

Oregon Investment Council

July 19, 2023

Cara Samples Chair

Tobias Read State Treasurer

Rex Kim Chief Investment Officer



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Oregon Investment Council

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

> Agenda July 19, 2023 9:00 AM

<u>Time</u>	<u>Tab</u>		Presenter
9:00	1	Review & Approval of Minutes May 31, 2023	Cara Samples OIC Chair
	2	Committee Reports	Rex Kim Chief Investment Officer
9:05 - 9:55	3	Energy Market Review	Michele Della Vigna Head of Natural Resources Research in EMEA, Goldman Sachs
BREAK			EWILA, Obluman Sachs
10:05 - 10:55	4	Energy Transition Investment Landscape	Ben Mahon Senior Investment Officer, Alternatives Wil VanLoh Founder & CEO, Quantum Capital Group
BREAK			Tounder & OLO, Quantum Cuprur Group
11:05 – 11:45	5	OPERF Public Equity Progress Update (Action Item: Manager Recommendation)	Louise Howard Senior Investment Officer, Public Equity Wil Hiles Investment Officer, Public Equity

Cara Samples Chair

OIC Meeting Agenda July 19, 2023

11:45 – 12:15	6	OPERF Diversifying Strategies Annual Review	Ben Mahon Senior Investment Officer, Alternatives Stephen Kennedy Partner/Portfolio Analyst, Albourne Ryan Fitzgerald Portfolio Analyst, Albourne
12:15	7	Calendar – Future Agenda Items	Rex Kim
12:15	8	Open Discussion	OIC Members, Staff, Consultants
12:15	9	Public Comments	





TAB 1

REVIEW & APPROVAL OF MINUTES





TAB 2

COMMITTEE REPORTS





TAB 3 ENERGY MARKET REVIEW





TAB 4

ENERGY TRANSITION

INVESTMENT LANDSCAPE





TAB 5 OPERF PUBLIC EQUITY

July 19, 2023

OPERF Public Equity Portfolio

Progress Update/Structure Review

Louise Howard Senior Investment Officer, Public Equity

Wil Hiles Investment Officer, Public Equity



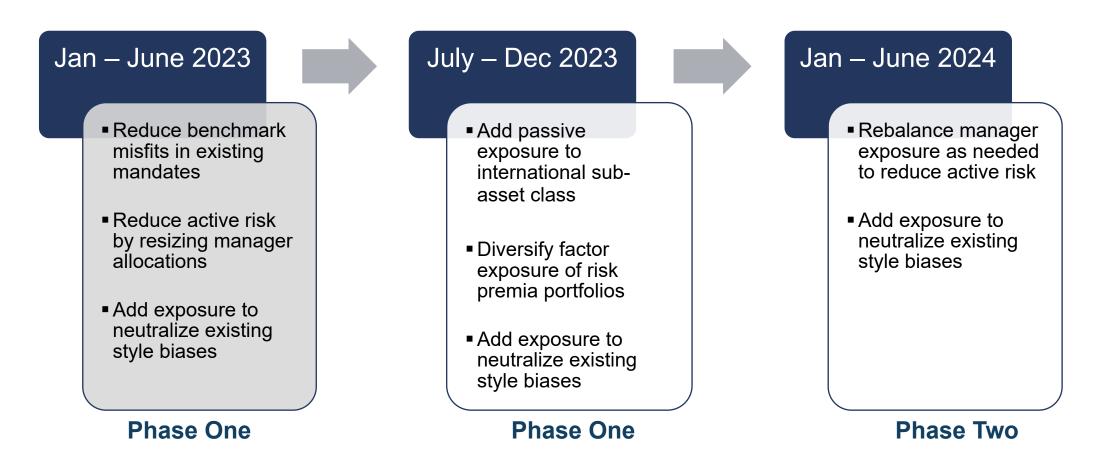
Portfolio Update

OPERF Public Equity Goals

- Reduce outsized portfolio exposures along dimensions of style, capitalization and factors relative to the policy benchmark MSCI ACWI IMI
- Maintain passive core exposure in the US sleeve, consider adding passive in the non-US sleeve, and revisit factor selection for risk premia portfolios
- Emphasis on alpha generation from high conviction active managers
- Optimize portfolio weights to risk and exposure characteristics relative to policy benchmark and risk budget through rebalancing



Public Equity Timeline





OREGON STATE TREASURY

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OPERF Public Equity Portfolio Structure Review

July 2023

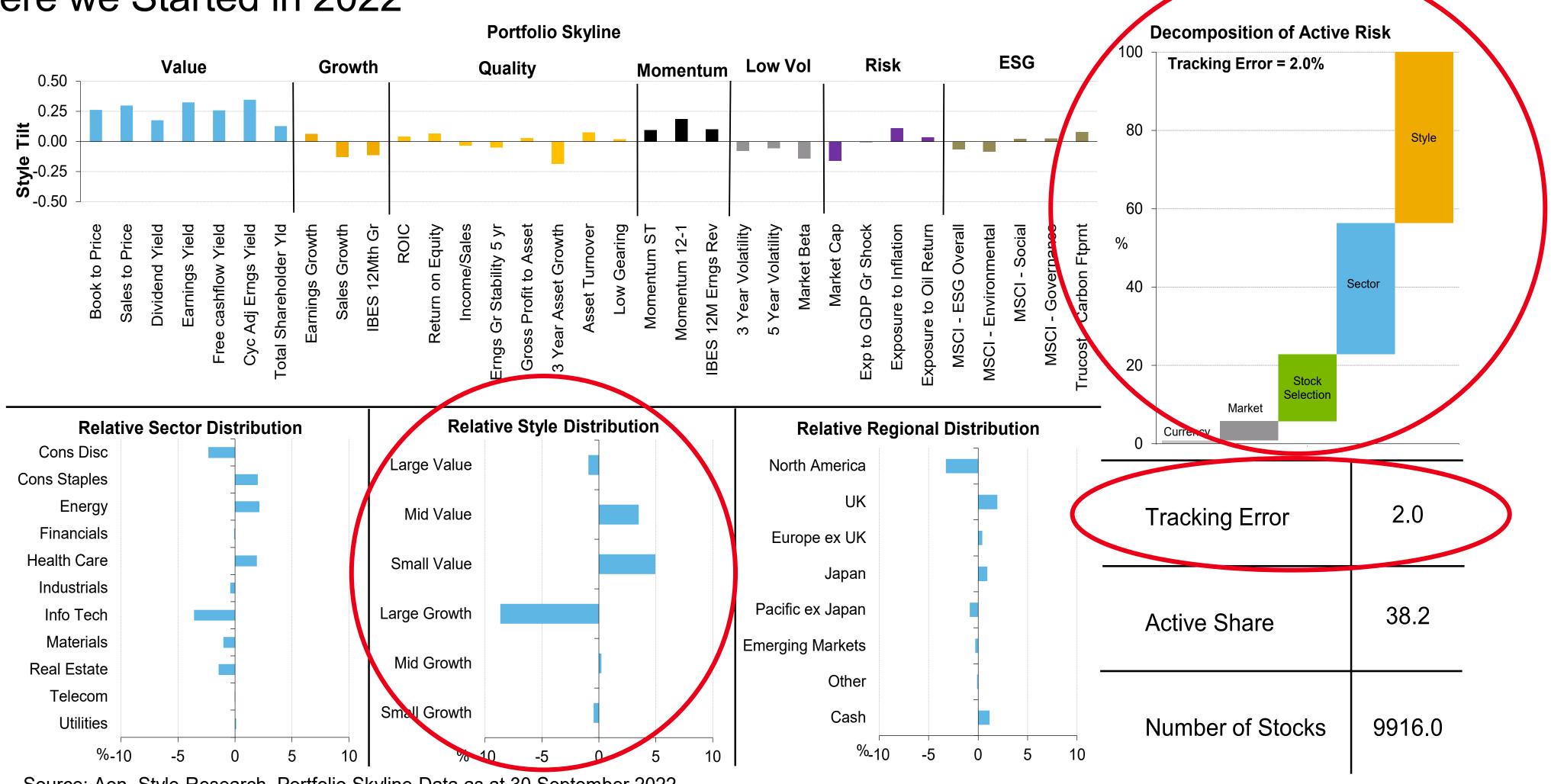
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Portfolio 1: Baseline Total Public Equity

