC's asset allocation decision-making process.

**B. Portfolio construction, including diversification and correlation considerations, is essential to maximizing risk-adjusted returns.**

- Empirical rigor, coupled with sound judgment, is required in the portfolio construction process to effect true diversification, while discipline is required to maintain diversification through and across successive market cycles.
- Risk is multi-faceted and may include, but is not limited to, the following types of specific risks: principal loss; opportunity cost; concentration risk; leverage and illiquidity risk; volatility and valuation risk; interest rate and inflation risk; and environmental, social and governance (ESG) risks.[2]

**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.**

- Although returns for risk taking are not always monotonic or consistently rewarded over time, bearing equity risk commands a positive expected return premium provided such risk is reasonably priced.

**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.**

- Private markets provide a diversifying risk/return profile relative to public market analogues.
- Private markets offer excess return opportunities that may be exploited by patient, long-term investors.

**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.**

- Private market investment success is predicated on identifying skilled managers and developing long-term investment relationships with those managers that enable the application of skill to manifest in the form of excess returns.
- Proper investment pacing, including deliberate vintage year diversification is also an integral element of superior private market investment results.

**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.**

- While largely efficient, select segments of the capital markets can sometimes be successfully exploited by skilled active management.
- The nature (i.e., perceived magnitude and likely duration) of such inefficiencies should inform the proposed active management strategy (e.g., discretionary or systematic).

**B. Passive investment management in public markets will outperform the median active manager in those markets over time.**

- Active management should therefore be a deliberate choice and applied only to those public market strategies/managers in which the OIC enjoys a high degree of confidence that such strategies/managers will be sufficiently rewarded on a risk-adjusted basis and net of all fees, factor exposures and related transactions costs.

**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.**

- While all costs should be monitored and controlled, these costs should also be evaluated relative to both expected and realized net returns.

**B. External incentive structures should be carefully evaluated to ensure proper alignment with investment program objectives.**

- Fee and incentive structures drive both individual and organizational behavior.
- These structures (particularly in private market strategies) should be carefully evaluated and monitored to ensure that the goals and incentives of individual investment professionals and their respective organizations are well aligned with the specific investment objectives established by the OIC and/or OST staff.

**7.) FAIR AND EFFICIENT CAPITAL MARKETS ARE ESSENTIAL FOR THE LONG-TERM SUCCESS OF OST INVESTMENT ACTIVITIES**

**A. The OIC recognizes that the quality of regulation and corporate governance can affect the long-term value of its investments.**

- The Council supports competitive and transparent market structures to ensure accurate and timely price discovery/asset valuation.

**B. The OIC also recognizes that voting rights have economic value.**

- Voting rights should be exercised in accordance with applicable law and policy.

**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.**

- The OIC believes that understanding how social and environmental factors impact investments is an important step towards building a more sustainable portfolio.

**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.**

- ESG data collection aligns our ability to prudently measure and monitor risks and returns. Once identified, ESG risk mitigation strategies can be implemented and proactive ESG transition strategies pursued, subject to statutory fiduciary obligations.

**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.**

- The OIC believes a wide range of perspectives, ideas and opinions will ultimately produce better investment outcomes.

[1]Use of the word “should” or “may” throughout this policy indicates a best practice or recommended approach rather than a requirement and permits discretion.
[2]Concepts of risk and associated measurement techniques are evolving. Heretofore underdeveloped, the identification and measurement of ESG risks is improving which will enable new risk management applications in both security selection and portfolio construction processes.

## IV. INVESTMENT OBJECTIVES

The primary objective of Fund is to make investments for the sole interest of the participants and beneficiaries of the Fund.

**Time Horizon**

The OIC has adopted a long-term investment horizon such that the chances and duration of investment losses are carefully weighed against the long-term potential for appreciation of assets. The OIC acknowledges that fluctuating rates of return characterize the securities markets, particularly during short-term time periods. Accordingly, the OIC views interim fluctuations with an appropriate perspective.

