OREGON
STATE
TREASURY

Oregon Investment Council

April 16, 2025

Cara Samples
Chair

Elizabeth Steiner
State Treasurer

Rex Kim
Chief Investment Officer

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Oregon State Treasury
Investment Division
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Agenda

April 16, 2025
9:00 AM

Time	**Tab**		**Presenter**
9:00 – 9:05	1	**Review & Approval of Minutes** March 5, 2025	Cara Samples *OIC Chair*
9:05 – 9:10	2	**Committee Reports**	Rex Kim *Chief Investment Officer*
9:10 – 9:40	3	**2025 Capital Markets Assumptions**	Mika Malone *Managing Principal, Meketa* Allan Emkin *Managing Principle, Meketa* Frank Benham *Managing Principal, Director of Research, Meketa*
9:40 – 10:20	4	**OPERF Real Assets Annual Review**	Ben Mahon *Senior Investment Officer, Real Assets* Melissa Grant

			Director, Co-Head Real Assets, Aksia Michael Brand *Managing Director, Co-Head Real Assets, Aksia*

--BREAK--

10:30 – 11:10	5	**OPERF Real Estate Annual Review**	Gloria Gil *Senior Investment Officer, Real Estate* Chris Ebersole *Investment Officer* Austin Carmichael *Investment Officer* Christy Fields *Managing Principal,Meketa*
11:10 – 11:30	6	**Public University Fund** (Action Item: Investment Policy Statement)	Jamie McCreary *Service Model Program Manager*

--BREAK--

After conclusion of scheduled agenda items:

	7	**Open Discussion**	OIC Members, Staff, Consultants
	8	**Public Comments**	

TAB 1

REVIEW & APPROVAL OF MINUTES

State of Oregon
Office of the State Treasurer

16290 SW Upper Boones Ferry Road

Tigard, Oregon 97224

OREGON INVESTMENT COUNCIL

March 5, 2025

Meeting Minutes

Members Present:	Treasurer Elizabeth Steiner, Cara Samples, Lorraine Arvin, Pia Wilson-Body (Attended Virtually), Alline Akintore
Staff Present:	Rex Kim, David Randall, Michael Langdon, Karl Cheng, Sybil Akerman-Munson, Barry Ford, Jamie McCreary, Tim Kane, George Naughton, Ahman Dirks, Gloria Gil, Mike Mueller, Nick Haskins, Bryson Pate, Aleshia Slaughter, Jennifer Kersgaard
Staff Participating Virtually:	Oyin Ajayi, Kenny Bao, Tyler Bernstein, Taylor Bowman, Tan Cao, Austin Carmichael, Karl Cheng, Robb Cowie, Kiara Cruz, Tara Curran, Debra Day, Patrick Deptula, Chris Ebersole, Alli Gordon, Bryan Hernandez, Wil Hiles, Ian Huculak, Roy Jackson, Aliese Jacobsen, Young Kim, Amanda Kingsbury, Paul Koch, Ericka Langone, Perrin Lim, Ben Mahon, Michael Makale, Sommer May, Eric Messer, Tim Miller, Dana Millican, George Naughton, Wendi Nelson, Jen Plett, Mohammed Quraishi, Jo Recht, Scott Robertson, Holly Rowher, Faith Sedberry, Asia Slaughter, Katie Slebodnik, Melissa Sloan, Alli Sorensen, Victoria Tan, Anna Totdahl, Eme Wisniewski,
Consultants Present:	Allan Emkin, Mika Malone, Sarah Bernstein, Eric Larsen, Ashley Woeste, Raneen Jalajel, Paola Nealon, Tom Martin, Christy Fields (Virtually)
PERS Present:	Kevin Olineck
Legal Counsel Present:	Steve Marlowe (Department of Justice)

The March 5th, 2025, OIC meeting was called to order at 9:00am by Cara Samples, Chair

Time	Tab		Presenter
9:00 – 9:01	1	**Review & Approval of Minutes** January 22, 2025	Cara Samples *OIC Chair*

Chair Samples asked for approval of the January 22, 2025, OIC regular meeting minutes. Member Arvin moved approval at 9:01 am, member Akintore seconded the motion which then passed by a 5/0 vote. ***Yes votes: Treasurer Elizabeth Steiner, Cara Samples, Lorraine Arvin, Alline Akintore, Pia Wilson-Body – attending virtually,)*** 9:01 – 9:02 | 2 | **Committee Reports** | Rex Kim *Chief Investment Officer*

OST Investment Committee
None

Staff Discretion
OPERF:
None

Common School Fund:
None

9:02 – 9:18 | 3 | **Opportunity Portfolio Review** | Mike Mueller *Investment Officer, Alternatives*

Michael Mueller, Investment Officer, Alternatives, presented the OPERF Opportunity Portfolio Review. The presentation included a discussion of the Opportunity Portfolio's role and policy objectives, a review of the 2024 performance and active investments, and a look forward into 2025 positioning and benefits.

OPERF's Opportunity Portfolio returns outperformed the benchmark for the 5-year and 10-year periods by 1.2% and .2%, respectively.

9:18 – 10:20 | 4 | **OPERF 2024 Performance Review** | Paola Nealon *Managing Principal, Meketa* Eric Larsen *Investment Analyst, Meketa*

Paola Nealon, Managing Principal, Meketa, Sarah Bernstein, Managing Principal, Meketa, Allan Emkin, Managing Principal, Meketa, and Eric Larsen, Investment Analyst, Meketa, presented the OPERF 2024 Performance Review. The presentation included an economic and market update for 2024, as well as a discussion of risk and return opportunities.

OPERF's 2024 returns trailed the 1-Year and 5-Year benchmark by 6% and 0.8% respectively.

--BREAK--

10:33 – 10:50 | 5 | **CSF 2024 Performance Review** | Jamie McCreary *Service Model Program Manager* Raneen Jalajel *Associate Partner, Aon* Eric Larsen *Investment Analyst, Meketa*

Jamie McCreary, Service Model Program Manager, with Raneen Jalajel, Associate Partner, Aon, and Eric Larsen, Investment Analyst, Meketa, presented the Common School Fund 2024 Annual Review. The presentation included an overview of asset allocation and performance.

CSF's 2024 returns trailed the 1-Year and 5-Year policy benchmark by 2.1% and 0.4% respectively.

10:50 – 11:20 6 **Fiduciary Training**

Mika Malone
Managing Principal, Meketa
Allan Emkin
Managing Principal, Meketa

Mika Malone, Managing Principal, Meketa, and Allan Emkin, Managing Principal, Meketa, presented on the topic of Fiduciary Training. The presentation included an overview of public pension fund governance models and the Council's primary duties as fiduciaries.

--BREAK—

After conclusion of scheduled agenda items:

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

8 **Public Comments**

The 3/5/2025 OIC Meeting Ended at 11:48am

TAB 2

COMMITTEE REPORTS

Oregon Investment Council

OREGON STATE TREASURY

TAB 3

2025 CAPITAL MARKETS

ASSUMPTIONS

MEKETA

Oregon Investment Council

April 16, 2025

2025 Capital Market Assumptions

Table of Contents

Introduction

Setting Capital Market Assumptions ("CMAs")

- CMAs are the inputs needed to calculate a portfolio's expected return, volatility, and relationships (i.e., correlations) to the broader markets.
  - CMAs are also used in mean-variance optimization, simulation-based optimization, asset-liability modeling, and every other technique for finding "optimal" portfolios.
- Consultants (including Meketa) generally set them once per year.
  - Our results are published in January based on December 31 data.
- This involves setting long-term expectations for a variety of asset class/strategy attributes:
  - Returns
  - Standard Deviations
  - Correlations
- Our process relies on both quantitative and qualitative methodologies.

- **Today's objective is to review the CMAs developed by Meketa, and then compare those with the CMAs proposed for adoption by the OIC, based on Staff's review of Meketa and Aon's assumptions.**
- **In May, we will then review the expected return and risk profile of the current OPERF portfolio and run scenario analyses for the portfolio.**

Asset Class/Strategy Definitions

→ We identify asset classes and strategies that are potentially appropriate for long-term allocations by our clients.

→ Several considerations influence this process:

- Unique return behavior,
- Observable historical track record,
- A robust market,
- And client requests.

→ We then make forecasts for each asset class/strategy.

- We created assumptions for 113 “asset classes” in 2025.

2024 Major Market Events:

- Yields increased for much of the investment grade bond market, while credit spreads tightened, especially for lower quality credit such as high yield.
- Stock market valuations continued to rise, especially in the US, where equity markets rallied at a faster pace than the gain in earnings.
- Cap rates for real estate moved higher, while the rebound in private equity (e.g., buyouts) multiples lagged the valuation gains for public markets.
- Not only did current Treasury yields increase, but projections for future Treasury yields also increased.

Overview of Process

Developing Expected Returns

→ Market practitioners generally make use of three methods for developing long-term expected returns:

- Historical average returns
- Financial/economic theory (e.g., higher risk = higher returns, capital structures, etc.)
- Current measures (e.g., starting valuations relative to history)

→ In addition to the above, practitioners also incorporate general projections for macroeconomic metrics such as GDP and inflation, among others.

→ Meketa's methods are in-line with industry standards and represent a mixture of the three mechanisms.

- Historical average returns play the smallest role in our assumptions.

2024 Peer Survey

- Annually, Horizon Actuarial Services, LLC publishes a survey of capital market assumptions that they collect from various investment advisors[1].
- The Horizon survey is a useful tool to determine whether a consultant's expectations for returns (and risk) are reasonable.

Asset Class	Horizon 10-Year Average (%)	Meketa 10-Year (%)	Horizon 20-Year Average (%)	Meketa 20-Year (%)
Cash Equivalents	3.7	2.4	3.4	2.5
TIPS	4.4	4.3	4.3	4.7
US Core Bonds	4.9	4.6	4.9	4.8
US High Yield Bonds	6.1	6.5	6.4	6.8
Emerging Market Debt	6.2	6.3	6.3	6.2
Private Debt	8.3	9.2	8.4	9.2
US Equity (large cap)	6.5	6.9	7.0	8.5
Developed Non-US Equity	7.1	7.7	7.5	8.9
Emerging Non-US Equity	7.7	7.6	8.2	8.9
Private Equity	9.1	9.9	9.7	11.2
Real Estate	6.1	6.3	6.2	8.0
Infrastructure	7.3	7.4	7.4	9.0
Commodities	4.9	4.9	5.0	5.3
Hedge Funds	5.9	4.5	6.2	5.8
Inflation	2.4	2.4	2.4	2.8

1 The 10-year horizon included all 41 respondents, and the 20-year horizon included 26 respondents. Figures are based on Meketa's 2024 CMAs.

Building 10-year Forecasts

→ Our first step is to develop 10-year forecasts based on fundamental models.

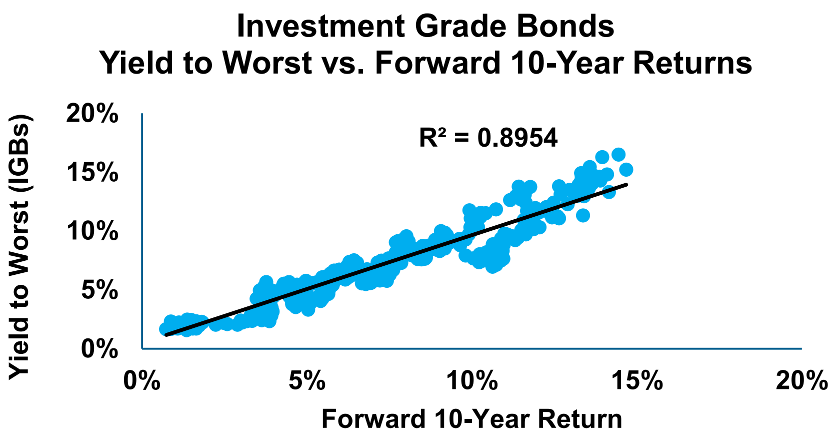
- Each model is based on the most important factors that drive returns for that asset class:

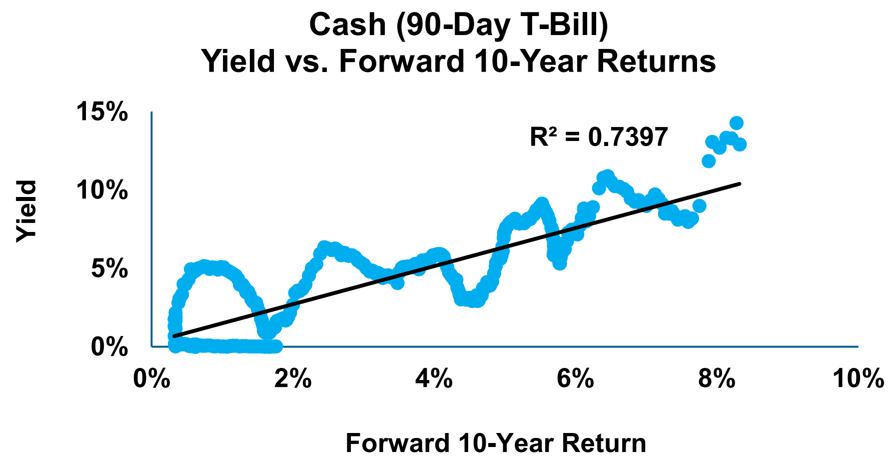
Asset Class Category	Major Factors
Equities	Dividend Yield, GDP Growth, Valuation
Bonds	Yield to Worst, Default Rate, Recovery Rate
Commodities	Collateral Yield, Roll Yield, Inflation
Infrastructure	Public IS Valuation, Income, Growth
Natural Resources	Price per Acre, Income, Public Market Valuation
Real Estate	Cap Rate, Yield, Growth
Private Equity	EBITDA Multiple, Debt Multiple, Public VC Valuation
Hedge Funds and Other	Leverage, Alternative Betas

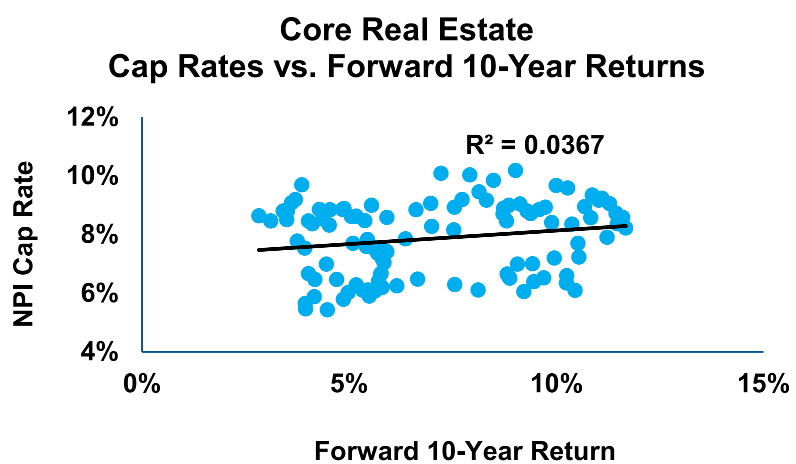
→ The common components are income, growth, and valuation.

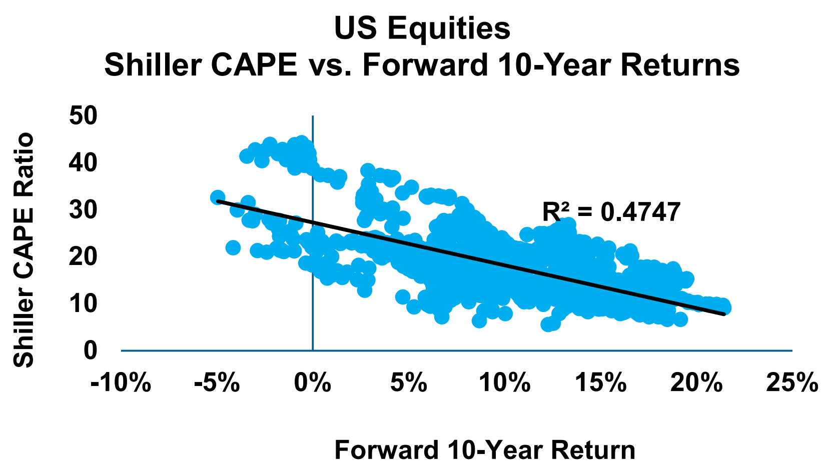
- Leverage and currency impact are also key factors for many strategies.

Some Factors are Naturally More Predictive Than Others









Sources: Bloomberg, FRED, NCREIF, S&P, Robert Shiller (Yale University), and Meketa Investment Group. As of December 31, 2024.

10-Year Model Example: Equities

- We use a fundamental model for equities that combines income and capital appreciation.
  - E(R) = Dividend Yield + Expected Earnings Growth + Multiple Effect + Currency Effect
- Meketa evaluates historical data to develop expectations for dividend yield, earnings growth, the multiple effect, and currency effect.
  - Earnings growth is a function of real GDP growth, inflation, and exposure to foreign revenue sources.
  - We assume that long-term earnings growth is linked to economic growth.
  - However, many factors can cause differences between economic growth and EPS growth.
- Our models assume that there is a reversion toward mean pricing over this time frame.

10-Year Model Example: Bonds

- The short version for investment grade bond models is:

$$E(R) = \text{Current YTW (yield to worst)}$$

- Our models assume that there is a reversion to the mean for spreads (though not yields).
- For TIPS, we add the real yield of the TIPS index to the breakeven inflation rate.
- As with equities, we make currency adjustments when necessary for foreign bonds.
- For bonds with credit risk, Meketa Investment Group estimates default rates and loss rates in order to project an expected return:

$$E(R) = \text{YTW} - (\text{Annual Default Rate} \times \text{Loss Rate})$$

Bonds: Credit

→ For anything with credit risk, we take into account our expected default and recovery rates.

	Inv. Grade Corporate (%)	Long Term Corporate (%)	Foreign Debt (%)	EM Debt (major) (%)	EM Debt (local) (%)	High Yield (%)	Bank Loans (%)
Default Rate	0.08	0.08	0.09	1.86	0.34	2.50	2.50
Loss Rate	50	50	50	50	50	45	40

→ As a guide, we use historical global default and recovery data for each asset class.

- When the composition of an asset class changes over time (e.g., for emerging market debt), we look at each rating bucket as it is currently weighted.

Private Equity: Buyouts

→ For Buyouts, we start with public equity expected returns.

→ We add a premium or discount based on the pricing of buyouts relative to stocks.

- We use the most recently available EBITDA multiples from Preqin to provide an indication of valuations.

→ We add a premium for control (e.g., for greater operational efficiencies) and leverage.

- We assume leverage of 1.3x - 1.5x.

→ We subtract borrowing costs and estimated fees, including carry.

- We assume borrowing costs are consistent with the yield on bank loans.

→ We also look at how closely valuations compared to price changes occurring in the public markets, noting that buyouts pricing often lags that of public equities.

Private Equity: VC and Growth Equity

- For Venture Capital ("VC"), we create a public market proxy that we can compare through time.
  - This composite is composed of: traditional technology, biotech, pharmaceuticals, life sciences, IT services, internet, AI, and clean tech and environmental stocks.
    - The weighting to each sector varies through time.
    - The data is an imperfect proxy and the correlation with future returns is not high.
    - Still, this proxy provides some indication of pricing relative to the broader market.
  - We also note any lag we observe between VC valuations and price changes for public markets.
  - We use this to make an assessment of what size the return premium should be relative to public markets.
- For Growth Equity, we infer a return that is between that of buyouts and venture capital.
  - The relative weightings place the return closer to that of VC than buyouts.
- For VC and growth equity, we subtract estimated fees, including carry.

Real Estate: Core

→ For Core Real Estate (“RE”), we use two models.

- The first model adds a premium to the most recently available value-weighted cap rate from NCREIF.
  - Core RE has historically returned approximately 1.3% more than its value-weighted cap rate at the start of the period over the subsequent ten years.
- The second model combines income with capital appreciation potential.
  - The income for core RE has historically been the cap rate minus 2-3% (for Cap Ex).
  - We assume income (NOI) grows at the rate of inflation.
  - We assume there is some measure of fair value for cap rates relative to bond yields.
- We make a price adjustment based on the forward yield curve.
- We adjust for leverage, borrowing costs, and estimated fees.

Real Estate: Non-Core

- For Non-Core Real Estate, we start with historical premiums versus core RE.
  - This includes the effect of greater control, development, buying at distress, etc.
- We add a non-US component (e.g., premium for lower cap rates) and a currency effect.
  - We assume 10% to 30% of non-core commitments will be ex-US (with the majority in Europe).
- We lever the portfolio and then subtract the cost of borrowing.
  - Value-added leverage ranges 50-70% while opportunistic ranges 60-80%.
  - The cost of debt is higher for value added than core, and higher still for opportunistic.
- Finally, we subtract estimated management fees and carried interest.
- For High Yield Real Estate Debt, we use our high yield bond model.
  - We use the YTW on the Bloomberg CMBS BBB index and then add a “high yield” spread on top of this.
  - Data is sparse on default rates and spreads.
    - We typically use the same default rate as high yield bonds.
  - In 2024, we increased the projected default rate and loss rate given market conditions.
  - We adjust for leverage, borrowing costs, and estimated fees.

The Other Inputs: Standard Deviation and Correlation

→ Standard deviation:

- We review the trailing twenty-year standard deviation, as well as skewness.
- Historical standard deviation serves as the base for our assumptions.
- If there is a negative skew, we increased the volatility assumption based on the size of the historical skewness.

Asset Class	Historical Standard Deviation (%)	Skewness	Assumption[1] (%)
Bank Loans	6.5	-2.9	10.0
FI / L-S Credit	5.8	-2.7	9.0

- We also adjust for private market asset classes with “smoothed” return streams.

→ Correlation:

- We use trailing twenty-year correlations as our guide.
- Again, we make adjustments for “smoothed” return streams.

→ Most of our adjustments are conservative in nature (i.e., they increase the standard deviation and correlation).

1 Note that we round our standard deviation assumptions to whole numbers.

Moving from 10-Year to 20-Year Forecasts

→ Our next step is to combine our 10-year forecasts with projections for years 11-20 for each asset class.

→ We use a risk premium approach to forecast 10-year returns in ten years (i.e., years 11-20).

- We start with an assumption (market informed, such as the 10-year forward rate) for what the risk-free rate will be in ten years.
- We then add a risk premium for each asset class.
- We use historical risk premia as a guide, but many asset classes will differ from this, especially if they have a shorter history.
- We seek consistency with finance theory (i.e., riskier assets will have a higher risk premia assumption).

→ Essentially, we assume mean-reversion over the first ten years (where appropriate), and consistency with CAPM thereafter.

→ The final step is to make any qualitative adjustments.

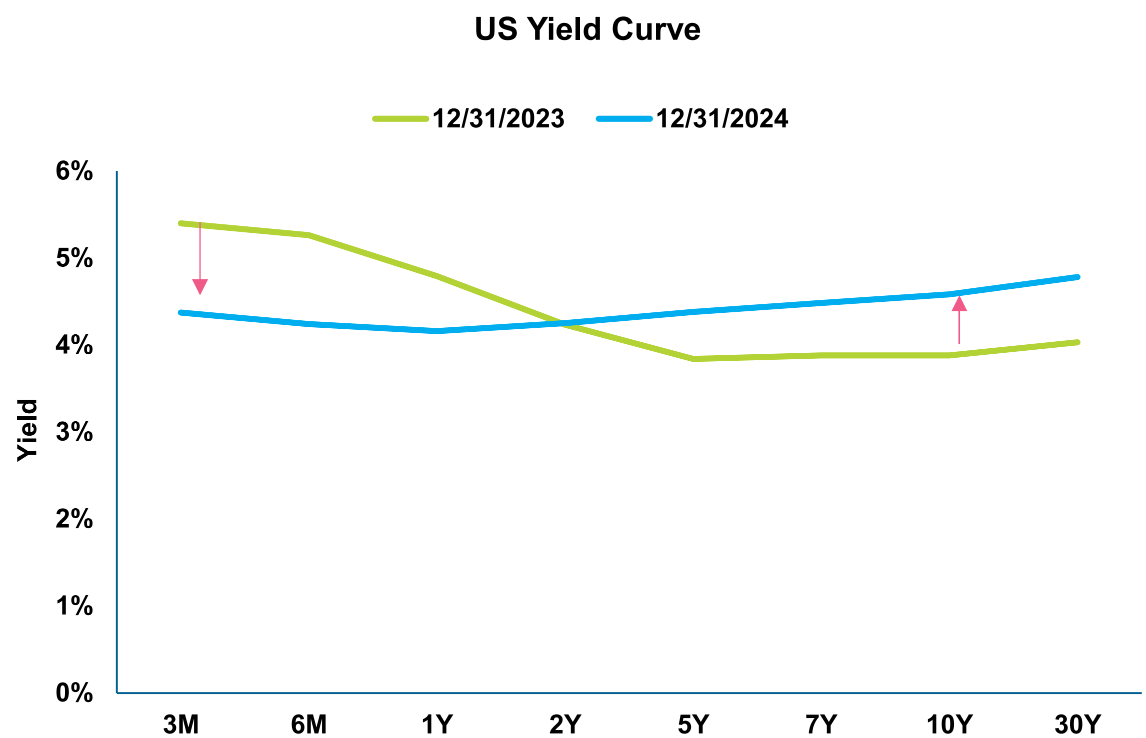
- The Investment Policy Committee reviews the output and may make adjustments.

2024 Market Review

Rising Interest Rates

→ While the short end of the yield curve moved down, the long end of the curve moved up.

→ The result was a shift away from the inverted curve of the last two years to a slightly "U"-shaped curve with a nadir at the one-year maturity.