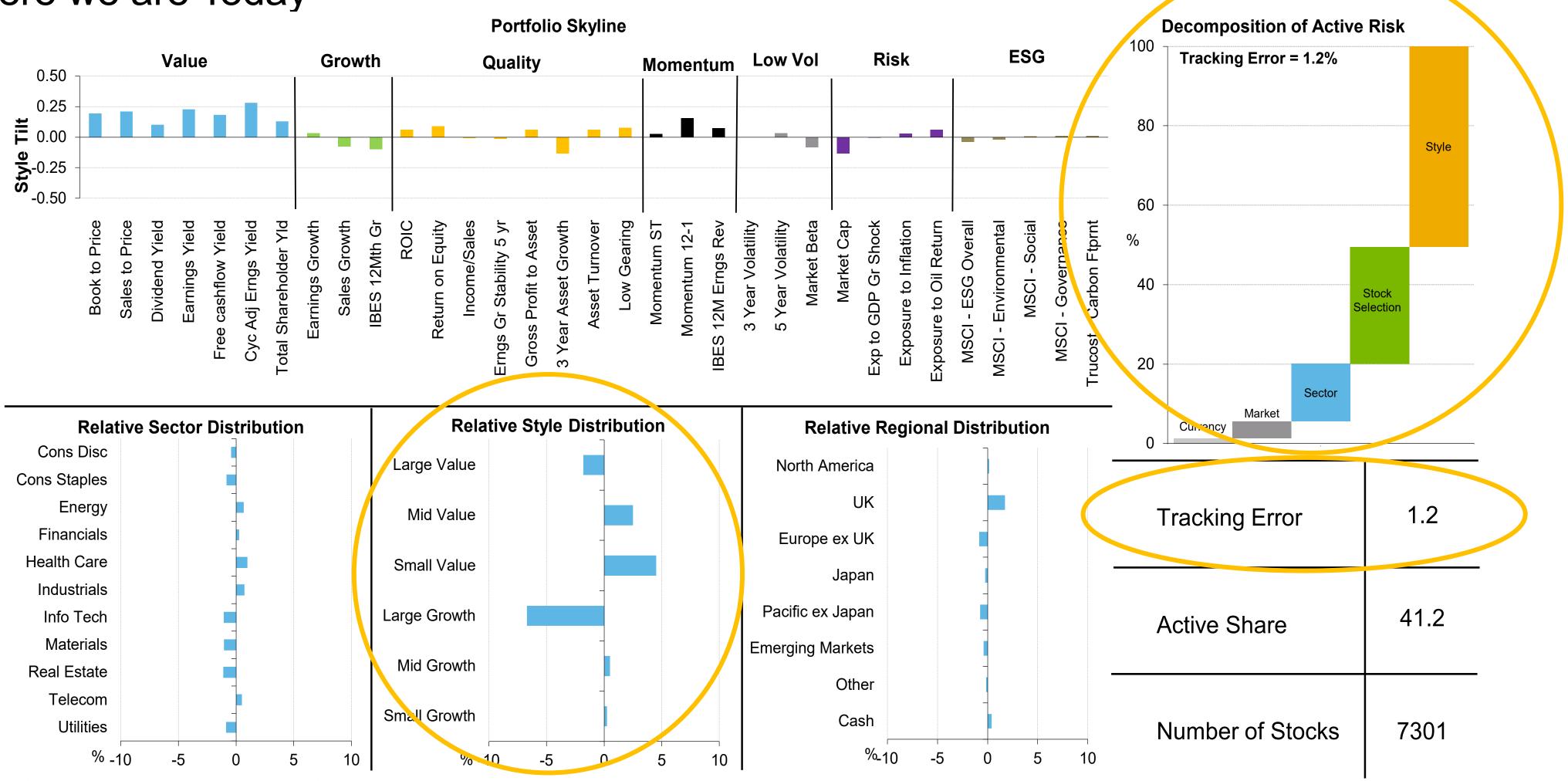
Where we Started in 2022



Source: Aon, Style Research. Portfolio Skyline Data as at 30 September 2022. Distribution and TE Data as at 30 September 2022. Benchmark: MSCI ACWI IMI



Portfolio 2: Interim Total Public Equity Where we are Today



Source: Aon, Style Research. Portfolio Skyline Data as at 31 May 2023. Distribution and TE Data as at 31 May 2023. Benchmark: MSCI ACWI IMI



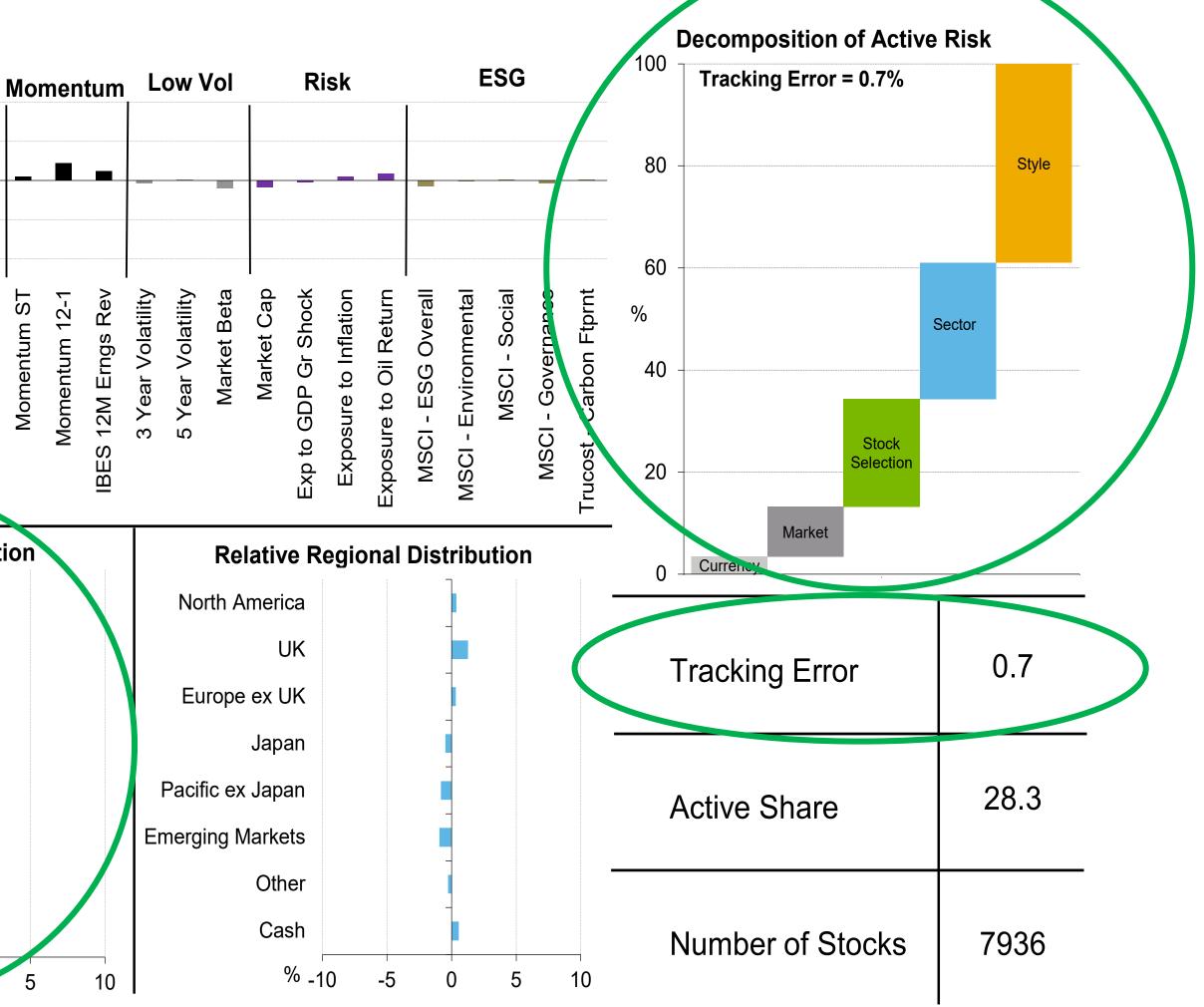


Portfolio 3: Proposed Total Public Equity Where we are Headed

Portfolio Skyline Value Growth Quality 0.50 0.25 **Ⅲ** 0.00 Earnings Yield ROIC Sales Growth IBES 12Mth Gr Year Asset Growth Low Gearing Book to Price Free cashflow Yield Cyc Adj Erngs Yield otal Shareholder Yld Earnings Growth Return on Equity Income/Sales Dividend Yield rngs Gr Stability 5 yı Sales to Price Asset Turnove Profit to Asse Momentum S1 Gros **Relative Style Distribution Relative Sector Distribution** Cons Disc Large Value **Cons Staples** Energy Mid Value Financials Health Care Small Value Industrials Large Growth Info Tech Materials Mid Growth Real Estate Telecom Small Growth Utilities % -10 -5 0 5 10 -5 0 5 10 % 10

