



**OREGON
STATE
TREASURY**

Oregon Investment Council

April 24, 2019

Rukaiyah Adams
Chair

John Skjervem
Chief Investment Officer

Tobias Read
State Treasurer



Investment Division
16290 SW Upper Boones Ferry Road
Tigard, OR 97224
503.431.7900

Main Office
350 Winter Street, Suite 100
Salem, OR 97301-3896
503.378.4000

oregon.gov/treasury
oregon.treasurer@state.or.us



OREGON INVESTMENT COUNCIL

Agenda

April 24, 2019
9:00 AM

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

<u>Time</u>	<u>A. Action Items</u>	<u>Presenter</u>	<u>Tab</u>
9:00-9:05	1. Review & Approval of Minutes March 13, 2019	Rukaiyah Adams <i>OIC Chair</i>	1
9:05-9:10	2. Committee Reports and Opening Remarks	John Skjervem <i>Chief Investment Officer</i>	2
9:10-10:15	3. Strategic Asset Allocation & Capital Markets Assumptions Update <i>OPERF</i>	Karl Cheng <i>Senior Investment Officer, Portfolio Risk & Research</i> Janet Becker-Wold <i>Senior Vice President, Callan LLC</i> Jason Ellement <i>Senior Vice President, Callan LLC</i> Allan Emkin <i>Managing Principal, Meketa Investment Group, Inc.</i>	3
<u>B. Information Items</u>			
10:15-10:35	4. Securities Lending Update <i>OPERF/SAIF/CSF/OSTF/Agency Accounts</i>	Perrin Lim <i>Director of Capital Markets</i> Tom Connelley <i>Vice President, Senior Portfolio Manager, State Street Global Advisors</i> Johnson Shum <i>Vice President, Securities Finance, State Street Global Markets</i>	4
10:35-10:45	----- BREAK -----		

TAB 1 – REVIEW & APPROVAL OF MINUTES

March 13, 2019 Regular Meeting



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State of Oregon

Office of the State Treasurer

16290 SW Upper Boones Ferry Road
Tigard, Oregon 97224

OREGON INVESTMENT COUNCIL

March 13, 2019

Meeting Minutes

Members Present: Rukaiyah Adams, John Russell, Tobias Read, Rex Kim, and Kevin Olineck

Staff Present: John Skjervem, Perrin Lim, David Randall, Karl Cheng, Anna Totdahl, Roy Jackson, Austin Carmichael, Tim Baumert, Paul Koch, David Elott, May Fanning, Tony Breault, Jen Plett, Debra Day, Dana Millican, Caitlyn Wang, Ben Mahon, Jo Recht, Tom Lofton, Kathie Garcia, Mark Selfridge, Amanda Kingsbury, Aliese Jacobsen, Eric Messer, Kristel Flores, Ricardo Lopez, Michael Langdon, Joe Hutchinson, Michael Viteri, Jennifer Peet, William Hiles, Michael Mueller, Kristel Flores, Andy Coutu, Angela Schaffers, James Sinks, Dmitri Palmateer, Amy Wojcicki, Ahman Dirks, Robin Kaukonen, Chris Ebersole Faith Sedberry, Sam Spencer, Tyler Bernstein, Scott Robertson, and Krystal Mclean

Consultants Present: Tom Martin (TorreyCove); Allan Emkin, Christy Fields and Brandon Ross (PCA); Janet Becker-Wold, Jim Callahan and Uvan Tseng (Callan); David Fann & Tom Martin (TorreyCove)

Legal Counsel Present: Steven Marlowe, Department of Justice

The March 13th, 2019 OIC meeting was called to order at 9:00 am by Rukaiyah Adams, OIC Chair.

I. 9:00 am Review and Approval of Minutes

MOTION: Chair Adams asked for approval of the January 31, 2019 OIC regular meeting minutes. Member Russell moved the motion at 9:00 am, and Treasurer Read seconded the motion which then passed by a 4/0 vote.

II. 9:01 am Committee Reports and CIO Update

Committee Reports: Mr. Skjervem gave an update on the following committee actions taken since the January 31st, 2019 OIC meeting:

Private Equity Committee

February 14, 2019	Genstar Capital Partners IX, L.P. & Opportunity Fund	\$200M
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Alternatives Portfolio Committee

February 25, 2019	Bridgewater Optimal Portfolio	\$250M
	GMO Systematic Global Macro Fund	\$250M
	Northern Shipping Fund IV, L.P.	\$150M



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Opportunity Portfolio Committee

None

Real Estate Committee

None

Mr. Skjervem then provided opening remarks which included a summary of 2018 and cumulative OPERF investment performance, a preview of the CSF Annual Review, as well as brief remarks on staff's recommended IAP updates and its inaugural OPERF Liquidity Analysis. Mr. Skjervem also previewed staff's annual Real Estate review, and highlighted the important progress achieved in that asset class. Finally, he introduced two new OST staff members, Krystal Mclean, Legal Assistant, Legal & Compliance and Sam Spencer, Investment Officer, Real Estate, and updated the Council on other personnel transfers and promotions.

III. 9:14 am Common School Fund Annual Review – Common School Fund

Michael Viteri, Senior Investment Officer, Public Equity, provided the Oregon Investment Council with an update on the Common School Fund for the period ended December 31, 2018, and sought approval for changes to OIC's Common School Fund Policies and Procedures.

Mr. Viteri then introduced Bill Ryan, Deputy Director for Operations, Department of State Lands who provided an overview of the Common School Fund and its history as well as an update on his department's current priorities.

Jennifer Peet, Corporate Governance Director, recommended a select list of updates to as well as a sweeping consolidation of the OIC's Common School Fund investment policies.

MOTION: Mr. Kim moved approval at 9:46 am, and Treasurer Read seconded the motion which then passed by a 4/0 vote.

IV. 9:55 am IAP Update – OPERF

Jennifer Peet, and Christopher Nikolich, Head of Glide Path Strategies (U.S.), AllianceBernstein provided a status report for the Individual Account Program, which comprised a review of the IAP program, implementation and ongoing services, demographic analysis and a glide path design refresher and finally, a performance and benchmark review.

Upon the conclusion of Mr. Nikolich's remarks, Ms. Peet recommended approval of proposed policy changes as outlined in policy INV 218.

MOTION: Mr. Russell moved approval of the recommendation at 10:09 am, and Treasurer Read seconded the motion which then passed by a 4/0 vote.

V. 10:09 am Q4 2018 Performance & Risk Report – OPERF

Karl Cheng, Senior Investment Officer, Portfolio Risk & Research and Janet Becker-Wold, Senior Vice President, Callan Associates, presented the quarterly OPERF investment performance and risk report for the calendar year and cumulative period ended December 31, 2018.

VI. 10:47 am Real Estate Portfolio Review – OPERF

Tony Breault, Senior Investment Officer, Real Estate, along with Christy Fields, Managing Director, Pension Consulting Alliance, presented the Real Estate Annual Review and 2019 Plan. This presentation included a



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review of OPERF real estate strategy, an annual and cumulative performance update for the period ended December 31, 2018, and a preview of likely portfolio activity during 2019.

Mr. Breault introduced Ms. Mary Ludgin, Managing Director, Head of Global Research for Heitman, who presented her firm's real estate market overview, and added some specific commentary on various property types.

VII. 11:49 am Liquidity Update & Analysis – OPERF

Jen Plett, Senior Investment Analyst, and Karl Cheng provided the OIC with an introduction to the OPERF cash flow and liquidity project, which included a restatement of and discussion of the collective understanding of OPERF's short- and long-term investment objectives.

VIII. 12:28 pm Asset Allocation & NAV Updates

Mr. Skjervem reviewed asset allocations and NAVs across OST-managed accounts for the period ended January 31, 2019.

IX. 12:28 pm Calendar – Future Agenda Items

A calendar listing of future OIC meetings and scheduled agenda topics was included in the Council's meeting material.

X. 12:29 pm Open Discussion

Council Member Kim thanked OST investment staff the meeting agenda and supporting material, and said he particularly appreciated the liquidity analysis and portfolio risk discussion. He also said he believes the Council has come a long way on those topics, and that he would like to continue this discussion in a manner that includes looking at different public peer fund practices, both in terms of return level pursued and risk level taken.

12:20 pm Public Comments

None.

Ms. Adams adjourned the meeting at 12:30 pm.

Respectfully submitted,

May Fanning

May Fanning

Executive Support Specialist

TAB 2 – Committee Reports and Opening Remarks

April 24, 2019

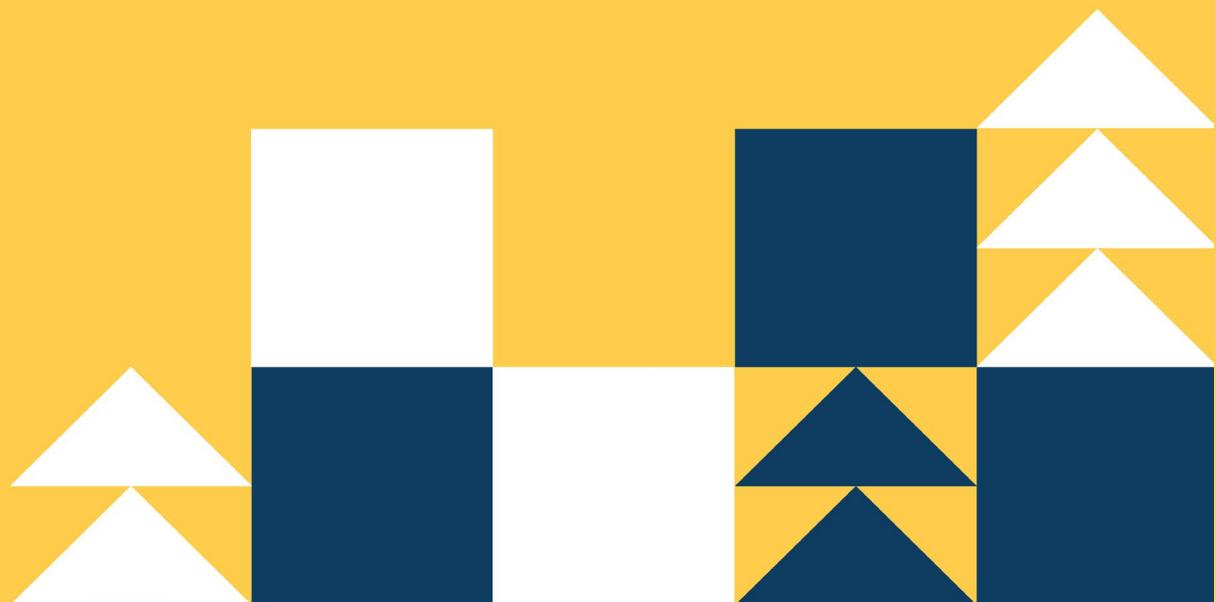
Oregon Investment Council

Opening Remarks

John D. Skjervem, Chief Investment Officer



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Strategic Asset Allocation & CMA Update

Higher expected returns combined with a modest asset allocation change results in 1) a 20 bps increase in the *ex ante* return projection, 2) an improved Sharpe ratio and 3) no net change in Fund liquidity.

Securities Lending Update

Live, in person.

Private Equity Benchmarking

Robust analysis of the various alternatives and trade-offs.

State Accident Insurance Fund

Modest policy and investment changes proposed for SAIF.

More New Faces

- Tyler Bernstein, Operations Analyst
- Scott Robertson, Investment Analyst
- Kristi Jenkins, Operations Manager
- Sommer May, Senior Compliance Analyst
- Andrey Voloshinov, Senior Compliance Analyst

Departures

- Tim Baumert, Investment Officer, Public Equity

TAB 3 – Strategic Asset Allocation & Capital Markets
Assumptions Update

OPERF

OPERF Strategic Asset Allocation Recommendation

Purpose

Staff recommends the following changes to OPERF's strategic asset allocation: a) reduce the target weight to Public Equity by 5.0%; b) increase the target weight to Diversifying Strategies by 2.5%; and c) within Capital Markets, initiate a new allocation to Risk Parity with a target weight of 2.5%. Staff also recommends eliminating *Policy INV 215 OPERF Asset Allocation and Rebalancing Policy* and consolidating its germane sections with a now revised *Policy INV 1203 Statement of Investment Objectives and Policy Framework for the Oregon Public Employees Retirement Fund*.

Background

The Council last revised OPERF's strategic asset allocation (SAA) targets at the June 2015 meeting. At that time, the OIC approved a target increase for Diversifying Strategies, a sleeve within the Alternatives Portfolio, from 2.5% to 5.0%, and a simultaneous decrease in the Private Equity target from 20.0% to 17.5%. Using then-prevailing Capital Market Assumptions from Callan LLC ("Callan"), the Council's general investment consultant, the June 2015 SAA target revisions decreased OPERF's Expected Volatility (standard deviation of expected returns) from 14.4% to 14.0%. This revision did not affect the Fund's Expected Return, thus resulting in a modest improvement in OPERF's projected Sharpe Ratio¹.