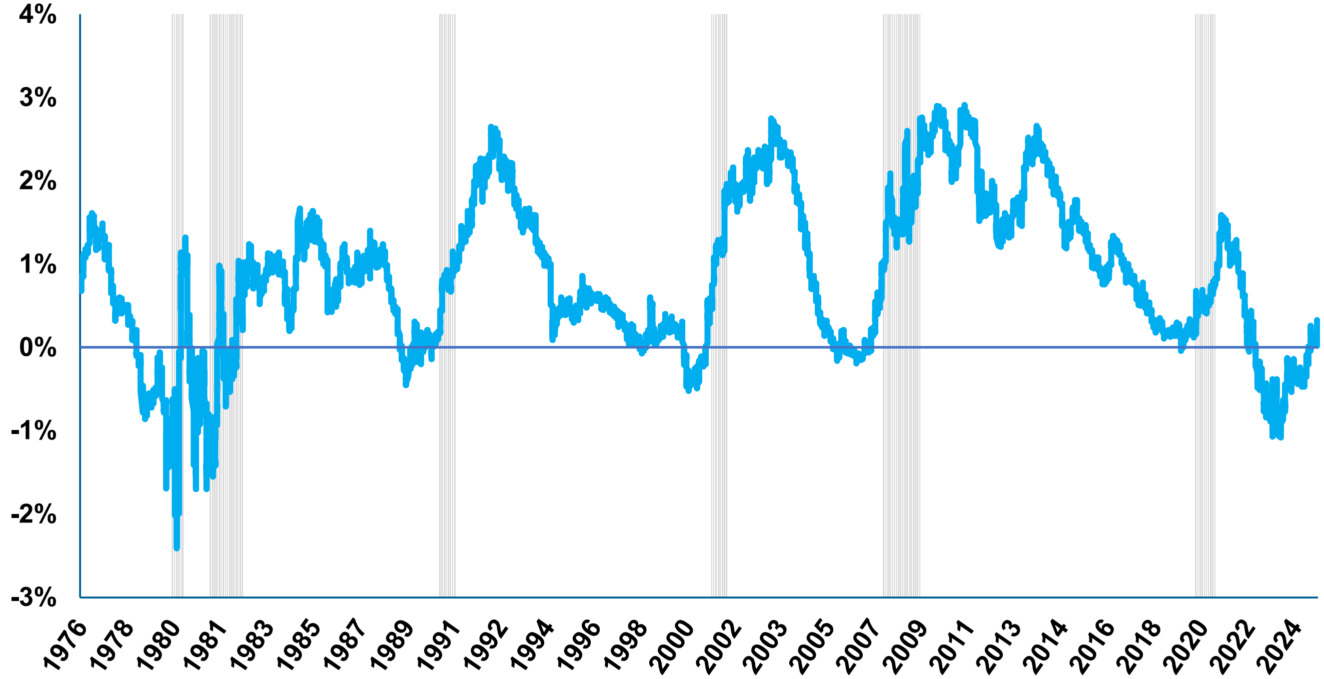
Source: Bloomberg. Data is as of December 31, 2024.

Normalizing Yield Curve

→ The yield curve began the year in inverted territory but gradually moved toward a positive slope.

- The 2-10 spread moved positive before year-end; however, the curve is still inverted in other sections.

Yield Curve Slope (Ten Minus Two)



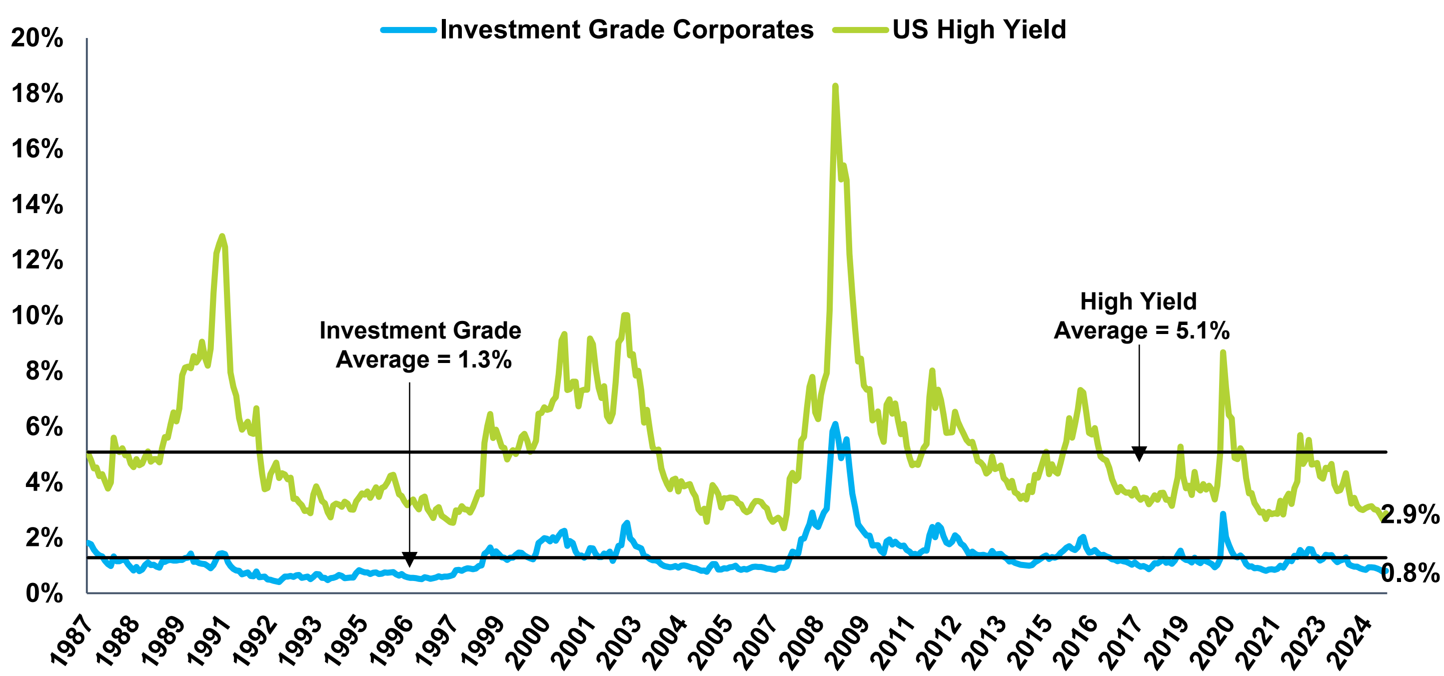
Source: FRED. Yield curve slope is calculated as the difference between the 10-Year US Treasury Yield and 2-Year US Treasury Yield. Data is as of December 31, 2024.

Narrower Credit Spreads

→ Credit spreads tightened again in 2024, moving further below their long-term averages.

- The spread for high yield bonds declined from 323 basis points to 287 basis points, while the spread for investment grade corporates declined from 99 basis points to 80 basis points

US Investment Grade and High Yield Credit Spreads



Source: Bloomberg. High Yield is proxied by the Bloomberg High Yield Index and Investment Grade Corporates are proxied by the Bloomberg US Corporate Investment Grade Index. Spread is calculated as the difference between the Yield to Worst of the respective index and the 10-Year US Treasury yield. Data is as of December 31, 2024.

Similar or Higher Yields

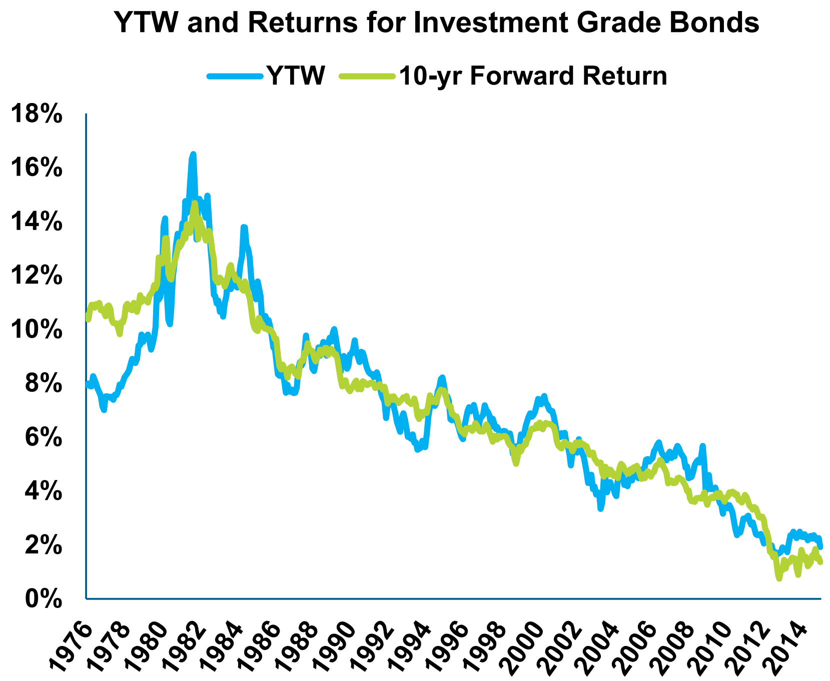
- Short-term interest rates declined as the Fed cut its target rate, yet the yield on the 10-year Treasury increased.
- Despite tighter credit spreads, yields increased for all but the lower quality bond markets.

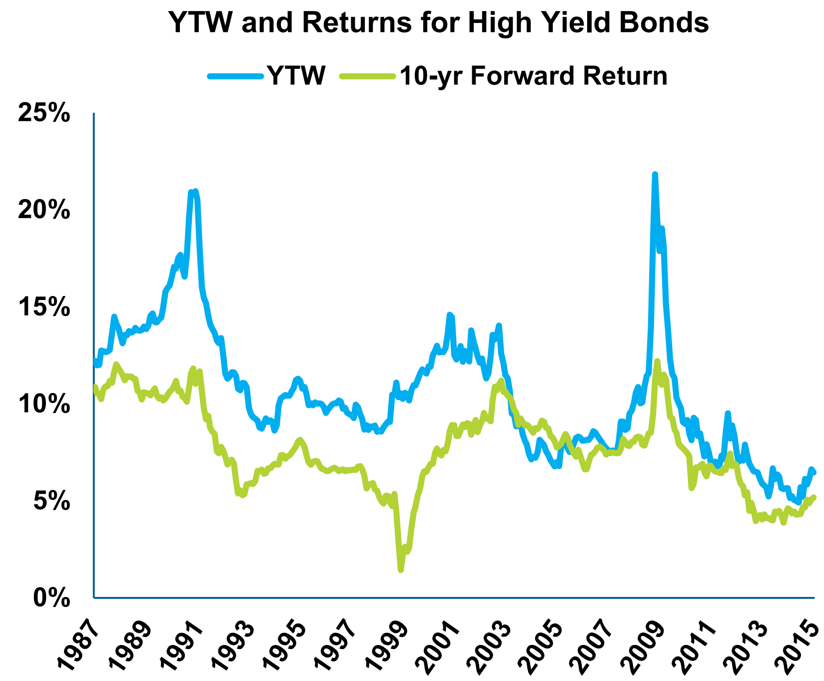
Index	Yield to Worst 12/31/23 (%)	Yield to Worst 12/31/24 (%)
Fed Funds Rate	5.25-5.50	4.25-4.50
10-year Treasury	3.88	4.58
Bloomberg Aggregate	4.53	4.91
Bloomberg Corporate	5.06	5.33
Bloomberg Securitized	4.72	5.25
Bloomberg Global Aggregate	3.51	3.68
Bloomberg US Corporate High Yield	7.59	7.49

Source: Bloomberg. Data is as of December 31, 2023 and December 31, 2024.

Yields Drive Future Returns

→ Changes in interest rates matter because yields are a very good predictor of future returns for bonds[1], at least over a 10-year horizon.





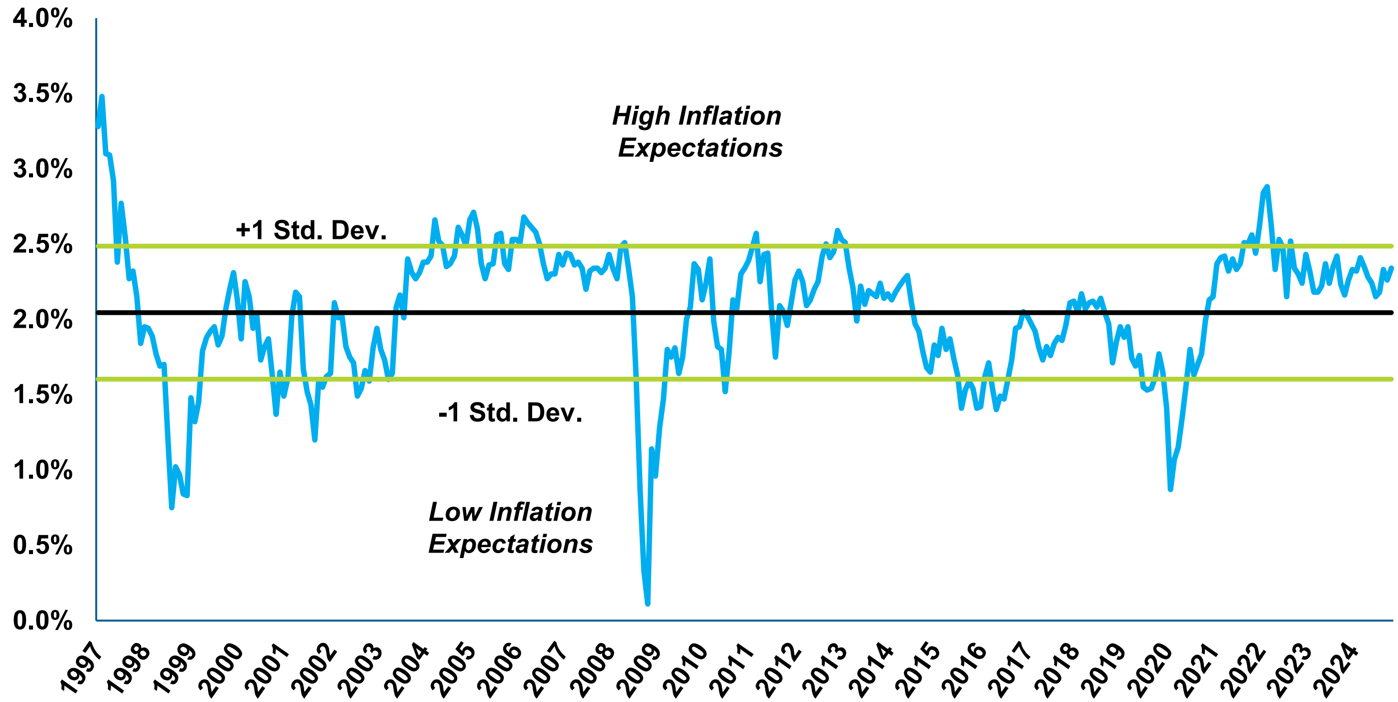
1 When predicting returns for bonds, default risk should also be taken into account. For example, defaults are why the return for high yield bonds have generally been below the starting yield.
Source: Bloomberg Aggregate and Bloomberg High yield indices. Data is as of December 31, 2024.

Slightly Lower Inflation Expectations

→ After substantial changes in inflation expectations in recent years, the market's expectations for inflation were little changed at the end of 2024.

- The 10-year BEI rate increased from 2.2% to 2.3%. The 5-year BEI was slightly higher, at 2.4%.

Ten-Year Breakeven Inflation

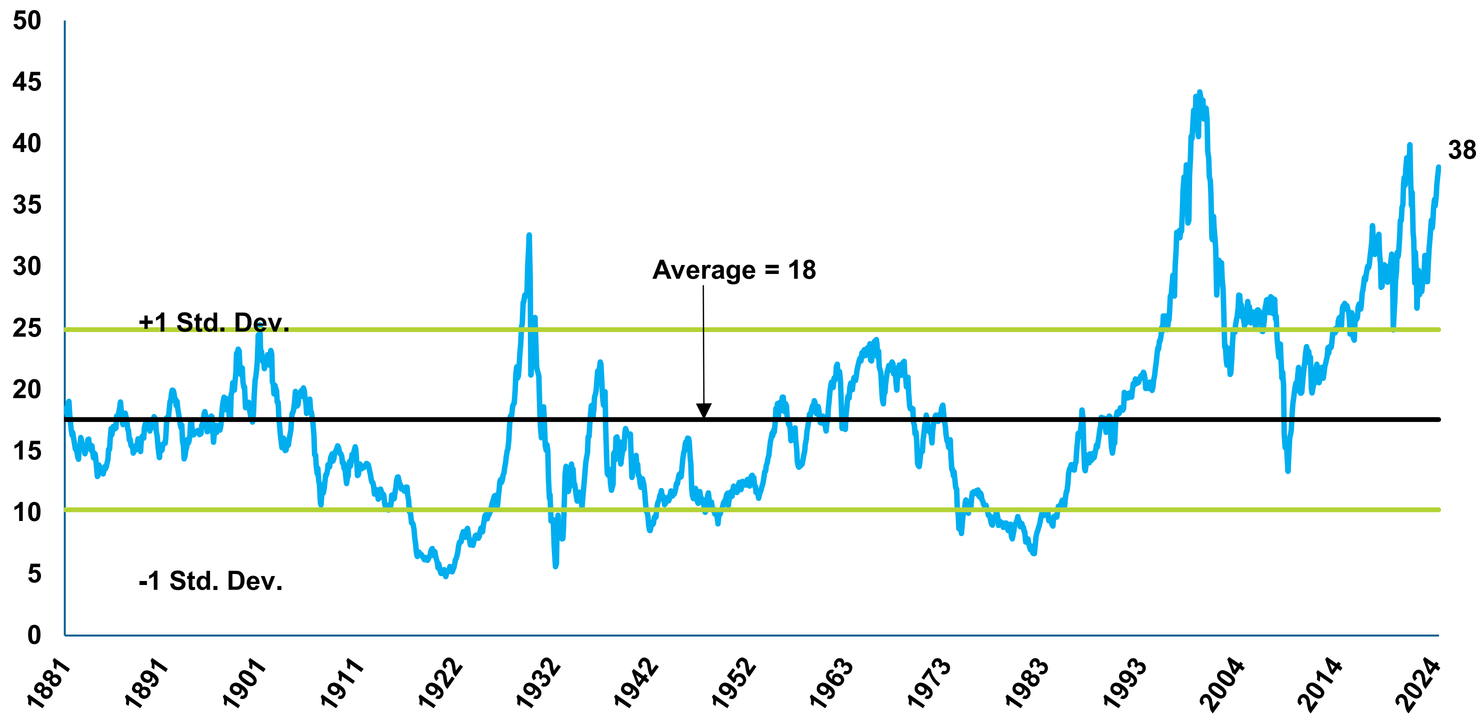


Source: US Treasury and Federal Reserve. Inflation is measured by the Consumer Price Index (CPI-U NSA). Data is as of December 31, 2024.

Higher Prices for US Equities

- US stocks had another good year, with the S&P 500 index gaining 25%.
- Valuations increased and remain elevated relative to their long-term history.

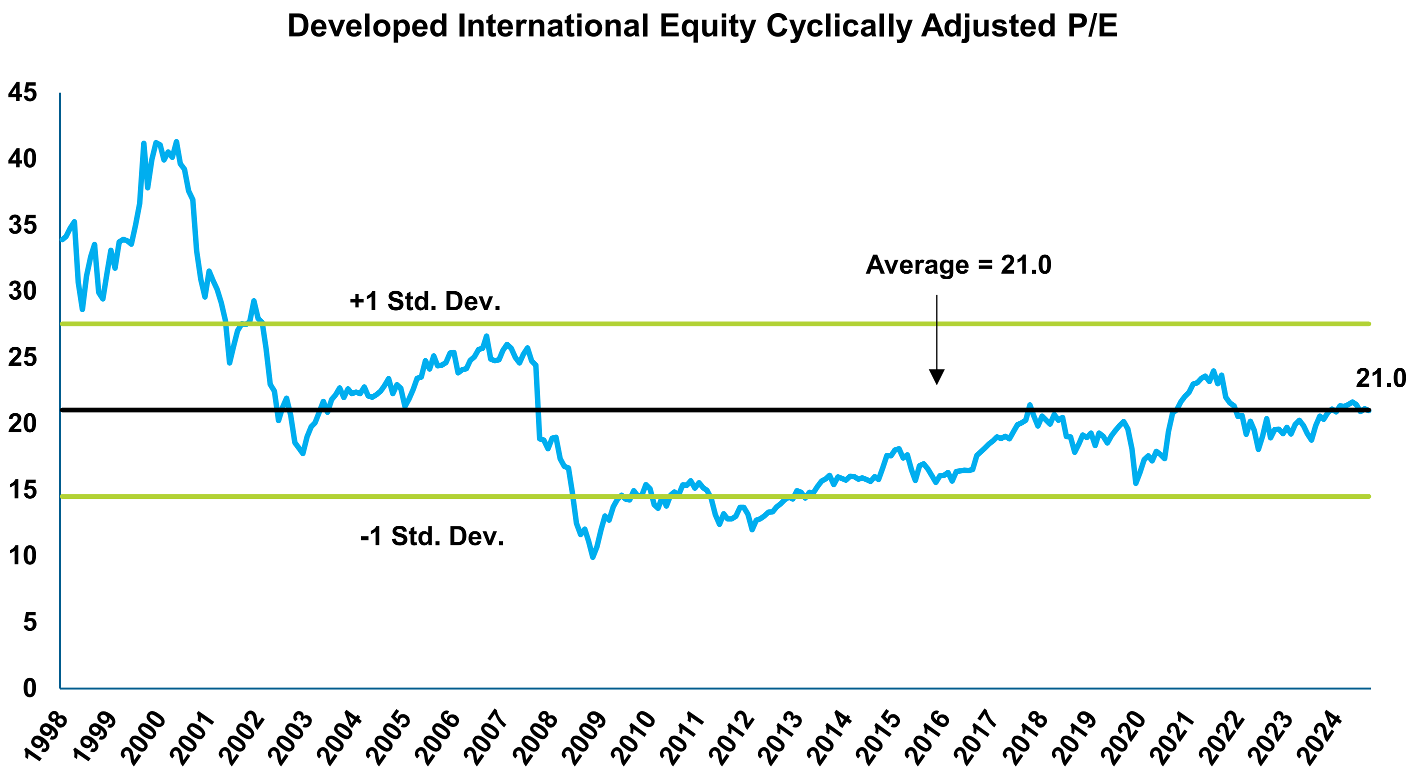
US Equity Cyclically Adjusted Price/Earnings



Source: Robert Shiller, Yale University, and Meketa Investment Group. Data is as of December 31, 2024 for the S&P 500 Index.

Little Change in Non-US Equity Valuations

- EAFE equities had a good year in local currency terms (+11.3%), but a currency headwind ate into most of these gains for USD investors who only saw a 3.8% return.
- EAFE valuations are little changed from one year ago and remain close to their historical average.

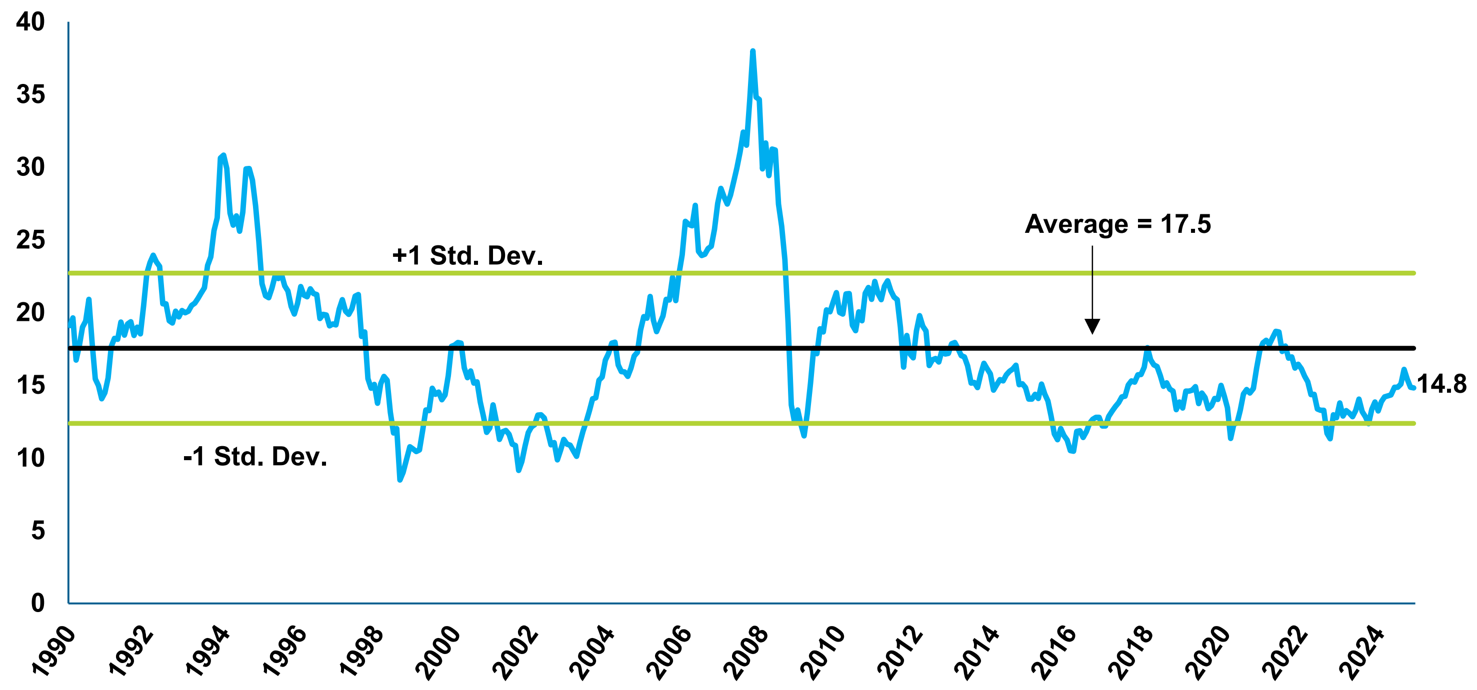


Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years. Data is as of December 31, 2024.