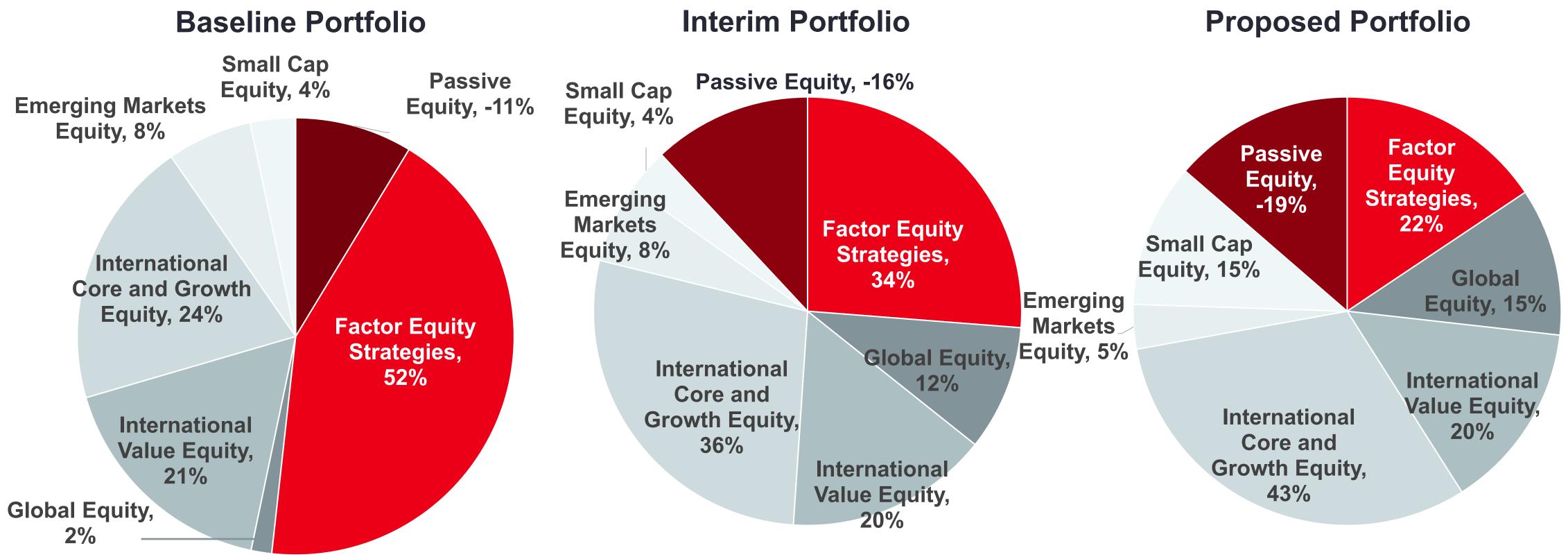
Source: Aon, Style Research. Portfolio Skyline Data as at 31 May 2023. Distribution and TE Data as at 31 May 2023. Benchmark: MSCI ACWI IMI







Tracking Error Contribution Current Total Public Equity vs. Proposed New Total Public Equity





Conclusions

The proposed new total public equity portfolio delivers a more balanced portfolio reducing biases across market capitalization, style, and factors.

- Work done to date on Market Capitalization/ Style/ Factor Tilts:
 - Reducing overweight tilts to small/mid-cap value equity
 - Reducing underweight tilts to large-cap growth equity
 - Inclusion of broader global equity mandates reduces the emphasis on low volatility factors
 - Broadening risk premia strategies to represent multi-factor approach also reduces style biases

As a result, the efficiency of the portfolio improves as tracking error decreases from a baseline of 2% to 0.7% for the proposed portfolio, while the contribution to active risk is more balanced representing a range of diversified sources of alpha potential

- Active Risk
 - exposure, however, this risk drops from nearly 80% to about 60%
 - Driven by reducing portfolio structure biases as well as holding an emphasis on high conviction active managers \bullet
 - 22%
 - Global equity contribution to tracking error increased from just 2% to 15% for the proposed portfolio •
 - However, the small cap active risk has also increased from 4% to 15%, most of which is concentrated in small value
 - This overweight, in addition to the Factor investing allocation, is contributing to the higher style risk •

Looking ahead, continued evaluation of the small cap portfolio will occur to remediate the remaining overweight along with further efforts to streamline the international equity portfolio to focus on higher conviction managers and deliberate active risk taking



• The key contributors to tracking error for the proposed new total public equity portfolio continue to be styles & sectors given the factor manager

• The contribution to tracking error across strategies is more balanced with the Factor investing contribution to tracking error decreasing from 52% to

Appendix





Style Research Output Manual

Portfolio Skyline:

- dark and light grey bars represent momentum and risk factors, respectively.
- cheaper companies.
- As a rule of thumb, for any individual Style tilt:
- Style tilts less than -0.5 or more than +0.5 indicate a tilt is observable
- Style tilts less than -1 or more than +1 are significant

Value Measures:

- Sales to Price Net Sales per Share divided by the Share Price.
- Dividend Yield The annual Dividend Paid per Share divided by the Share Price.
- Earnings Yield Annual Earnings (adjusted for Amortizations of Intangibles, Extraordinary charges and credits) per Share divided by the Share Price.
- after paying out for the maintenance and renewal of fixed assets
- divided by the Share Price.
- dividend payments, share repurchases and debt reduction.



• The skylines are designed to answer the question "How significantly different is the portfolio from the benchmark?" in respect to Style factors which are important in equity markets.

• The first six bars from the left are value factors (shown as blue bars) while the next four bars are growth factors (green bars). The next six bars are quality factors (amber) whilst the

• A bar above the axis indicates that the portfolio has a positive tilt towards that factor e.g., in the case of value factors, if the bar is above axis, then the portfolio has a tilt towards

• Book to Price - The ratio of the company's Book Value (the sum of Shareholders' Equity plus accumulated Retained Earnings from the P & L Account) to its Share Price.

• Free cash flow Yield - Annual Cash Flow per share minus Capital Expenditure per share divided by the share price. Free cash flow is the amount of money available to the company

• Cyclically Adjusted Earnings Yield – 10 years average of cyclically adjusted annual earnings (adjusted for Amortizations of Intangibles, Extraordinary charges and credits) per Share

• Total Shareholder Yield – The sum of Net Buyback Yield and Net Debt Paydown yield. This factor measures the proportion of a company's value distributed to shareholders through

Growth measures:

- Sales Growth The average annual growth rate of Net Sales per Share over a trailing three years.
- IBES 12M Growth IBES consensus forecast growth of Earnings over the next twelve months.

Quality Measures:

- income in relation to the total capital invested in the company.
- Return on Equity Net Income before Preferred Dividends divided by the Book Value of Shareholders' Common Equity.

- are therefore independent of leverage.
- 3 Year Asset Growth The average annual growth rate of total assets over a trailing three years.
- Asset Turnover Net Sales /Total Assets. The asset turnover ratio is an indicator of how efficient a company is in deploying its assets to generate revenue.



• Earnings Growth - The average annual growth rate of Earnings (adjusted for Amortizations of Intangibles, Extraordinary charges and credits) over a trailing three years.

• Book to Price - The ratio of the company's Book Value (the sum of Shareholders' Equity plus accumulated Retained Earnings from the P & L Account) to its Share Price.

• Return on Invested Capital - (Net Income + ((Interest Expense on Debt - Interest Capitalized) * (1-Tax Rate))) / Average of Last Year's and Current Year's (Total Capital + Short Term Debt & Current Portion of Long-Term Debt). The Return on Invested Capital (also known as Return on Capital) measures the profitability of a company as measured by its operating

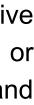
• Income to Sales - The "net margin", annual Net Income before Preferred Dividends (plus Policyholders' Surplus for insurance companies), divided by annual Net Sales.

• Earnings Growth Stability - This 'Quality' factor is calculated as the negative of the standard deviation of Earnings Growth over the most recent 5 years of growth data.

• Gross Profit to Assets – Gross Profits divided by Total Assets. Gross profit is a company's total revenue minus the cost of goods sold. Gross profit may be preferred as an alternative over earnings or free cash flow to consider a company's true economic profitability without subtracting expenses that may in fact be increasing a company's production advantage or competitive advantage e.g. advertising, R&D, or capital expenditure. Gross profits are divided by assets, not shareholder's equity, because gross profits exclude interest payments, and

• Low Gearing - The negative of Debt to Equity. Low geared companies can be regarded as being of higher "Quality" as they are less burdened by debt repayment costs.





Momentum measures:

- past period returns are weighted using a "decay ratio" of 2/3, per month.
- month returns.
- IBES 12M Earnings Revisions IBES balance of Earnings forecast revisions for the next annual reporting period.