**Diversification**

The OIC believes that the likelihood of realization of the investment objectives is enhanced through diversification. The OIC, with the aid of the Investment Consultant, will aim to diversify assets among various asset classes and investment managers to maintain acceptable risk levels and enhance long-term investment returns.

**Fees and Expenses**

The OIC, with the aid of the Investment Consultant, will closely monitor fees and expenses associated with its investment activities and will strive to maintain fees at acceptable levels. From time to time, the OIC will compare expenses with appropriate benchmarks of other defined benefit Funds.

**Risk**

Subject to ORS 293.721 and 293.726, the OIC believes the investment policies summarized in this document will provide the highest possible return at a level of risk that is appropriate for PERS members. The OIC evaluates risk in terms of both short-term asset price volatility and long-term plan viability. Risk refers to the uncertainty and the prospective loss due to an activity or an exposure. With respect to the OPERF, that is expressed principally as investment risk, i.e., a permanent impairment to the Fund's value that could reduce its ability to meet and sustain benefit payments, but it could also be exhibited in operations and liquidity management. At the same time, given the relationship between risk and return, taking too little risk could lead to the Fund underperforming its return objective. Given the need to take an appropriate amount of risk, risk is considered throughout the investment process, from asset allocation to manager selection to performance evaluation.

A. Risk Standards and Metrics

Staff will monitor investment risk of the Fund on ex ante and ex post bases to evaluate whether appropriate amount of risk is being taken efficiently, i.e., to be properly compensated and commensurately to the return objectives of the Fund. Risk evolves over time, dictated by changing macroeconomic environments and shifting mix of investments in the portfolio. Staff will therefore apply various tools and approaches over different time horizons to analyze the Fund's investment risk. Staff will also consider total risk, i.e., the variation of total returns, at various levels of the Fund and active risk, i.e., the variation of relative returns versus a benchmark, at the manager and asset class levels for the public market investments.

Staff will use realized returns to evaluate ex post tracking error but will typically rely on a risk model to estimate ex ante risk. Most commercial risk models make simplifying assumptions to improve reliability and sensibility, but they are ultimately assumptions that will never fully capture all outcomes, such as extreme losses in a drawdown. Nevertheless, the output of such models can be useful, particularly in the context of other analyses undertaken by staff.

B. Liquidity

Liquidity risk is defined as that element of total risk that comes from the unpredictability of the cost and time duration necessary to convert existing investment positions to cash.

In combination with the illiquidity of private market investments and rebalancing requirements (see "Asset Allocation Rebalancing"), staff will consider the liquidity of the assets and cash flow requirements when recommending an asset allocation to the OIC and managing the Fund investments.

C. Foreign-Exchange Risk Management

Benefit payments are made out of OPERF to its participants in U.S. dollars, yet, for diversification purpose, a portion of the Fund's assets is invested outside the U.S. and denominated in foreign currencies. The translation of foreign-denominated investments back to the U.S. dollar provides incremental volatility of return to OPERF's total risk. Furthermore, there is little economic basis or empirical evidence to support a positive, long-term return expectation in connection with these foreign currency exposures. In other words, unmanaged foreign currency exposure is a source of uncompensated risk.

Staff will manage this risk by taking into consideration the magnitude of exposures, operational requirements, and portfolio construction.

D. Leverage

Leverage can be an effective tool to enhance diversification, since asset classes, over the long-term, have similar risk-adjusted returns, different correlations to each other, and different responses to changes in the economic and market environment. Leverage may be used to increase or decrease total fund risk in a diversified manner. Leverage may be deployed across any asset class in the portfolio where it is prudent to do so, based on efficient use of leverage within the constraints of the Asset Allocation Strategy Targets & Range (Appendix A) and maximum net leverage permissible under this Policy.

E. Overlay

In an effort to minimize cash balances at both the total fund level and manager level, an overlay manager may be employed to align OPERF more closely with the approved policy mix, generally through the purchase and sale of futures contracts to increase or decrease specific asset class exposures, as necessary.