Slightly Higher Prices in Emerging Market Equities

- Emerging market equities gained 13.1% in local currency terms, but the rising dollar cut returns to 7.5% for USD investors.
- EM equity valuations remain below their long-term average, with the EM ex-China index continuing to trade at higher valuations than the China index.

Emerging Market Equity Cyclically Adjusted P/E



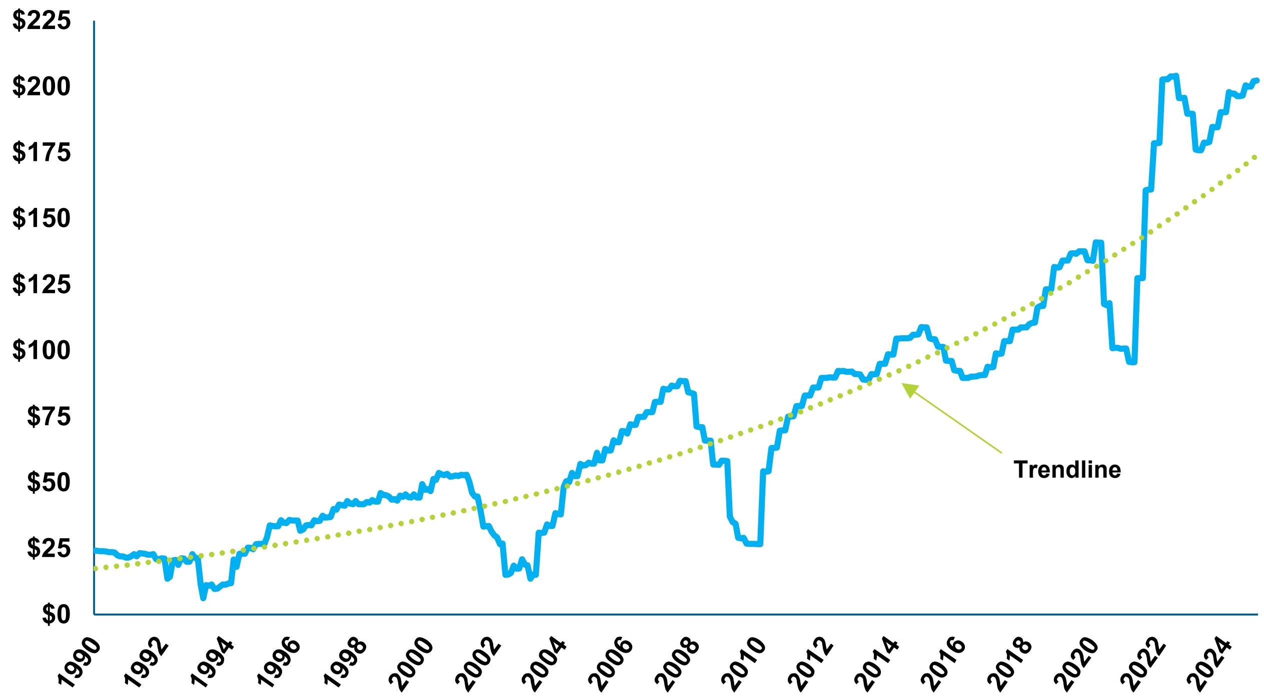
Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years.. Data is as of December 31, 2024.

US Earnings Growth

→ S&P 500 earnings (EPS) rebounded after a short-lived dip in 2023.

- At year-end, estimates were that EPS was just shy of its peak in July 2022.

S&P 500 Earnings Per Share



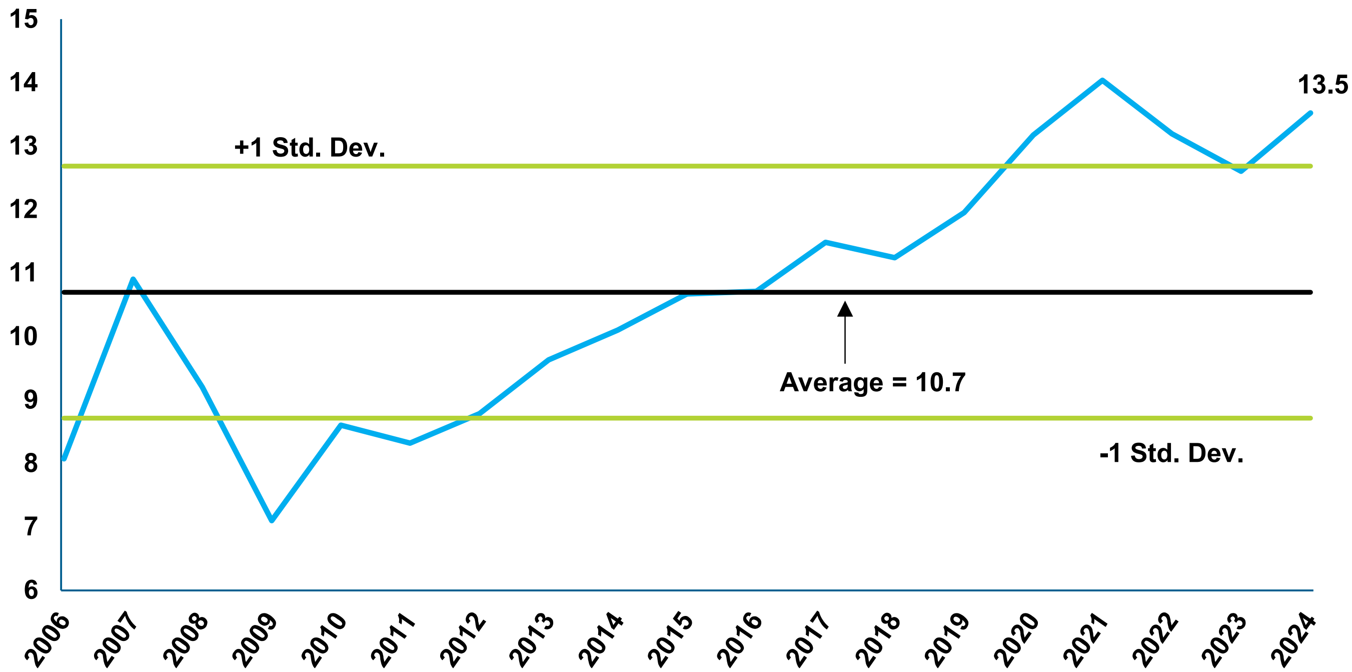
Source: S&P 500 Index data from Bloomberg. Represents trailing 12-month "as reported" earnings per share. Data is as of December 31, 2024.

Private Equity Prices Rebounding

→ EBITDA multiples rose from year end (note that the endpoint is as of September 30).

- Like public equities, valuations have been trending up since the GFC, though they did not rise as quickly as those for US equities over the past year.

EBITDA Multiples

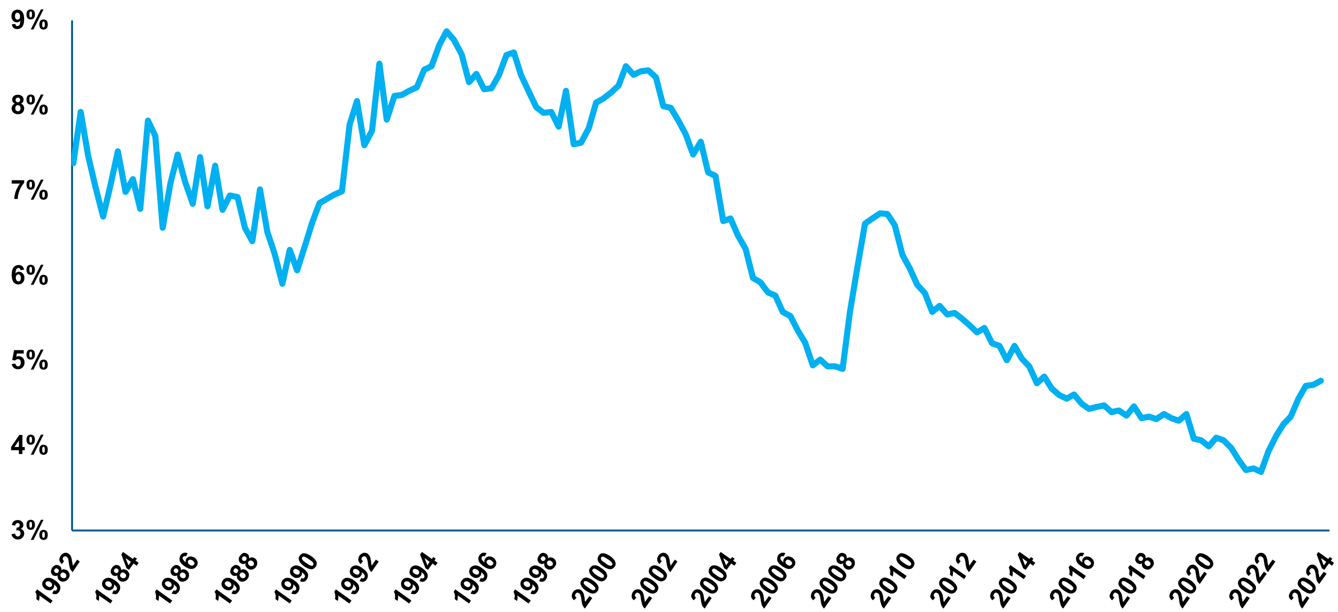


Source: Preqin Median EBITDA Multiples Paid in All LBOs, as of September 30, 2024.

Real Estate Valuations Improving

- Cap rates for core real estate continued to improve in 2024.
  - This is despite a challenging year for many real estate segments.
- Higher cap rates may be indicative of better returns going forward.

Core Real Estate Cap Rates



Source: NCREIF NPI value-weighted cap rates. As of September 30, 2024.

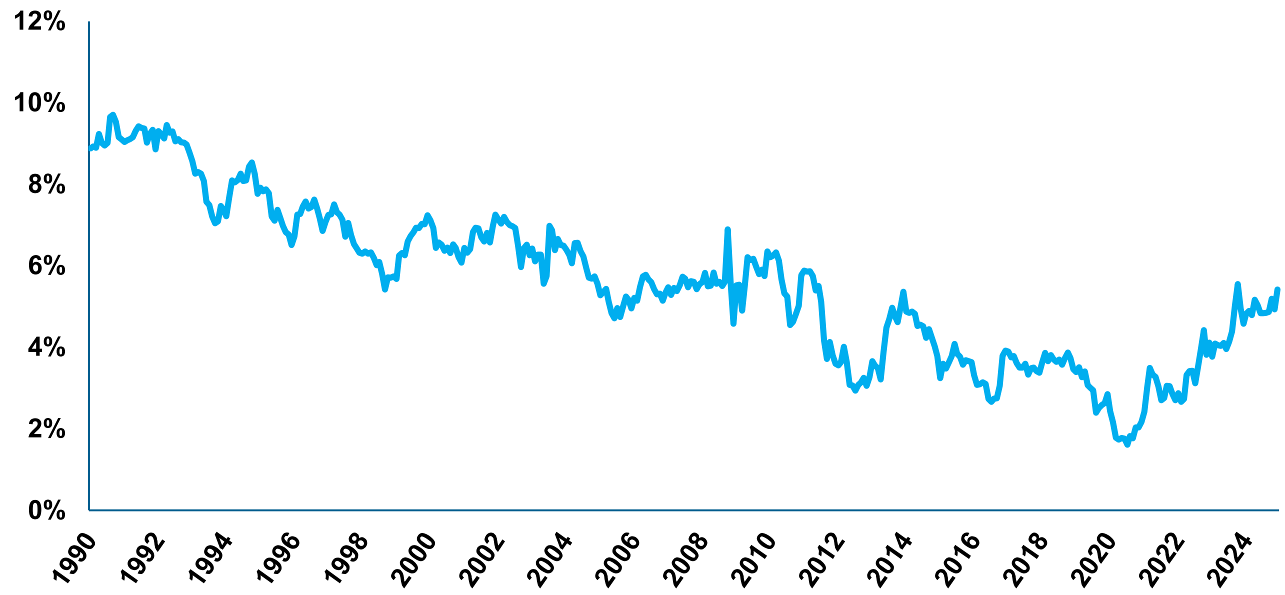
Higher Projected Rates in the Future

→ As interest rates have risen, so have the market's predictions for future interest rates.

- The market is forecasting that the 10-year Treasury yield in ten years will be 5.42%, versus a prediction of 4.57% twelve months ago.

→ Higher future interest rates implies higher expected returns for any forecasting model that includes a risk premium approach.

Market Projection for the 10-Year Treasury Yield in Ten Years

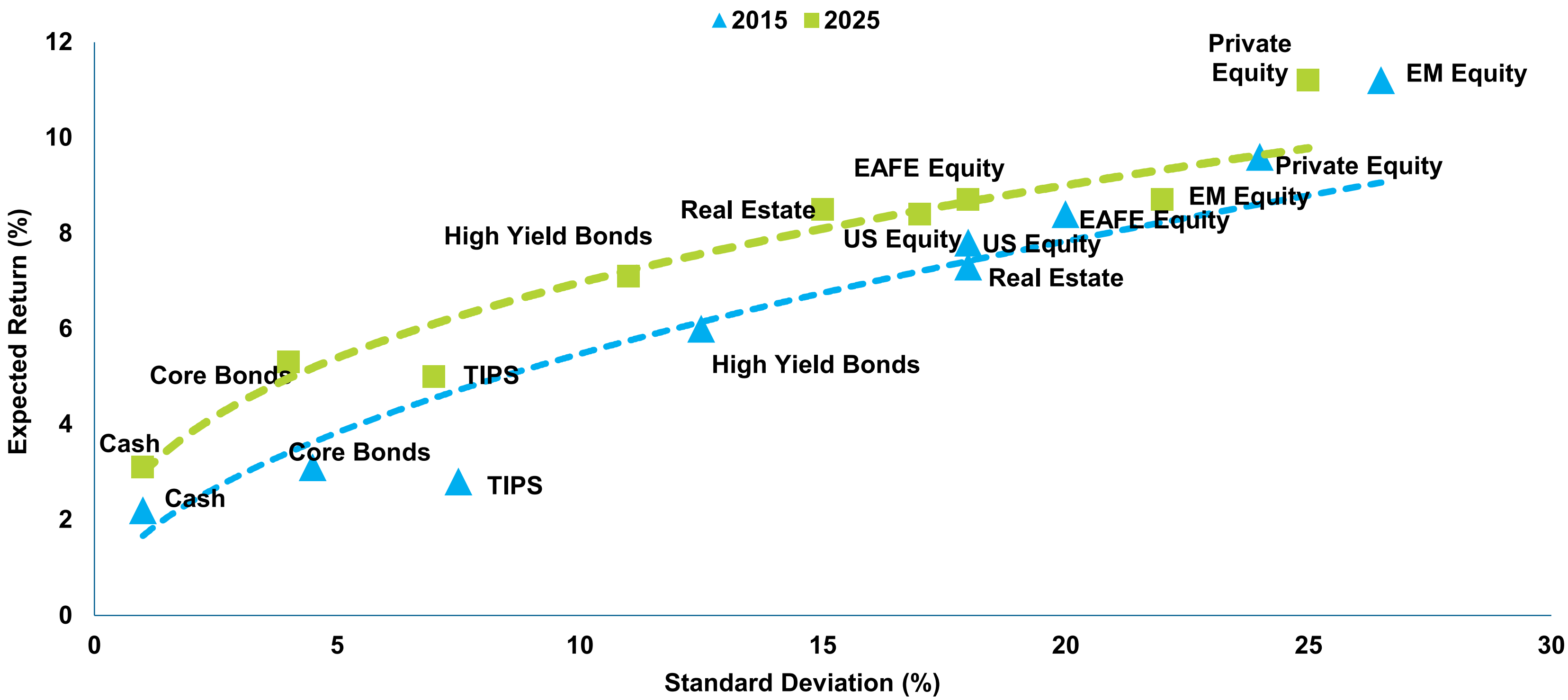


Source: FRED. Represents the Fitted Instantaneous Forward Rate 10 Years Hence, as of December 31, 2024.

The Big Picture: Higher Return for Similar Risk[1]

→ The relationship between long-term return expectations and the level of risk accepted is not static.

→ The higher interest rates compared to a decade ago mean that many investors have greater flexibility in how they structure a portfolio to achieve their target returns.



1 Expected return and standard deviation are based upon Meketa Investment Group's 2015 and 2025 20-year capital market expectations.

OPERF Capital Market Assumptions

OPERF Capital Market Assumptions

→ Meketa, Aon, and OST Staff have shared data, methodologies, and discussed the CMAs to be used in the 2025 OPERF Asset Allocation Review. We will be undergoing a full Asset-Liability Study for 2026 and will review CMAs for that study in early-2026.

→ Return, volatility, and correlations assumptions have been developed for the following high-level OPERF strategic classes:

- Public Equity (i.e., ACWI)
- Fixed Income (i.e., Bloomberg Aggregate)
- Private Equity
- Real Estate
  - Constructed to be in-line with the current portfolio (~80% core and 20% non-core)
- Real Assets
  - Focused on cash-flow generating infrastructure and natural resources.
- Diversifying Strategies
  - Broad, diversified basket of strategies in-line with the projected long-term class construct and goals.

OPERF – Starting CMAs (10-year horizon)

→ The CMAs below represent the initial starting point for OPERF's 2025 Asset Allocation Review.

→ Based on discussion with the OIC, and further market movements, these will be further tailored during the modeling process, if needed.

Expected Returns (%)

Strategic Class	Meketa	Aon	Staff
Public Equity	6.7	7.2	6.5
Fixed Income	4.9	5.3	5.0
Private Equity	9.8	9.1	9.5
Real Estate	6.3	6.3	6.9
Real Assets	7.4	9.2	7.0
Diversifying Strategies	4.4	6.3	6.0

Annual Volatility (%)

Strategic Class	Meketa	Aon	Staff
Public Equity	17.0	18.4	17.0
Fixed Income	4.0	5.4	5.0
Private Equity	25.0	20.0	22.0
Real Estate	13.8	16.9	15.0
Real Assets	17.3	14.3	14.0
Diversifying Strategies	5.3	4.0	5.0

Conclusion

→ Asset allocation is the most important decision the OIC makes.

- It is the area we believe the most time should be spent on.
- Changes should not be undertaken lightly, nor should year over year changes to CMAs drive a decision to adjust targets

→ The asset allocation process is not one-size-fits-all.

- We customize everything about the modeling process .
- Constructing/modeling asset classes should be congruent with the asset allocation process.
  - Certain classes (e.g., private markets) should be reflected as they are, and as they are planned to be, in the asset allocation stage.

→ The current capital market environment is presenting investors with considerable variability in setting long-term expected returns for certain asset classes.

→ Meketa, Aon, and OST Staff will continue collaborating on CMAs.

→ The OIC should vote to adopt, or modify the CMAs presented on the prior slide, to use in the 2025 AA review.

→ At the May meeting, Meketa will present the expected return for the OPERF portfolio, along with scenario analyses. It is not expected that any changes to the asset allocation targets will be recommended this year.

- During the 2026 Asset Liability Study, additional asset allocation options may be considered.
- However, if the OIC would like to review alternative asset allocation options in May, we are happy to assist.

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Oregon Investment Council

OREGON STATE TREASURY

TAB 4

OPERF REAL ASSETS

ANNUAL REVIEW

April 16, 2025

OPERF Real Assets Portfolio

Annual Review and Forward Plan

OREGON STATE TREASURY

Agenda

Investment Beliefs Mapping																			
Section	**Pages**	**1A**	**1B**	**1C**	**2A**	**3A**	**3B**	**3C**	**3D**	**4A**	**4B**	**5A**	**6A**	**6B**	**7A**	**8A**	**8B**	**9**	**10A**
Real Assets Portfolio Overview	2-5								X	X	X		X	X		X	X		
Markets	7-11								X										
2024 Review	12-13								X	X	X		X	X		X	X	X	X
Exposures	14-15								X	X	X		X	X					
Results	16-17								X		X			X					
Pacing Analysis	18-19								X	X	X		X	X					
Priorities	20-21								X	X	X		X	X		X	X	X	X
Appendix	23-26								X	X			X			X	X	X	X

LEGEND: OIC INVESTMENT BELIEFS

1) **THE OIC IS A POLICY-SETTING COUNCIL**
   A. The OIC sets strategic policy which includes, but is not limited to, Asset Allocation, Portfolio Construction, Risk Measurement and Performance Monitoring, and selecting Investment Consultants to the Council.
   B. The OIC's purview also includes establishing and defining the Statement of Investment and Management Beliefs.
   C. The OIC tasks OST staff, external managers, consultants and other service providers with policy implementation.
2) **INVESTMENT MANAGEMENT IS DICHOTOMOUS—PART ART AND PART SCIENCE**
   A. 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.
3) **OPERF HAS A LONG-TERM INVESTMENT HORIZON**
   A. Long-term horizon requires the OIC to consider the impact of its actions on future generations of members and the State.
   B. The OIC shall weigh the short-term risk of principal loss against the long-term risk of failing to meet return expectations.
   C. The OIC shall prepare for and accept periods of volatility and/or related market dislocations.
   X D. The OIC should be innovative and opportunistic in its investment approach.
4) **ASSET ALLOCATION DRIVES RISK AND RETURN**
   X A. Asset allocation is the OIC's primary policy tool for managing the investment program's long-term risk/return profile.
   X B. Portfolio construction, including diversification and correlation considerations, is essential to maximizing risk-adjusted returns.
5) **THE EQUITY RISK PREMIUM SHOULD BE REWARDED**
   A. Over the long-term, equity-oriented investments provide return premiums relative to risk-free investments.
6) **PRIVATE MARKET INVESTMENTS CAN ADD SIGNIFICANT VALUE**
   X A. The OIC has the potential to capitalize on its status as a true, long-term investor by making meaningful allocations to illiquid, private market investments.
   X B. Dispersion in private market investment returns is wide.
7) **CAPITAL MARKETS HAVE INEFFICIENCIES THAT CAN BE EXPLOITED**
   A. Inefficiencies that have the potential to be exploited by active management may exist in certain segments of the capital markets.
8) **COSTS DIRECTLY IMPACT INVESTMENT RETURNS AND SHALL BE MONITORED AND MANAGED CAREFULLY**
   X A. All fees, expenses, commissions, and transaction costs should be diligently monitored and managed to maximize net investment returns.
   X B. External incentive structures should be carefully evaluated to ensure proper alignment with investment program objectives.
9) **THE INTEGRATION OF SYSTEMS TO EVALUATE AND MONITOR ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) RISKS, INCLUDING PROXY VOTING, SIMILAR TO OTHER INVESTMENT RISKS HAVE THE POTENTIAL TO HAVE A BENEFICIAL IMPACT ON THE ECONOMIC OUTCOME OF AN INVESTMENT AND AID IN THE ASSESSMENT OF THAT**
10) **DIVERSITY, IN ALL ASPECTS, IS ACCRETIVE TO MEETING OIC OBJECTIVES**
   X A. By embracing and enhancing diversity of talent (including a broad range of education, experience, perspectives and skills) at all levels (board, staff, external managers, corporate boards) is important, the OIC ensures that the investment program will be exposed to and informed by a wide range of perspectives, ideas and opinions.

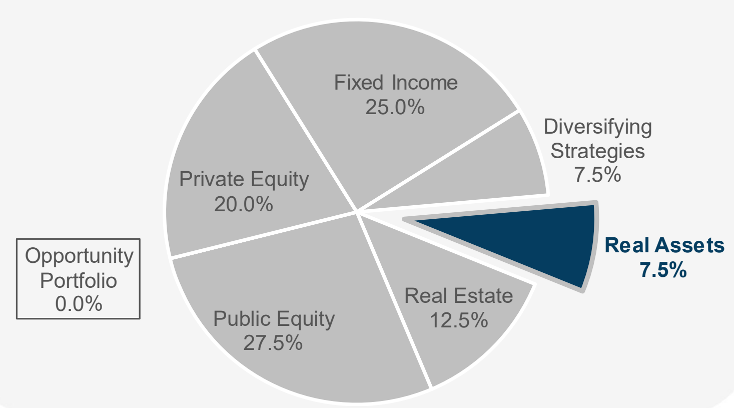
OREGON STATE TREASURY

Real Assets Portfolio Overview

Strategic Role

- Portfolio background
  - Alternatives Portfolio (inclusive of Real Assets and Diversifying Strategies) approved at January 2011 OIC meeting; seeded July 2011 with three investments from the Opportunity Portfolio. Portfolio bifurcated into its component parts in June 2021.
  - Initial <5.0% Real Assets allocation increased to 7.5% in June 2013.
  - Fair market value = $10.3 billion (10.7% of OPERF).

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



- Performance

IRR	Q3 2024	YTD	1 Year	3 Year	5 Year	10 Year	ITD
Real Assets Portfolio	**2.8%**	**6.9%**	**10.2%**	**11.4%**	**10.5%**	**7.8%**	**7.6%**
CPI + 4%	1.3%	5.7%	6.4%	8.7%	8.2%	6.8%	6.6%
Difference	*1.4%*	*1.1%*	*3.7%*	*2.7%*	*2.3%*	*1.0%*	*1.0%*

Source: State Street, Aksia. Data as of September 30, 2024.