Low Volatility Measures:

- 3 Year Volatility The standard deviation of the last 36 months of total returns, expressed as an annualized percentage.
- 5 Year Volatility The standard deviation of the last 60 months of total returns, expressed as an annualized percentage.
- Market Beta The "slope coefficient" from the simple regression.



• IBES 12M Growth - IBES consensus forecast growth of Earnings over the next twelve months. ST Momentum - Calculated using a 6 month "memory" of monthly total returns. The

• Momentum 12-1 – The total return of the stock over the last 12 months, excluding the total return over the most recent month since reversal effects are often associated with one-



Risk measures:

- below the line indicates a mid/small cap bias.
- months periods; where sufficient information is not available, $\beta=1$ is assumed.
- quarter than would otherwise have been.
- 0.8 x 1%) stronger in the current month than would otherwise have been.
- 1%) higher in the current month than would otherwise have been.

Decomposition of Active Risk:

selection (or equity risk). These are displayed as percentages and provide further insights into the sources of risk in a portfolio.



• Market Capitalisation - The average Size statistic of a portfolio is the weighted (by holding value) average size of the securities held. The average Size statistic of a benchmark (or total market) is the weighted (by holding value) average size of the securities within the benchmark (or total market). If the bar is above the line, there is a large cap bias whilst a bar

• Market Beta – The "slope coefficient", (β), from the simple regression: Security Monthly Return = $\alpha + \beta$ * Market Monthly Return + Random Error. The regression is carried out over 36

• Exposure to GDP Shock Beta – Based on the equation: Quarterly Share Price Return of Security $n = \alpha n + \beta n$ GDP Shock. Where GDP Shock is the difference between the most recent GDP quarterly growth rate and the average of the previous 4 quarters. A number of, say, 2.5 would mean that a GDP growth rate of 1% (quoted at an actual quarter to quarter rate) above the average of GDP growth rates recorded over the previous 4 quarters would result in the value of the stock/sector/portfolio being 2.5% (= 2.5 x 1%) higher in the current

• Exposure to Inflation Beta – Based on the equation: Monthly Share Price Return of Security $n = \alpha n + \beta n$ Monthly Inflation Rate. Where Monthly Inflation is quoted at an annual rate. A number of, say, 0.8 would mean that a rise in the annual rate of inflation by 1% (quoted at an annual rate) would result in the performance of the stock/sector/portfolio being 0.8% (=

• Exposure to Oil Beta - Based on the equation: Monthly Share Price Return of Security $n = \alpha n + \beta n$ Oil Price Return. Where the Oil Price Return is the monthly per cent change in the Oil Price, in US dollars. A number of, say, 0.7 would mean that an increase of 1% in the US dollar price of oil would result in the value of the stock/sector/portfolio being 0.7% (= 0.7 x

• Risk attribution breaks down the Tracking Error into the main sources of risk i.e., from currency allocation, market (country) allocation, sector allocation, Style allocation and stock









Risk measures:

- Tracking Error Estimate of the expected relative volatility of the portfolio versus the benchmark and is expressed as an annualised percentage.
- benchmark.
- Number of Stocks The number of stocks contained in the portfolio.

Relative Style Distribution:

- The distribution shows the relative style distribution analysis according to Market Cap and Book to Price based on the Benchmark.
- Large, Mid, Small = Market Cap (70%, 20%, 10%); Value, Growth = Book to Price (50%, 50%).



• Benchmark Overlap- Measure of the percentage of stock holdings in a manager's portfolio that differ from the benchmark index. A high Active share indicates large differences between the portfolio and benchmark in terms of holdings while a portfolio with a low active share will conclude that there is a reasonable overlap between the portfolio and the

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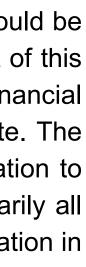
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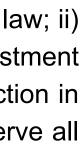


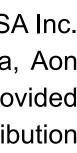
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July 19, 2023

OPERF Public Equity Portfolio

Manager Recommendation GQG Global Equity

Louise Howard Senior Investment Officer, Public Equity

Wil Hiles Investment Officer, Public Equity



GQG Global Equity

Fundamental, Active Investment Manager

Investment Highlights	Investment Considerations
Team and Culture	Key-Person Risk
Client Alignment	Ownership Concentration and Succession
Dynamic Alpha Generator	Portfolio Turnover
Performance Track Record	Tracking Error





OREGON STATE TREASURY

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TAB 6

OPERF DIVERSIFYING STRATEGIES

ANNUAL REVIEW

July 19, 2023

OPERF Diversifying Strategies Portfolio

Annual Review and Forward Plan



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
Diversifying Strategies Portfolio Overview	2-5				Х	Х	Х				Х		Х	Х					
Markets	7-11				Х		Х				Х						Х	Х	Х
Project Pathfinder Update	12-15				Х	Х	Х				Х		Х	Х				Х	
2022 Review	16-17				Х	Х	Х				Х						Х		Х
Results	18-19				Х		Х				Х							Х	
2023 Preview	20				Х	Х	Х				Х						Х	Х	Х
Appendix	22-24				Х		Х				Х		Х	Х			Х	Х	Х

LEGEND: OIC INVESTMENT AND MANAGEMENT BELIEFS

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

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

2 ASSET ALLOCATION DRIVES RISK AND RETURN

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

3 THE EQUITY RISK PREMIUM WILL BE REWARDED

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

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

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

5 CAPITAL MARKETS HAVE INEFFICIENCIES THAT CAN BE EXPLOITED

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

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

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

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

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

- B. The OIC also recognizes that voting rights have economic value.
- 8 THE INTEGRATION OF ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) FACTORS, SIMILAR TO OTHER INVESTMENT FACTORS, MAY HAVE A BENEFICIAL IMPACT ON THE ECONOMIC OUTCOME OF AN INVESTMENT AND AID IN THE ASSESSMENT OF RISKS ASSOCIATED WITH THAT INVESTMENT
- X A. The consideration of ESG factors within the investment decision-making framework is important in understanding the near-term and long-term impacts of investment decisions.
- X B. Over time, there has been an evolution of multi-factor, or more holistic approaches, to identify opportunities and remediate risks, in a large globally-diversified investment portfolio.

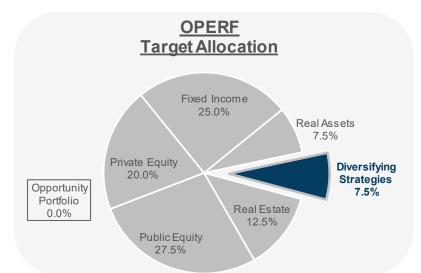
9 DIVERSITY, IN ALL ASPECTS, IS ACCRETIVE TO MEETING OIC OBJECTIVES

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



Portfolio Overview Strategic Role

- Portfolio background
 - Alternatives Portfolio (inclusive of Real Assets and Diversifying Strategies) approved at the January 2011 OIC meeting; Portfolio bifurcated into its component parts in June 2021.
 - Target allocation for Diversifying Strategies has increased three times since its inception (most recently in 2019), growing from an initial <1.0% target to its current 7.5% target.
 - Net asset value = \$4.6 billion (4.9% of OPERF) vs. target of \$7.0 billion (7.5% 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 diversified hedge fund manager and strategy exposures.
 - Performance objective: HFRI Fund of Funds Conservative Index.



> <u>Performance</u>



TWR YTD 1 Year 3 Year 5 Year ITD **Diversifying Strategies Portfolio** -1.3% -1.4% 2.9% 8.0% 0.4% HFRI FOF Conservative 1.6% 3.8% 3.7% 1.1% 6.4% -2.4% -2.9% 1.6% -3.3% -0.8% Difference

Source: Albourne, State Street. Data as of May 31, 2023.

Diversifying Strategies Portfolio Annual Review | July 19, 2023

Portfolio Overview Positioning

Portfolio Summary¹

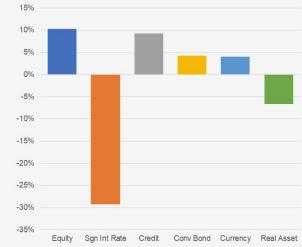
Attribute	5/31/2022	5/31/2023	% Change	
GP Relationships	12	13	8.3%	
Holdings	16	16	0.0%	
Subscriptions	\$6,009.2	\$7,480.3	24.5%	
Redemptions	\$1,721.0	\$3,149.7	83.0%	
Net Asset Value	\$4,601.8	\$4,586.8	-0.3%	
Unfunded Approvals	\$375.0	\$250.0	-33.3%	
ITD Return	3.3%	2.9%	-12.8%	

Top 10 Managers

Manager	# of Mandates	\$ of NAV	% of NAV
AQR Capital Management	3	\$1,038.9	22.6%
Hudson Bay Capital Management	1	\$515.7	11.2%
Davidson Kempner Capital Management	1	\$504.6	11.0%
GMO	1	\$465.4	10.1%
Aspect Capital	1	\$413.3	9.0%
Brevan Howard Capital Management	1	\$297.6	6.5%
Man AHL	2	\$284.4	6.2%
BlackRock	1	\$241.9	5.3%
Fort	1	\$205.0	4.5%
Caxton Associates	1	\$195.1	4.3%







Source: Albourne, State Street. Data as of May 31, 2023. \$ in millions. ¹Data shown is since inception.