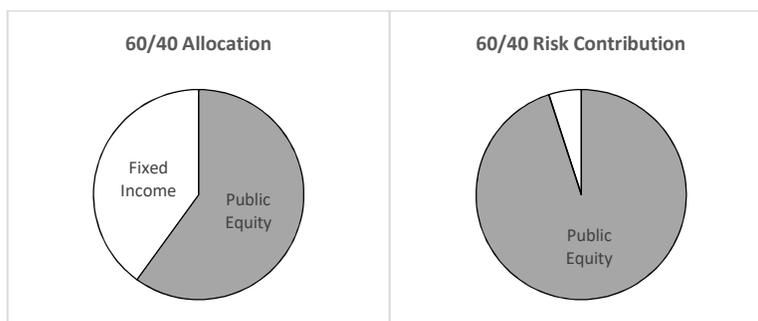
To further improve OPERF's prospective, risk-adjusted performance, the Council subsequently approved the following staff recommendations at the asset class level:

- Create a new allocation to U.S. Treasury bonds in an amount comprising 37% of the Fixed Income Portfolio (December 2015);
- Reconstitute the Real Estate portfolio to emphasize Core property type exposures (March 2016); and
- Introduce a 25% allocation to Low Volatility strategies within the Public Equity portfolio (October 2016).

Staff continues to look for opportunities to improve OPERF's projected Sharpe Ratio. To that end, staff and Callan began a rigorous review of the Fund's SAA late last year.

Risk Parity

The "60/40" portfolio of 60% public equity and 40% fixed income is a widely-used reference or benchmark for a "balanced" portfolio. Although the nominal allocations in a 60/40 portfolio are 3:2 public equity to fixed income, the Expected Volatility of public equity is multiples of fixed income. Fixed income still provides diversification, but the risk (as measured by the standard deviation of expected returns) of a 60/40 portfolio is almost entirely driven by its public equity allocation.



¹ Sharpe Ratio is defined as Return in excess of the Risk-Free Rate per unit of Standard Deviation.

As inferred from its name, “Risk Parity” balances the risk contributions in a portfolio equally among the portfolio’s component asset classes (typically, public equity, fixed income and commodities). Moreover, in order to provide a level of return commensurate with that of the 60/40 portfolio, risk parity strategies are levered using exchange-traded futures contracts. Besides comprising a collection of long-only beta exposures, Risk Parity is further differentiated from Diversifying Strategies by its positive correlations to public equity and fixed income, whereas staff’s portfolio construction objectives within OPERF’s Diversifying Strategies allocation include zero to low correlations with the Fund’s other, traditional asset classes (e.g., Public Equity). Nevertheless, and due primarily to its levered fixed income exposures (as expressed through U.S. Treasury and other sovereign bond futures), Risk Parity can still serve as an effective diversifier within an otherwise broad asset allocation.



Asset Allocation Mix

Staff considered several simplistic scenarios in which the Asset Class “X” allocation was increased by 10% and the Public Equity allocation was reduced by 10%, respectively. Staff used Public Equity as the funding source because it is both highly liquid and contributes (along with Private Equity) approximately 85% of OPERF’s predicted risk, as calculated by the Aladdin risk system.

- **Private Equity.** Per Callan’s 2019 Capital Market Assumptions (CMAs), increasing OPERF’s Private Equity allocation from 17.5% to 27.5% would increase both the Fund’s expected return and its expected risk given the high correlation between Public and Private Equity. This swap (increase Private Equity, decrease Public Equity) produces no Sharpe Ratio improvement for OPERF. Moreover, this swap would raise the Fund’s allocation to illiquid investments (namely in the Private Equity, Real Estate and Illiquid Alternatives portfolios) from 37.5% to 47.5% of OPERF.
- **Fixed Income.** Increasing OPERF’s Fixed Income allocation from 20.0% to 30.0% would decrease the Fund’s expected volatility and improve its Sharpe Ratio, but would also result in a lower expected return.
- **Real Estate and Illiquid Alternatives.** Increasing either allocation by 10.0% would decrease OPERF’s expected volatility and its improve Sharpe Ratio without adversely impacting expected return. However, increasing either of these two asset classes would also increase the Fund’s allocation to illiquid investments. Additionally, there may be strategy- and/or product-level capacity constraints relative to expanding the Illiquid Alternatives allocation.
- **Diversifying Strategies and Risk Parity.** Increasing either allocation by 10.0% would decrease OPERF’s expected volatility and improve its Sharpe Ratio without adversely impacting expected return. While there may also be capacity-related challenges with an expanded allocation to Diversifying Strategies, neither asset class is expected to cause liquidity concerns.

Callan outlined four alternative asset allocation mixes in its presentation. Using Callan’s 2019 CMAs, a comparison between OPERF’s current SAA targets and those specified in Callan’s “Mix 8” is listed below. Target differences are shown in bold.

Asset Class	Current Targets (%)	Callan "Mix 8" Recommendation (%)
Global Equity	37.5	32.5
Private Equity	17.5	17.5
Fixed Income	20.0	20.0
Real Estate	12.5	12.5
Alternatives – Illiquid	7.5	7.5
Alternatives – Diversifying Strategies	5.0	7.5
Risk Parity	0.0	2.5
Expected Return	7.3%	7.3%
Expected Volatility	13.2%	12.5%
Sharpe Ratio	0.37	0.39

Due to upward revisions in Callan’s 2019 CMAs (relative to 2018), the *ex ante* estimate of OPERF’s average annual “beta” return increases from 7.1% to 7.3%. Unless directed otherwise, staff is holding the Council’s excess return or “alpha” objective for the combined Fixed Income, Public Equity, and Real Estate portfolios constant at 0.3%. Accordingly, given the proposed Mix 8 asset allocation changes (specifically, a 5% reduction in OPERF’s Public Equity allocation offset by 2.5% allocation increases to Diversifying Strategies and Risk Parity, respectively), the 2019 beta estimate for OPERF’s long term, average annual total return is 7.3% while the combined alpha plus beta estimate is 7.6%.

Asset Class	"Mix 8" Allocation (%)	Target Active Return (%)	Target Active Contribution (%)
Global Equity	32.5	0.50	0.16
Fixed Income	20.0	0.25	0.05
Real Estate	12.5	0.50	0.06
Total Fund			0.28

Staff Recommendation

Staff recommends Council approval of the Mix 8 proposal and associated policy changes to INV 215 and INV 1203.