Real Assets Portfolio Overview

Positioning

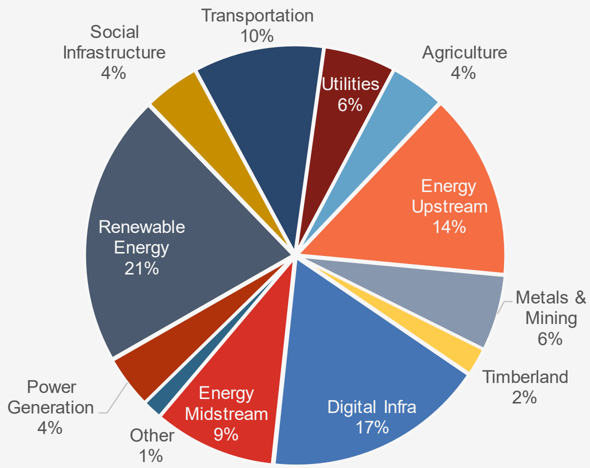
Portfolio Summary[1]

Attribute	9/30/2023	9/30/2024	% Change
GP Relationships	31	31	0.0%
Holdings	92	94	2.2%
Total Commitment Amount	$14,979.4	$15,673.6	4.6%
Contributions	$11,769.5	$12,904.1	9.6%
Distributions	$5,448.6	$6,585.6	20.9%
Net Asset Value	$9,316.9	$10,280.4	10.3%
Weighted Average Age (yrs)	5.5	6.2	12.2%
Unfunded Commitment	$4,832.3	$4,784.1	-1.0%
Net TVPI	1.3x	1.3x	0.1x
ITD IRR	7.2%	7.6%	0.4%

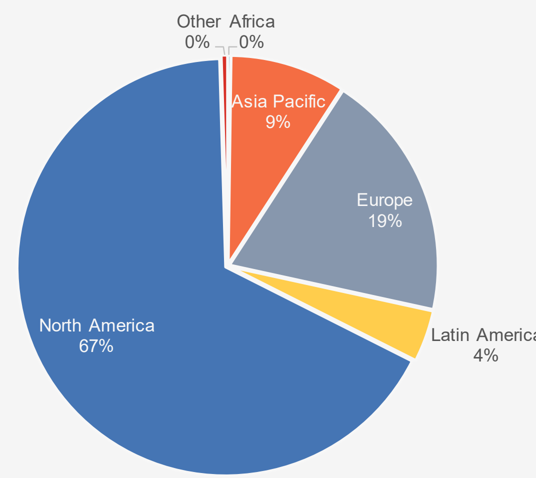
Top 10 Managers

Manager	# of Mandates	$ of Exposure	% of Exposure
Stonepeak Partners	9	$2,225.2	14.8%
Brookfield Asset Management	9	$2,158.5	14.3%
Global Infrastructure Management	7	$1,534.2	10.2%
EQT Partners	5	$1,388.8	9.2%
NGP Energy Capital Management	11	$985.3	6.5%
LS Power Equity Advisors	4	$817.5	5.4%
Quantum Energy Partners	6	$744.9	4.9%
Warwick Investment Group	3	$601.9	4.0%
Blackstone Group	3	$550.2	3.7%
Harrison Street Advisors	2	$438.1	2.9%

Sector Weights



Geographic Weights



Source: Aksia. Data as of September 30, 2024. $ in millions. Holdings count includes co-investment and continuation vehicles. Weighted average age is based on contributions. [1]Data shown is since inception.

Real Assets Portfolio Overview

Key Takeaways

- Steady period of performance
  - 1-, 3-, and 5-year periods all solidly outperforming benchmarks.
    - Strong performance from 2019+ VY energy funds (IRR = 27.3%, TVPI = 1.5x, DPI = 0.4x).
  - 18 consecutive quarters with a positive return.
  - Continued drag from older vintages, but impact lessening over time.
  - SI-IRR stands at 7.6%, a YoY increase of 43 bps.
- CY 2024 commitment pacing in-line with expectations
  - $775 million in authorized commitments across six approvals.
  - Overallocation plus moderation in forward pipeline leading to a continued reduction in annual pacing target; expect range of $500 million to $1 billion for 2025.
- Co-investment deployment better than expected
  - 28% of committed capital over past four years in co-investment vehicles.
  - Co-investments now represent 10.2% of RAP, crossing $1 billion mark in June 2024.
  - Co-investment 3-year IRR = 13.1%, outperforming primary fund composite by 1.9%.
- Portfolio maturation
  - On the heels of strong performance, now above target allocation.
    - Over the past three years, NAV has grown $4.1 billion, two-thirds ($2.7 billion) from changes in valuation and one-third ($1.4 billion) from net cash flow.
  - Continued evolution of risk profile, steadily increasing exposure to lower risk segments.
  - Portfolio well diversified across sectors, assets, risk profile, etc.
  - Expect annual distributions to continue to grow.

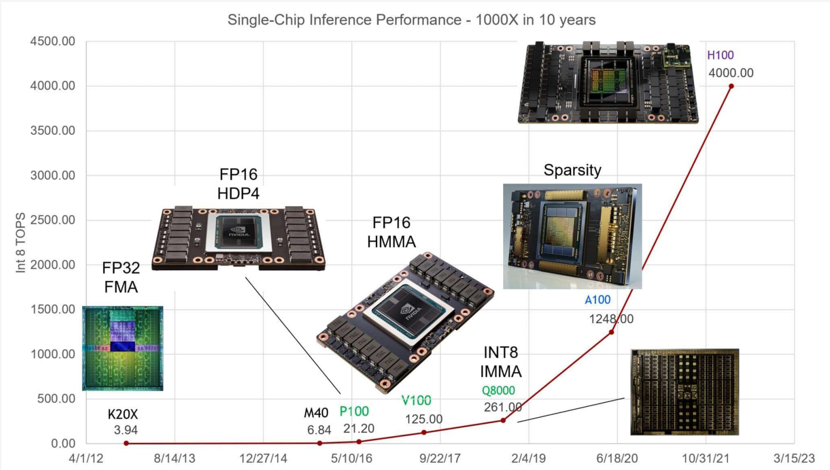
Source: Aksia. Data as of September 30, 2024.

Topics

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

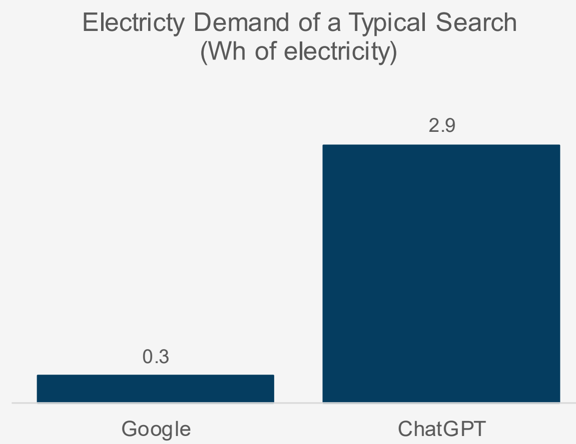
Markets
Digital Infrastructure

Exponential improvements in chip processing performance…



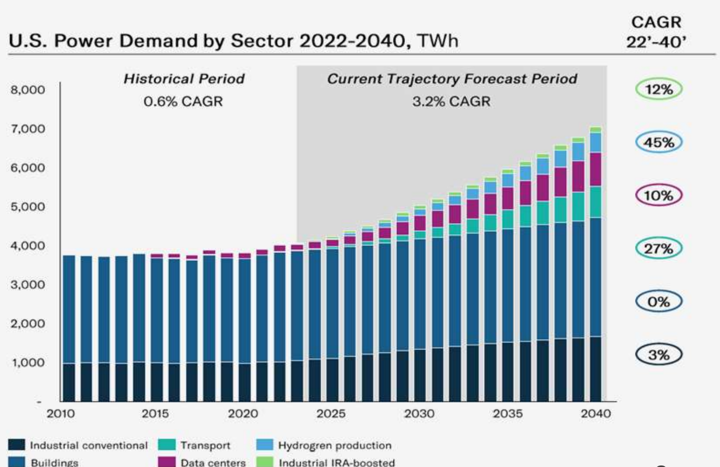
Source: NVIDIA.

… with massive increases in power demand



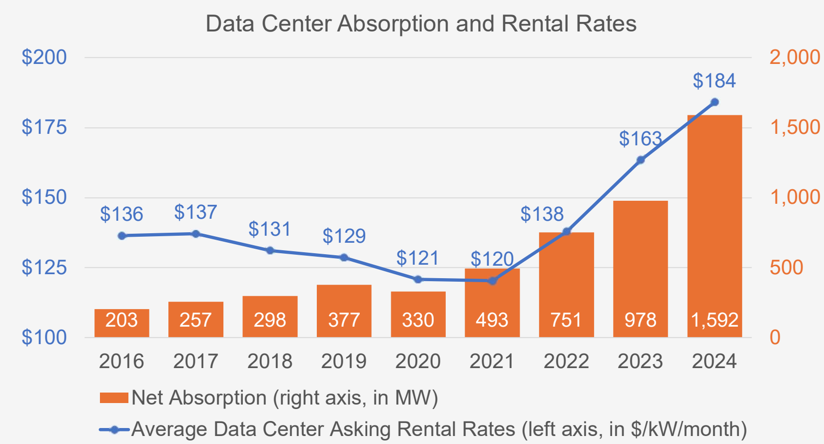
Source: IEA.

Growing data center energy needs add to electrical grid strains…



Source: ECP.

…and the supply-demand imbalance has reversed pricing trends.



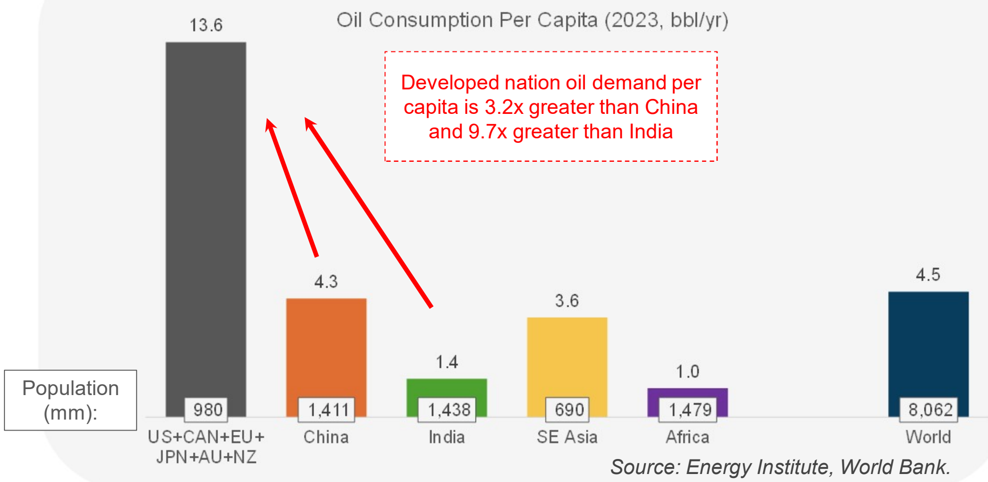
Source: CBRE.

Markets

Energy Transition (1)

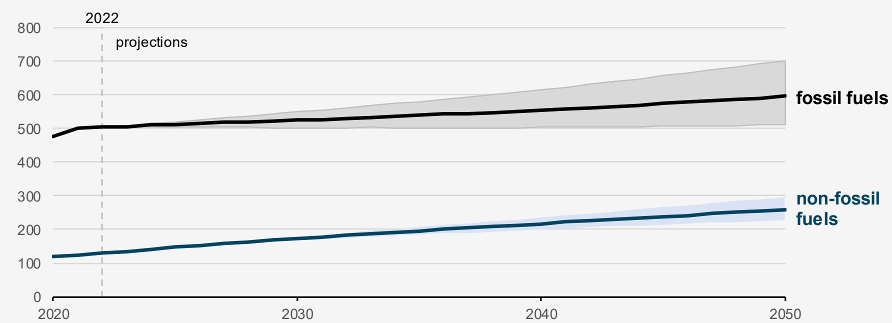
"…what we've seen so far has been an *addition* of renewable energy supply, not a *transition* away from fossil fuels."
-Bridgewater

Upward pressures of population and GDP growth…



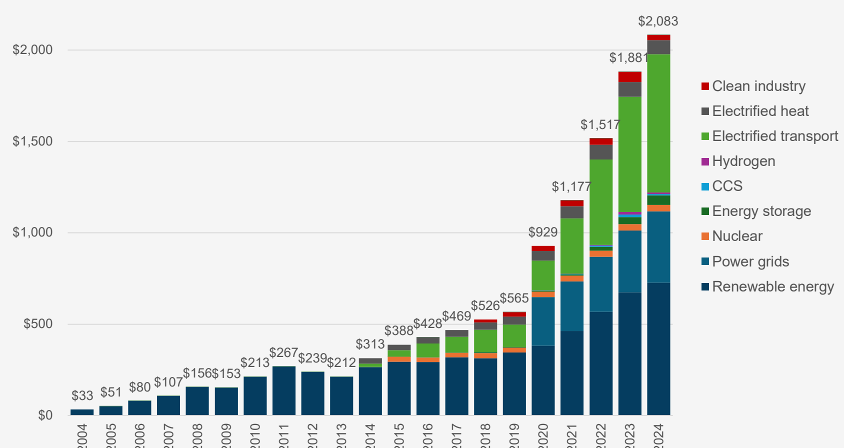
Source: Energy Institute, World Bank.

… lead to increasing energy consumption across sources

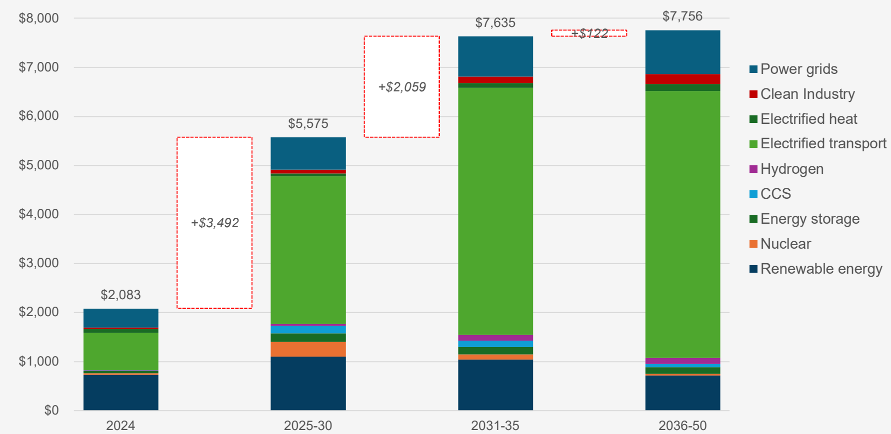


Source: U.S. EIA. Note: Solid lines represent IEO2023 Reference case projections; shaded regions represent maximum and minimum values for each projection year across the IEO2023 Reference case and side cases. BTUs = British thermal units.

Energy transition investment hit record level in 2024…



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



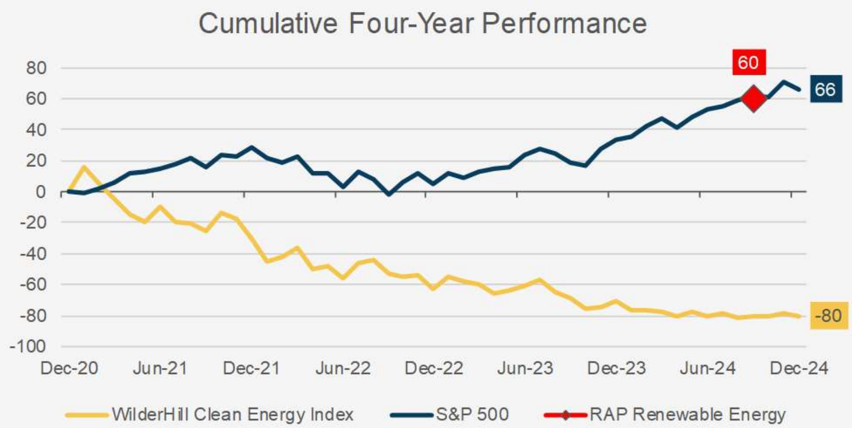
Source: BloombergNEF Energy Transition Investment Trends 2025 (January 2025).

OREGON STATE TREASURY

Markets

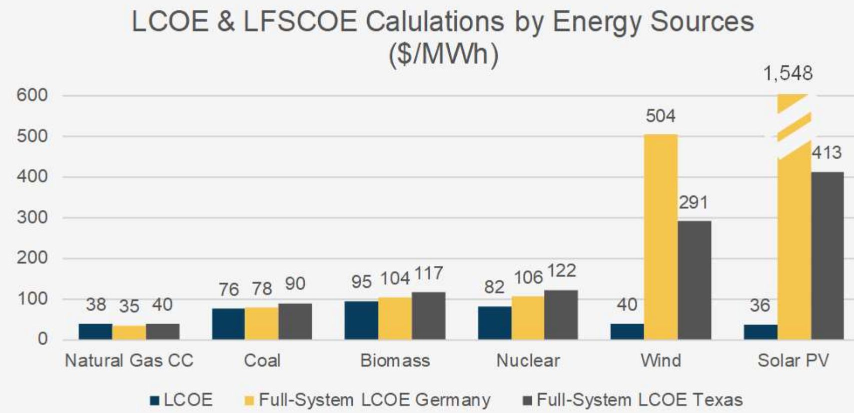
Energy Transition (2)

Clean energy stocks suffer…



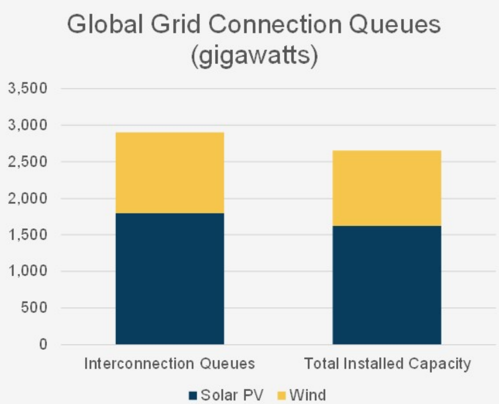
Source: Bloomberg, Nasdaq eVestment, Aksia.

… hurt by higher costs…

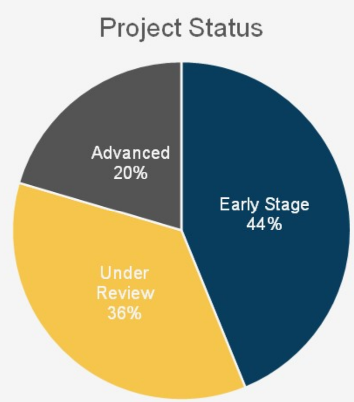


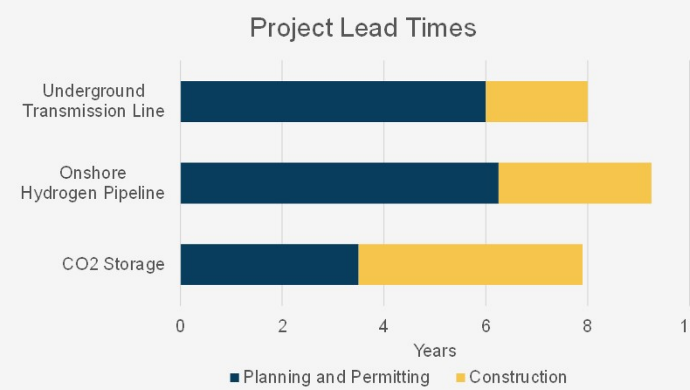
Source: Idel 2022. Levelized Full System Costs of Electricity (LFSCOE) compares the costs of serving the entire market using just one source plus storage.

… and inadequate electric transmission infrastructure



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





Source: IEA Renewables 2024 (October 2024).

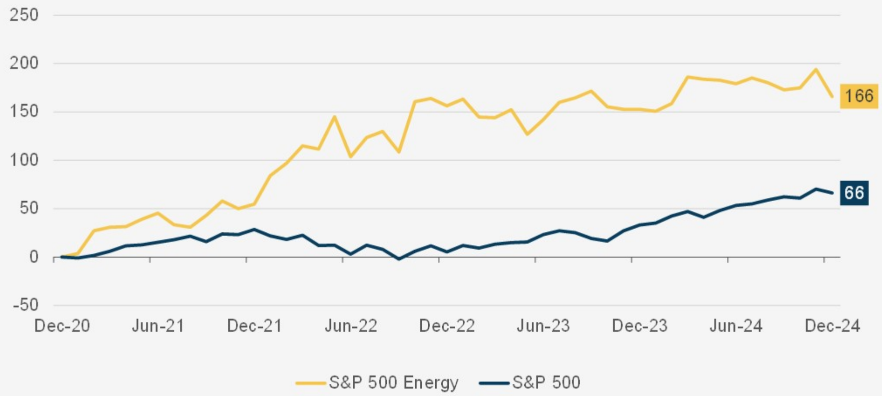
OREGON STATE TREASURY

Markets
Natural Resources (1)

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

Traditional energy stocks outperform

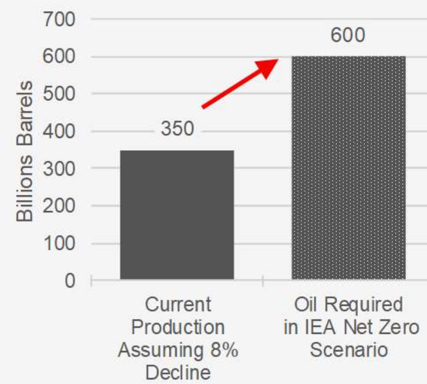
Cumulative Four-Year Performance



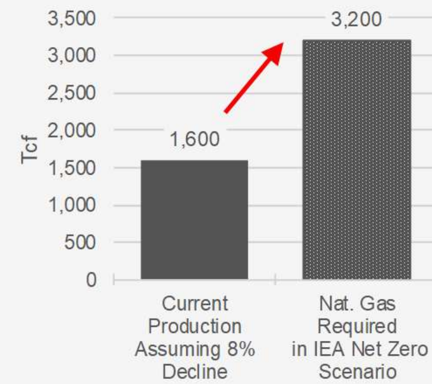
Source: Nasdaq eVestment.

Significant Oil and Gas Required Even in a Net Zero Pathway

Cumulative Oil Produced Through 2050



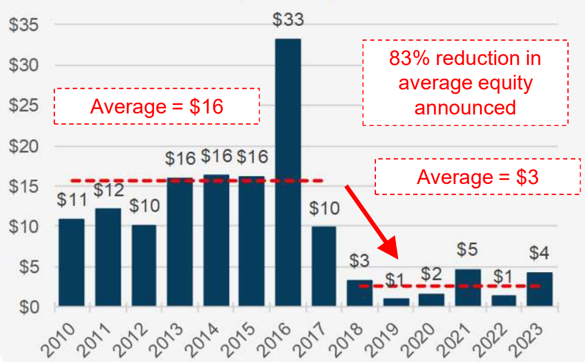
Cumulative Natural Gas Produced Through 2050



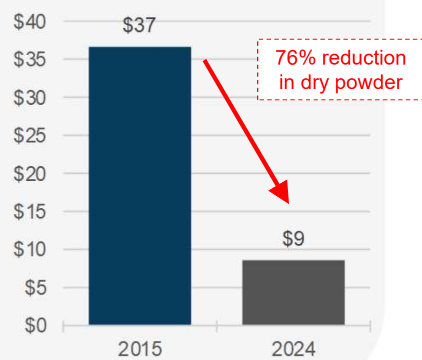
Source: IEA Net Zero by 2050 Report (dated October 2021), EIA.

Capital scarcity in both public and private markets…

Annual U.S. E&P Public Equity Announced ($ billions)



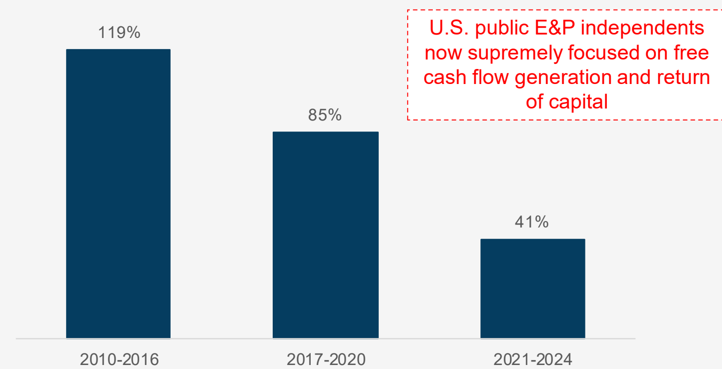
Private Equity Dry Powder Dedicated to Oil & Gas ($ billions)



Source: Bloomberg, Burgiss.

… with public companies re-investing less as well

Independent E&P Reinvestment Rate (Average Capex/EBITDA)



Source: Factset, courtesy of NGP.