²Data from Albourne Risk Analyst Assessment with multi-strategy look-through.

Diversifying Strategies Portfolio Annual Review | July 19, 2023



Portfolio Overview Executive Summary

Strong year of performance

- The Diversifying Strategies Portfolio returned 16.5% in CY 2022, significantly outperforming the HFRI FOF Conservative benchmark (+0.1%) and 70/30 Reference Portfolio (-16.6%).
- Contributors were broad based but led by GAA and CTA exposures (primarily legacy AQR investments).
- On the heels of strong CY 2021 and 2022 performance, the Portfolio is now outperforming its benchmark on a three-year basis.
- Of note, the Portfolio has provided valuable diversification for the total OPERF Portfolio, with a 12-month correlation/beta to the S&P 500 of -0.5/-0.2.

Project Pathfinder proceeding to plan

- With key objectives of increasing manager and strategy diversification in focus, continue to advance through concurrent workstreams.
 - Have received approval for eight new strategies in past 16 months, totaling \$2.45 billion in commitments.
 - Active diligence efforts underway for additional multi-strategy anchor(s).
- Phase Two in early stages of execution.



Source: Albourne, State Street. Performance as of May 31, 2023.

Topics

1. Diversifying Strategies Portfolio Overview

2. Diversifying Strategies Portfolio Update

- A. Markets
- B. Project Pathfinder Update
- C. 2022 Review
- D. Results
- E. 2023 Preview
- 3. Appendix



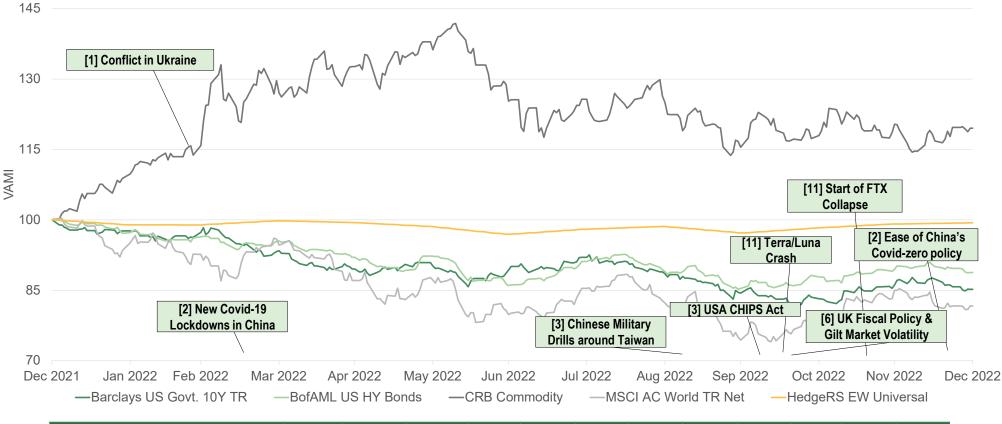
Markets Themes in 2022

[1] Conflict in Ukraine	[2] Covid-zero Policies China	[3] China / US Relations	[4] Inflation & Rate Hikes						
 The Russian invasion of Ukraine has resulted in a terrible human crisis with no sign of a ceasefire on the horizon. The most significant market impact has been higher energy prices that further escalated inflationary pressures. The long-term market ramifications of an extended conflict are unknown and could be considerable; ultimately, market participants are slowly realizing that the prior geopolitical equilibrium will not be restored in the near- term. 	 China's COVID-zero policies remained an overarching theme for most of 2022, offsetting any other policies targeted at reviving China's growth. This resulted in supply chain concerns across the world. <u>By March</u>, renewed COVID-19 lockdowns in China also negatively impacted the domestic economy and investor confidence, resulting in an exodus of foreign investors from Chinese equities; the selloff was especially severe in the tech-heavy ADR and Hong Kong markets. 	 Bilateral relations between China and the US remained stretched for most of the year, with the end of 2022 showing resolution on some key obstacles though challenges remain. The most noteworthy progress was arguably on Chinese ADR companies, as US regulators were given access to the audited accounts of Chinese companies, reducing the risk of delisting for US-listed Chinese stocks. 	 Rate hike expectations and decisions, primarily by the Fed, were a key determinant of market sentiment over the past year, often 						
[5] Bear Market & Recessionary Expectations	[6] UK Fiscal Policy & Gilt Market Volatility	[7] Central Bank Digital Currencies (CBDC's)	[8] Equity Factor Rotation – Values vs Growth						
 The S&P 500 posted its worst performance since 2008, second-worst since 2000, ending the year in significant drawdown (-18.1%). The 1Q & 2Q 2022 US GDP final figures were -1.6% and -0.6% (U.S. Bureau of Economic Analysis). While some called for a technical recession, the White House and the Fed refrained from doing so, supported by the 3Q GDP increase of 3.2%. 	 In September, fiscal policy announcements by UK's new Chancellor unveiled the deepest tax cuts in decades, raising concerns over the health of the UK economy and the amount of new debt issuance they would necessitate. The pound reached an intraday all-time low, while its volatility, and the volatility of gilts, increased A broader selloff in government bonds became prevalent throughout Europe. 	 CBDCs appeared to gain traction, particularly towards year-end. In mid-November, certain US banks alongside the New York Innovation Center (part of the New York Fed) announced the launch of a pilot digital money platform. Similarly, reports emerged that the Bank of Japan with the help of some financial institutions is expected to trial a digital yen in 2023. 	 Quantitative Tightening (QT) in the US and elsewhere, alongside supply chain concerns from the lockdowns in China and the ongoing conflict in Ukraine, all contributed towards lowering global growth expectations. While both Value and Growth equity factors ended 2022 in negative territory, the latter fared significantly worse (MSCI AC World Growth Index: -28.4% YTD, MSCI AC World Value Index: -12.8%). 						
[9] Commodities	[10] Volatility in Government Bond Markets	[11] Crypto Volatility	[12] Insurance Markets: 2022 Year-End Renewals and 2023 Outlook						
 Commodities came into 2022 with the narrative of being in the midst of a broadbased, multi-year bull run/super cycle. Commodities furthermore enjoy the reputation of having a high inflation beta, acting as inflation hedges. Given the inflationary pressures of 2022, it was no surprise that interest in Directional commodity hedge funds by institutional investors continued to increase. 	 2022 was an outlier as fixed income markets did not provide shelter to the equity market volatility, an event reportedly not seen in over 50 years. Significant rate hikes also resulted in higher yields and a selloff in government bonds. Recessionary expectations resulted in yield curve inversions. The 2Y10Y Treasury curve briefly inverted in April and remained inverted from July, the 3M10Y yield curve which also inverted from October onwards. 	 Albourne hosted a Digital Assets Insights <u>webinar</u> in November covering the timeline of events around FTX, the IDD & ODD implications, and the expected regulatory fallout. Centralized exchanges (such as FTX) require sending all assets to the exchange, creating elevated hacking and counterparty risks. Please also see the associated <u>CIO note</u> and an earlier <u>note</u> on the topic. 	 Price changes in property cat markets are typically driven by a combination of changing risk perception and imbalances between demand for and supply of reinsurance coverage. Both factors have been pushing pricing up in 2021 and 2022 to date, and Albourne expected them to have a strong influence at the 2022 year-end renewals. 						

To view the full report please visit the Hedge Fund Strategy page on the Castle or use the following link The Year In Review: 12 Key Themes in 2022

Markets 2022 Snapshot Review

2022 was a brutal year for capital markets with unprecedented swings and turns, keeping investors wondering of what is yet to come. A plethora of events played out in 2022, from bond market tantrums to high level of volatility for currencies and commodities. Factors such as the war in Ukraine as well as high inflation readings as global economies came out of the pandemic contributed to one of the most turbulent years seen.