## V. ASSET ALLOCATION GUIDELINES & MONITORING

OIC's investment responsibilities break down into these primary areas:

- Setting the Asset Allocation and Investment Strategy
- Asset Allocation Rebalancing
- Investment, Risk, and Compliance Monitoring
- Performance Monitoring

The roles for the OIC with respect to these responsibilities are outlined in Section V.

**Setting the Asset Allocation and Investment Strategy**

The OIC undertakes a rigorous study of OPERF's assets and liabilities every three to five years (or more frequently, if desired) to determine a suitable target allocation for each asset class included in the Fund. These asset-liability studies include the following elements for OIC consideration: 1) capital market assumptions by asset class, which include expected returns, volatilities, and correlations; 2) proposed asset mixes using various portfolio modeling/ construction techniques; 3) OPERF's liability structure, funded status and liquidity needs; and 4) recommended strategic asset allocation targets and a rebalancing framework. The Council's approved asset mix policy for the Fund is summarized in Appendix A.

**Asset Allocation Rebalancing**

Rebalancing ensures that the return objectives and risk tolerance parameters approved by the OIC are consistently and effectively reflected in the Fund. However, rebalancing involves transactions costs such as brokerage fees and market impact. As a result of these costs, ranges are established around the strategic asset allocation targets in order to balance the desirability of achieving precise target allocations with the various and often material transactions costs associated with these same rebalancing activities.

With OIC oversight, OST staff implements the approved rebalancing framework, although the illiquid nature of many private market assets may exempt those assets from staff's rebalancing activities.

A breach of any of the established asset allocation ranges triggers a review and possible rebalancing back to established targets with due consideration given to the liquidity of the affected investments, all anticipated transaction costs, and the current portfolio structure within each asset class.

**Investment, Risk Monitoring, and Compliance**

Investment staff provide transparency of investment activities through regular asset class updates and reporting directly to the OIC. As part of this transparency, the OST staff prepares periodic reporting, which includes the CIO Manager Update Report, CIO Staffing Update Report, Quarterly Performance Reports, and Quarterly Exceptions Report.

- In addition to the aforementioned, OST staff also prepares various other reports for the Treasurer's Asset Class Committee Meetings that are available to the full OIC.
- Furthermore, manager due diligence reports are available to the OIC along with a Manager Due Diligence Forward Calendar.

Risk is a consideration and factor in the management of the OPERF assets, and risk is considered throughout the investment process from asset allocation to performance evaluation. OPERF's risk management guidelines are detailed in the IPS. Risk reporting on the Fund is shared with the OIC on a quarterly basis.

The OST will a) monitor and evaluate portfolios and asset classes and determine compliance with OST policies and contractual obligations; b) identify instances of non-compliance and develop and execute appropriate resolution strategies; c) provide relevant compliance information and reports to OST management and OPERF, as appropriate; and d) when applicable, verify resolution by the appropriate individual or manager within the appropriate time frame.

**Performance Monitoring**

The OIC will review investment performance at least quarterly. Performance reviews will be conducted compared to the benchmarks and peer universes approved by the OIC. Quarterly results will be evaluated to review progress toward longer term objectives. It is understood that there are likely to be intermittent periods when portfolio performance deviates from market indexes.

## VI. STRATEGIC ROLE GUIDELINES

This section outlines the strategic investment guidelines for each portfolio role, which shall serve as a framework for evaluating asset allocation choices across asset classes and investment strategies to achieve the Fund's objectives. While certain strategies and investment securities may demonstrate risk and return characteristics at different time periods that could fulfill more than one portfolio role, it is the strategic nature of those investments that shall dictate the primary purpose they serve in the Portfolio.

**Public Equity Investments**

The strategic role of publicly traded equity securities is to provide enhanced return and diversification opportunities, as well as liquidity to meet the Fund's cash flow requirements. The OPERF Public Equity portfolio serves as one of the Fund's primary return-seeking investments, alongside private equity investments. The public equity portfolio will consist of passive exposures together with active managers having complementary investment styles. Diversification in the public equity portfolio is accomplished by investing across different fund types and strategies. A portion of the equity portfolio is internally managed to provide beta-like market returns with low management fees. Equity Investment Officers may negotiate and execute trades in public equities and public equity futures contracts under the general guidance of the CIO on those specific strategies.