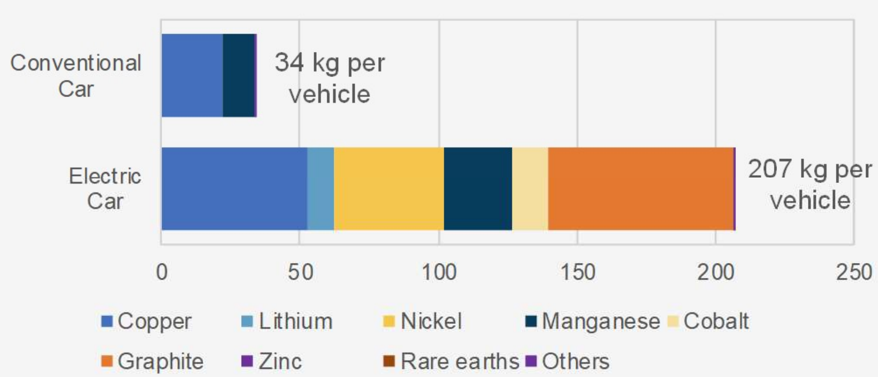
OREGON STATE TREASURY

Markets

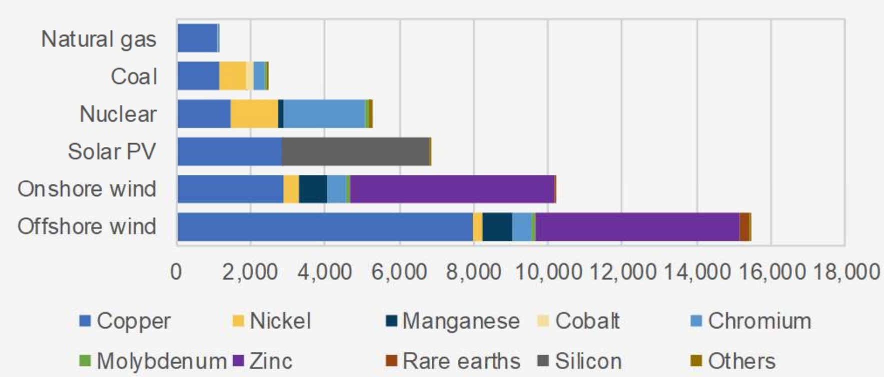
Natural Resources (2)

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

Minerals Used for Transport (kg/vehicle)

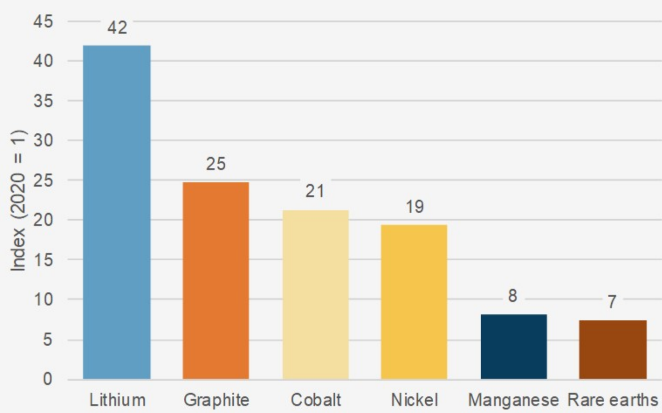


Minerals Used for Power Generation (kg/MW)



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

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



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

Global Supply Chain is Reliant on Chinese Mineral Processing

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

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

OREGON STATE TREASURY

2024 Review
Approvals

- <u>2024 commitments in-line with expectations</u>
  - $775 million in authorized commitments across 6 approvals.
    - All commitments were re-ups or expansions of existing relationships.
    - $225 million (or 29%) of commitments were to co-investment vehicles.
    - Pacing was slightly below 2024 plan ($1.0 - $1.5 billion per annum range) but within expectations and responsive to overallocation.
    - On a rolling three-year basis, annual commitment pacing has averaged $1.6 billion, in-line with historical $1.5 - $2.0 billion target range.
  - Continued progress towards lower fees through tailored partnership structures, early close discounts, and co-investment.

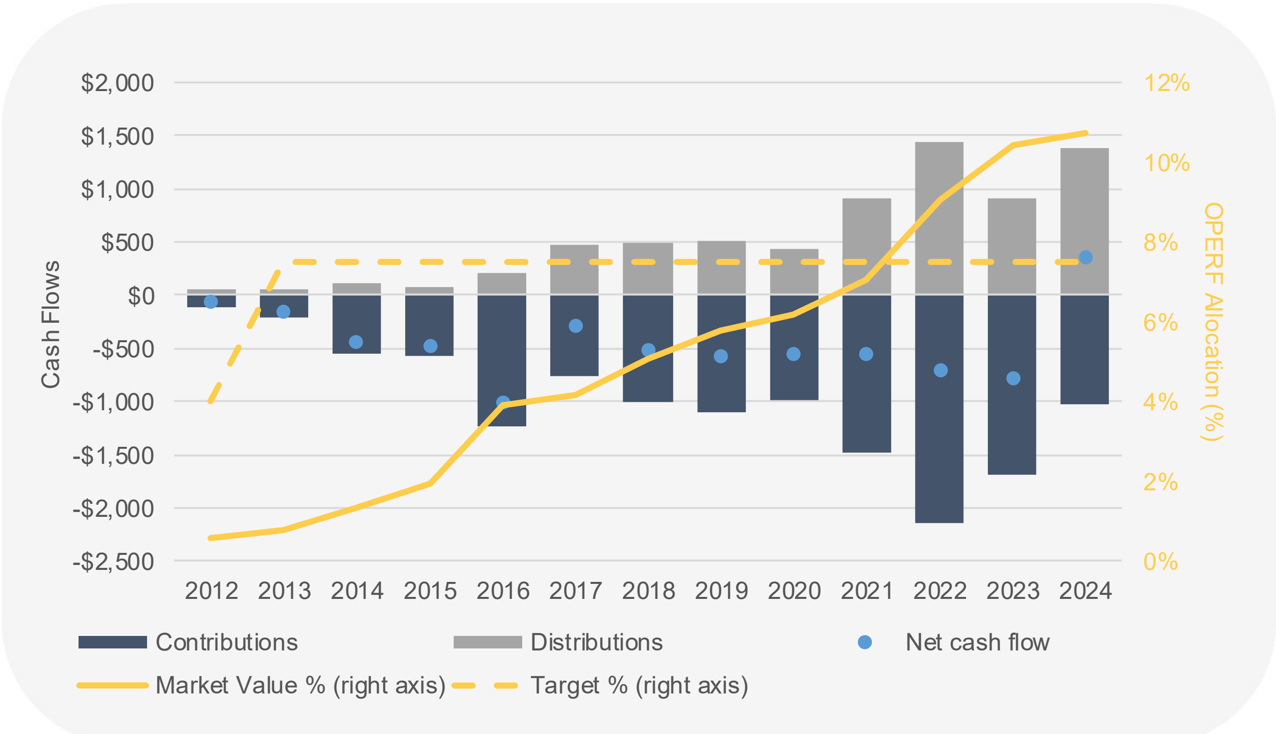
Investment	Strategy	Authorized Date	Commitment Amount
Stonepeak V + co-invest	Infrastructure	March 2024	$350.0
Lotus IV + co-invest	Infrastructure	June 2024	$150.0
Harrison Street co-invest top-off	Infrastructure	July 2024	$50.0
Stonepeak GRF II	Infrastructure	October 2024	$150.0
EQT co-invest top-off	Infrastructure	December 2024	$50.0
LS Power co-invest	Infrastructure	December 2024	$25.0
2024 Total			**$775.0**

Source: OST Staff. Data as of December 31, 2024. $ in millions.

2024 Review

Cash Flow Activity

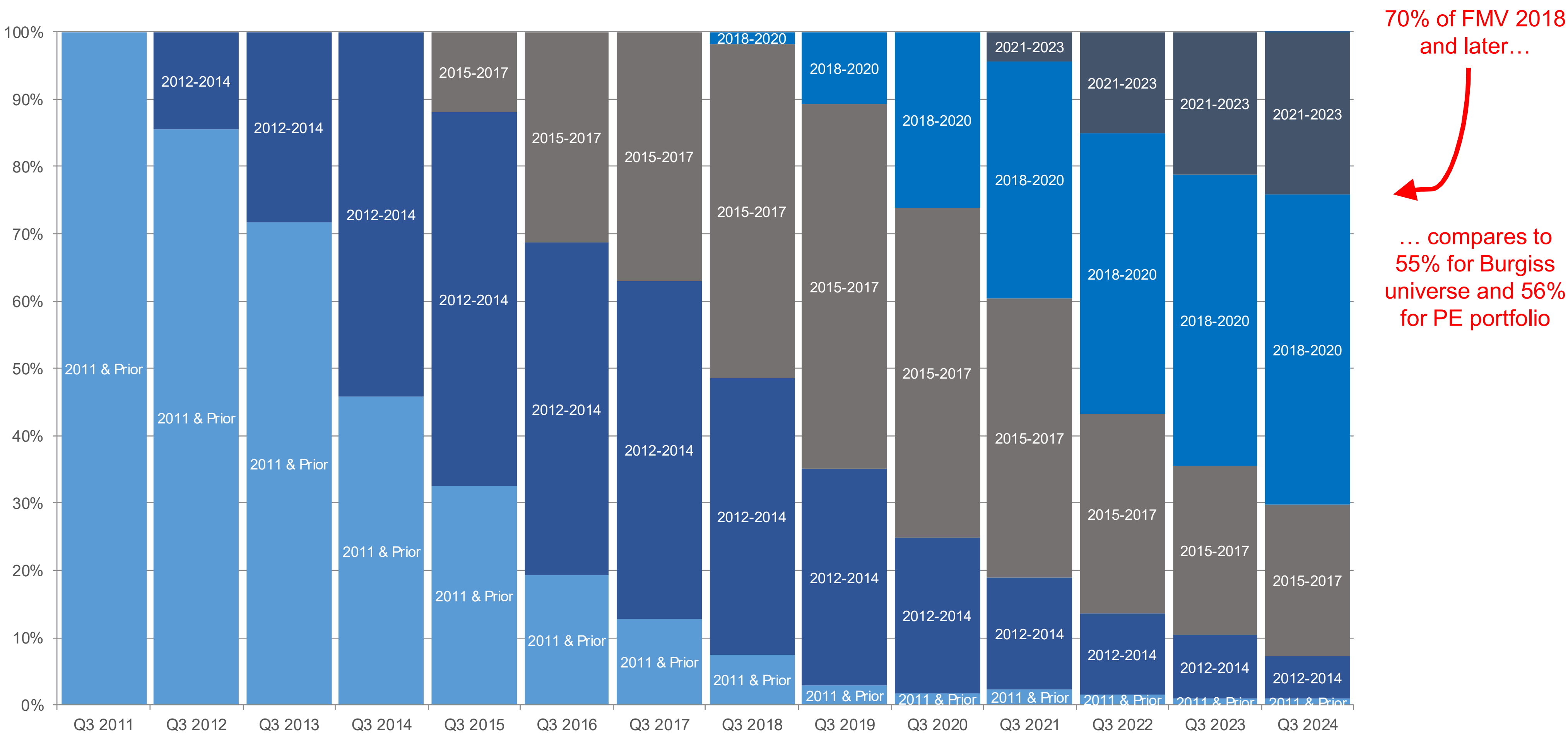
- <u>Cash flow activity consistent with expectations</u>
  - First calendar year of positive net cash flow (+$357 million); calendar year 2022 retained distribution record (by $59 million).
  - As anticipated, since inception Portfolio cash outflows have exceeded cash inflows by a meaningful amount with pace of contributions increasing as capital commitments are made.
  - As of December 31, 2024, OPERF has funded $13.1 billion of contributions with $4.8 billion of unfunded capital commitments remaining. Since inception, a total of $7.0 billion has been distributed to OPERF.



Source: Aksia. Data as of December 31, 2024. $ in millions.

Exposures
Vintage Years

➢ Vintage year cohort exposure by market value

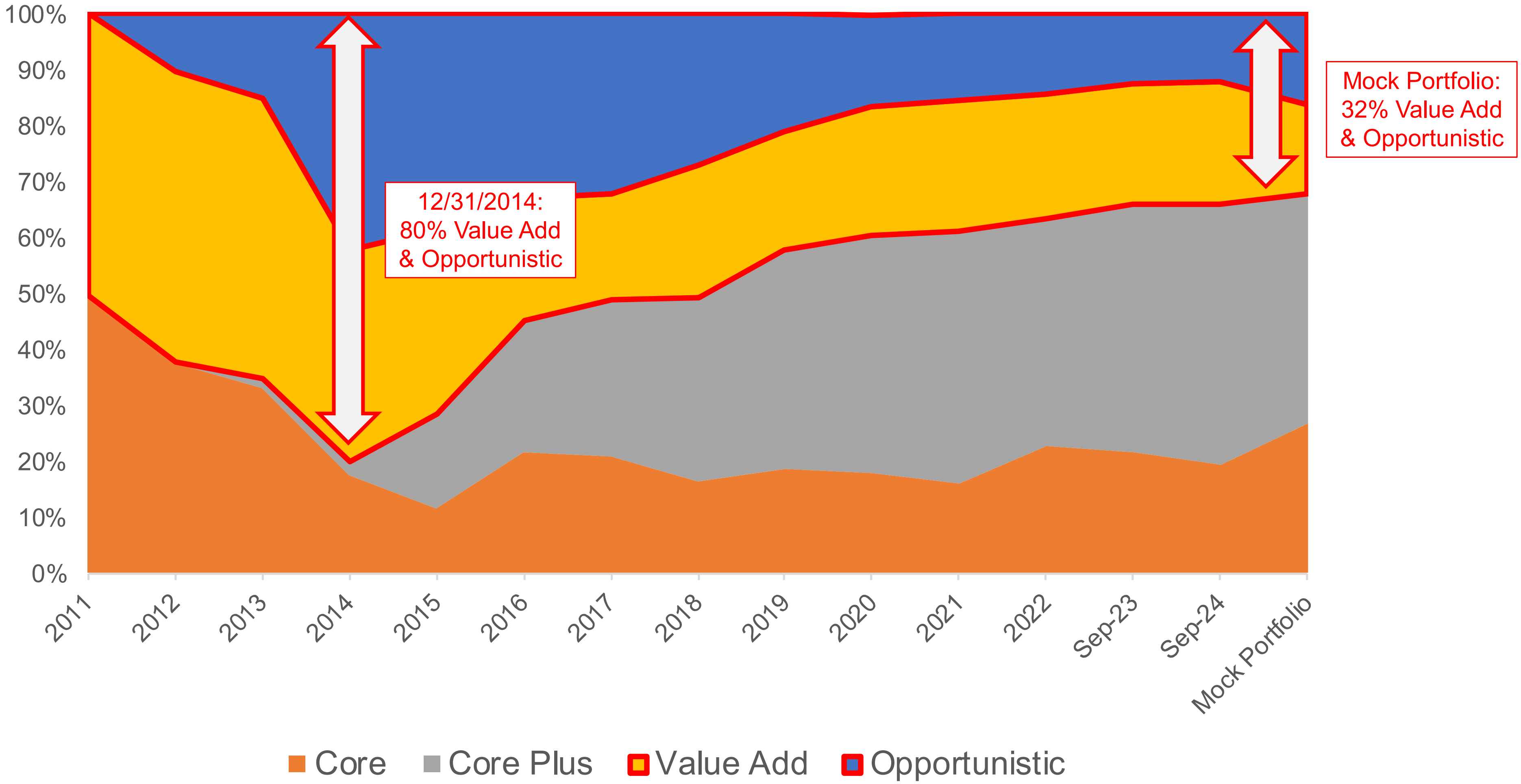


	Q3 2017	Q3 2018	Q3 2019	Q3 2020	Q3 2021	Q3 2022	Q3 2023	Q3 2024
Wtd Avg Age:	3.80	4.14	4.59	5.03	5.42	5.44	5.95	6.16

Source: Aksia. Data as of September 30, 2024.

Exposures
Risk Metrics

➢ Risk categories by market value over time



Source: OST Staff, Aksia. Data as of September 30, 2024.

Results

Portfolio Returns

IRR	Q324	YTD	1 Year	3 Year	5 Year	10 Year	ITD
Real Assets Portfolio	**2.8%**	**6.9%**	**10.2%**	**11.4%**	**10.5%**	**7.8%**	**7.6%**
CPI + 4%	1.3%	5.7%	6.4%	8.7%	8.2%	6.8%	6.6%
Difference vs CPI + 4%	*1.4%*	*1.1%*	*3.7%*	*2.7%*	*2.3%*	*1.0%*	*1.0%*
Burgiss Real Assets (ex-RE)	2.6%	6.0%	9.0%	10.4%	9.4%	7.8%	7.7%
Difference vs Burgiss Real Assets	*0.1%*	*0.8%*	*1.2%*	*1.0%*	*1.0%*	*0.0%*	*-0.1%*

IRR	Q324	YTD	1 Year	3 Year	5 Year	10 Year	ITD
Infrastructure	**3.7%**	**7.8%**	**10.9%**	**10.6%**	**10.9%**	**10.5%**	**10.4%**
CPI + 4%	1.3%	5.7%	6.4%	8.7%	8.2%	6.8%	6.6%
Difference vs CPI + 4%	*2.3%*	*2.1%*	*4.5%*	*1.9%*	*2.7%*	*3.6%*	*3.8%*
Burgiss Infrastructure	3.4%	6.2%	10.3%	9.7%	9.5%	9.4%	9.0%
Difference vs Burgiss Infrastructure	*0.2%*	*1.6%*	*0.6%*	*0.9%*	*1.3%*	*1.0%*	*1.4%*
S&P Global Infrastructure	13.2%	17.1%	29.7%	8.6%	6.0%	5.4%	6.8%
Difference vs S&P Global Infrastructure	*-9.5%*	*-9.3%*	*-18.7%*	*2.0%*	*4.9%*	*5.1%*	*3.6%*

IRR	Q324	YTD	1 Year	3 Year	5 Year	10 Year	ITD
Natural Resources	**0.7%**	**4.6%**	**8.4%**	**13.2%**	**9.7%**	**4.3%**	**4.1%**
CPI + 4%	1.3%	5.7%	6.4%	8.7%	8.2%	6.8%	6.6%
Difference vs CPI + 4%	*-0.6%*	*-1.1%*	*1.9%*	*4.5%*	*1.5%*	*-2.5%*	*-2.4%*
Burgiss Natural Resources	-0.8%	5.2%	3.6%	13.0%	9.3%	4.6%	5.2%
Difference vs Burgiss Natural Resources	*1.5%*	*-0.6%*	*4.7%*	*0.2%*	*0.4%*	*-0.2%*	*-1.0%*
S&P Global Natural Resources	3.4%	3.4%	7.0%	7.9%	9.8%	5.0%	3.4%
Difference vs S&P Global Natural Resources	*-2.7%*	*1.2%*	*1.4%*	*5.3%*	*-0.1%*	*-0.7%*	*0.7%*
S&P GSCI	-5.3%	5.2%	-6.1%	8.8%	8.0%	-2.4%	-2.8%
Difference vs S&P GSCI	*6.0%*	*-0.6%*	*14.4%*	*4.4%*	*1.6%*	*6.7%*	*6.9%*

Source: Aksia, Burgiss, eVestment. Portfolio inception July 1, 2011.
Data as of September 30, 2024.

Results

Vintage Year Quartiles

OPERF RAP					Burgiss Real Assets ex. Real Estate						
Vintage Year	IRR	TVPI	Commit. ($mn)	# of Obs	Top Quartile		Median		Bottom Quartile		# of Obs
					IRR	TVPI	IRR	TVPI	IRR	TVPI	
2007	-100.0%	0.42x	$10.5	1	8.4%	1.46x	2.9%	1.14x	-1.2%	0.82x	33
2008	1.9%	1.09x	$129.6	1	10.1%	1.71x	7.1%	1.36x	-1.7%	0.91x	25
2009			$0.0	0	9.8%	1.56x	6.9%	1.34x	1.1%	1.07x	14
2010	-17.9%	0.45x	$221.2	2	10.5%	1.73x	3.4%	1.19x	-3.4%	0.73x	33
2011	6.0%	1.36x	$150.0	2	4.8%	1.47x	-5.6%	0.76x	-15.3%	0.50x	25
2012	9.5%	1.51x	$437.5	5	12.3%	1.64x	7.6%	1.31x	1.1%	1.00x	31
2013	3.7%	1.23x	$455.0	4	9.4%	1.73x	5.7%	1.33x	0.8%	1.01x	32
2014	0.8%	1.04x	$1,150.0	7	11.1%	1.72x	7.7%	1.40x	3.1%	1.18x	52
2015	7.9%	1.54x	$601.8	5	12.1%	1.73x	7.8%	1.45x	3.7%	1.16x	45
2016	10.7%	1.52x	$1,834.4	8	12.1%	1.64x	8.1%	1.37x	5.3%	1.22x	45
2017	12.5%	1.48x	$500.0	3	14.5%	1.63x	9.4%	1.46x	6.3%	1.25x	52
2018	11.2%	1.39x	$1,753.0	7	13.9%	1.56x	10.3%	1.43x	7.7%	1.25x	44
2019	13.0%	1.34x	$1,684.2	11	12.6%	1.53x	10.3%	1.29x	5.5%	1.14x	45
2020	18.6%	1.37x	$1,450.0	6	13.7%	1.32x	9.9%	1.23x	3.9%	1.09x	43
2021	9.7%	1.23x	$900.0	6	14.5%	1.31x	9.3%	1.18x	5.0%	1.10x	44
2022	10.6%	1.17x	$2,002.1	15	15.0%	1.16x	7.8%	1.09x	-1.2%	0.99x	43
2023	10.7%	1.09x	$2,225.0	16	17.8%	1.17x	3.4%	1.04x	-5.5%	0.96x	41
2024	N/M	N/M	$169.2	2	0.1%	1.00x	-11.9%	0.92x	-26.4%	0.83x	13

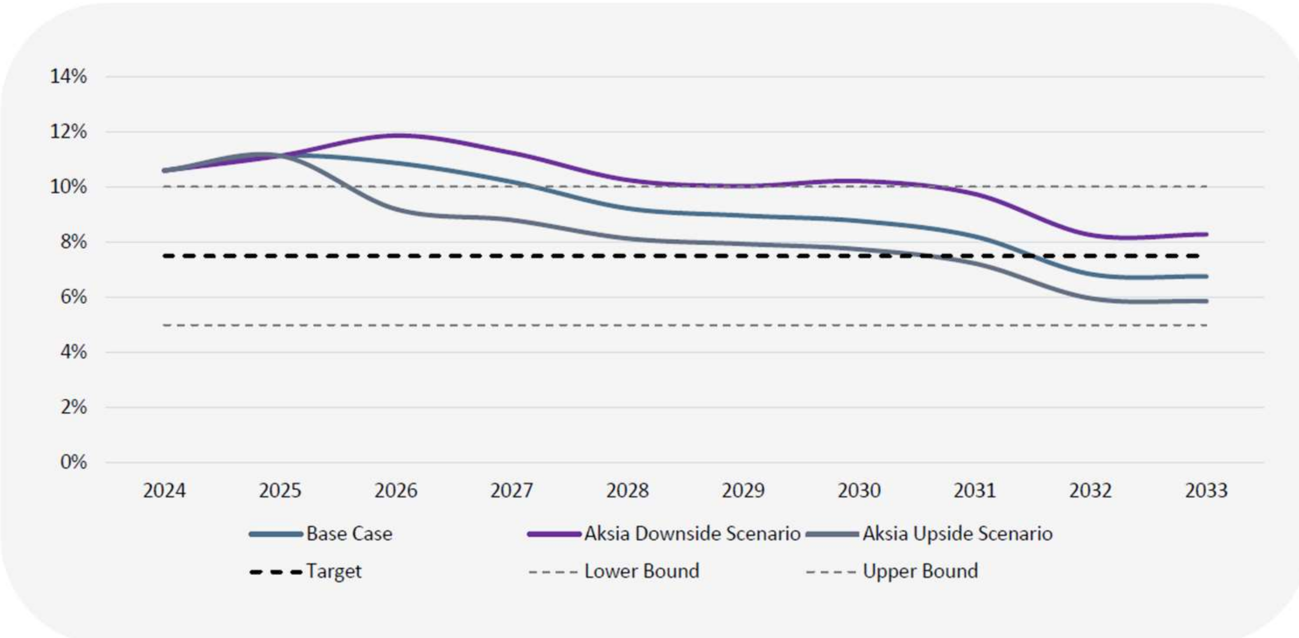
1st	2nd	3rd	4th

Source: Aksia, Burgiss. Data as of September 30, 2024.

Pacing Analysis

Investment Pacing

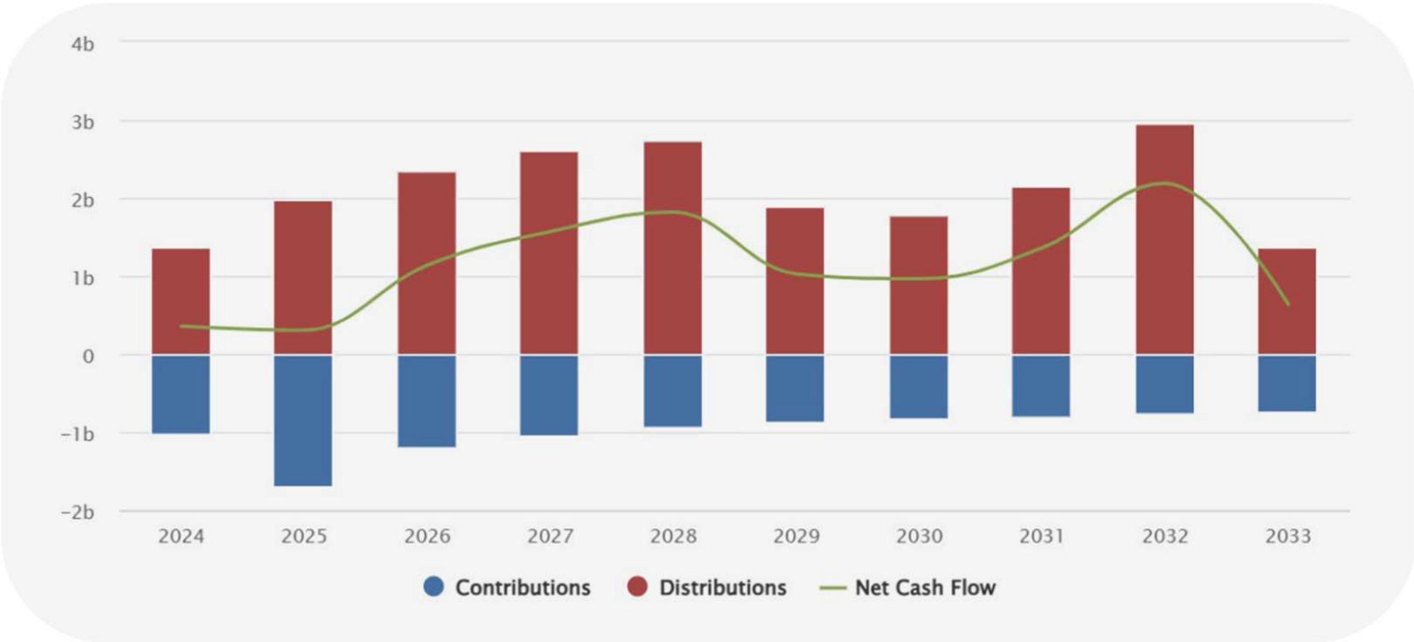
- <u>Pacing target lowered from prior years</u>
  - Targeting $750 million in annual commitments (range of $0.5 - $1.0 billion) versus prior target of $1.75 billion.
    - Reduction reflects current (over)allocation, moderation in forward pipeline, and existing allocation to evergreen investments.
  - Assuming base case pension annual growth rate of 2%, expect Portfolio allocation to fall within target range in the coming years.