	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
Fed Rate Hike Cycle Timeline [4]	0.25%		+25bps		+50bps	+75bps	+75bps		+75bps		+75bps	+50bps

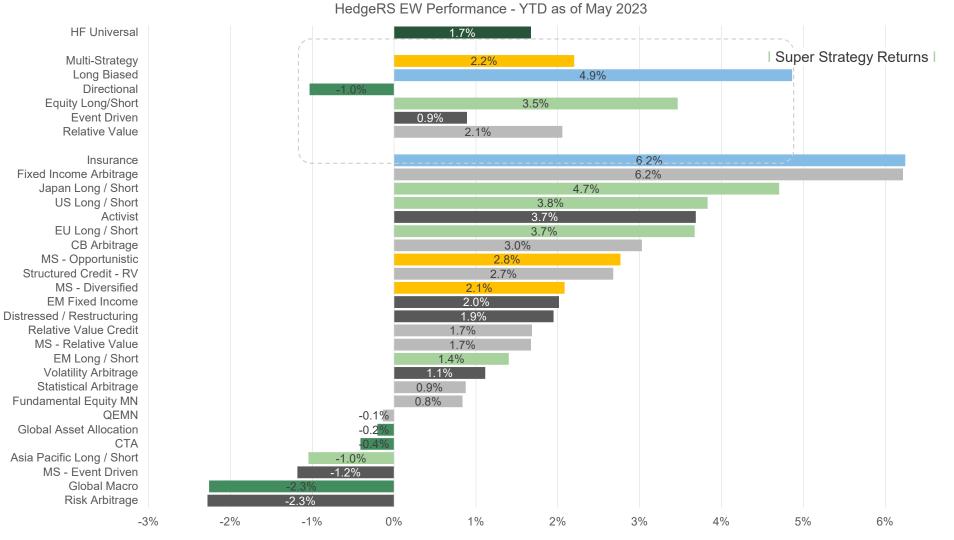
Source: Bloomberg, Albourne HedgeRS Indices. <u>https://village-eu.albourne.com/castle/hedgers</u>

*Based on fund returns/estimates received as of 16 January 2023. Past performance is not necessarily indicative of future results.

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Diversifying Strategies Portfolio Annual Review | July 19, 2023

Markets Performance – YTD as of May 2023



■ HF Universal ■ Multi-Strategy ■ Relative Value ■ Event Driven ■ Equity Long/Short ■ Directional ■ Long Only

Long Biased Super-Strategy return presented is based on the returns of Insurance and Direct Lending Strategies.

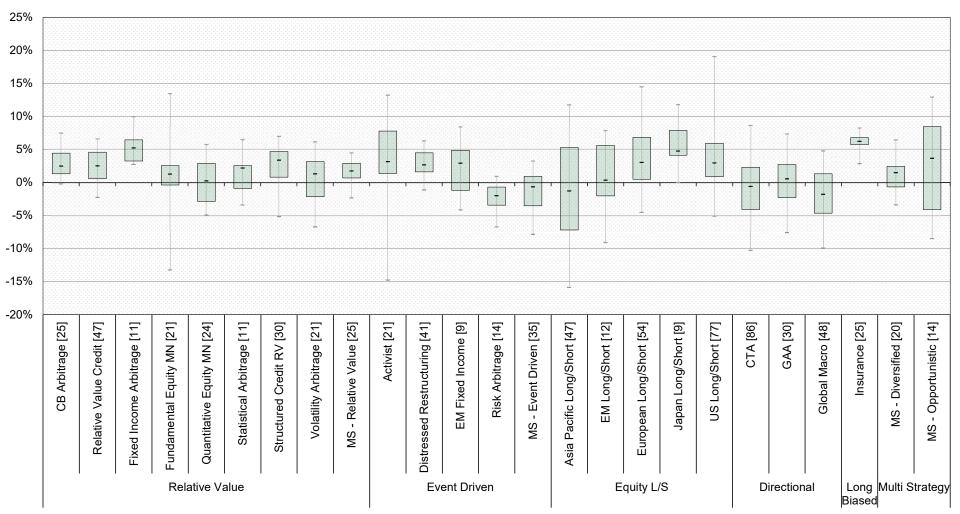
Source: Albourne HedgeRS Indices. <u>https://village-eu.albourne.com/castle/hedgers</u> *Based on fund returns/estimates received as of 14 June 2023. Past performance is not necessarily indicative of future results.

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Diversifying Strategies Portfolio Annual Review | July 19, 2023

7%

Markets Dispersion – YTD as of May 2023



Albourne Hedge Fund Strategy & Number of Funds

Data shows dispersion of returns: middle bar represents the median; upper and lower bounds of the box represents the top quartile and bottom quartile, respectively; upper and lower whiskers represent the 95th and 5th percentiles, respectively. Universe shown is the constituents of the relevant HedgeRS Equal Weighted Index for each strategy. Calculations include all funds with returns over each relevant time period.

Source: Albourne

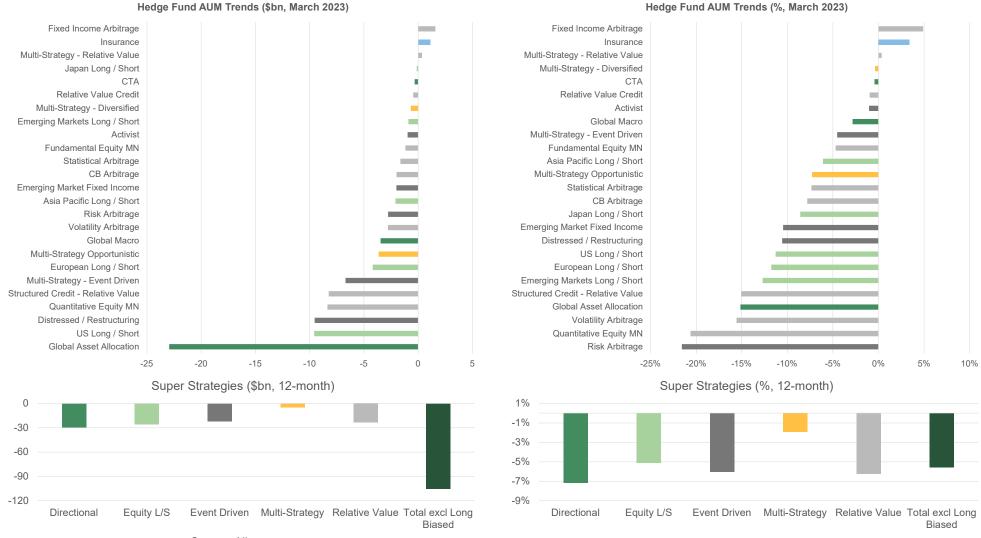
*Based on all fund returns/estimates received as of 14 June 2023. Past performance is not indicative of future results.

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Diversifying Strategies Portfolio Annual Review | July 19, 2023

Markets Hedge Fund AUM Trends (Apr 2022 - Mar 2023)

All of the Super-Strategies experienced a drop in AUM year-on-year, with Directional experiencing the largest decline in AUM. Fixed Income Arbitrage and EM Fixed Income were the most notable positive exceptions during this period.



Source: Albourne.

*Data as of 31 March 2023. The trends show the AUM changes due to Subscriptions/Redemptions and Returns, incorporating the organic component of the AUM change.

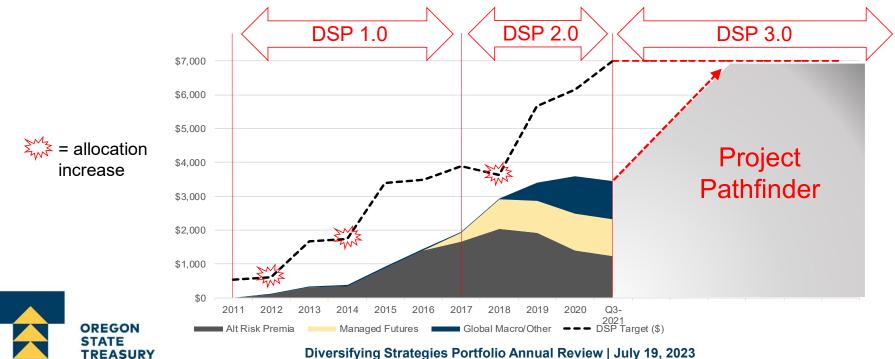
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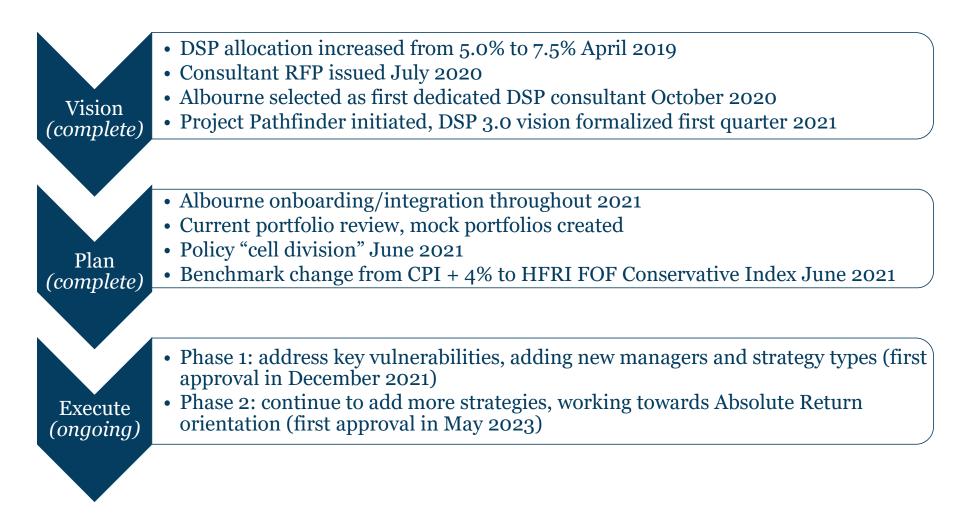
Project Pathfinder Update Portfolio Evolution