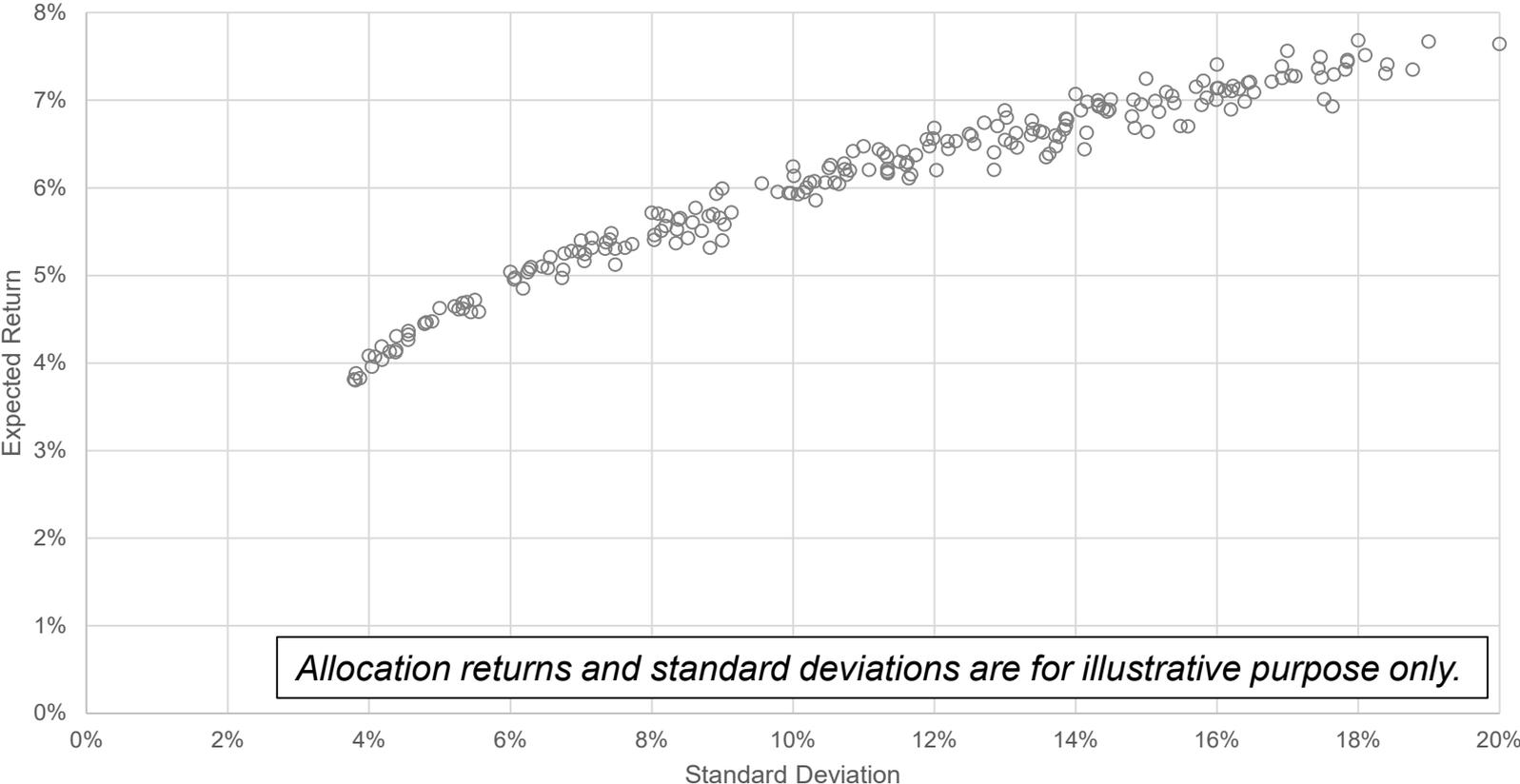
2019 Asset Allocation Discussion



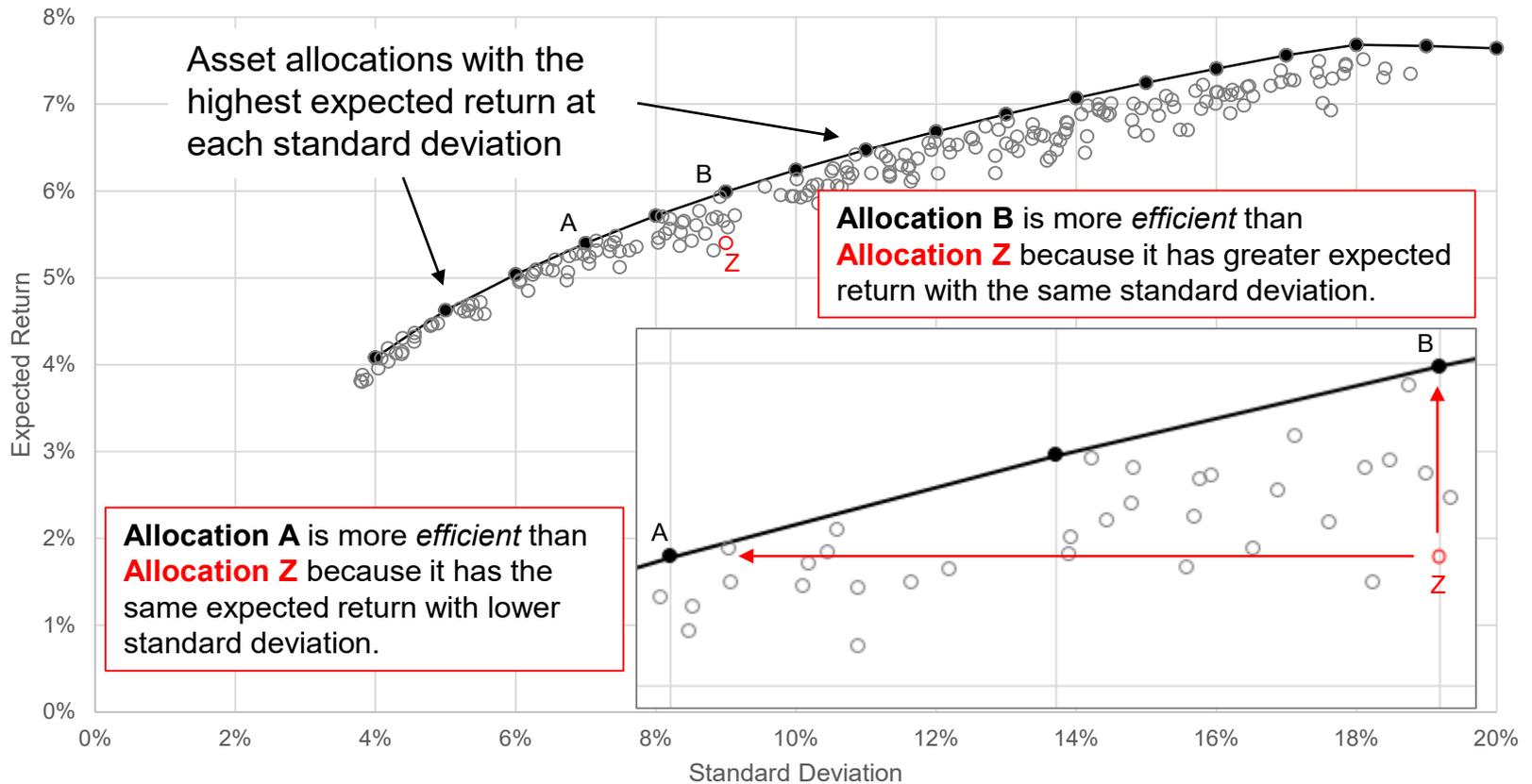
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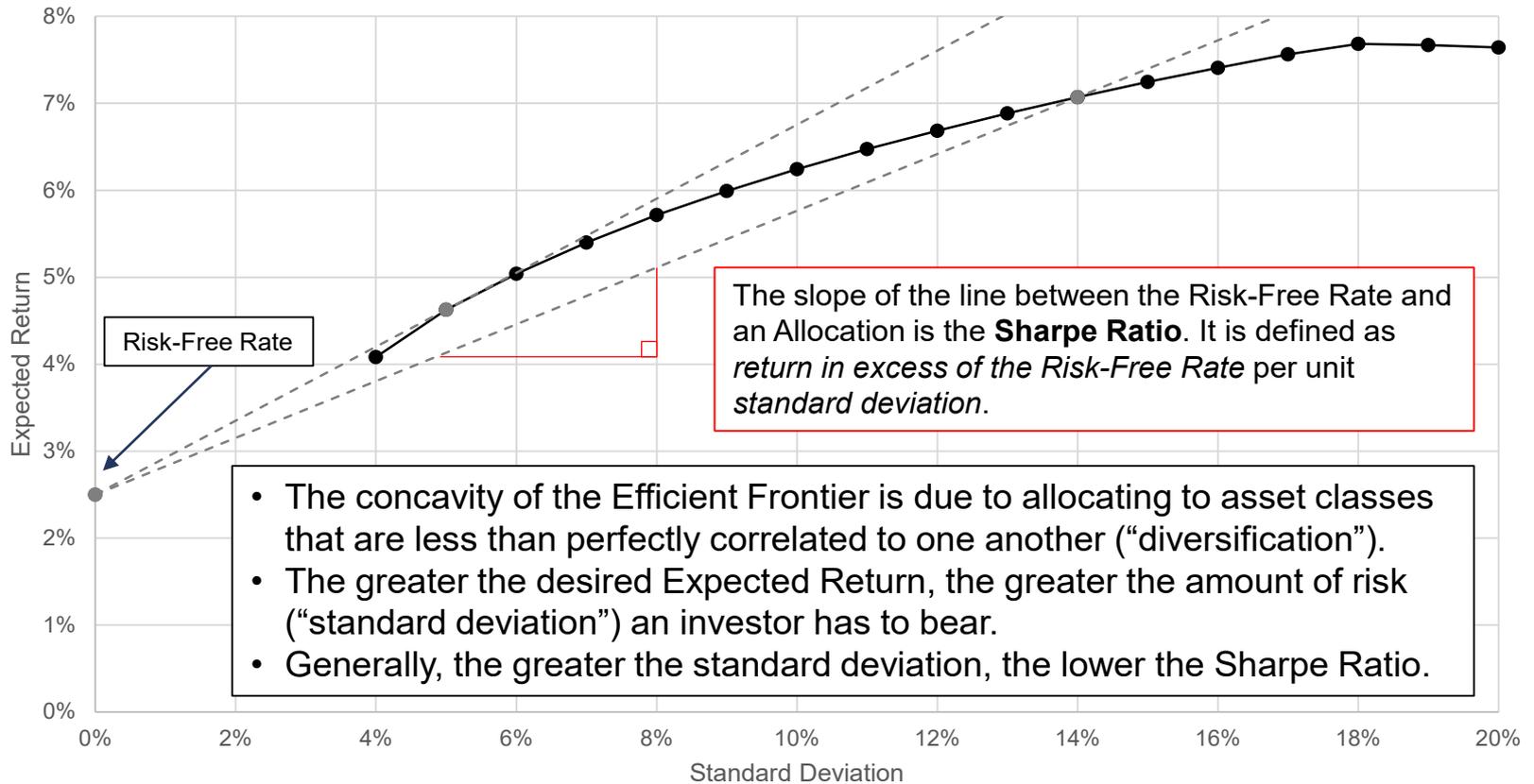
Opportunity Set of Possible Asset Allocations



Opportunity Set of Possible Asset Allocations



Efficient Frontier

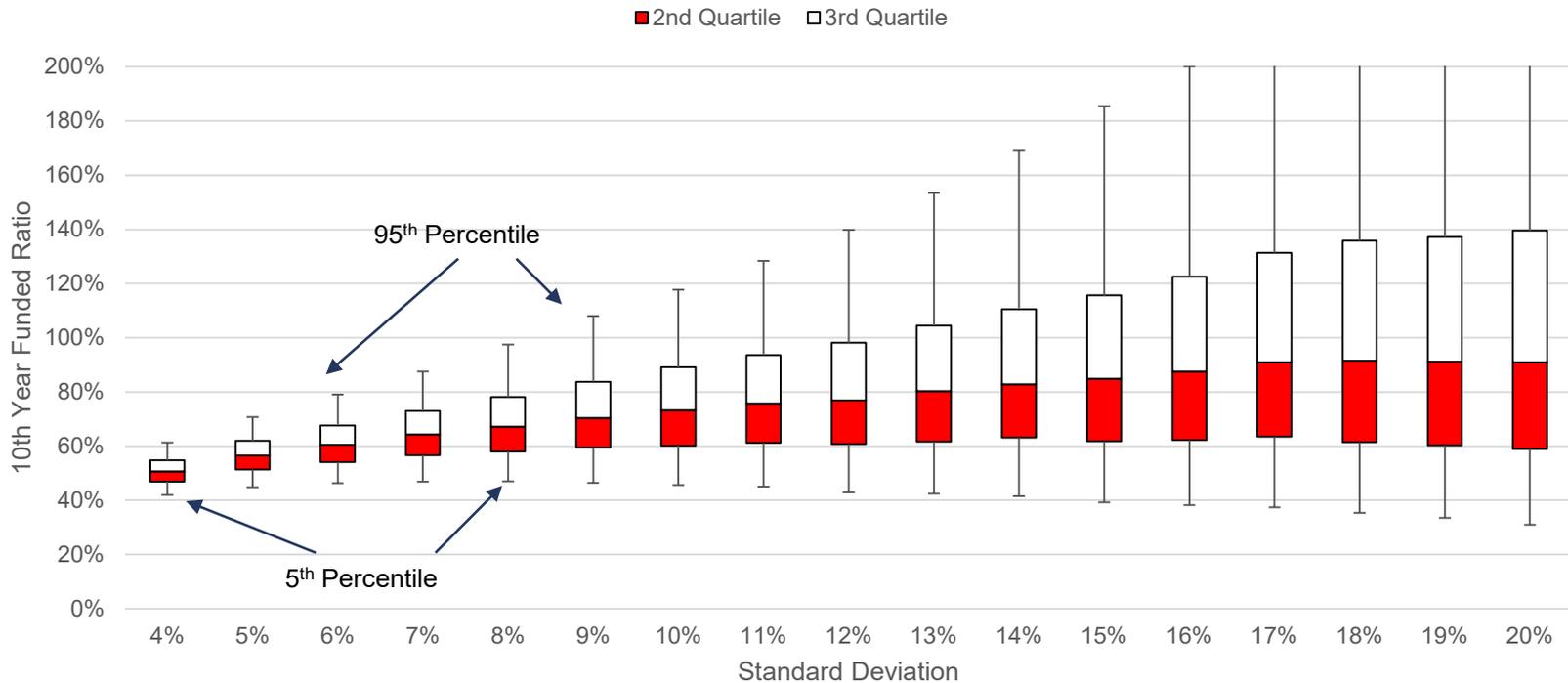


Thought Experiment

What is the impact on Funded Ratios and Contribution Rates as a result of different allocations along the efficient frontier?

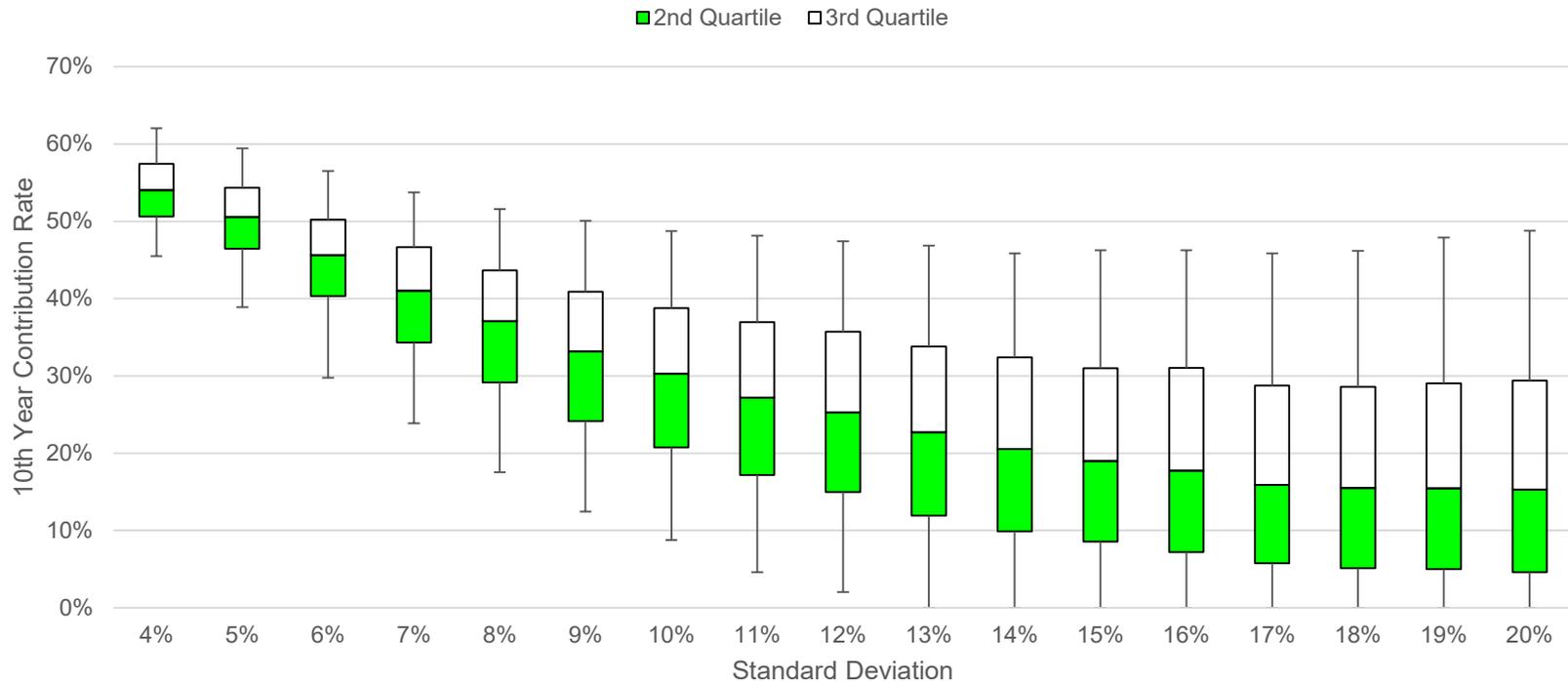
- Run a series of Monte Carlo simulations using different returns & standard deviations to create a distribution of likely outcomes ten years out. Include some simplifying assumptions on contribution rates and beneficiary payments.
- **We are not actuaries!** This experiment is mainly for illustrative purposes. While likely not accurate, the experiment can provide some intuition regarding the impact of the asset allocation decision.

Funded Ratios by Asset Allocation



- Allocations with low expected return & low standard deviation will likely result in a low Funded Ratio with a low dispersion of possible outcomes.
- Allocations with high expected return & high standard deviation will likely result in a high Funded Ratio with a high dispersion of likely outcomes.

Contribution Rates by Asset Allocation



- Allocations with low expected return & low standard deviation will likely result in a high Contribution Rate with a low dispersion of possible outcomes.
- Allocations with high expected return & high standard deviation will likely result in a low Contribution Rate with a high dispersion of likely outcomes.

Takeaways

- At lower risk levels, diversification can improve the Fund's Sharpe Ratio. At higher risk levels, the Fund's allocation is overweight asset classes with higher risk and return profiles (e.g., Public & Private Equity).
- Increasing the Fund's Expected Return improves its prospective Funded Ratio but entails taking on more risk. This elevated investment volatility is transmitted to employers through greater variability in both the Funded Ratio and required Contribution Rate.

Targeting a Funded Ratio of 80%-90% in 10 years' time would require targeting an Expected Return between 6.9%-7.5%.