Source: Aksia. Data as September 30, 2024. $ in millions.

Pacing Analysis
Cash Flows

- <u>Expect net cash flow to remain positive</u>
  - Projected net cash flow averages ~$1 billion over next five years.



Source: Aksia. Data as September 30, 2024. $ in millions.

2024 Priorities

- 2024 commitment pacing
  - $1.0 - $1.5 billion in aggregate commitments.
  - 3-5 fund commitments with commitment range between of $150 - $350 million.
    - ***$775 million in authorized commitments across 6 approvals. Rolling three-year average of $1.6 billion in-line with historical target.***
- Co-investment
  - Continue to execute on envisioned structure.
    - ***Received approval for $225 million in co-investment, representing 29% of total 2024 commitments.***
- Monitoring and risk management
  - Continue to pursue enhancements to monitoring and risk management efforts.
  - Assist in formalization of ESG integration across the broader Alternatives Program.
    - ***Made significant progress across monitoring, risk management, and ESG efforts; continue to refine and integrate.***
- Conduct research reviews of areas of interest
  - Energy transition.
  - Metals & mining.
    - ***Completed (though evaluation is ongoing).***

2025 Priorities

1. 2025 commitment pacing
   - $0.5 - $1.0 billion in aggregate commitments.
   - 3-5 fund commitments with a commitment range between $150 - $350 million.
2. Consultant contract
   - Aksia agreement ends December 31, 2025.
   - Expect to issue RFP on May 1, targeting recommendation at October OIC meeting.
3. Co-investment
   - Continue to execute on envisioned structure.
4. Monitoring and risk management
   - Continue to pursue enhancements to monitoring and risk management efforts.
   - Further formalize ESG and DE&I integration across the broader Alternatives Program.

Topics

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

Appendix

Investment Process

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

Fit	Skill Assessment	Timing/Opportunity Set	Governance
-Low expected overlap and correlation with other strategies -Sources of risk/return -Scope of mandate -Pacing -Relationship target ***Additive to the Portfolio**	-Firm, team, strategy evaluation -Investment performance evaluation -Differentiated -Culture -Financial discipline -Effective implementation ***Confidence manager will achieve their objectives**	-Valuations -Fundraising activity -Contrarian approach -Asymmetric return profile -Manager assessment of opportunity set ***Awareness of cycles**	-Ownership -Economics -Protections/remedies -Transparency -GP commitment -ESG + DE&I ***GP/LP alignment and spirit of partnership**

Internal Review
ATL/CML > CIO > Consultant

Underwriting Package
Scorecard > Reference Calls > Track Record > Memo

Legal Review
Terms and Conditions

Portfolio

Appendix

Defining Real Assets (1)

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

Appendix

Defining Real Assets (2)

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

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

Appendix

Defining Real Assets (3)

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

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

= Primary objective   = Secondary objective   = Not an objective

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Oregon Investment Council

OREGON STATE TREASURY

TAB 5

OPERF REAL ESTATE

ANNUAL REVIEW

April 16, 2025

OPERF Real Estate Portfolio Annual Review & 2025 Plan

OREGON STATE TREASURY

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																		
Real Estate Portfolio Preface	3 - 5																		
Executive Summary	6																		
Investment Environment	7																		
Real Estate Year In Review	8 - 9																		
Real Estate Performance	10 - 11																		
Real Estate Portfolio Update	12 - 21																		
2025 Real Estate Plan	22 -24																		
Policy Reporting	25																		
Closing	26																		

LEGEND: OIC INVESTMENT BELIEFS

1) **THE OIC IS A POLICY-SETTING COUNCIL**
   A. The OIC sets strategic policy which includes, but is not limited to, Asset Allocation, Portfolio Construction, Risk Measurement and Performance Monitoring, and selecting Investment Consultants to the Council.
   B. The OIC's purview also includes establishing and defining the Statement of Investment and Management Beliefs.
   C. The OIC tasks OST staff, external managers, consultants and other service providers with policy implementation.
2) **INVESTMENT MANAGEMENT IS DICHOTOMOUS—PART ART AND PART SCIENCE**
   A. 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.
3) **OPERF HAS A LONG-TERM INVESTMENT HORIZON**
   A. Long-term horizon requires the OIC to consider the impact of its actions on future generations of members and the State.
   B. The OIC shall weigh the short-term risk of principal loss against the long-term risk of failing to meet return expectations.
   C. The OIC shall prepare for and accept periods of volatility and/or related market dislocations.
   X D. The OIC should be innovative and opportunistic in its investment approach.
4) **ASSET ALLOCATION DRIVES RISK AND RETURN**
   X A. Asset allocation is the OIC's primary policy tool for managing the investment program's long-term risk/return profile.
   X B. Portfolio construction, including diversification and correlation considerations, is essential to maximizing risk-adjusted returns.
5) **THE EQUITY RISK PREMIUM SHOULD BE REWARDED**
   A. Over the long-term, equity-oriented investments provide return premiums relative to risk-free investments.
6) **PRIVATE MARKET INVESTMENTS CAN ADD SIGNIFICANT VALUE**
   X A. The OIC has the potential to capitalize on its status as a true, long-term investor by making meaningful allocations to illiquid, private market investments.
   X B. Dispersion in private market investment returns is wide.
7) **CAPITAL MARKETS HAVE INEFFICIENCIES THAT CAN BE EXPLOITED**
   A. Inefficiencies that have the potential to be exploited by active management may exist in certain segments of the capital markets.
8) **COSTS DIRECTLY IMPACT INVESTMENT RETURNS AND SHALL BE MONITORED AND MANAGED CAREFULLY**
   X A. All fees, expenses, commissions, and transaction costs should be diligently monitored and managed to maximize net investment returns.
   X B. External incentive structures should be carefully evaluated to ensure proper alignment with investment program objectives.
9) **THE INTEGRATION OF SYSTEMS TO EVALUATE AND MONITOR ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) RISKS, INCLUDING PROXY VOTING, SIMILAR TO OTHER INVESTMENT RISKS HAVE THE POTENTIAL TO HAVE A BENEFICIAL IMPACT ON THE ECONOMIC OUTCOME OF AN INVESTMENT AND AID IN THE ASSESSMENT OF THAT**
10) **DIVERSITY, IN ALL ASPECTS, IS ACCRETIVE TO MEETING OIC OBJECTIVES**
   X A. By embracing and enhancing diversity of talent (including a broad range of education, experience, perspectives and skills) at all levels (board, staff, external managers, corporate boards) is important, the OIC ensures that the investment program will be exposed to and informed by a wide range of perspectives, ideas and opinions.

OREGON STATE TREASURY

Real Estate Strategic Role

The strategic role of OPERF real estate investments is outlined in OIC INV 1203 – Investment Policy Statement:

- To enhance return and diversification opportunities for OPERF 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 locations, and various stages of a property life-cycle.

The return objectives are outlined in OIC 1204 – Investment guidelines for OPERF – is to achieve long-term, net returns to OPERF above the NFI-ODCE[1] plus 50 basis points (bps).

Real Estate Policy Objective – The OIC's real estate policy objective of long-term, net returns above the NFI-ODCE plus 50 basis points has been achieved over all time periods.

Period Ending 9/30/2024	Market Value	3 Months	1 Year	3 Years	5 Years	10 Years	Since Inception*
OPERF Real Estate Portfolio	**$13,268,243,033**	**0.88%**	**-5.17%**	**1.48%**	**4.98%**	**6.61%**	**10.18%**
NFI-ODCE, Net +50bps		0.14%	-7.54%	-0.54%	2.55%	5.66%	
Excess		**0.74%**	**2.37%**	**2.02%**	**2.43%**	**0.95%**	

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

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

OREGON STATE TREASURY

Real Estate Position

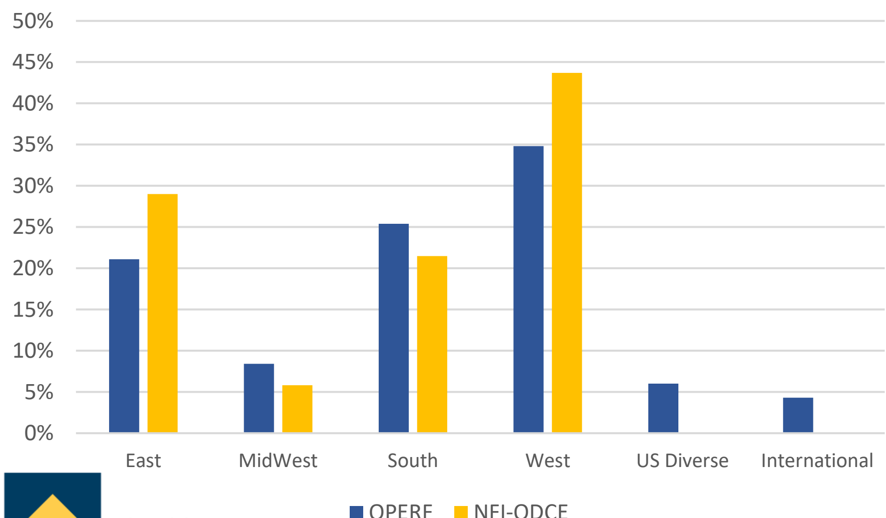
Strategic Allocation Targets

Allocation	Market Value ($mm) (As of Q3 2024)	Market Value (%)	OIC Target	OIC Ranges
Core	$ 9,510	71.7%	75%	50-100%
Non-Core	$ 3,423	25.8%	20%	0-40%
REITs	$ 335	2.5%	5%	0-10%
Total	**$13,268**	**100.0%**		

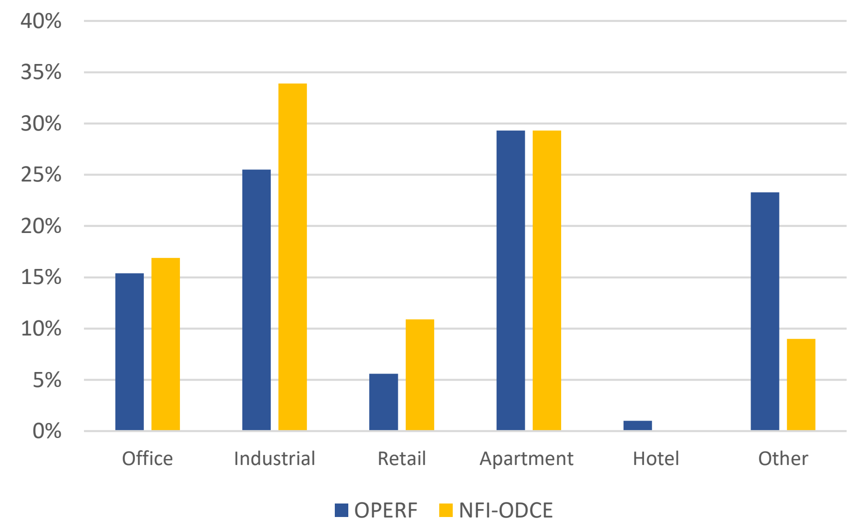
Top 10 Partnerships

Manager	Market Value ($mm)	Market Value (%)	Risk
Lincoln Advisors	$ 2,075	15.6%	Core/Value Add
GID	$ 1,581	11.9%	Core/Value Add
Ascentris	$ 841	6.3%	Core/Value Add
Harrison Street	$ 729	5.5%	Core/Value Add
Clarion Partners	$ 689	5.2%	Core/Value Add
Prologis	$ 665	5.0%	Core
LBA Realty	$ 636	4.8%	Core/Value Add
DivcoWest	$ 582	4.4%	Core/Value Add
Regency	$ 561	4.2%	Core
Abacus	$ 555	4.2%	Core/Value Add
Total:	**$ 8,914**	**67.2%**	

Geographic Weights



Property Sector Weights



OREGON STATE TREASURY

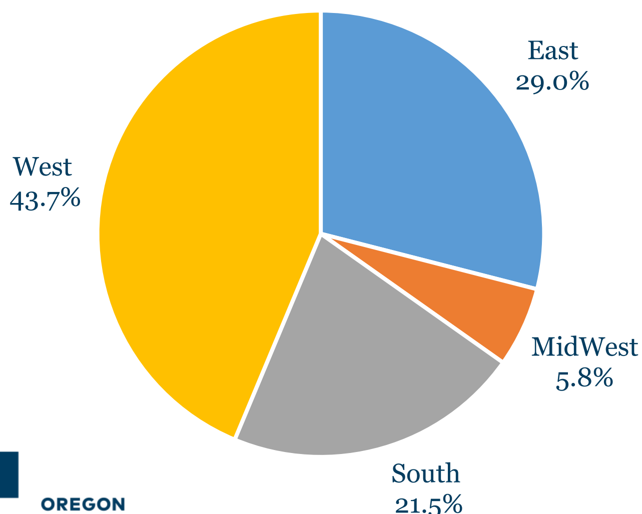
Real Estate Benchmark Composition

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

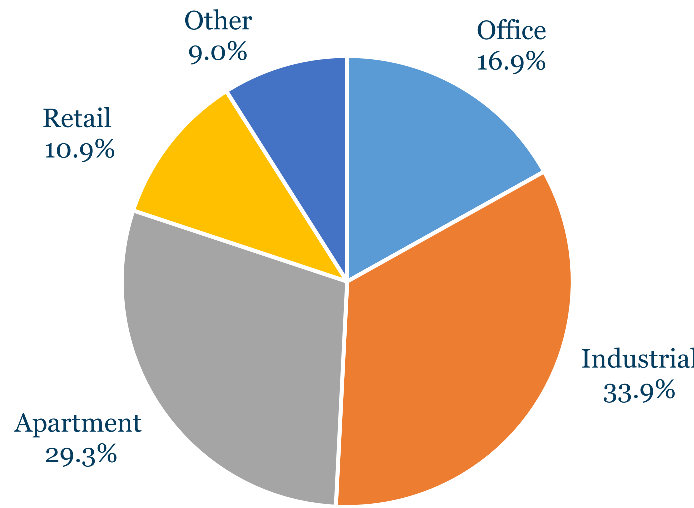
NCREIF: National Council of Real Estate Investment Fiduciaries

NFI-ODCE Benchmark Composition:
- Number of Funds in Benchmark: 25
- United States
- Open-End Core Funds Diversified across four primary property types
- Low Leverage (max 35%, 26.8% LTV as of 4Q 2024)
- $278.5 Billion in gross asset value, 3,290 investments
- Allows inclusion of alternative asset types up to 25% maximum

NFI-ODCE
Geographic Weights



NFI-ODCE
Property Sector Weights



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Portfolio allows for up to 25% alternatives allocation

Executive Summary

Key Takeaways…

1. Portfolio performance has been strong across time periods and has generated consistent, resilient income returns, led by the overweight to the core portfolio.
2. Asset write-downs continued through the first half of 2024 but began to ease by the third quarter, signaling a potential bottoming out in market values across some sectors.
3. Fundamentals remain relatively healthy across most sectors, although headwinds persist in the office sector and short-term oversupply in select markets and sectors such as life science and Sun Belt multifamily sectors is expected to moderate near term growth.
4. Liquidity is gradually returning in the form of both equity and debt as bidding pools expand and more assets are marketed for sale.
5. The Real Estate allocation remains within policy bandwidth but slightly above the target midpoint. Staff is taking a conservative posture toward new capital allocation while continuing to balance vintage year pacing.
6. New commitments will selectively target high conviction sectors such as demographically driven alternative real estate and increased geographic (international) diversification.

Investment Environment

- **Capital Markets**
  - Elevated costs of capital led to a measurable decrease in investment activity across most real estate sectors and markets in 2023 and 2024, but capital markets sentiment is improving as liquidity in both debt and equity return to the market.
  - After two years of prolonged value corrections, price declines are now consistent across both transaction and appraisal indices, suggesting that commercial real estate has reached a bottom.

- **Residential**
  - Favorable long-term trends persist in most markets, including growing household formation, challenged for-sale affordability, shifting occupier demands, and wage growth.
  - Certain U.S. markets which have experienced softness due to increased short term oversupply should benefit from continued in-migration and falling construction starts, causing vacancy rates to trend lower and long term rental growth to trend upward.

- **Industrial**
  - While e-Commerce penetration continues to grow at a healthy rate, supply chain diversification is expected to have a strong near- to intermediate term impact on the type and location of industrial demand.
  - The deglobalization trend combined with more frequent event risks is expected to change how goods are manufactured and shipped, favoring a supply chain model that includes onshoring, near-shoring and friend-shoring.

- **Office**
  - Significant shifts in occupier demand and re-pricing that have occurred in the office sector have led to wide bifurcation of demand between Class A/Trophy product and everything else.
  - Utilization levels remain challenging but have shown some improvement in high growth urban/suburban markets with negligible new supply, but longer-term headwinds are expected to persist.

- **Retail**
  - The retail sector has demonstrated resilience helped by above-trend retail sales growth and a lack of new supply in most major markets.
  - Demand for necessity-based retail persists, and with a lack of new supply pressure, retail is positioned to produce competitive, relatively stable returns over the next cycle.

- **Alternatives**
  - Demographically-driven sectors continue to benefit from a degree of non-correlation with GDP and consistent occupier demand.

Real Estate 2024 Year In Review

2024 was focused on selectively capitalizing on high conviction opportunities in the industrial and non-traditional real estate sectors across the risk spectrum in both commingled funds and existing separately managed accounts.

- $520 million in new commitments across five investments
- Completed strategic portfolio reviews with separate account managers to ensure underlying assets and areas of focus are providing long-term alignment with Staff objectives
- Completed diligence on one new international recommendation to enhance the portfolio's geographic diversification and continued diligence on private real estate debt opportunities
- Staff continued to prioritize travel to assets and in-person manager meetings to actively manage strategic asset-level and portfolio construction initiatives
- Onboarded new Investment Analyst and continued to support staff development
- Continued to enhance Oregon's brand through industry participation
- Integration of underwriting and due diligence to further build out the Common School Fund (CSF) real estate portfolio, leveraging OPERF investment relationships to achieve favorable economics
- Ongoing refinement of internal due diligence and monitoring processes, including the continued implementation of ESG and DEI factors

Real Estate 2024 Year In Review – Approvals

In 2024: 5 real estate commitments were approved, totaling $520 million

Pacing

- The commitments conform to the team's long-term plan to strategically increase exposures to asset classes and strategies that fulfill portfolio construction needs
- 2024 commitment pacing remains in line with 2023 (3 commitments totaling $550 million) which is significantly below that of 2022 (9 commitments totaling $1.75 billion)

Strategy

- Thematically, 2024 commitments represent three existing fund relationship re-ups, one existing SMA re-up, and one new fund relationship. All commitments were made to high conviction sectors in the non-traditional and industrial property types. The new capital investments aim to increase the portfolio's geographic diversification with one global commitment and one European commitment.

FUND NAME	STRATEGY	SUB-PORTFOLIO	GEOGRAPHY	COMMITMENT ($ MM)	FUNDING STATUS
Hammes Income & Growth Healthcare Fund	Medical Office	Core	Domestic	$110	Partially Funded
Sculptor Real Estate Fund V	Alternative	Opportunistic	Global	$100	Unfunded
Harrison Street European Core Fund	Alternative	Core	Europe	$110	Unfunded
LBA Logistics Value Fund X	Industrial	Value-Add	Domestic	$100	Unfunded
LBA Core Industrial Separate Account	Industrial	Core	Domestic	$100	Unfunded
NEW COMMITMENTS SUB-TOTAL				**$520**	

Performance Review

- The Total portfolio has shown continued strong long-term performance, having outperformed the policy benchmark over all periods shown over the past 10 years.
- The Core portfolio has outperformed over the trailing one-, three-, five- and ten-year periods; the core portfolio has delivered a consistent annual income return ranging between 3.58% and 4.47% over this period.
- The Non-Core portfolio has outperformed the benchmark over the one- and three-year periods but has underperformed over the trailing five and ten-year periods.
- The REIT portfolio experienced a significant rebound in 2024 which buoyed the returns for all the trailing periods.

Summary of Portfolio Investment Returns		Q3 2024	1-Yr	3-Yr	5-Yr	10-Yr	Since Inception[1]
Total Private Real Estate - $12,933 M	Income	0.77%	2.72%	2.71%	3.00%	3.46%	3.22%
	Appreciation	-0.25%	-8.48%	-1.22%	2.05%	3.41%	7.44%
	Total	**0.52%**	**-5.94%**	**1.45%**	**5.09%**	**6.96%**	**10.86%**
Core - $9,510 M	Income	1.09%	4.11%	3.58%	3.82%	4.47%	6.34%
	Appreciation	-0.66%	-10.96%	-1.79%	2.38%	5.17%	3.63%
	Total	**0.43%**	**-7.19%**	**1.75%**	**6.27%**	**9.81%**	**10.15%**
Non-Core - $3,423 M	Income	-0.13%	-1.30%	0.02%	0.65%	1.73%	0.96%
	Appreciation	0.89%	-0.80%	0.31%	1.28%	1.96%	9.92%
	Total	**0.76%**	**-2.09%**	**0.31%**	**1.93%**	**3.71%**	**11.00%**
Public Real Estate – REITs - $335 M	Income	0.93%	4.09%	4.07%	4.05%	4.20%	5.51%
	Appreciation	16.11%	30.20%	2.75%	4.46%	3.08%	4.53%
	Total	**17.04%**	**35.18%**	**6.91%**	**8.18%**	**7.36%**	**10.24%**
Total Portfolio - $13,268 M	Income	0. 77%	2.75%	2.74%	3.03%	3.45%	4.71%
	Appreciation	0.10%	-7.75%	-1.23%	1.92%	3.09%	5.29%
	Total	**0.88%**	**-5.17%**	**1.48%**	**4.98%**	**6.61%**	**10.18%**
NFI-ODCE, Net +50 bps[2]		0.14%	-7.54%	-0.54%	2.55%	5.66%	
Out / Under Performance		**0.74%**	**2.37%**	**2.02%**	**2.43%**	**0.95%**	
NAREIT Index		16.79%	34.77%	3.51%	5.09%	8.00%	

All returns represented are net of fees.