Portfolio composition over time

- The Diversifying Strategies allocation has increased three times since inception, with each increase taking place early in the respective build-out of the allocation.
- Staff considers three distinct periods of Portfolio construction evolution:
 - DSP 1.0: sole focus on Alternatives Risk Premia. "Putting our beach towels down," establishing strategic partnership with AQR.
 - DSP 2.0: focused on expanding manager roster; established anchor relationships in Managed Futures and Global Macro/Other sectors.
 - DSP 3.0: following allocation increase, initiated Project Pathfinder to evaluate roles and objectives of the Portfolio and to identify the tactical steps required to move the current portfolio in the long-term direction.



Project Pathfinder Update Timeline





Project Pathfinder Update Refining DSP Objectives

- Objective: to provide OPERF with additional risk-mitigating characteristics as a complement to the fixed income portfolio
 - DSP designed to be an Absolute Return portfolio, consisting primarily of market neutral and directional strategies that provide a return stream that is expected to have a low correlation to equity markets. Due to some of the strategies historically exhibiting left tail exposure or directional managers being positioned with long exposure to equities, long volatility strategies will be utilized to dampen left tail and short convexity exposures.

<u>Reflected in asset allocation framework:</u>

Reference Portfolio

- Reference portfolios are portfolios that consist of passively managed, publicly traded asset classes that have similar risk levels as a specific investor's portfolio.
 - $-\,$ $\,$ They are commonly used for comparison and/or benchmarking purposes.
- A 60% Public Equity / 40% Fixed Income portfolio has historically been a common example.
- Most institutional investors, including OPERF, now more closely mirror a 70/30 portfolio due to the decline in interest rates and expected returns over the last ten years.

	Current (%)	70/30 (%)
Fixed Income	20.0%	30.0%
Diversifying Strategies	7.5%	
Total Risk Mitigating	27.5%	30.0%
Public Equity	32.5%	70.0%
Private Equity	17.5%	
Real Estate	12.5%	
Real Assets	7.5%	
Risk Parity	2.5%	
Total Return Seeking	72.5%	70.0%

From June 2, 2021, asset allocation review



Project Pathfinder Update DSP 3.0 Vision

Two phase implementation:

- Phase One: address key vulnerabilities by increasing the number of managers and strategies, establishing anchor relationships in relative value, event driven, and global macro strategy groups as well as expanding the CTA portfolio to 4 managers, equally weighted.
- Phase Two: continue to add more strategies (specialist relative value, equity long/short, tail hedge, etc.), working towards Absolute Return orientation.
- *While subject to change*, using the contemplated Phase One and Phase Two portfolios, potential strategy allocations and manager counts look as follows:

Strategy Type	Initial	Phase 1	Phase 2
Relative Value	15%	26%	34%
Event Driven	2%	13%	11%
Global Macro	2%	14%	11%
СТА	31%	22%	15%
GAA	41%	21%	13%
Equity L/S	2%	3%	12%
Long Biased	8%	0%	0%
Other Directional	0%	0%	4%

Strategy Allocation¹

Strategy Type Initial Phase 1 Phase 2 **Relative Value** 0 3 6 Event Driven 0 1 1 2 Global Macro 0 2 CTA 3 4 4 GAA 4 4 3 Equity L/S 0 0 2 Long Biased 0 0 0 Other Directional 0 0 3 2 Multi-Strategy 1 1 Fund of Funds 1 1 1 TOTAL 9 16 24 **TOTAL GPs** 7 22 14



¹Data from Albourne Risk Analyst Assessment with multi-strategy look-through.

Strategy Count¹

2022 Review Priorities

- Demonstrate continued progress on Project Pathfinder
 - Expect to focus first half 2022 on substantially completing Phase One, pivoting to Phase Two beginning second half 2022.
 - Have received approval for seven (out of a contemplated nine) new Phase One managers.
 - First Phase Two manager approval received in May 2023.
 - 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.
 - Made significant progress across monitoring, risk management, and ESG efforts; continue to refine and integrate.
 - Integration of Capital Market Leadership committee, providing a forum for on-going monitoring and sharing of best practices.

Conduct research reviews of areas of interest

- Equity long/short.
- Fixed income long/short.
- "Long volatility" strategies.
 - Completed.



2022 Review Activity Recap: Approvals/Diligence

- > Phase One of Project Pathfinder in final stages of execution
 - \$2.45 billion across eight investments authorized to-date.
 - Seven investments were new relationships; one was a conversion of an existing fund investment.
 - Approvals represent continued refinement to strategy as well as development of anchor positions.
 - Established anchor relationships in relative value, event driven, and global macro strategy groups.
 - Expanded CTA portfolio to 4 managers, targeted to be equally weighted.
 - Diligence for additional multi-strategy anchors underway, but still early stage.

Investment	Strategy	Authorized Date	Commitment Amount
Man AHL Alpha 1.5 XL	СТА	December 2021	\$250.0
Brevan Howard Master Fund	Global Macro	December 2021	\$250.0
Caxton Global Investments	Global Macro	February 2022	\$250.0
Davidson Kempner Multi-Strat	Multi Strategy - Event Driven	February 2022	\$250.0
Hudson Bay Fund	Multi Strategy - Relative Value	February 2022	\$250.0
Bridgewater PAMM	GAA	September 2022	\$250.0
Brevan Howard Master Fund top-up	Global Macro	November 2022	\$50.0
Marshall Wace Alpha Plus	Relative Value - Stat Arb	November 2022	\$200.0
Davidson Kempner Multi-Strat top-up	Multi Strategy - Event Driven	March 2023	\$250.0
Hudson Bay Fund top-up	Multi Strategy - Relative Value	March 2023	\$250.0
Dorsal Capital Partners	Equity Long/Short	May 2023	\$200.0
Total			\$2,450.0



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

Results Performance (through May 2023)

Portfolio Performance							
	May 2023	Year to Date	1 Year	3 Years	5 Years	Since Jan 2012	Worst Drawdown
Portfolio	-0.21%	-1.32%	-1.36%	7.96%	0.42%	2.87%	-27.75%
Current Systematic Series	-0.68%	-3.20%	-3.26%	6.66%	3.91%	2.33%	-6.71%
Historical Systematic Series	-0.82%	-4.25%	-4.90%	5.07%	2.06%	2.43%	-9.40%
Historical Systematic Outperf.	0.60%	2.94%	3.55%	2.89%	-1.64%	0.44%	
Proforma (May 2023)	-0.16%	-0.97%	-0.24%	9.75%	1.15%	2.94%	-29.65%
Strategic Benchmark ³	0.62%	3.07%	6.36%	4.19%	4.48%	3.83%	
Strategic Benchmark Outperf.	-0.83%	-4.39%	-7.72%	3.77%	-4.07%	-0.95%	
Tactical Benchmark ⁴	-0.10%	1.07%	1.59%	6.37%	3.75%	3.65%	-7.64%
Tactical Benchmark Outperf.	-0.11%	-2.39%	-2.94%	1.59%	-3.33%	-0.78%	
Current Systematic w/o Changes	-0.70%	-3.37%	-3.42%	6.67%	3.91%	2.26%	-6.90%
Proforma w/o Changes	-0.14%	-1.00%	-0.25%	9.58%	1.18%	2.98%	-29.36%

Drawdown of Diversifying Strategies , HFRI FoF: Conservative, Proforma (May 2023) and Historical Systematic Series



Outperformance values are in bold. ³ICE US 1M Treasury Bill Index + 3% ⁴HFRI FoF: Conservative

Moments and Measures

Jan 2012-May 2023 (137 months)