Comparison of Consultants' Capital Market Assumptions

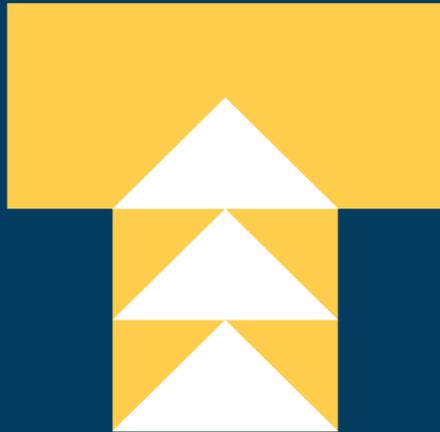
U.S. Equity	Return	S.D.
Callan	7.0%	17.1%
BlackRock	7.0%	15.8%
PCA	5.8%	19.0%
Consultant A	6.8%	17.0%
Consultant B	6.0%	16.5%
Consultant C	5.8%	15.6%
Average	6.4%	16.8%

Private Equity	Return	S.D.
Callan	9.7%	26.3%
BlackRock	7.2%	31.2%
PCA	8.2%	27.0%
Consultant A	9.3%	24.0%
Consultant B	10.0%	24.2%
Consultant C	8.8%	25.6%
Average	8.9%	26.4%

Int'l Equity	Return	S.D.
Callan	7.3%	21.1%
BlackRock	9.3%	14.2%
PCA	6.8%	21.5%
Consultant A	7.8%	20.0%
Consultant B	6.8%	20.5%
Consultant C	7.7%	17.8%
Average	7.6%	19.2%

Real Estate	Return	S.D.
Callan	7.0%	12.2%
BlackRock	4.9%	14.7%
PCA	5.0%	10.0%
Consultant A	6.8%	18.5%
Consultant B	6.0%	13.0%
Consultant C	6.1%	12.9%
Average	6.0%	13.6%

U.S. Fixed Income	Return	S.D.
Callan	3.8%	3.8%
BlackRock	3.3%	4.5%
PCA	3.5%	5.5%
Consultant A	3.4%	4.0%
Consultant B	3.0%	6.1%
Consultant C	3.3%	6.4%
Average	3.4%	5.0%



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Tobias Read
Oregon State Treasurer

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

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April 24, 2019

**Oregon Public Employees'
Retirement Fund**

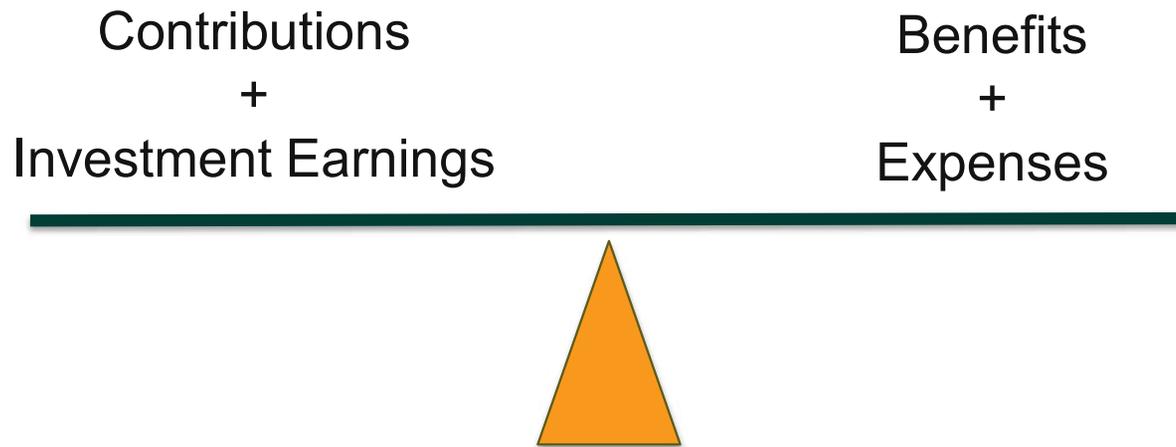
**2019 Asset Allocation and
Liability Study**

Executive Summary

- OPERF's Target Mix is expected to exceed the actuarial discount rate at the median case over a 10-year time horizon
 - The current Target Mix is reasonable to meet the Fund's objectives
 - The Target Mix expected return is 7.35% while the actuarial investment return assumption is 7.20%
- The Target Mix achieves a higher rate of return with similar volatility as a public market portfolio consisting of 70% equity / 30% fixed income
 - Benefits of diversification across asset classes and strategies
- The OIC could continue to de-risk by decreasing Public Equity with additional funding to Diversifying Strategies or Risk Parity
 - Doubling the Diversifying Strategies allocation has implementation challenges and considerations
- Funded status volatility modestly improves under lower risk scenarios
- Liquidity analysis over time and extreme market conditions show that it is manageable
 - Government bond portfolio liquidity is critical in these scenarios

Goal of the Asset-Liability Study

- The goal of an asset-liability study is to establish a long-term strategic asset allocation policy
- An appropriate asset allocation will depend on the plan sponsor's investment objectives:
 - Minimize costs over the long run (long-term goal)
 - Minimize funded status volatility (short-term goal)
- The strategic asset allocation target should balance sustainable funded status volatility and minimization of contributions over the long run
- The strategic asset allocation will vary by the unique circumstances of the plan sponsor
 - No “one-size-fits-all” solution exists



Three Strategic Policies Govern the Plan

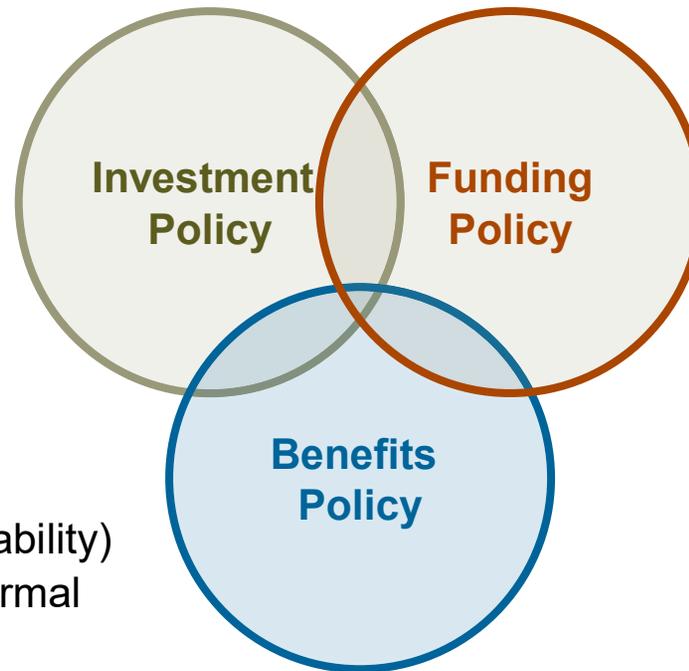
Evaluating the interaction of the three key policies that govern a defined benefit plan with the goal of establishing the best investment policy

Investment Policy

- Return objective
- Risk Tolerance
- Manage liquidity needs

Benefits Policy

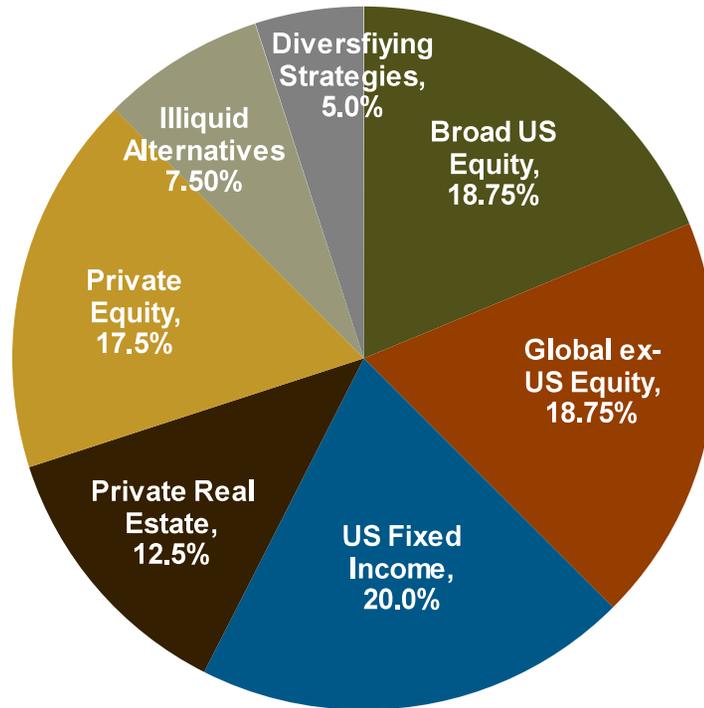
- Nature of benefit promise (liability)
- Ongoing cost of benefits (normal cost)



Funding Policy

- Assumed investment return
- Actuarial methodologies employed to stabilize contributions

Current Long-Term Strategic Policy



- As of December 31, 2018 Plan assets are \$64B
- Expected 10 year return is 7.35% with a standard deviation of 13.2%
- For purposes of the asset-liability study, Alternatives were split between liquid and illiquid assets
 - Diversifying Assets (Liquid Alternatives) – Risk Premia and Trend following strategies
 - Illiquid Alternatives - Private Infrastructure and Natural Resources Equity

Callan Capital Market Process and Philosophy

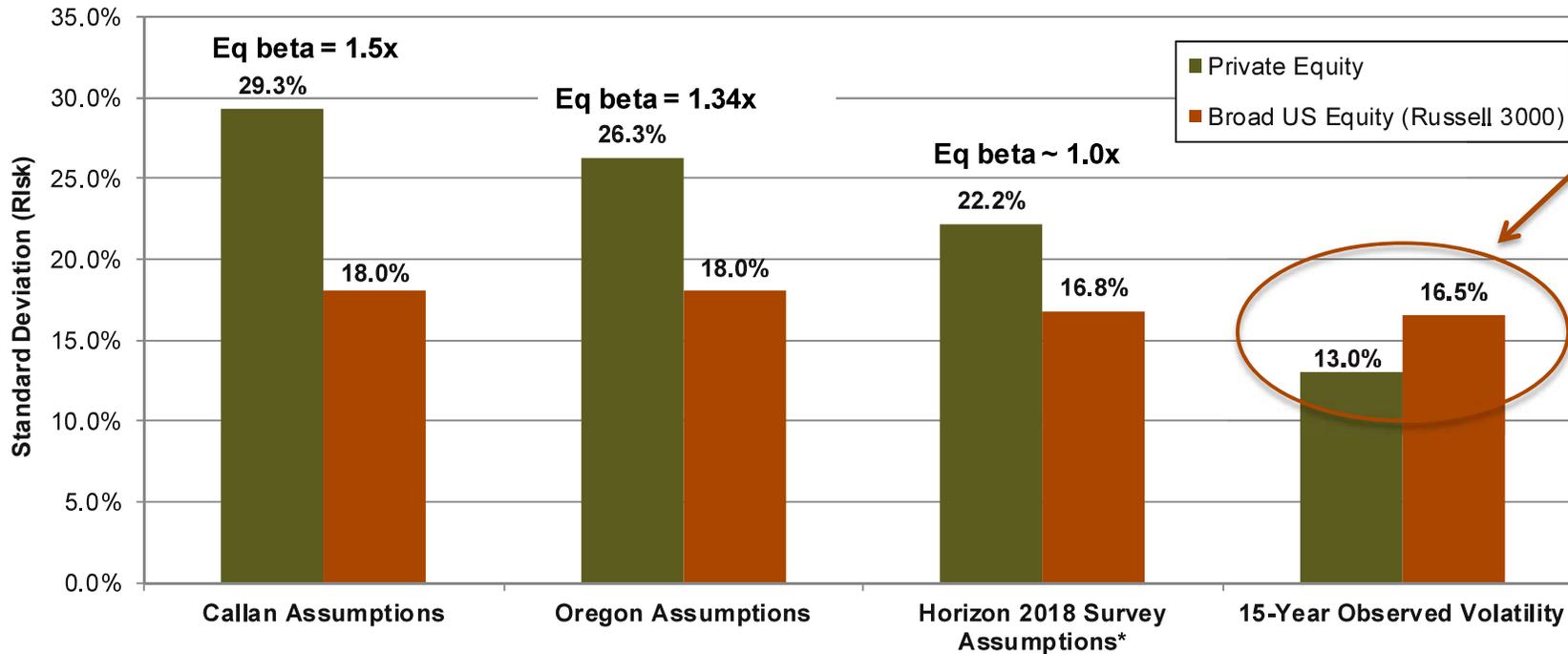
- Underlying beliefs guide the development of the projections:
 - A bias toward long-run averages
 - A conservative bias
 - An awareness of risk premiums
 - A presumption that markets ultimately clear and are rational
- Reflect our belief that long-term equilibrium relationships between the capital markets and lasting trends in global economic growth are key drivers to setting capital market expectations.
- Long-term compensated risk premiums represent “beta”—exposure to each broad market, whether traditional or “exotic,” with limited dependence on successful realization of alpha.
- The projection process is built around several key building blocks:
 - Advanced modeling at the individual asset class level (e.g., a detailed bond model, an equity model)
 - A path for interest rates and inflation
 - A cohesive economic outlook
 - A framework that encompasses Callan beliefs about the long-term operation and efficiencies of the capital markets

2019 – 2028 Capital Market Expectations

Asset Class	Index	Expected Return	Standard Deviation (Risk)
Equities			
Broad US Equity	Russell 3000	7.15%	18.00%
Global ex-US Equity	MSCI ACWI ex USA	7.25%	21.05%
Private Equity	Custom	9.20%	26.30%
Fixed Income			
US Fixed Income	Barclays Aggregate	3.75%	3.75%
Real Estate			
Private Real Estate	Custom	7.00%	12.20%
Other			
Risk Parity	Custom	6.50%	11.00%
Alternatives			
Illiquid Alternatives	Custom	7.40%	12.60%
Diversifying Strategies	Custom	6.15%	11.00%
Inflation			
	CPI-U	2.25%	1.50%

- Current asset class exposures are shown above
- Some alternative mixes evaluate adding Risk Parity as a new “asset class”

Private Equity Assumption



OIC Private Equity risk was lower than the Russell 3000 over the last 15 years ending 12/31/2018 due to appraisal smoothing

* Source: Horizon Actuarial Services 2018 Survey of Capital Market Assumptions. 35 Investment Advisors participated in the Survey.