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

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

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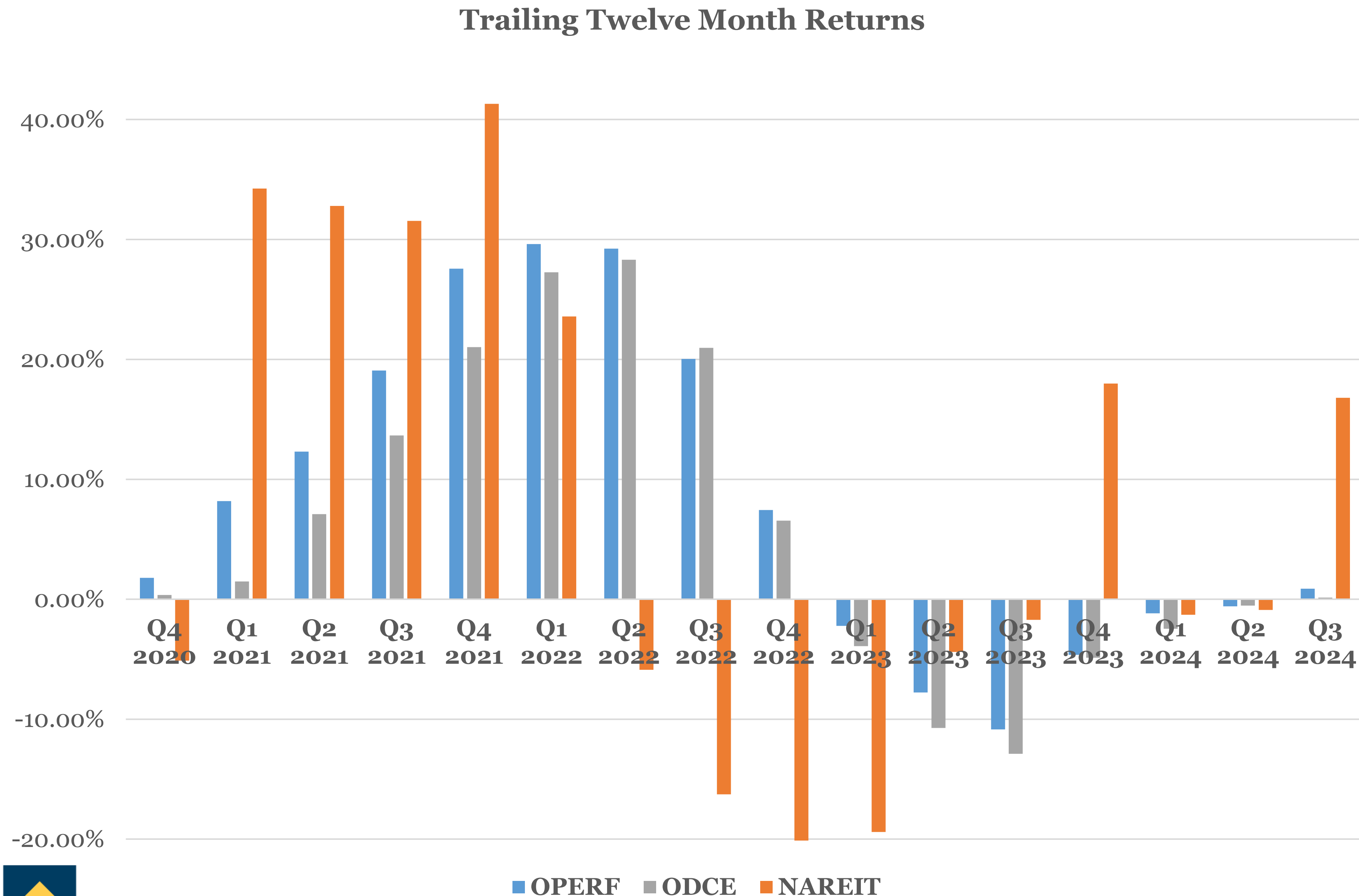
Source: OST, Private Edge

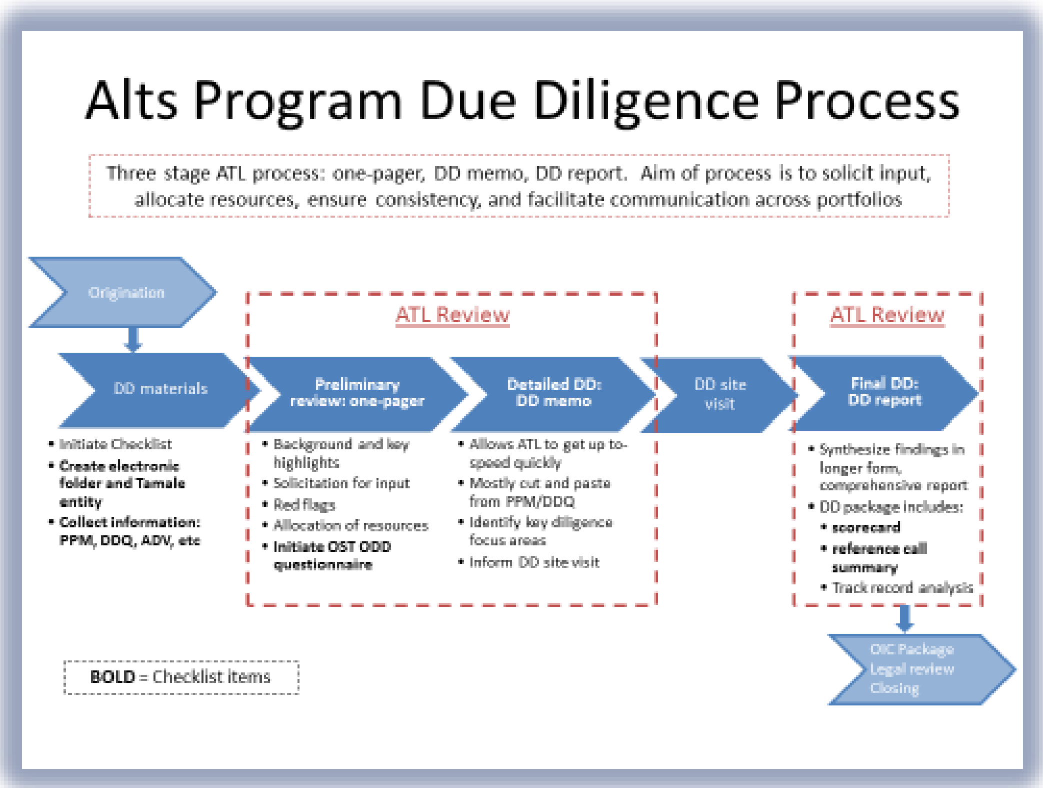
Relative Returns – Public and Private Markets



Portfolio Update – ESG/DEI Integration

ESG/DEI Factor Inclusion

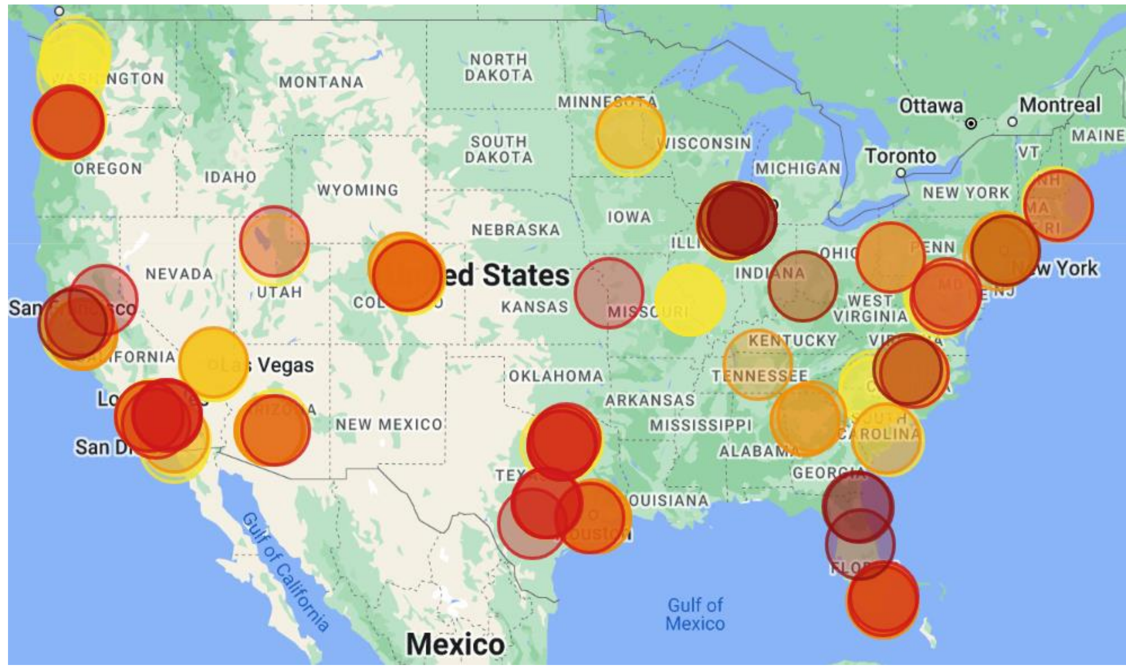
- Continued building on work done in recent years and acknowledging the OIC's reinforced focus on Environmental, Social & Governance (ESG) and Diversity, Equity & Inclusion (DEI), the real estate team has integrated these factors into all stages and elements of both the due diligence and monitoring processes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



ESG Initiatives

The real estate portfolio team has integrated a physical climate risk assessment from Moody's Climate on Demand into the onboarding process for new property acquisitions in OPERF's separate accounts

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



	Floods	Heat Stress	Hurricanes & Typhoons	Sea Level Rise	Water Stress	Wildfires	Earthquakes
Maximum	78	12	92	88	100	99	99
Mean	30	1	30	5	44	61	28
Minimum	0	0	0	0	1	25	0

Red Flag · High · Medium · Low · No Risk

Source: Moody's Climate on Demand, Map represents Flood Risk

Overview of Investment Structures in the Real Estate Portfolio

	Separate Accounts	Open End Funds	Closed End Funds	Co-Investments	REITs
Risk Profile	Primarily Core/Core+ with Non-Core sleeves	Core/Core+	Value-Add, Opportunistic	All	All
Investor Control	Major Decisions	Passive	Passive	Passive	Passive with termination/liquidation rights
Fee Structure	Mgmt. fee based on NAV, incentive fees on non-core investments	Mgmt. fees based on NAV	Mgmt. fees based on committed or invested capital plus incentive fee	Discounted mgmt. fees, discounted or no incentive fee	Mgmt. fees based on market value
Liquidity	LP control	Quarterly redemption rights (subject to queue)	None	None	Immediate for widely traded securities
Typical Leverage	40%-65% LTV	20%-40% LTV	40%-75% LTV	Varies	20-40% LTV
Term	Evergreen with LP termination rights	Evergreen	10 years	Varies	Evergreen with LP termination rights
Portfolio NAV %	55%	21%	18%	4%	3%

Growth of Core Portfolio

Open-End Core Portfolio

Open-End Funds	NAV	2017 and Earlier	2018	2019	2020	2021	2022	2023	2024
RREEF America II	$100,996,333	●							
Prologis European Logistics Fund	$232,382,018	●							
JP Morgan Strategic Property Fund	$241,814,391	●							
ASB Allegiance Real Estate Fund	$131,309,630	●							
Morgan Stanley Prime Property Fund	$252,781,583		●						
Heitman America Real Estate Trust	$155,107,688		●						
Harrison Street Core Property Fund	$171,234,073		●						
Harrison Street CPF Co-Investment	$90,411,710			●					
Prologis Targeted US Logistic Fund	$432,608,416			●					
Nuveen U.S. Cities Multifamily Fund	$123,229,436				●				
AEW Core Property Trust	$126,608,784					●			
GID Mainstay Fund	$192,072,762					●			
Walton Street Real Estate Core-Plus Fund	$237,118,032					●			
Nuveen U.S. Cities Industrial Fund	$183,052,162						●		
AEW Essential Housing Fund	$192,400,479						●		
Sculptor Diversified RE Income Trust	$163,407,000							●	
Carlyle Property Investors	$117,386,205								●
Harrison Street European Core Fund	$0.00								●
Hammes Income & Growth Healthcare	$0.00								●

Open-End Funds	NAV	1-Year	3-Year	5-Year	10-Year
Total:	$3,143,920,703	-5.28%	1.57%	5.30%	6.65%
NFI-ODCE + 50 bps		-7.54%	-0.54%	2.55%	5.66%
Outperformance		2.26%	2.11%	2.75%	0.99%

Separate Account Portfolio

Separately Managed Funds	NAV	2017 and Earlier	2018	2019	2020	2021	2022	2023
Clarion	$684,061,054	●						
Lincoln	$2,074,763,869	●						
Regency	$560,548,768	●						
GID WCRF	$1,155,891,057	●						
Waterton Fund IX PT Chicago	$191,425,705	●						
Ascentris	$312,106,109		●					
DivcoWest	$346,089,741			●				
LBA Industrial	$514,296,639			●				
Abacus	$500,843,065				●			
Harrison Street Life Science Core	$74,489,051					●		

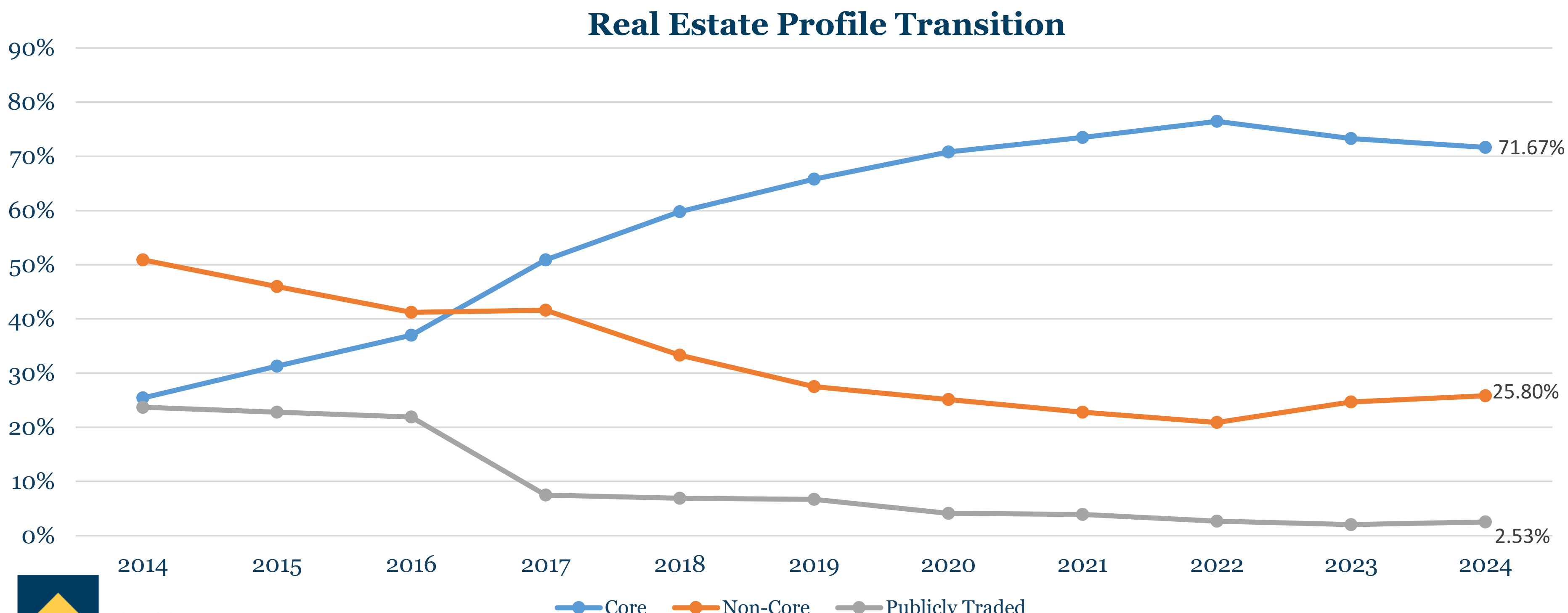
Separately Managed Funds	NAV	1-Year	3-Year	5-Year	10-Year
Total:	$6,414,515,058	-8.10%	1.78%	6.62%	10.33%
NFI-ODCE + 50 bps		-7.54%	-0.54%	2.55%	5.66%
Underperformance/ Outperformance		-0.56%	2.32%	4.07%	4.67%

Source: OST, Private Edge, SitusAMC

Portfolio Update – Strategy Exposure

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

- Since 2014, Staff shifted new capital commitments toward long term investment partnerships – Core/Core Plus SMAs and open-ended structures - while maintaining a baseline exposure to non-core strategies
- **Core:** Currently at 71.7%, slightly below the policy midpoint (50%-100%), a slight decrease from its peak allocation in 2022 when values began to correct
- **Non-Core (Value Add, Opportunistic):** Allocation of 25.8% is slightly above the policy midpoint (0%-40%)
- **Public REITs**: Allocation has remained relatively consistent the past 5 years between 2.5% and 4.1% and serves as a diversifier to the Core portfolio and source of liquidity



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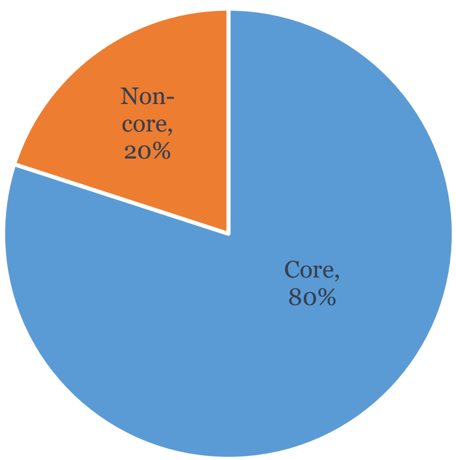
Source: OST, Private Edge

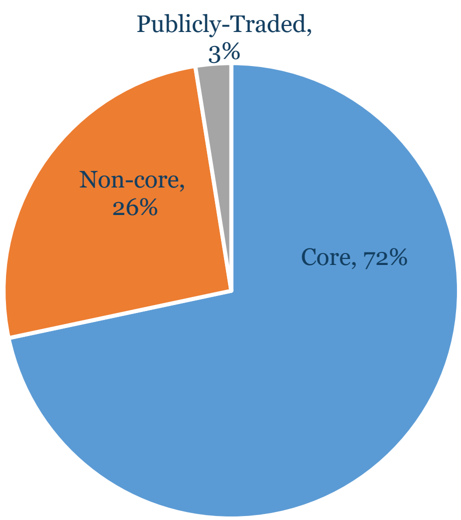
Portfolio Update – Peer Comparison

Risk Allocations

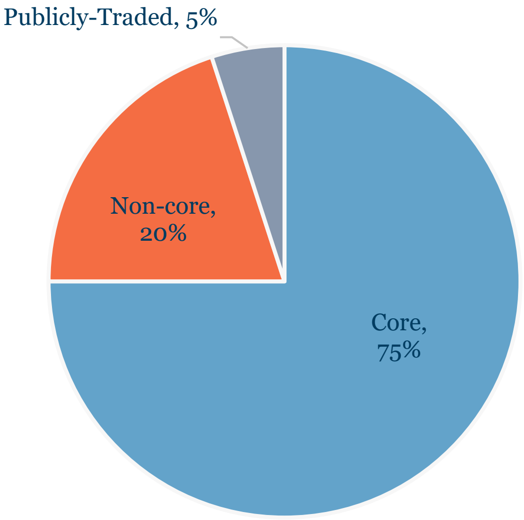
- Although OPERF's policy targets allow for a marginally riskier portfolio than the average institutional investors surveyed by Pension Real Estate Association, Staff has implemented a portfolio allocation that is more similar to the peer group.
- From a risk standpoint, the current portfolio allocation tracks closely with policy midpoints as well as the average institutional investor in its peer group.



Peer Group



OPERF (9/30/2024)



OPERF Policy (Target)

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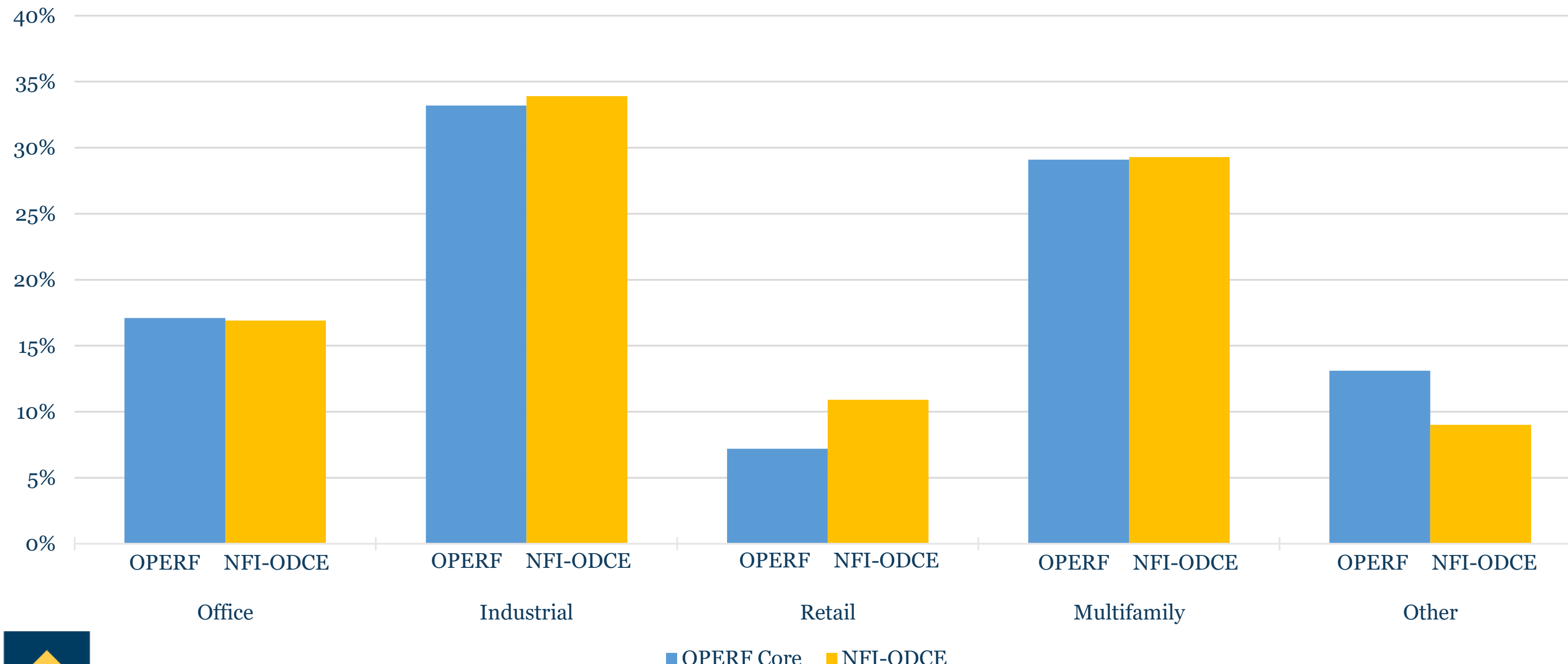
Source: 2025 PREA Investment Intentions Survey

Portfolio Update – Property Exposure

Core Portfolio Weightings

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



Source: OST, Private Edge

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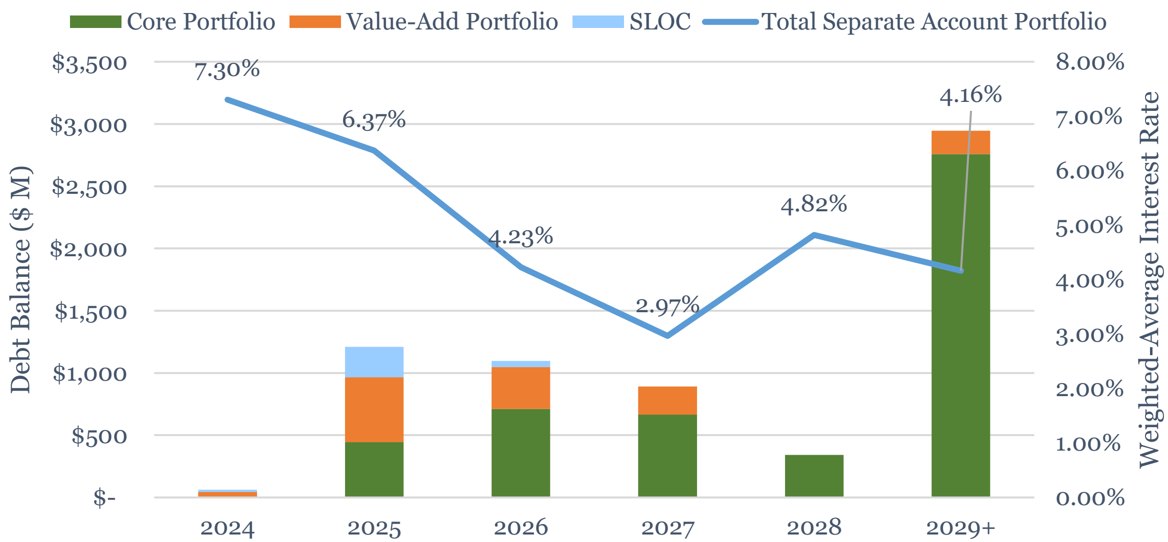
Portfolio Update – Debt Summary

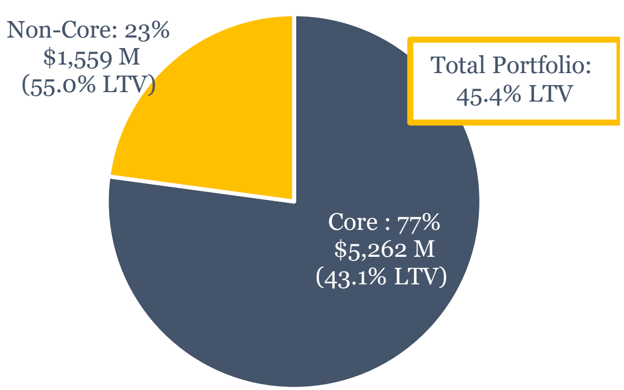
Debt Breakdown

Total Separate Account Portfolio	Debt ($ M)	Debt (%)	Weighted-Ave Years to Maturity	Weighted-Ave Interest Rate
Total Mortgage Debt	**$6,516**	**95%**	**4.0 years**	**4.50%**
Fixed	$4,838	71%	4.8 years	3.75%
Floating	$1,678	25%	1.8 years	6.67%
Subscription Line of Credit (SLOC)	**$312**	**5%**	**1.0 year**	**6.71%**
Fixed	$0	0%	N/A	N/A
Floating	$312	5%	1.0 year	6.71%
Total Debt	**$6,828**	**100%**	**3.9 years**	**4.60%**

Debt Maturity Schedule



Separate Account Portfolio Outstanding Debt by Strategy[2]



	Core Portfolio		Value-Add Portfolio		SLOC		Total Portfolio	
Maturity Year	Debt Balance ($ M)	Weighted-Ave Interest Rate	Debt Balance ($ M)	Weighted-Ave Interest Rate	Debt Balance ($ M)	Weighted-Ave Interest Rate	Debt Balance ($ M)	Weighted-Ave Interest Rate
2024	$280	7.18%	$44	7.95%	$17	7.65%	$341	7.30%
2025	$444	5.13%	$522	7.22%	$245	6.82%	$1,211	6.37%
2026	$713	3.55%	$335	5.42%	$50	5.89%	$1,097	4.23%
2027	$665	2.02%	$226	5.74%	$0	N/A	$891	2.97%
2028	$342	4.82%	$0	N/A	$0	N/A	$342	4.82%
2029+	$2,758	4.13%	$188	4.27%	$0	N/A	$2,946	4.16%
Total	**$5,202**	**4.09%**	**$1,314**	**6.13%**	**$312**	**6.71%**	**$6,828**	**4.60%**