**Fixed Income Investments**

The strategic role of fixed income securities is to diversify the Fund in general and its allocation to equity securities in particular. The Fixed Income portfolio provides liquidity necessary to meet its cash distribution obligations. The fixed income allocation shall consist primarily of U.S. investment grade fixed income securities represented within the benchmark index. It may also allow for non-benchmark sectors, including, but not limited to, developed and emerging markets international securities, inflation-linked bonds, as well as below investment grade securities. A portion of the fixed income portfolio is internally managed for cost savings and or value-added performance. Fixed Income Investment Officers may negotiate and execute trades in fixed income securities under the general guidance of the CIO for specific strategies.

**Private Equity Investments**

The strategic role of private equity investments is to enhance return and diversification opportunities for the Fund. While potentially more volatile than public equity, private equity provides a diversification benefit and the opportunity to achieve higher returns. Diversification in the Fund's Private Equity portfolio may be accomplished by investing across different fund types and strategies including venture capital, leverage buyout, mezzanine debt, distressed debt, sector funds, secondaries, and fund-of-funds.

**Real Estate Investments**

The strategic role of real estate investments is to enhance return and diversification opportunities for the Fund while providing some inflation protection. Diversification in real estate may be accomplished through exposure to a variety of real estate debt and equity investment strategies, property types (i.e., office, industrial, retail, multifamily, hospitality, etc.), geographic location, and various stages of a property life-cycle.

**Real Asset Investments**

The strategic role of real asset investments is to enhance long-term return and diversification opportunities for the Fund. A lower correlation between the returns of real asset investments and other Fund assets is expected, and real asset investments are therefore expected to provide an added measure of diversification to overall Fund returns. Diversification in real asset investments may be achieved through exposure to a variety of possible alternative investment assets and strategies, including, but not limited to, infrastructure and natural resources.

**Diversifying Strategies Investments**

The strategic role of diversifying strategies investments is to enhance long-term return and diversification opportunities for the Fund. A lower correlation between the returns of diversifying strategies investments and other Fund assets is expected, and diversifying strategies investments are therefore expected to provide an added measure of diversification to overall Fund returns. Diversification in diversifying strategies investments may be achieved through exposure to a variety of possible alternative investment assets and strategies, including, but not limited to, long-short, relative value, directional, event driven, and other diversifying strategies.

**Opportunity Portfolio**
The OIC has set a dynamic allocation for investment in an Opportunity Portfolio, which creates flexibility in the investment policy and Fund. The objective of the Opportunity Allocation is to provide return enhancement and/or improve the diversification of the overall portfolio. The Opportunity Portfolio seeks to achieve its investment objective by making investments and partnership commitments that, for any one or more reasons, do not conform to the guidelines and objectives of the OIC's previously identified asset classes (i.e., public equities, fixed income, real estate, private equity, real assets, diversifying strategies, and cash). Some of these investments may also be truly "opportunistic" in the sense that they may be available for investment only during certain market environments and will therefore, be short-term in nature. The category may also include longer-term strategies.

The Opportunity Portfolio has no strategic target since, by definition, eligible investments are only pursued on an opportunistic or episodic basis. Moreover, the Opportunity portfolio allocation shall not result in an allocation range breach for any of the other six, primary asset class allocations. The end objectives can include graduation to a dedicated portion of the Fund (new asset class or inclusion in an existing asset class), termination when market conditions change, or continual inclusion in the opportunity portfolio.

## VII. PERFORMANCE MEASUREMENT AND EVALUATION

**Total Portfolio Performance:**

The principal goal of the Fund is to maximize the likelihood of achieving and/or exceeding the Investment Objectives stated in this IPS over the long-term.