- Callan standard assumption is an arithmetic return of 12.1% and standard deviation of 29.3% (Results in an 8.5% 10-year annualized return)
- OPERF's assumption employs the same arithmetic return of 12.1% but risk is lowered to 26.3% (results in a 9.2% 10-year annualized return) to reflect a well-diversified tenured program, a bias towards buy-outs and significant asset size that may facilitate access to top performing Funds
 - OPERF risk assumptions are higher than the Horizon 2018 Survey
 - OPERF risk assumption (26.3%) is 2x higher than observed volatility over the last 15 years

Other Customized Assumptions

- Private Real Estate

- Reflects targeted real estate structure: 55% Core / 20% Value Add / 20% Opportunistic and 5% REITs
- Callan standard risk assumption for Core Real Estate was lowered from 15.7% to 11.0% to better reflect Oregon experience
- Value Add, Opportunistic and REITs have materially higher risk than Core Real Estate
- OPERF's 15-year historical experience is 10% annualized return and 12% risk

- Diversifying Strategies

- Callan does not have standard assumptions for Risk Premia and Trend Following
- Risk Premia - Credit Suisse Neuberger Berman index passive proxy (1.5x leverage for 7.5% volatility target)
- Trend Following – SG Trend; active manager returns spliced with BTOP50 (1.5x leverage)

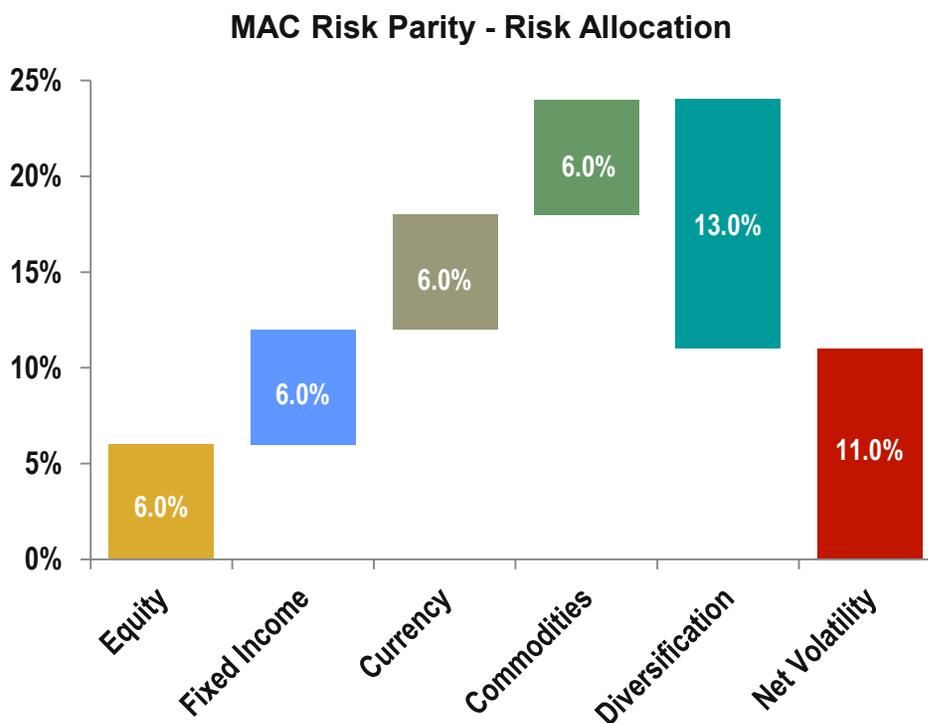
- Illiquid Alternatives

- Callan does not have standard assumptions for Private Infrastructure and Natural Resources Equity
- Linked quarterly IRRs from Cambridge performance data

What is Risk Parity?

A liquid alternative remixing traditional asset classes

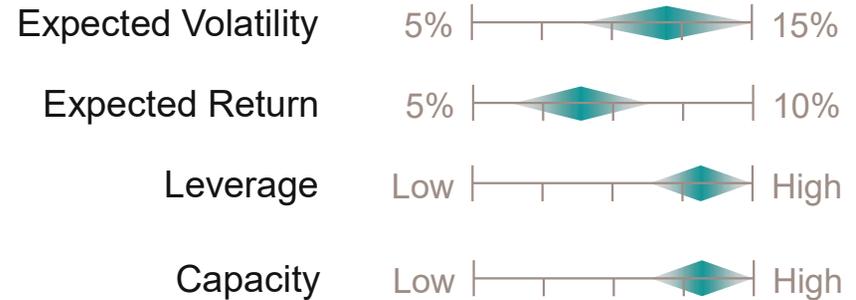
- Risk Parity seeks to balance risk contribution across asset classes
 - Asset classes should be viewed as risk allocations rather than dollar allocations
- Expect performance to be challenged in environments where diversification breaks down and all asset classes are moving in tandem
 - This occurs when market participants don't want to take risks and instead prefer to hold cash
- Common benchmarks: T-bills + 5-8%, global 60/40, index of active managers



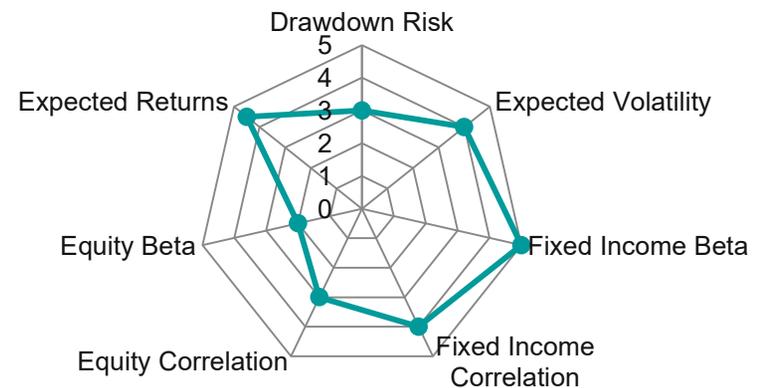
The Role of Risk Parity

Strategy Characteristics

- Modest equity correlation and beta
- High volatility
- High fixed income correlation and beta
- High net leverage
- Moderate drawdown risk



Risk Parity



Alternative Asset Mixes

	Target Mix	Min	Max	+5% Equity Mix 1	Equity Reduced by 10%				Equity Reduced by 5%		
					Mix 2	Mix 3	Mix 4	Mix 5	Mix 6	Mix 7	Mix 8
Broad US Equity	18.75%	13.75%	21.25%	30.00%	13.75%	13.75%	13.75%	13.75%	16.25%	16.25%	16.25%
Global ex-US Equity	18.75%	13.75%	21.25%	30.00%	13.75%	13.75%	13.75%	13.75%	16.25%	16.25%	16.25%
Private Equity	17.50%	17.50%	17.50%	0.00%	17.50%	17.50%	17.50%	17.50%	17.50%	17.50%	17.50%
Fixed Income	20.00%	15.00%	30.00%	40.00%	30.00%	25.00%	23.33%	20.00%	22.50%	22.50%	20.00%
Real Estate	12.50%	12.50%	12.50%	0.00%	12.50%	12.50%	12.50%	12.50%	12.50%	12.50%	12.50%
Illiquid Alternatives	7.50%	7.50%	7.50%	0.00%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%
Diversifying Strategies	5.00%	5.00%	10.00%	0.00%	5.00%	10.00%	8.33%	10.00%	7.50%	5.00%	7.50%
Risk Parity	0.00%	0.00%	5.00%	0.00%	0.00%	0.00%	3.33%	5.00%	0.00%	2.50%	2.50%
Total Equity	55%			60%	45%	45%	45%	45%	50%	50%	50%
Equity Beta	0.69			0.59	0.59	0.60	0.61	0.62	0.65	0.65	0.66
Expected Return	7.35%			6.30%	7.00%	7.20%	7.20%	7.30%	7.30%	7.30%	7.30%
Risk	13.2%			11.2%	11.3%	11.5%	11.7%	11.8%	12.3%	12.4%	12.5%
Illiquid Investments	37%			0%	37%	37%	37%	37%	37%	37%	37%

- Eight alternative mixes are compared
 - Mix 1 is a simple 60/40 portfolio added for context and is not considered as an alternative to the current Target Mix
- Alternative mix constraints:
 - Public & private equity range from 45% to 60%
 - Illiquid investments – Private Equity, Private Real Estate and Illiquid Alternatives – are held constant at 37%
 - Diversifying Strategies are constrained to 5-10%
 - Risk Parity is constrained to 5% and is funded only from Public Equity

Alternative Mix Construction

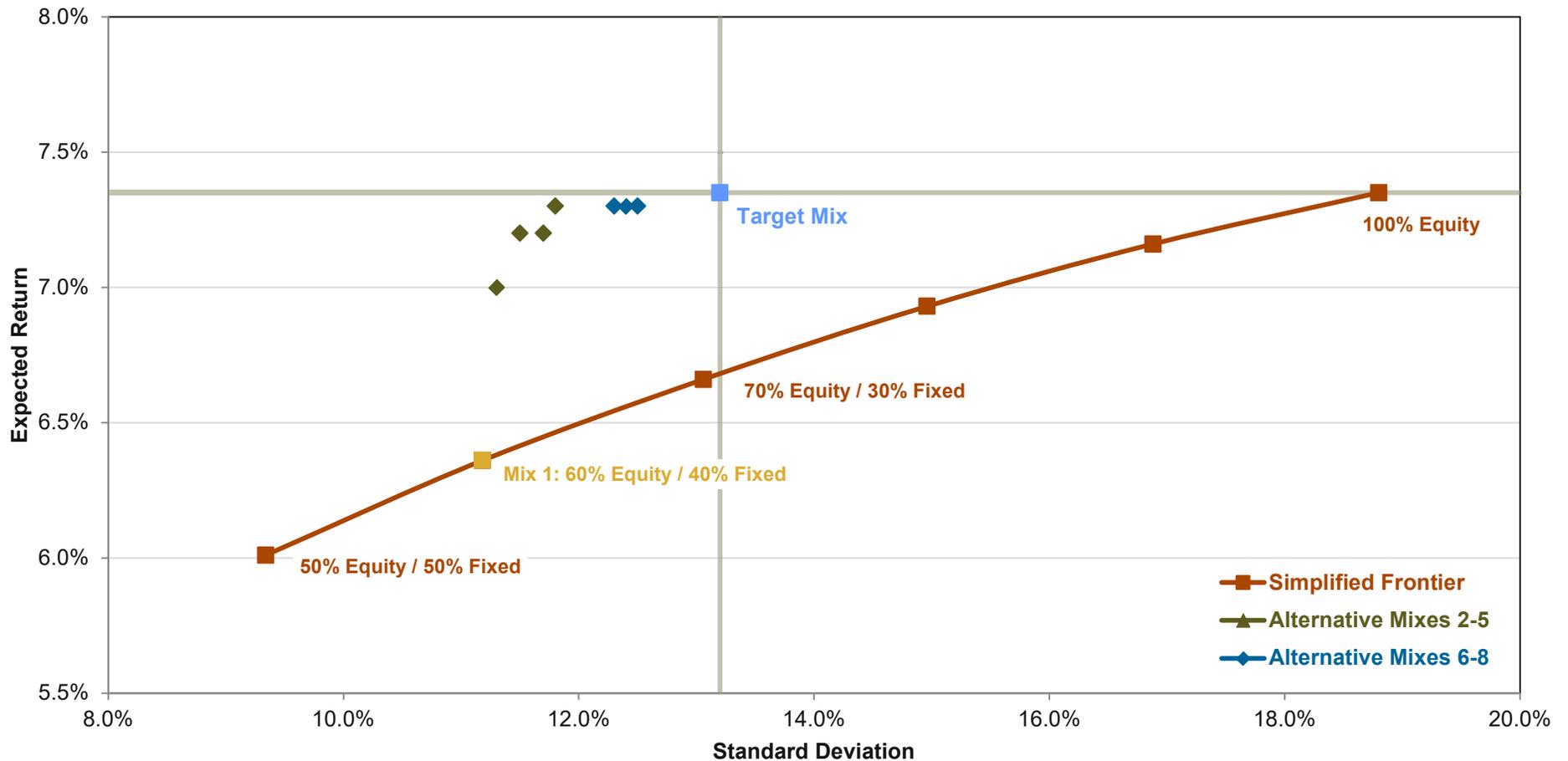
Change in Allocation Relative to the Target Mix