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

As of 9/30/2024

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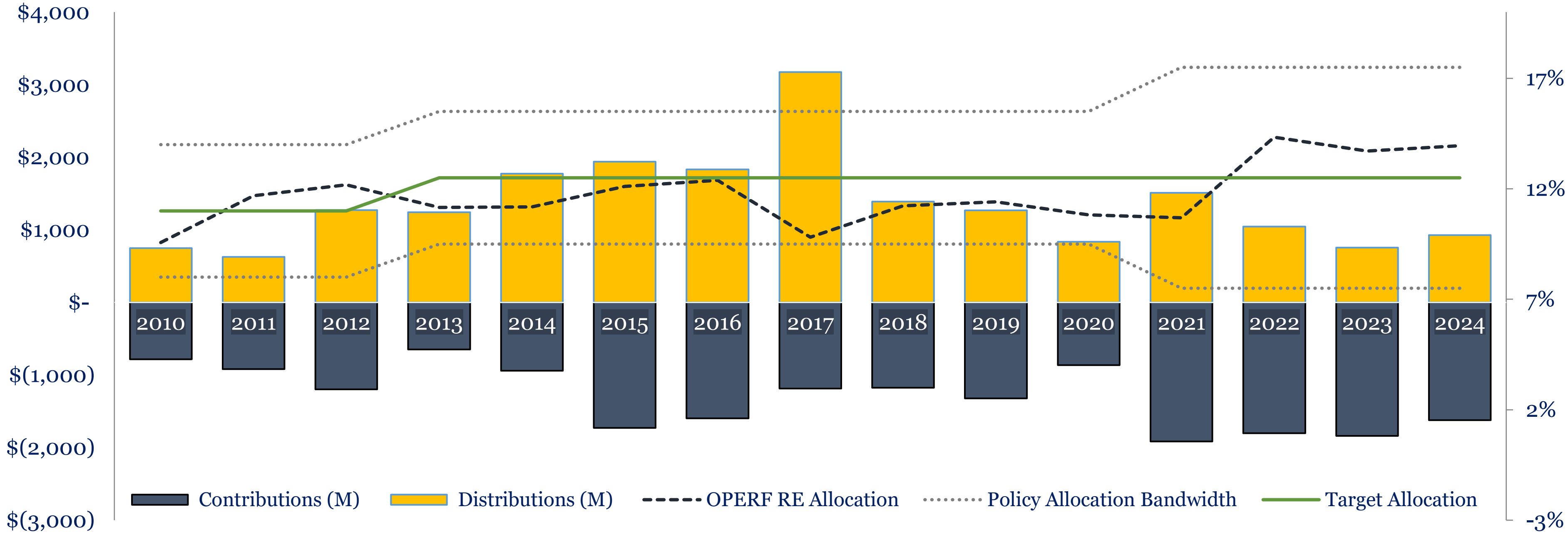
Portfolio Update – Allocations

Portfolio allocation remains within policy bandwidth

- **The real estate portfolio has generated $979 million in net cash flows to OPERF since 2010**
- As the core commitments made over the past few years fully invest, and with over 70% of the real estate portfolio in evergreen structures (open-ended funds and separate accounts), distributions from income will become an increasingly larger component of future portfolio cash flows
- **Real Estate is currently within its policy range of 7.5% to 17.5%, but above the midpoint target of 12.5%**



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

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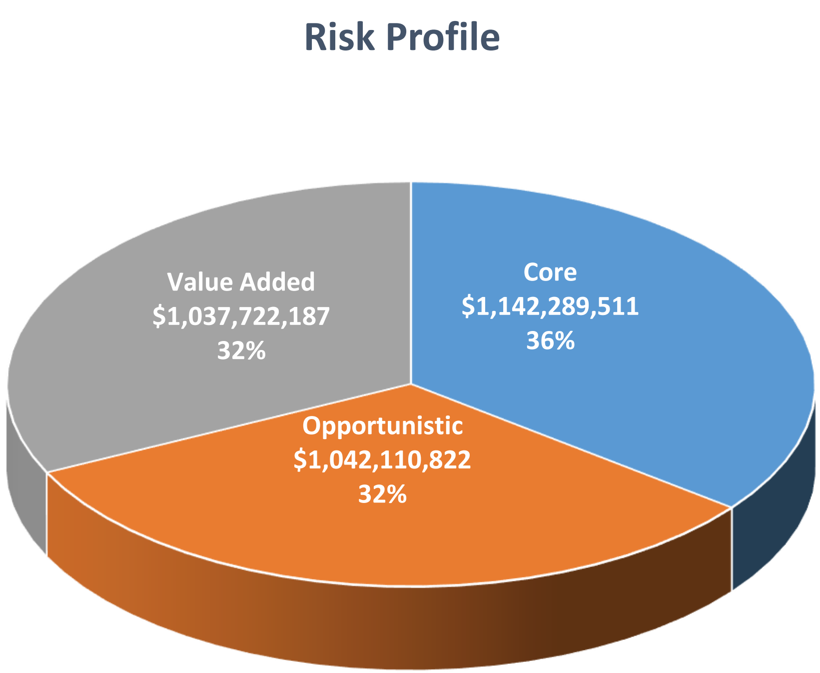
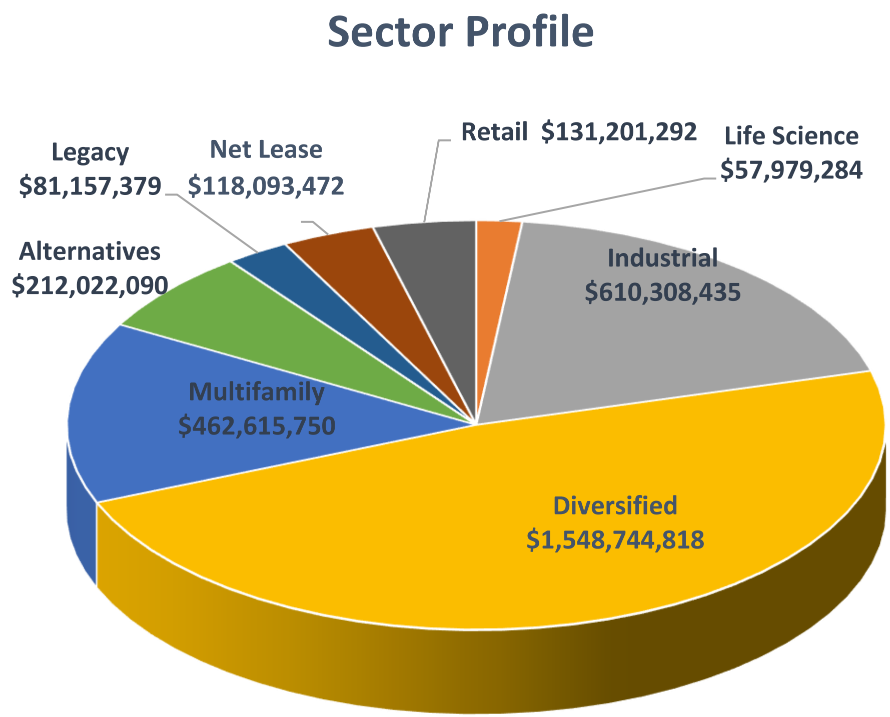
As of 9/30/2024

Source: OST, Private Edge

Overview of $3.2 bn Unfunded Commitment Balance





- Of the portfolio's $3.2 billion in unfunded commitments as of YE 2024, 54% are in SMA structures, and 48% are in comingled fund structures.
- In SMA and open-ended fund structures (54% of unfunded commitments), Staff has levers available to manage liquidity.

2025 Plan – Pacing

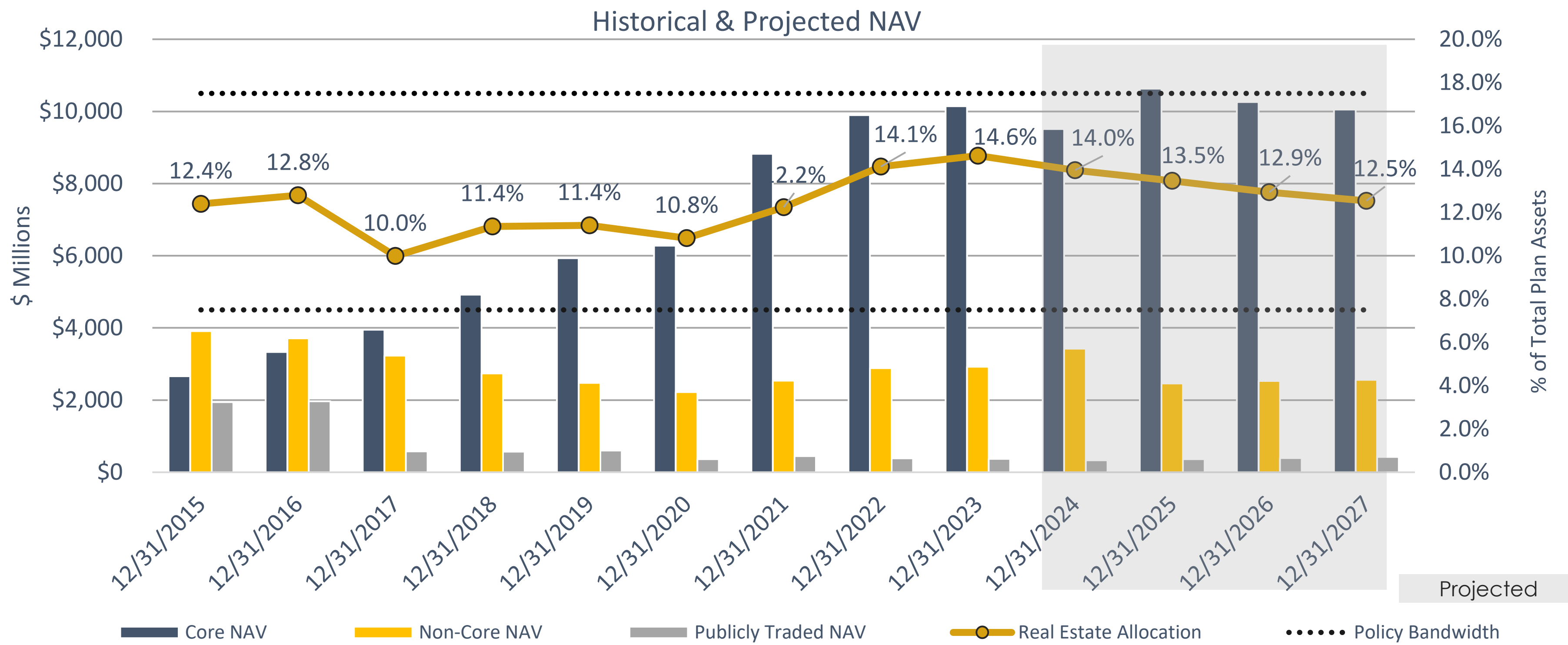
- With >70% of the portfolio weighted towards separate accounts and open-ended structures, Staff has greater control of capital pacing through scaling successful partnerships.

Pacing assumes:

- ~$500 million of annual new commitments
- SMA asset dispositions
- DRIPs / capital recycling
- Current redemptions

Pacing Excludes:

- Any Writedowns
- Unfunded commitment reserves in SMAs



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Source: OST

2025 Plan – Property Diversification

NCREIF Total Returns by Sector

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
13.7%	17.1%	23.0%	21.2%	19.1%	20.5%	-4.1%	-10.9%	18.2%	15.5%	11.6%	12.9%	13.4%	15.3%	12.3%	13.1%	14.3%	13.4%	11.8%	43.3%	14.6%	-0.90%	5.34%
8.8%	8.9%	13.0%	20.3%	17.0%	14.9%	-5.8%	-17.5%	12.6%	14.6%	11.2%	12.3%	13.1%	14.9%	9.0%	6.2%	6.9%	6.6%	1.8%	19.9%	7.1%	-4.06%	2.65%
6.7%	8.2%	12.1%	20.0%	14.6%	13.5%	-7.3%	-17.9%	11.7%	13.8%	10.7%	10.4%	11.5%	12.5%	7.3%	6.0%	6.1%	5.5%	1.6%	6.1%	2.7%	-7.33%	1.49%
2.8%	5.7%	12.0%	19.5%	13.3%	11.4%	-7.3%	-19.1%	9.4%	13.8%	9.5%	9.9%	10.3%	12.0%	6.2%	5.7%	2.2%	1.9%	-7.5%	4.2%	-3.4%	-17.63%	-7.73%

Apartment Industrial Retail Office

Asset Type Diversification

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

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(1) Source: NPI as of December 2024

2025 Initiatives

2025 OST Real Estate Staff Priorities

1. **$400 million - $750 million of new commitments**
   - 3-6 commitments of $100-150 million
2. **Monitor liquidity levers throughout portfolio**
   - Manage dividend reinvestment toward growth in alternative exposures rather than traditional ones
   - Manage reinvested capital in SMA's for measured growth within allocation targets
3. **Ongoing portfolio review and dialogue with separate account managers to ensure underlying assets and areas of focus provide long-term alignment with Staff objectives**
4. **Continue diligence on core/value-add international partnerships with a focus on Western Europe and Developed Asia**

Policy Reporting

Responsible Contractor Policy (RCP)

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

OPERATIONAL CONTRACTS				
	Payments to Responsible Contractors	Payments to Non-Responsible Contractors	Total Qualified Operating Expenditures	Payments as a % of Total Qualified Operating Expenditures
Total	$ 93,068,368	$ 691,230	$ 93,759,598	99.3%

TENANT IMPROVEMENTS & OTHER CAPITAL EXPENDITURES				
	Payments to Responsible Contractors	Payments to Non-Responsible Contractors	Total Qualified Operating Expenditures	Payments as a % of Total Qualified Operating Expenditures
Total	$ 189,316,661	$ 443,758	$ 189,760,420	99.8%

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

Non-Mandate Activity

- There was no non-mandate activity in 2024

Sources: OST, Private Edge

Closing

Key takeaways…

1. Performance remains strong, led by the core portfolio, both on an absolute basis and relative to the policy benchmark, write-downs have bottomed out. The income component of the portfolio has remained resilient.
2. Non-core investment returns are projected to improve as value creation is completed, and transaction volumes continue to increase.
3. Currently committed capital to non-core and diversified strategies positions the portfolio to capitalize on market distress and dislocation.
4. The Real Estate portfolio is expected to remain cash flow positive as interest rates normalize and transaction volumes increase.
5. Real estate is expected to remain an effective long term inflation hedge.
6. The portfolio remains well-positioned to continue the pursuit of resilient, income producing real estate in lesser-correlated sectors to GDP growth drivers. The portfolio's uncalled capital commitments should provide ample dry powder to capitalize on near term opportunities resulting from pricing dislocation.

OREGON
STATE
TREASURY

TAB 6

PUBLIC UNIVERSITY FUND

April 16, 2025

INV 407: Public Universities Common Policy

Jamie McCreary
Service Model Program Manager

OREGON
STATE
TREASURY

Policy update

- Maintain fiduciary best practice standards
- Clarify ambiguous language
- Expand upon the external manager investment options

Recommendation

Staff recommends OIC approve INV 407: Public Universities Common Policy as submitted.

Elizabeth Steiner, MD
Oregon State Treasurer

16290 SW Upper Boones Ferry Road
Tigard, OR 97224

oregon.gov/treasury

<u>OIC Memo</u>

April 16, 2025

Public Universities Common Policy (INV 407)

Purpose

To update INV 407: Public Universities Common Policy; to maintain fiduciary best practice standards, clarify ambiguous language and expand upon the external manger investment options.

Background and Objective

The Oregon University System was dissolved in 2014 (passage of SB270) and all seven system members adopted independent boards. ORS Chapter 352 established authority for Oregon public universities to invest moneys and allows public universities to enter into agreements with the Oregon State Treasury (OST) to establish a separate or commingled fund in order for OST to receive, hold, keep, manage and invest moneys of such university. In response, OST determined to create an institutional quality investment policy framework for Oregon public universities named the Public University Common Policy (Common Policy). As detailed in the Common Policy, OST offers a limited set of internal and external investment management services and options for public university funds. A purpose of the Common Policy is to provide guidance to OST investment staff regarding the investment, exchange, liquidation and reinvestment of invested moneys per the request of any university that has also entered into an agreement with OST. Guidelines for current university funds managed internally and externally by OST will be subordinate to the Common Policy.

The Public University Core Bond Fund (PUF) is offered by OST as an internally managed fixed income fund option through the Common Policy. The OIC approved the establishment of the Public University Core Bond Fund and guidelines in 2014. PUF is composed of fixed income investments and is managed internally by OST staff. The Core Bond Fund is structured as an intermediate-term total return mandate. Majority of the universities currently invest in the Core Bond Fund.

Currently, two public universities have elected for OST to oversee investment of surplus moneys through externally managed mandates. For externally managed options, OST offers a MSCI ACWI IMI Index (net) and a core plus bond manager. We would like to expand upon the fixed income options for the universities. Therefore, an “approved list” of core and core plus bond funds was created. The update and use of the “approved list” allows for each university to have more autonomy in the management of their portfolios.

Recommendation

Staff recommends OIC approve the Public Universities Common Policy as submitted.

PUBLIC UNIVERSITIES COMMON POLICY

OREGON INVESTMENT COUNCIL POLICY

INTRODUCTION & OVERVIEW

Summary Policy Statement

Oregon law allows "public universities" as defined in ORS Chapter 352 (each, a "University"), to enter into agreements with the Oregon State Treasury ("OST") to establish a separate or commingled fund (each, "University Invested Moneys" or "Invested Moneys") in order for OST to receive, hold, keep, manage and invest moneys of such University. OST offers internal investment management services, as well as a limited selection of external investment management options, for the University Invested Moneys.

Invested Moneys invested pursuant to this policy are expected to follow a long-term investment strategy. This policy establishes a coordinated program for investing and spending to minimize the risk to the principal of any Invested Moneys, and to produce a reasonable total return.

Purpose and Goals

The purpose of this policy is to provide guidance to OST investment staff regarding the investment, exchange, liquidation and reinvestment of Invested Moneys per the request of any University that has also entered into an agreement with OST pursuant to ORS 352.410(10)(a) and ORS 352.135. These rules are established under the authority of, and do not supersede, ORS Chapter 293 and ORS Chapter 352. All modifications to this policy will be made in writing and approved by the OIC.

Applicability

Classified represented, management service, unclassified executive service.

Authority

ORS Chapter 293.

ORS Chapter 352.

POLICY PROVISIONS

Definitions

None.

Policy Statements and Strategies

A. **OBJECTIVES**
   The investment objective of each participating University is to seek consistency of investment returns with emphasis on capital appreciation, while meeting liquidity needs, over long periods of time. Universities may work with OST to develop custom investment guidelines provided that such guidelines are no less restrictive than this policy. OST may limit investment programs or options in its discretion.
B. **ASSET ALLOCATION**

1. OST may invest University Invested Moneys within the following exposure ranges:

Asset Class	Minimum	Maximum
Public Equity	**0%**	**65%**
~~U.S. Public Equity~~	~~0%~~	~~65%~~
~~International Public Equity â€" Developed~~	~~0%~~	~~40%~~
~~Emerging Markets Public Equity~~	~~0%~~	~~20%~~
Fixed Income	**35%**	**100%**
~~Investment Grade~~	~~35%~~	~~100%~~
~~Below Investment Grade~~	~~0%~~	~~20%~~

OST, in conjunction with the University, will establish target asset allocations within the ranges noted above to achieve the investment goals of the Invested Moneys, taking into consideration the appropriate level of portfolio risk. The University is expected to provide broad investment goals to OST staff, including spending rate information and other information necessary to provide input into the asset allocation process. Portfolios are non-discretionary, therefore, with respect to the Allocation, Universities will advise OST on purchases and sales of securities. OST, with assistance of consultants, will provide, for selection by universities, specific investments to be offered as investment options consistent with the Plan's IPS or other relevant guidelines, as applicable.

~~2. Limitations: Not more than sixty-five percent (65%) of the moneys contributed to endowment funds managed by OST may be invested in common stock and mutual funds, in the aggregate.~~

C. STRATEGIES

1. **INTERNALLY-MANAGED PROGRAMS**
   a. Deposits and Distributions. The University will adopt and communicate to OST a policy on investment inflows and amounts necessary for distribution from the University Invested Moneys for spending purposes.
   b. Custodian Bank. OST will determine custodial responsibility and the selection of a securities lending agent for all securities.
   c. Asset Class Mandates.
      i. Equity: None
      ii. Fixed Income: Actively managed intermediate term core bond fund, such as the Public University Core Bond Fund (see Appendix A) and the Oregon Intermediate Term Pool (Policy Inv 404).
2. **EXTERNALLY MANAGED PROGRAMS.** Universities will have access to investment products offered by external investment managers who have previously entered into an investment management agreement with the OIC ("IMA") or investments on the Approved List~~.~~
   a. External investment managers will have discretionary authority to direct investments of University Invested Moneys.
   b. ~~OST will have full discretion over external investment managers, including their selection, and asset class strategies. Manager selection and asset class strategies are subject to OST fiscal and staffing constraints and OST staff fiduciary obligations.~~Approved List will be provided by OIC consultant and reviewed annually.
   ~~c. Once the manager is selected, the investment guidelines attached to its IMA will be applied as the investment strategy for the University Invested Moneys.~~
   ~~d.~~c. Asset Class ~~Mandates~~Benchmarks.
      i. Equity: MSCI~~Passive~~ ACWI IMI I~~i~~ndex (net)
      ii. Fixed Income: ~~Actively managed Core+ bond fund~~Bloomberg US Aggregate Index

D. COMPLIANCE

The OST Compliance program 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 the University, as appropriate; and d) when applicable, verify resolution by the appropriate individual or manager within the appropriate time frame.

E. REPORTING REQUIREMENTS

1. OST investment staff will monitor investment results on a quarterly basis. Such review will include, but is not limited to: a) performance relative to objectives; b) compliance with policy and guidelines; and c) trading activity. OST staff will report investment results, or other information to the University upon request.
2. For any University in an externally managed investment program, a representative of OST will meet with the University at least annually, per universities request, to review the following with respect to each external manager: (i) past performance; (ii) asset allocation and returns; and (iii) risk profile.

Exceptions

None.

Failure to Comply

Implementation of this Policy, including investment manager selection, shall be the responsibility of OST staff subject to the necessary approvals from the OIC. Failure to comply with this policy may be cause for disciplinary action up to and including dismissal.

PROCEDURES AND FORMS

Appendix A: Public University Core Bond Fund Investment Program Guidelines

~~Appendix B: Southern Oregon University Investment Program Guidelines~~

~~Appendix C: Western Oregon University Investment Program Guidelines~~

ADMINISTRATION

Review

OST staff will review this policy at least every two years, and will bring any modifications to the OIC. OST staff will notify the OIC of any new appendices.

Feedback

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

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Invested Moneys invested pursuant to this policy are expected to follow a long-term investment strategy. This policy establishes a coordinated program for investing and spending to minimize the risk to the principal of any Invested Moneys, and to produce a reasonable total return.

Purpose and Goals

The purpose of this policy is to provide guidance to OST investment staff regarding the investment, exchange, liquidation and reinvestment of Invested Moneys per the request of any University that has also entered into an agreement with OST pursuant to ORS 352.410(10)(a) and ORS 352.135. These rules are established under the authority of, and do not supersede, ORS Chapter 293 and ORS Chapter 352. All modifications to this policy will be made in writing and approved by the OIC.

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Asset Class	Minimum	Maximum
Public Equity	**0%**	**65%**
Fixed Income	**35%**	**100%**

OST, in conjunction with the University, will establish target asset allocations within the ranges noted above to achieve the investment goals of the Invested Moneys, taking into consideration the appropriate level of portfolio risk. The University is expected to provide broad investment goals to OST staff, including spending rate information and other information necessary to provide input into the asset allocation process. Portfolios are non-discretionary, therefore, with respect to the Allocation, Universities will advise OST on purchases and sales of securities. OST, with assistance of consultants, will provide, for selection by universities, specific investments to be offered as investment options consistent with the Plan's IPS or other relevant guidelines, as applicable.

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    b. Custodian Bank. OST will determine custodial responsibility and the selection of a securities lending agent for all securities.
    c. Asset Class Mandates.
        i. Equity: None
        ii. Fixed Income: Actively managed intermediate term core bond fund, such as the Public University Core Bond Fund (see Appendix A) and the Oregon Intermediate Term Pool (Policy Inv 404).
2. **EXTERNALLY MANAGED PROGRAMS.** Universities will have access to investment products offered by external investment managers who have previously entered into an investment management agreement with the OIC ("IMA") or investments on the Approved List
    a. External investment managers will have discretionary authority to direct investments of University Invested Moneys.
    b. Approved List will be provided by OIC consultant and reviewed annually.
    c. Asset Class Benchmarks.
        i. Equity: MSCI ACWI IMI Index (net)
        ii. Fixed Income: Bloomberg US Aggregate Index

D. COMPLIANCE

The OST Compliance program 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 the University, as appropriate; and d) when applicable, verify resolution by the appropriate individual or manager within the appropriate time frame.

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respect to each external manager: (i) past performance; (ii) asset allocation and returns; and (iii) risk profile.

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Appendix A: Public University Core Bond Fund Investment Program Guidelines

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Oregon Investment Council

OREGON STATE TREASURY

TAB 7

FORWARD

CALENDAR

2025 OIC Forward Calendar and Planned Agenda Topics

May 28, 2025	OIC-PERS Joint Session Individual Account Program (IAP) Review OSGP Annual Review Q1 Performance Review: OPERF Fixed Income Portfolio Review: OPERF Diversifying Strategies Portfolio Review
July 16, 2025	CANCELLED
September 3, 2025	Q2 Performance Review: OPERF, CSF
October 22, 2025	Operations Annual Review
December 3, 2025	Q3 OPERF Performance OSTF, OITP Annual Review
January 21, 2026	Public Equity Portfolio Review Private Equity Portfolio Review 2027 OIC Calendar Approval
March 4, 2026	2025 Performance Review: OPERF, CSF, SAIF Opportunity Portfolio Review
April 15, 2026	Real Assets Portfolio Review Real Estate Portfolio Review

TAB 8

OPEN DISCUSSION

TAB 9

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