The investment objective of the Council is to provide investment returns sufficient for the Fund to be maintained in a manner that ensures the timely payment of promised benefits to current and future participants and keeps the plan cost at a reasonable level. To achieve this, the Fund's actuarial assumed rate of return should be attained over the long-term. As additional considerations, the Council seeks to avoid excessive risk in long-term cost trends. To manage these risks, the volatility of annual returns should be reasonably controlled. The primary benchmark for evaluating performance of the Fund will be a weighted benchmark consisting of broad market indices for the underlying strategies combined according to the strategy allocation targets as described in Appendix A. Total Portfolio performance will be evaluated on a net-of-fee basis relative to the representative weighted benchmark over various trailing time periods, as applicable.

The secondary benchmark for evaluating the efficacy of the Policy Portfolio's complexity and diversification will be a simplified reference portfolio.

**Strategy Performance:**

Performance for the underlying asset classes will be compared with the risk and return of an appropriate market index (as described in Appendix A), on a net-of-fee basis over various trailing time periods.

## VIII. REVIEW AND AMENDMENT OF THE POLICY

The OIC, with the aid of the Investment Consultant, shall review this Policy at least annually to ensure that it continues to reflect the OIC's objectives and meet the needs of the Fund's participants. The Policy may be modified, in whole or in part, by the OIC at any point in time.

## Appendix A

### Asset Allocation Strategy Targets & Range

| Fund Role | Benchmark | Min | Long-Term Target | Max |
|---|---|---|---|---|
| Public Equity | MSCI ACWI IMI Net<br>(Net Dividend, Unhedged) | 22.5% | 27.5% | 32.5% |
| Private Equity | Russell 3000 + 300 bps | 15.0% | 20.0% | 27.5% |
| Total Equity | -- | 42.5% | 47.5% | 52.5% |
| Fixed Income | Bloomberg U.S. Aggregate Index | 20.0% | 25.0% | 30.0% |
| Real Estate | NCREIF-ODCE + 50 bps | 7.5% | 12.5% | 17.5% |
| Real Assets | CPI+ 400 bps | 2.5% | 7.5% | 10.0% |
| Diversifying Strategies | HFRI FOF Conservative Index | 2.5% | 7.5% | 10.0% |
| Opportunity Portfolio** | -- | 0% | 0% | 5% |

* Total Portfolio Index will be a weighted benchmark consisting of market indices for each strategy combined according to the strategy allocation targets as described above

** The Opportunity Portfolio target allocation is 0%, thus the benchmark does not roll up to the OPERF Total Portfolio Index. The Opportunity Portfolio returns will be evaluated at a total portfolio level and the benchmark is the OPERF Total Portfolio Index.

*** The sum of Strategy "Min" and "Max" within each Portfolio Role (Public Equity, Private Equity, Fixed Income, Real Estate, Real Assets, and Diversifying Strategies) will not equal "Min" and "Max" for each Role.

**** A reference portfolio will be utilized based on the risk profile of the approved asset allocation using standard deviation as the risk metric.

## Definitions

**Actuarial Discount Rate ("ADR"):** The interest rate used to calculate the present value of a defined benefit plan's future obligations and determine the size of the plan sponsor's annual contribution.

**Alternatives:** Investments that are considered non-traditional or emerging in nature. Presently, the following investment types are included within the OPERF alternatives allocation: hedge funds; infrastructure; natural resources; and commodities.

**Asset Class:** A collection of securities that have conceptually similar claims on income streams and have returns that are highly correlated with each other. The most frequently referenced asset classes include equities, fixed income, real estate and cash.

**Basis Point:** This refers to a common unit of financial measurement. One basis point equals 0.01%. One hundred basis points equal 1% or one percentage point.

**Benchmark:** A standard by which investment performance can be measured and evaluated. For example, the performance of U.S. equity managers is often measured and evaluated relative to the Russell 3000 Index. In this case, the Russell 3000 Index serves as or represents the U.S. equity benchmark.