	Equity Reduced by 10%				Equity Reduced by 5%		
	Mix 2	Mix 3	Mix 4	Mix 5	Mix 6	Mix 7	Mix 8
Broad US Equity	-5.00%	-5.00%	-5.00%	-5.00%	-2.50%	-2.50%	-2.50%
Global ex-US Equity	-5.00%	-5.00%	-5.00%	-5.00%	-2.50%	-2.50%	-2.50%
Private Equity	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Fixed Income	10.00%	5.00%	3.33%	0.00%	2.50%	2.50%	0.00%
Real Estate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Illiquid Alternatives	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Diversifying Strategies	0.00%	5.00%	3.33%	5.00%	2.50%	0.00%	2.50%
Risk Parity	0.00%	0.00%	3.33%	5.00%	0.00%	2.50%	2.50%
Total Equity	45%	45%	45%	45%	50%	50%	50%
Equity Beta	0.59	0.60	0.61	0.62	0.65	0.65	0.66
Expected Return	7.00%	7.20%	7.20%	7.30%	7.30%	7.30%	7.30%
Risk	11.3%	11.5%	11.7%	11.8%	12.3%	12.4%	12.5%
Illiquid Investments	37%	37%	37%	37%	37%	37%	37%

De-risking Mixes

- **Mixes 2-5**
 - Reduce equity by 10%
 - Increase Fixed Income, Diversifying Strategies and/or Risk Parity
 - Lower equity beta
- **Mixes 6-8**
 - Reduce equity by 5%
 - Increase Fixed Income, Diversifying Strategies and/or Risk Parity

Return vs. Risk



- The Target Mix has the return expectation of 100% public equity and the risk profile of a 70% equity / 30% fixed income portfolio
- The Target Mix and alternative mixes offer higher returns for the same level of risk relative to a simple undiversified equity-bond frontier

Simulated Mixes

	Target Mix	Mix 1	Equity Reduced by 5%		
			Mix 6	Mix 7	Mix 8
Broad US Equity	18.75%	30.00%	16.25%	16.25%	16.25%
Global ex-US Equity	18.75%	30.00%	16.25%	16.25%	16.25%
Private Equity	17.50%	0.00%	17.50%	17.50%	17.50%
Fixed Income	20.00%	40.00%	22.50%	22.50%	20.00%
Real Estate	12.50%	0.00%	12.50%	12.50%	12.50%
Illiquid Alternatives	7.50%	0.00%	7.50%	7.50%	7.50%
Diversifying Strategies	5.00%	0.00%	7.50%	5.00%	7.50%
Risk Parity	0.00%	0.00%	0.00%	2.50%	2.50%
Total Equity	55%	60%	50%	50%	50%
Equity Beta	0.69	0.59	0.65	0.65	0.66
Expected Return	7.35%	6.30%	7.30%	7.30%	7.30%
Risk	13.2%	11.2%	12.3%	12.4%	12.5%
Illiquid Investments	37%	0%	37%	37%	37%

- A simple 60/40 portfolio (Mix 1) is included to provide context to the simulation results
- Mixes 6-8 lower Public Equity by 5% to fund Diversifying Strategies, Risk Parity, or both
 - The risk/return profile of each mix is similar
 - Equity beta is also similar (.65-.66)

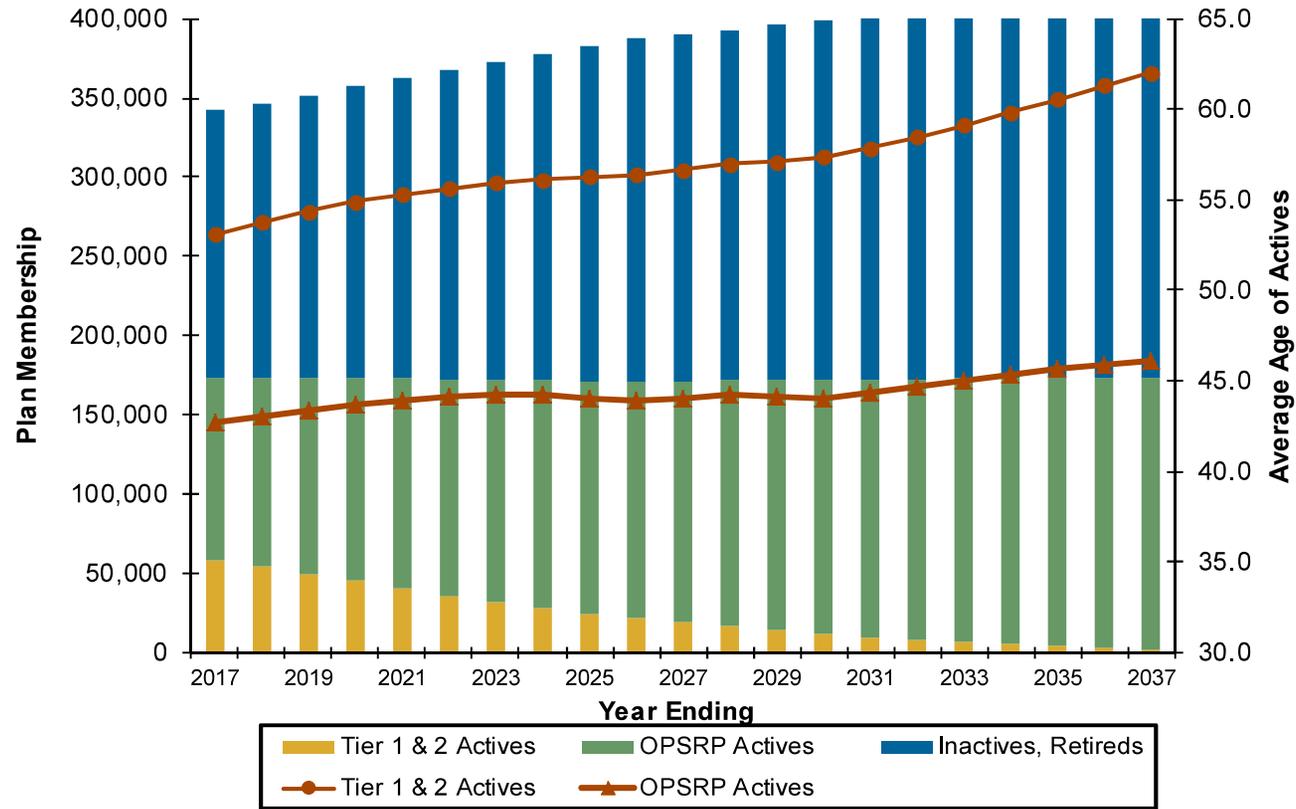
Current Financial Position and Key Actuarial Assumptions

Tier 1 / Tier 2 & OPSRP (Excluding Retiree Health Care, IAP)	12/31/2017
Actuarial Accrued Liability (AL)	\$84.1B
Assets	\$61.8B
Funded Status (Assets / AL)	73.5%
Side Accounts	\$5.6B
Funded Status w/ Side Accounts	80.1%

Key Actuarial Assumptions	Description
Investment Return	7.2%
Price Inflation	2.5%
Payroll Growth	3.5%

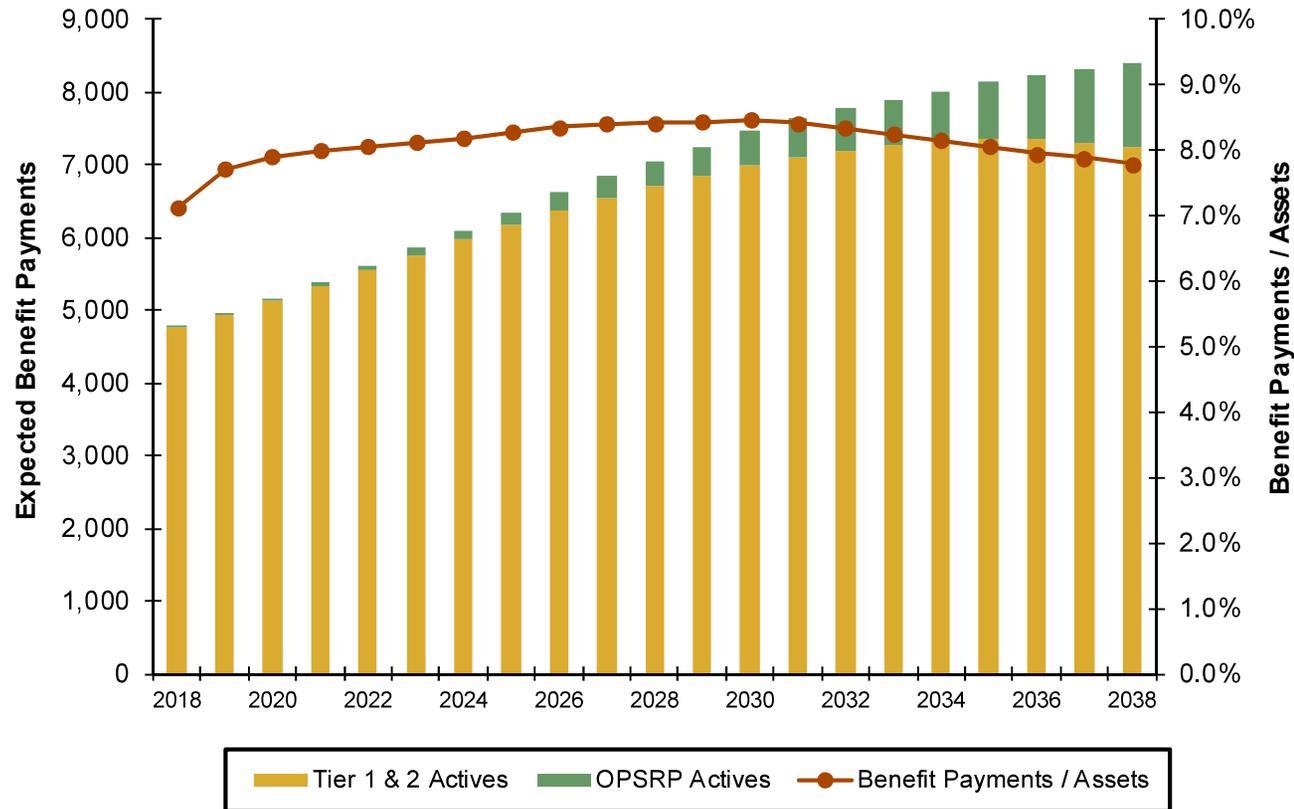
- For the purpose of setting investment policy, Callan built an actuarial liability model for Tier 1 / Tier 2 and OPSRP
 - Liability model was based on the 12/31/2017 actuarial report completed by Milliman
 - Liabilities and normal cost were within 5% and scaled to match the Plan actuary's results exactly
- Side accounts are combined with assets for projecting funded status and contributions
- Collared rate methodology and the 2-year rate setting cycle are not applied to contribution projections
- Actual investment performance for 2018 (+0.48%) is reflected in projections

Membership Projection



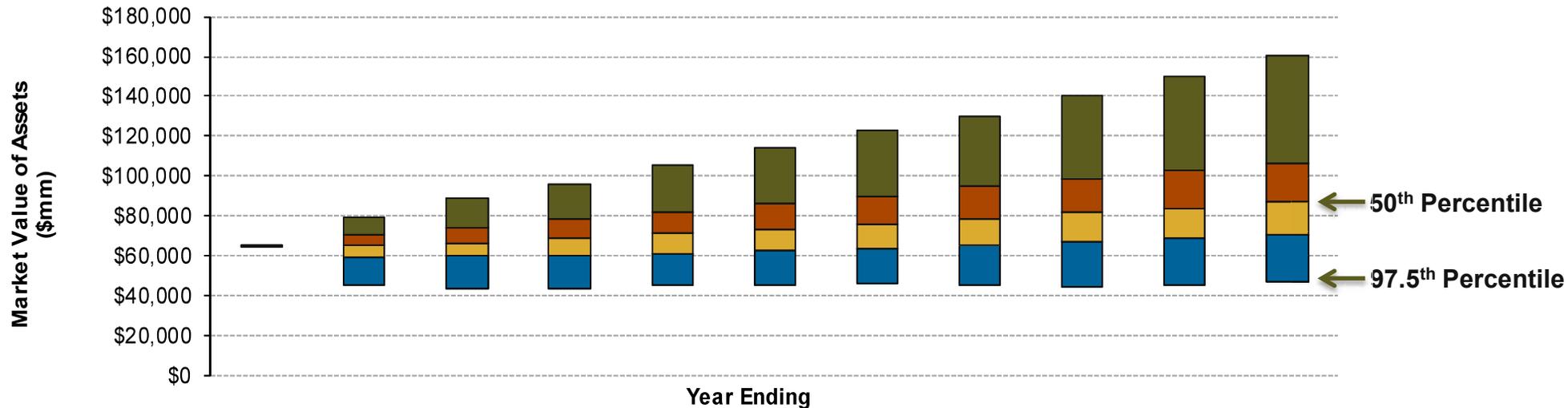
- Tier 1/2 was closed to new hires in 1996 and 2003 respectively
 - The number of Tier 1 and 2 active members is gradually decreasing while the average age is increasing
- New members enter OPSRP
- The workforce is projected to remain constant

Expected Benefit Payments



- Benefit payments are expected to rise 2.8% per year over the next 20 years
- Benefit payments are expected to be 7-8.5% of assets per year
 - Most public funds are paying 6-8%