	Return	Volatility	Skewness	Kurtosis	Sharpe Ratio ⁵	Sortino Ratio ⁶	Omega ⁶	Gain-Loss Ratio ⁶	Calmar Ratio
Portfolio	2.87%	6.54%	0.03	0.54	0.31	0.47	0.25	1.29	0.10
Tactical Benchmark	3.65%	3.33%	-2.77	21.12	0.84	1.16	0.74	2.09	0.48
Historical Systematic Series	2.43%	4.28%	-0.54	2.77	0.37	0.55	0.31	1.36	0.26
Current Systematic Series	2.33%	4.40%	0.02	0.71	0.34	0.53	0.27	1.31	0.35
Proforma (May 2023)	2.94%	6.77%	0.05	1.01	0.31	0.47	0.26	1.29	0.10
f									

⁵Risk-Free Rate=0.84% ⁶Risk-Free=0.84%

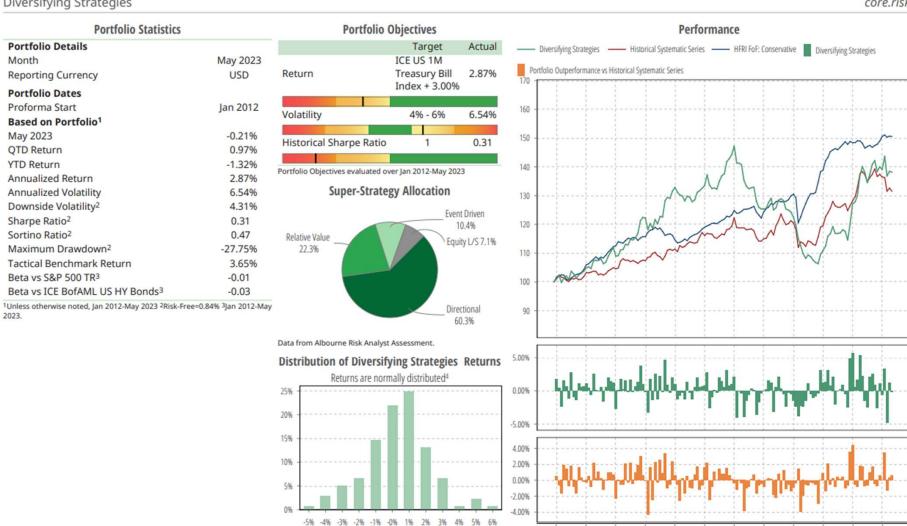
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Results **Performance (through May 2023)**

⁴Shapiro-Wilk p-value 0.46 ≥ 0.05

Diversifying Strategies





Source: Albourne Past performance is not indicative of future results

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2023 Preview Priorities

- 1. <u>Demonstrate continued progress on Project Pathfinder</u>
 - Identify candidates for remaining multi-strategy anchor position(s).
 - With relative value strategy exposure still "light" versus target, will represent bulk of Phase Two's initial focus.
 - Continue rebalancing of GAA and CTA managers.
- 2. <u>Monitoring and risk management</u>
 - Continue to pursue enhancements to monitoring and risk management efforts.
 - Further formalize ESG and DE&I integration across the broader Alternatives Program.
- 3. Conduct research reviews of areas of interest
 - Quantitative equity market neutral strategies.
 - Fixed income arbitrage strategies.



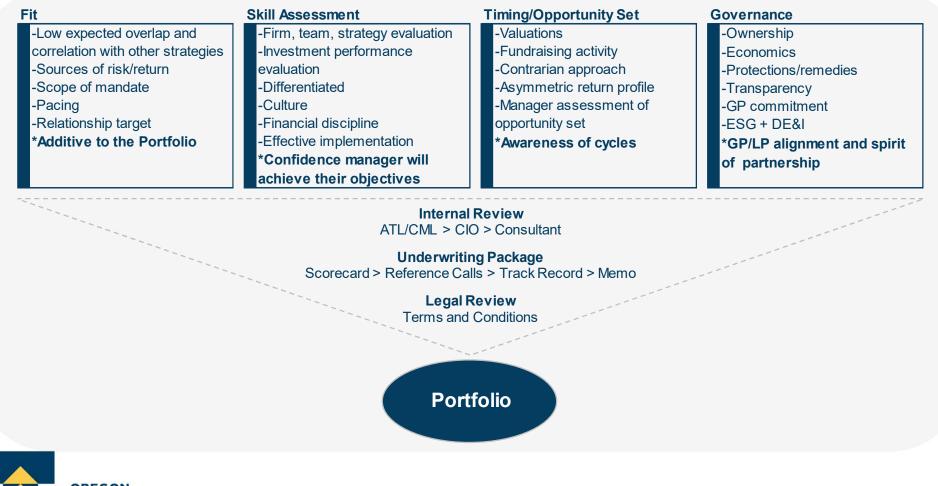
Topics

- 1. Diversifying Strategies Portfolio Overview
- 2. Diversifying Strategies Portfolio Update
- 3. Appendix



Appendix Investment Process

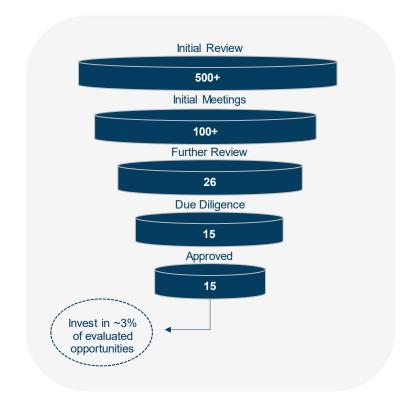
- Evaluation framework
 - <u>Very</u> high-level summary of Alternatives Portfolio investment evaluation framework below.
 - In practice, many more variables, non-linear, and with numerous feedback channels.





Appendix Investment Process, cont.

- 2022 Alternatives Portfolio meeting activity
 - Began formally tracking meeting count in 2016.
 - Scale, brand, and open door policy leveraged to foster deal flow.
 - E.g., among U.S. defined benefit plans, OPERF ranks (by assets) in the top 5 in infrastructure and agriculture, and in the top 10 in energy, commodities, and hedge funds¹.
 - Over 2,800 notes and other correspondence deposited in research management system.
 - After screening approximately 500 opportunities, held initial meetings (inperson or virtual) with over 100 distinct prospective managers/investments.
 - "Deep dives" on 26 opportunities.
 - Ultimately sought approval for 15 investments.



¹Source: P&I. Market values as of September 30, 2022.



Appendix Albourne Super-Strategy Buckets

➢ <u>Macro/directional</u>

- Generally refers to strategies that are more directional in nature, although they can shift opportunistically between having a directional bias and a non directional bias. Typically investing at the asset class level (e.g., fixed income, currencies, equities and commodities) rather than individual company securities.
- Strategy examples: global macro, CTA, global asset allocation.
- Relative value
 - Seek returns by capitalizing on the mispricing of related securities or financial instruments, generally avoid taking a directional bias with regard to the price movement of securities/markets.
 - Strategy examples: fundamental equity market neutral, convertible arbitrage.
- Event driven
 - Focus on identifying and analyzing securities that can benefit from the occurrence of an extraordinary transaction or event (e.g., restructurings, takeovers, mergers, spin offs, bankruptcy, etc.).
 - Strategy examples: merger arbitrage, distressed investing.
- Equity long/short
 - Maintain some level of market exposure (either net long or net short); however, the level of market exposure may vary through time.
 - Strategy examples: emerging markets long/short, U.S. long/short.





OREGON STATE TREASURY

Tobias Read Oregon State Treasurer 867 Hawthorne Ave. SE Salem, OR 97301





TAB 8 CALENDAR – FUTURE AGENDA ITEMS

Oregon Investment Council - Regular Meeting - July 19, 2023

2023-24 OIC Forward Calendar and Planned Agenda Topics

September 6, 2023	Q2 Performance Review: OPERF, CSF, SAIF
October 25, 2023	Operations Annual Review CEM Benchmarking
December 6, 2023	Q3 OPERF Performance Public Equity Portfolio Review Fixed Income Portfolio Review: OPERF, OSTF
January 24, 2024	Private Equity Portfolio Review Opportunity Portfolio Review 2025 OIC Calendar Approval
March 6, 2024	2023 Performance Review: OPERF, CSF, SAIF Fixed Income Portfolio Review Real Estate Portfolio Review
April 17, 2024	Real Assets Portfolio Review Individual Account Program (IAP) Review OSGP Annual Review
May 29, 2024	Q1 Performance Review: OPERF
July 17, 2024	Diversifying Strategies Portfolio Review





TAB 9

OPEN

DISCUSSION

Oregon Investment Council - Regular Meeting - July 19, 2023





TAB 10

PUBLIC COMMENTS

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

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

Oregon Investment Council - Regular Meeting - July 19, 2023