**Benchmark Exposure:** The proportion that a given stock represents within a benchmark, such as the Russell 3000 Index of U.S. equity securities. Allows investors to measure the extent to which a portfolio or specific investment strategy is over- or under-exposed to a particular stock or investment characteristic (e.g., market capitalization) relative to a benchmark.

**Bloomberg U.S. Aggregate Index:** This index covers the U.S. investment-grade fixed rate bond market, and includes government, corporate, mortgage pass-through and asset-backed securities. These major sectors are subdivided into more specific indices that are calculated and reported on a regular basis. Its constituents are SEC-registered, taxable, dollar-denominated securities that conform to specific parameters.

**Co-investment:** Although used loosely to describe any two parties that invest alongside one another in the same company, this term has a special meaning in the context of an investment fund's limited partners. By having co-investment rights, a limited partner can invest directly in a company that is simultaneously backed by the fund's general partner. In this way, the limited partner has two separate stakes in the company: the first, an indirect investment through its participation in the general partner's fund; the second, a direct investment alongside the general partner. While the direct, co-investment opportunity is usually offered at terms and conditions more favorable than the fund investment, the direct, concentrated nature of the co-investment opportunity implies higher risk for the limited partner.

**Core:** Real estate investment strategies which exhibit "institutional" qualities, such as superior location, high occupancy and premium design and construction quality.

**CPI**: The Consumer Price Index measures the average change in prices over time that consumers pay for a basket of goods and services.

**Credit:** Used most often in a fixed income context, the measure of an organization's ability to re-pay borrowed money. Organizations with the highest credit rating (i.e., those most likely to re-pay borrowed money) are assigned a AAA credit rating.

**Distressed Debt:** A private equity investment strategy that involves purchasing discounted bonds of a financially distressed firm. Distressed debt investors frequently convert their holdings into equity and become actively involved in the management of the distressed firm.

**Diversification:** Reducing risk without a commensurate reduction in expected return by combining assets and/or investment strategies with low or uncorrelated return and volatility profiles. For example, a decline in the price of one asset (e.g., oil stocks) is offset by an increase in the price of another asset (e.g., airline stocks). In lay terms, this principal is often described as "putting your eggs in more than one basket".

**Diversifying Strategies:** Investment strategies that attempt to systematically capture certain risk premia beyond traditional equity and fixed income market exposures using alternative investment techniques.

**Duration:** A financial measure used by investors to estimate the price sensitivity of a fixed income security relative to changes in interest rates. For example, if interest rates increase by 1 percentage point, a 5-year duration bond will decline in price by approximately 5 percent.

**Efficient Market:** A market in which security prices rapidly reflect all information germane to the price discovery process. A primary implication of an efficient market is that active management efforts often fail to produce results that consistently beat the performance of an index fund or other passive strategy net of fees, transactions costs and other expenses.

**Equities:** Investments that represent ownership in a company and therefore a proportional share of company profits.

**Fixed Income:** Debt obligations that specify the precise repayment of previously borrowed money. Typically, repayment takes the form of a series of fixed-amount, semi-annual interest payments and a single, final repayment of principal.

**Funded Status:** A comparison of a pension plan's assets and liabilities where the latter are often referred to as the plan's projected benefit obligation ("PBO"). When a plan's assets exceed its PBO, the plan is considered overfunded. Conversely, if a plan's assets are less than its PBO, the plan is considered underfunded, and the plan sponsor has a net liability position with respect to its pension plan.

**Fund-of-funds:** Often organized by an investment advisor or investment bank, a fund that invests in other funds rather than directly in securities, operating firms or other assets.

**Growth Stock:** Stocks exhibiting faster-than-average earnings growth with expectations that such growth will continue. Growth stocks usually have high price-to-earnings ratios, high price-to-book ratios and low to no dividend yields.

**Hedged:** A term applied to one, more or an entire portfolio of assets indicating that the base country value of such assets is partially or wholly protected from foreign currency fluctuations. Forward currency contracts are typically used to hedge or offset the effects of these fluctuations.