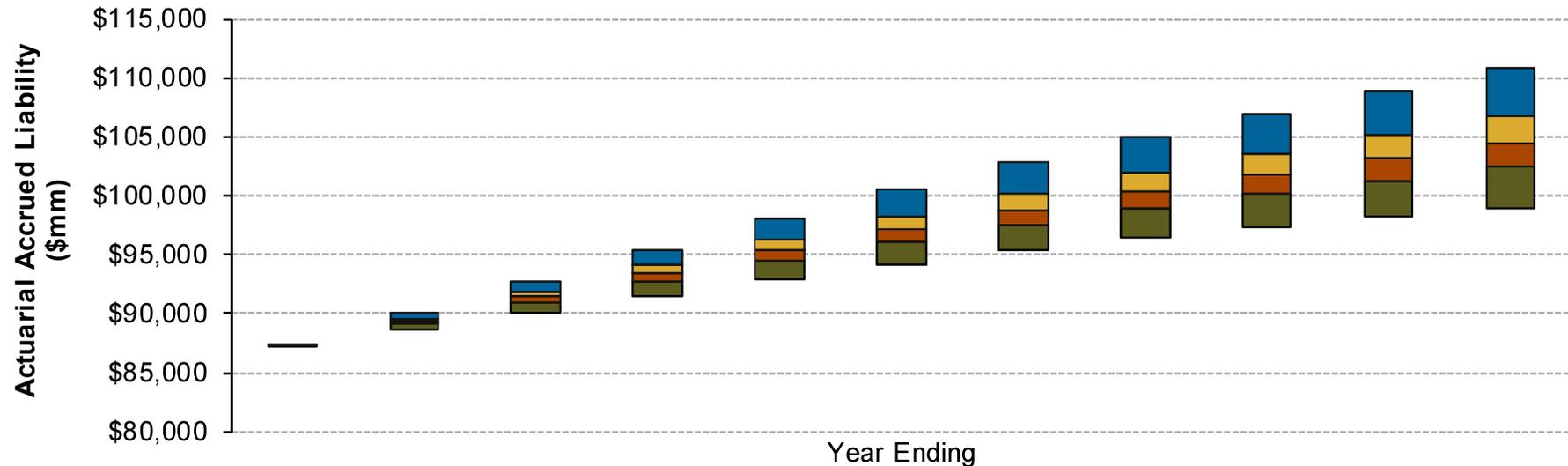
Market Value of Assets for Current Target Mix



Percentile	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2.5th	\$64,289	\$79,080	\$89,387	\$95,979	\$105,369	\$113,966	\$123,301	\$129,940	\$140,785	\$150,205	\$160,784
25th	64,289	70,777	74,302	78,366	82,473	86,348	89,676	94,816	98,690	102,957	106,499
50th	64,289	65,320	66,570	68,778	71,419	73,320	76,383	78,793	81,658	84,176	86,904
75th	64,289	59,809	59,968	60,245	60,951	62,493	64,156	65,732	66,916	68,586	70,357
97.5th	64,289	45,913	43,870	43,712	45,711	45,215	46,411	45,754	44,520	45,783	46,873
Range		33,167	45,517	52,268	59,658	68,751	76,890	84,185	96,264	104,422	113,911

- The expected outcome is the 50th percentile; a 50/50 chance of a worse occurrence
- The worse case scenario is the 97.5th percentile; a 1 in 40 chance of a worse occurrence
- Assets are expected to grow 3.1% per year over the next 10 years

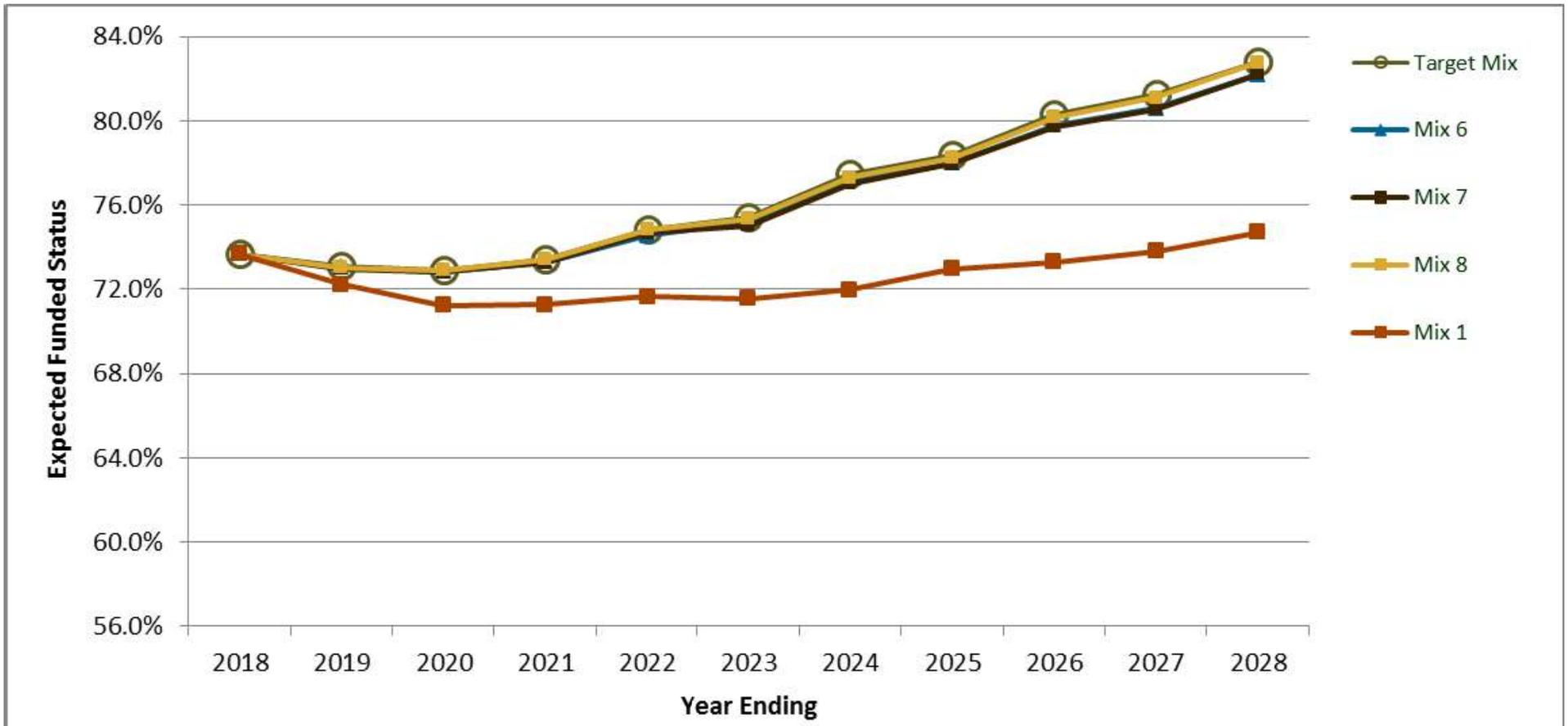
Actuarial Accrued Liability



Percentile	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
97.5th	\$87,255	\$90,078	\$92,828	\$95,482	\$98,075	\$100,568	\$102,811	\$104,897	\$106,905	\$108,882	\$110,793
75th	87,255	89,609	91,890	94,077	96,250	98,281	100,177	101,930	103,566	105,205	106,835
50th	87,255	89,375	91,432	93,431	95,320	97,154	98,860	100,408	101,833	103,215	104,532
25th	87,255	89,142	90,995	92,765	94,455	96,046	97,521	98,943	100,107	101,288	102,488
2.5th	87,255	88,663	90,155	91,571	92,910	94,134	95,333	96,424	97,304	98,163	99,030
Range	0	1,415	2,673	3,911	5,165	6,434	7,478	8,473	9,601	10,719	11,762

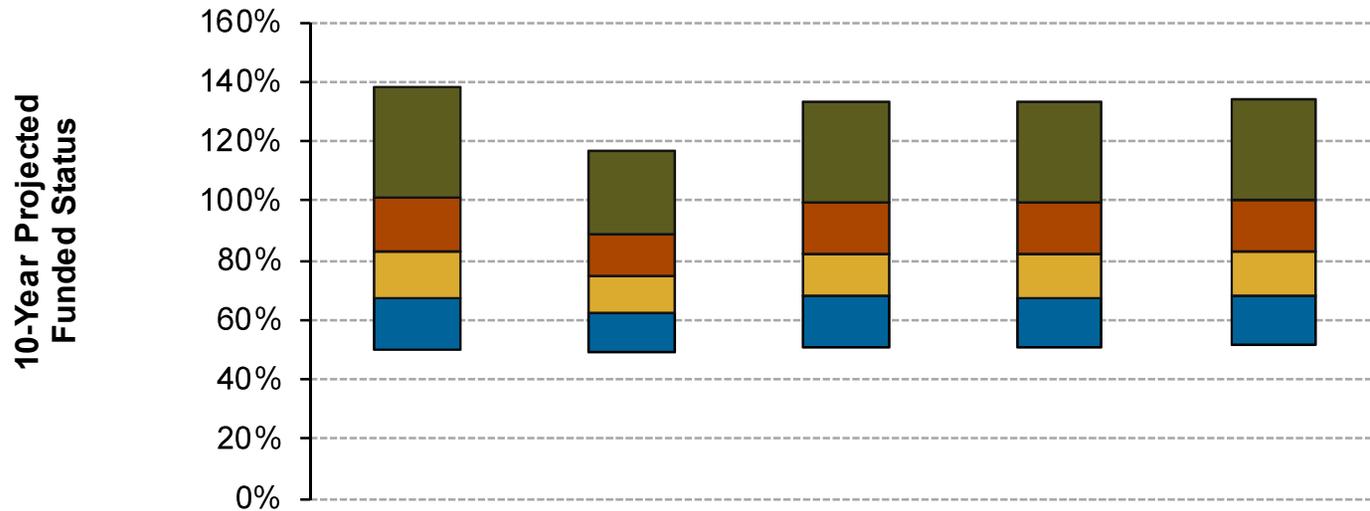
- Plan liabilities are increasing over the next 10 years
 - Liabilities increase with ongoing benefit accruals (normal cost), interest cost (7.2%) and are reduced by benefit payments
 - Annualized liability growth is 1.8% per year

Expected Funded Status



- Funded Status = $(\text{Assets} + \text{Side Accounts}) / \text{Actuarial Accrued Liability}$
- Funded status is **expected** to increase over the next 10 years

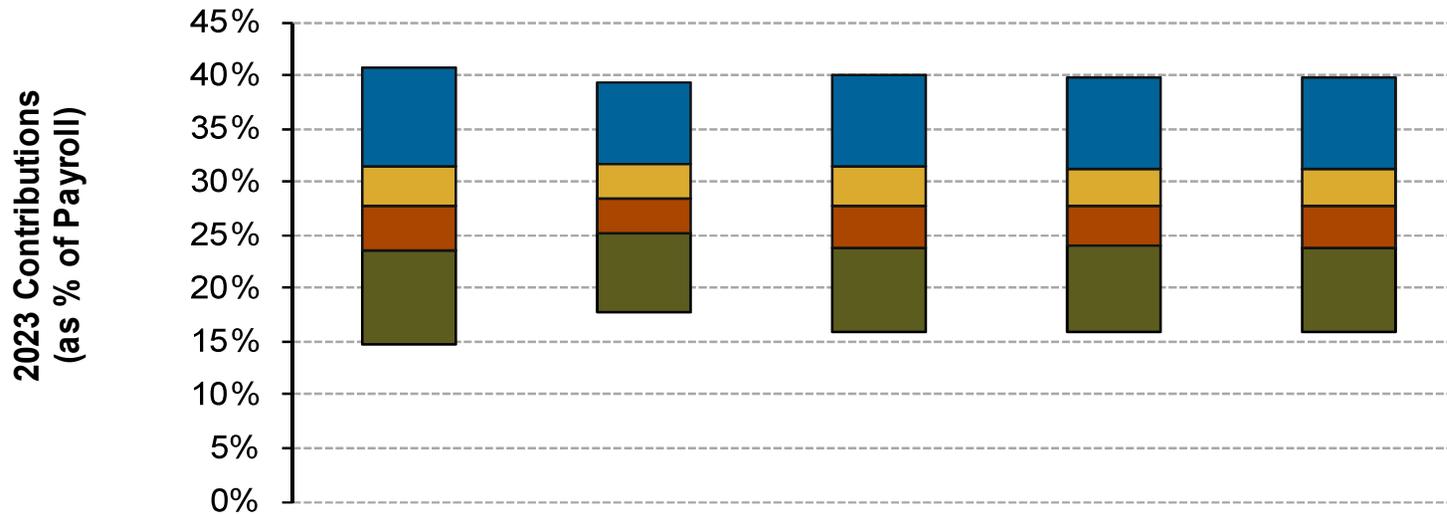
10-Year Projected Funded Status



Percentile	Target Mix	Mix 1	Mix 6	Mix 7	Mix 8
2.5th	137.8%	117.1%	132.9%	133.1%	134.3%
25th	101.4%	89.0%	99.3%	99.2%	100.1%
50th	82.8%	74.7%	82.2%	82.2%	82.8%
75th	67.3%	62.3%	67.7%	67.4%	67.9%
97.5th	49.7%	49.0%	51.0%	50.8%	51.2%
Expected Return	7.35%	6.30%	7.30%	7.30%	7.30%
Standard Deviation	13.2%	11.2%	12.3%	12.4%	12.5%

- Mixes 6-8 have a similar funded status reward-risk trade-off as the return-risk profiles are similar
- Mixes 6-8 have more downside protection than the current Target mix