**HFRI Fund of Funds (FOF) Conservative Index** – Is an equally weighted index comprised of underlying constituent funds seeking consistent returns by primarily investing in funds that generally engage in more 'conservative' strategies such as Equity Market Neutral, Fixed Income Arbitrage, and Convertible Arbitrage.

**Index Fund:** A portfolio management strategy that seeks to match the composition and performance of a select index such as the Russell 3000 or S&P 500.

**Leverage Buyout (LBO):** A strategy in which debt financing is used to acquire a firm or business unit, typically in a mature industry. LBO debt is usually repaid according to a strict schedule that absorbs most of the acquired firm's cash flow.

**Liability:** A claim on assets by individuals or companies. In a pension context, liabilities represent the claim on fund assets by active and retired plan beneficiaries.

**MSCI All Country World Investable Market Index (ACWI-IMI):** A capitalization-weighted index designed to measure equity market performance across developed and emerging markets. This index consists of over 40 separate developed and emerging market country indices.

**MSCI World Ex-U.S. Index:** A subset of the MSCI All Country World Index that contains only securities from developed market countries, excluding those from the U.S.

**Market Capitalization:** The value of a corporation as determined by multiplying the price of its shares by the number of shares outstanding. In general, the share prices of smaller capitalized companies are more volatile than those of larger capitalized companies.

**Mezzanine:** Either a private equity financing undertaken shortly before an initial public offering, or an investment strategy that employs subordinated debt (which has fewer privileges than bank debt but more standing than equity) and often is issued with attached equity warrants.

**NCREIF Fund Index – Open End Diversified Core Equity (NFI-ODCE):** The NFI-ODCE is an investment performance composite published quarterly by the National Council of Real Estate Investment Fiduciaries (NCREIF). This index is a capitalization-weighted index of open-ended, commingled funds pursuing a "core" investment strategy and conform to specific parameters.

**Oregon State Treasury:** Headed by the State Treasurer, the Oregon State Treasury is responsible for managing the day-to-day investment operations of the state pension fund (and other funds), issuing all state debt, and serving as the central bank for state agencies. Within the Oregon State Treasury, the Investment Division also manages investment programs for the state's deferred compensation and college savings plans and serves as staff to the Oregon Investment Council.

**Opportunistic:** Higher risk but higher expected return real estate investments that are usually illiquid, produce little or no current income and are often focused on distressed and/or highly leveraged properties.

**Opportunity Portfolio:** Includes non-traditional and/or concentrated investment strategies that may provide enhanced diversification and/or unique sources of return relative to the other asset classes included in the OIC's approved policy mix. The Opportunity Portfolio's objectives are pursued by investing in strategies that fall outside the boundaries of "strategic" or approved policy mix allocations including new or innovative strategies across a wide range of potential investment opportunities and with few limitations or constraints.

**Oregon Investment Council:** Oregon Revised Statutes ("ORS") 293.706 establishes the OIC, which consists of five voting members, four of whom are appointed by the Governor and subject to Senate confirmation (the Treasurer serves as an ex-officio member, and is therefore not subject to confirmation). The members appointed by the Governor must be qualified by training and experience in the field of investment or finance. In addition, the Director of the Oregon Public Employees Retirement System is a non-voting ex-officio member of the OIC. ORS 293.721 and 293.726 establish the OIC's investment objectives and standards of judgment and care.

**Oregon Public Employees Retirement Fund:** Holds the assets of beneficiaries of PERS, which is a state-wide, defined benefit retirement plan for units of state government, political subdivisions, community colleges and school districts. PERS is administered under ORS chapters 237, 238, 238A, and applicable provisions of the Internal Revenue Code by the PERB. Participation by state government units, school districts, and community colleges is mandatory. Participation by most political subdivisions is optional, but irrevocable if elected. All system assets accumulated for the payment of benefits may legally be used to pay benefits to any of the plan members or beneficiaries of the system. PERS is responsible for administrating the management of the plan's liability and participant benefits.

**Overlay Manager:** An investment advisor retained by the OIC to monitor daily cash balances in OPERF and execute trades in the equity and fixed income futures markets to adjust OPERF's overall asset allocation closer to its OIC-approved targets.

**Overweight:** A stock, sector or capitalization exposure that is higher than the corresponding exposure in a given asset class benchmark, such as the Russell 3000 Index.

**Private Equity:** Venture Economics ("VE") uses the term to describe the universe of all venture investing, buyout investing and mezzanine investing. Fund-of-funds investing and secondaries are also included in this term's broadest interpretation. VE is not using the term to include angel investors or business angels, real estate investments or other investing scenarios outside of the public market. See also **Alternatives.**

**Real Estate Investments:** Investments in land, buildings or other real property.

**Real Estate Investment Trusts ("REITs"):** A real estate portfolio managed by an investment company for the benefit of the trust unit holders. The units of most REITs are publicly traded.

**Return:** The gain or loss in value of an investment over a given period of time expressed as a percentage of the original amount invested. For example, an initial investment of $100 that grows to $105 over one year has produced a 5% return.

**Risk:** The probability of losing money or not achieving the expected investment outcome.

**Russell 3000 Index:** Measures the investment performance of a composite comprised of stocks issued by the approximately 3,000 largest U.S. companies. Based on total market capitalization, this index represents approximately 98% of the investable U.S. equity market.

**Secondaries:** The purchase and sale of existing limited partnership commitments to other limited partners and/or fund sponsors.

**Sector:** A particular group of stocks or bonds that usually characterize a given industry or economic activity. For example, "pharmaceuticals" is the name given to stocks issued by companies researching, manufacturing and selling over the counter and prescription medicines. "Corporates" is the name given to fixed income instruments issued by private and public companies.

**Sector Funds:** A pooled investment product that focuses on a particular industry or economic activity. For example, pooled funds that invest principally in technology stocks would be termed a technology sector fund.

**Tracking Error:** The amount by which an investor's investment performance differed from a corresponding or assigned benchmark. Usually measured and expressed as the standard deviation of returns relative to a pre-specified benchmark.

**Unhedged:** A term indicating that the value of one, more or an entire portfolio of assets may be affected by foreign currency fluctuations and that no deliberate attempt has been made to protect against such fluctuations.

**Value Added:** As used in real estate, may include office, retail, industrial and apartment properties, but may target structured investments in alternative property types such as hotels, student housing, senior housing and specialized retail uses. Portfolios or strategies that are positioned as Value Added are expected to produce returns between Core and Opportunistic portfolios/strategies. For example, a Value-Added property may exhibit some "institutional" qualities such as good location and high design and construction quality but may need significant leasing improvements to stabilized and enhance its value. Value Added investments may also include development opportunities with balanced risk/return profiles.

**Venture Capital:** Independently managed, dedicated pools of capital that focus on equity or equity-linked investments in privately held, high growth companies. Outside of the United States, the term venture capital is used as a synonym for all types of alternative or private equity.

**Vintage Year:** The calendar year in which an investment fund's first closing occurs. For example, the 1995 vintage year for venture capital includes all venture capital funds that held a first closing in 1995.

Oregon Investment Council

OREGON STATE TREASURY

# TAB 8

# CALENDAR – FUTURE

# AGENDA ITEMS

# 2023-24 OIC Forward Calendar and Planned Agenda Topics

| | |
|---|---|
| **January 24, 2024** | Public Equity Portfolio Review<br>Private Equity Portfolio Review<br>2025 OIC Calendar Approval |
| **February 6, 2024** | Treasurer Read Climate Plan |
| **March 6, 2024** | 2023 Performance Review: OPERF, CSF, SAIF<br>Real Assets Portfolio Review<br>Real Estate Portfolio Review |
| **April 17, 2024** | Diversifying Strategies Portfolio Review<br>Opportunity Portfolio Review<br>Individual Account Program (IAP) Review<br>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<br>Fixed Income Portfolio Review: OPERF<br>Diversifying Strategies Portfolio Review |

# TAB 9

# OPEN DISCUSSION

# TAB 10

# PUBLIC COMMENTS

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

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