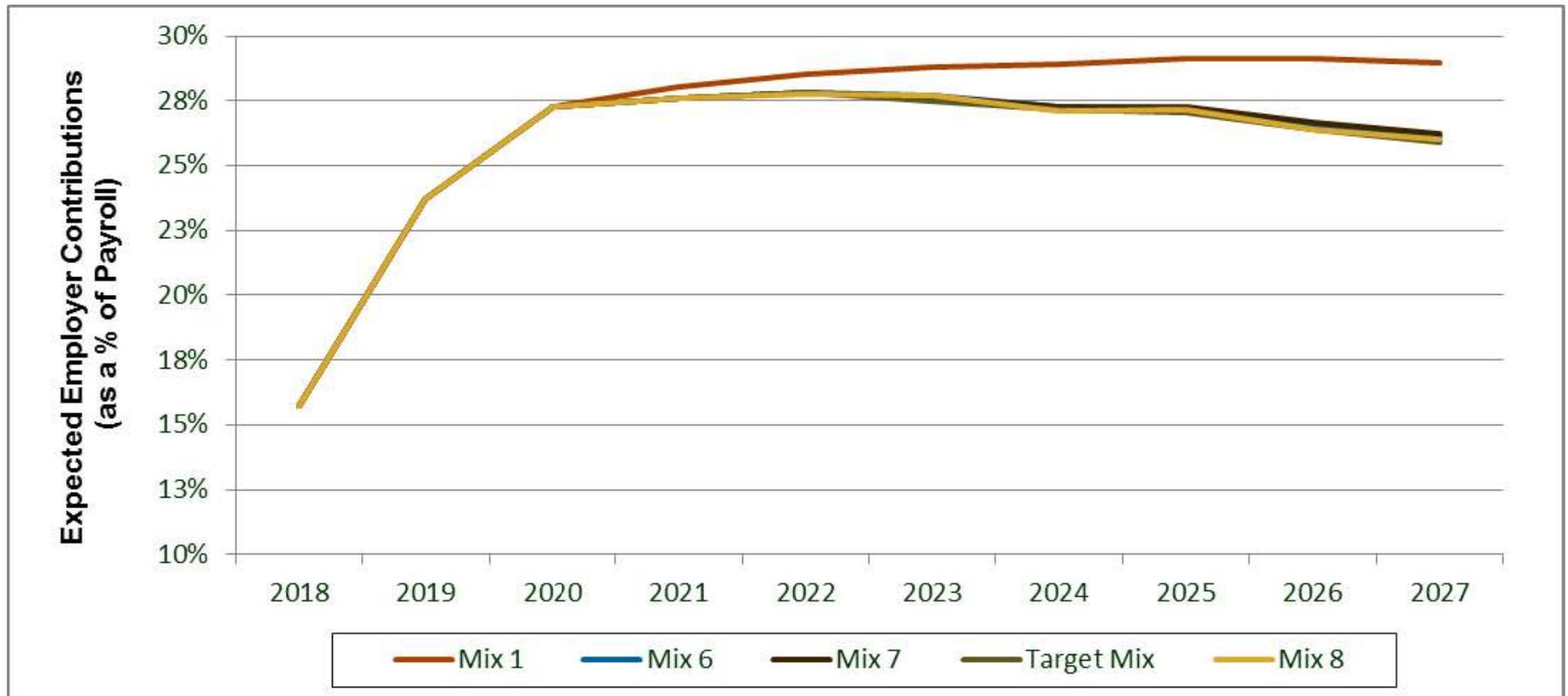
Contribution Volatility in Year 5 (2023)



Percentile	Target Mix	Mix 1	Mix 6	Mix 7	Mix 8
97.5th	40.6%	39.3%	39.9%	39.9%	39.9%
75th	31.5%	31.8%	31.3%	31.3%	31.3%
50th	27.8%	28.5%	27.8%	27.8%	27.7%
25th	23.5%	25.1%	23.9%	23.9%	23.8%
2.5th	14.8%	17.8%	16.0%	16.0%	15.9%
Expected Return	7.3%	6.3%	7.3%	7.3%	7.3%
Standard Deviation	13.2%	11.2%	12.3%	12.4%	12.5%

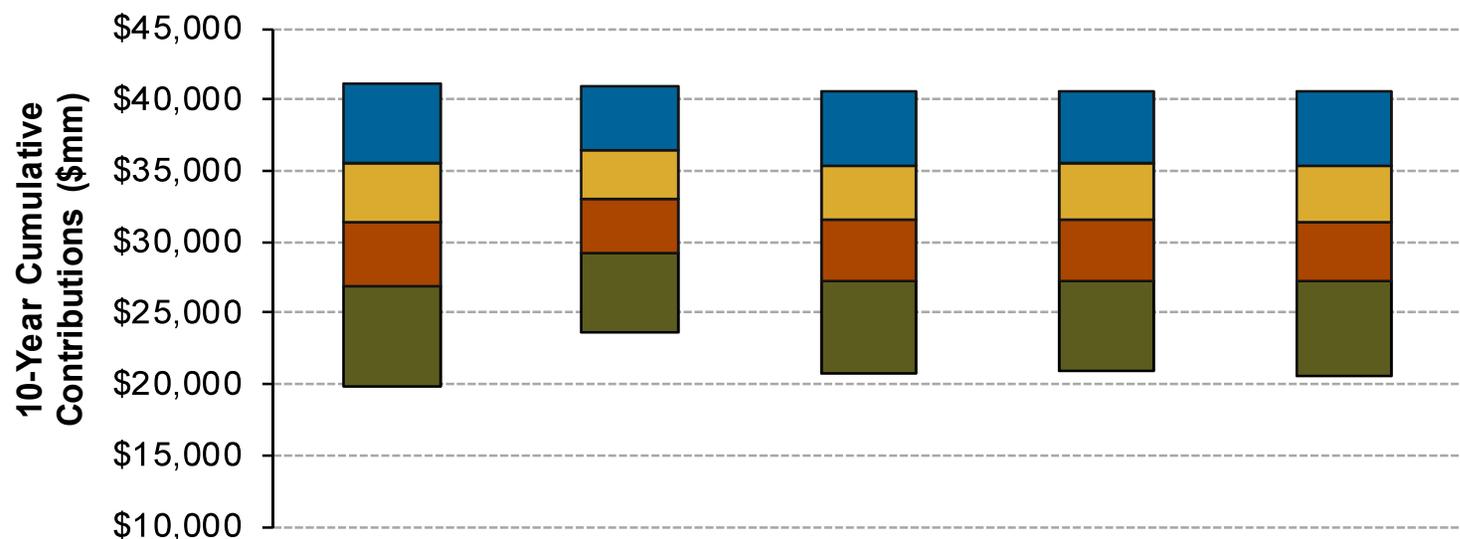
- Contribution projections are approximated
 - Collared rate methodology and the 2-year rate setting cycle are not applied
- Expected and worse case contributions are similar across asset mixes

Expected Contributions



- Expected contributions for the Target mix and Mixes 6-8 are similar

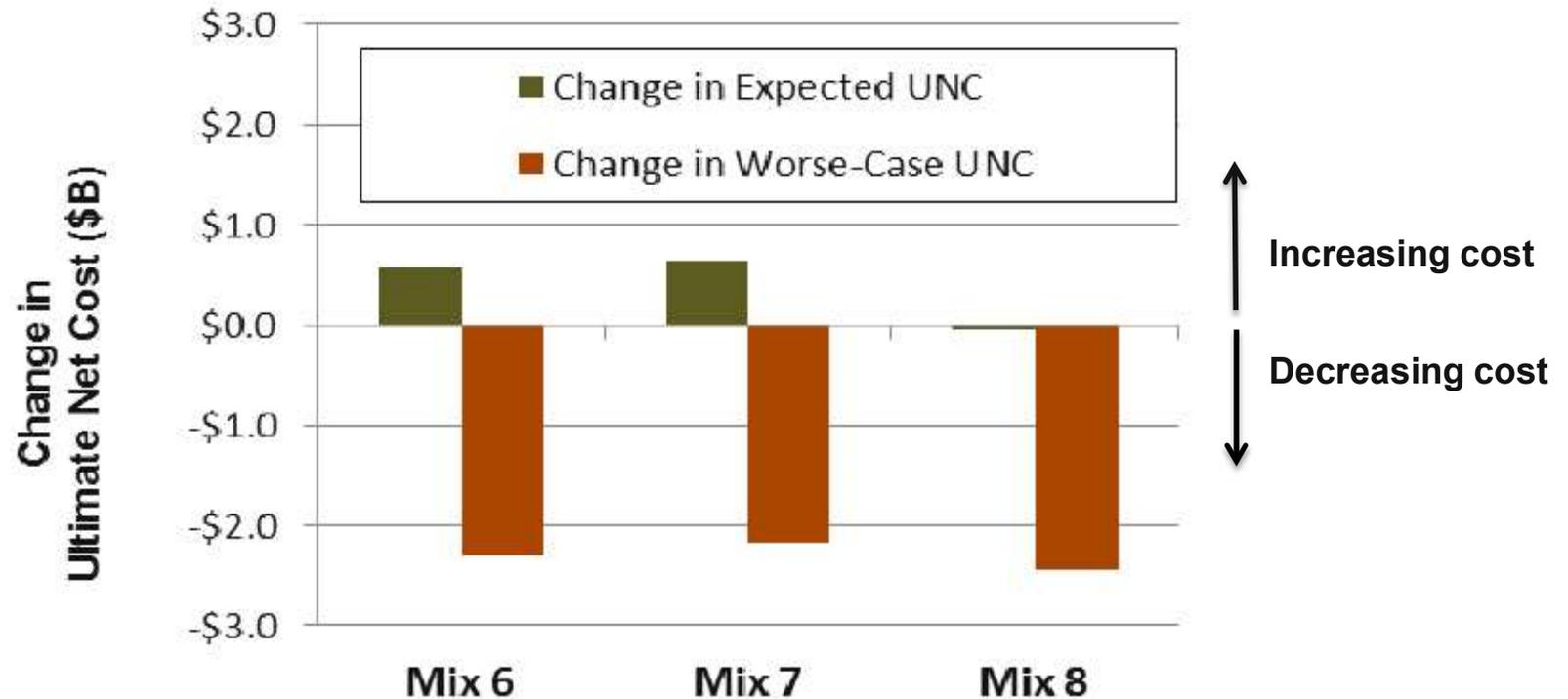
10-Year Cumulative Contributions



Percentile	Target Mix	Mix 1	Mix 6	Mix 7	Mix 8
97.5th	\$41,080	\$40,984	\$40,560	\$40,662	\$40,566
75th	35,506	36,357	35,411	35,452	35,385
50th	31,381	32,954	31,486	31,488	31,372
25th	26,881	29,270	27,300	27,291	27,164
2.5th	19,849	23,592	20,668	20,840	20,574
Expected Return	7.35%	6.30%	7.30%	7.30%	7.30%
Standard Deviation	13.2%	11.20%	12.30%	12.40%	12.50%

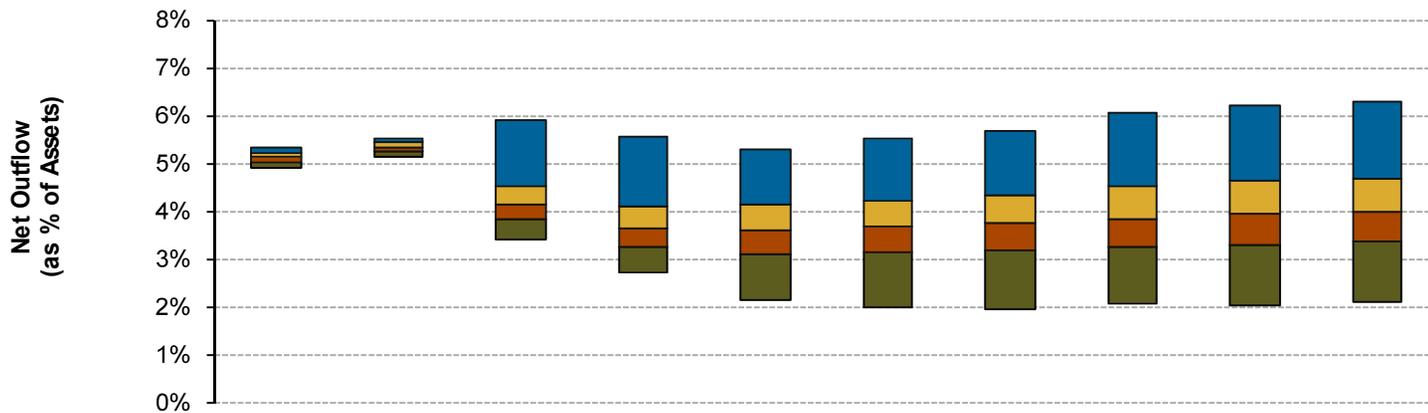
- Again, Mixes 6-8 have a similar reward-risk trade-off
- Worse case contributions (97.5th percentile) are lowest across Mixes 6-8

Ultimate Net Cost



- Ultimate Net Cost (UNC) = 10 year cumulative contributions (2019 - 2028) + 12/31/2028 Unfunded Liability
 - What you paid over 10 years + what you owe at the end of 10 years
- The above graph depicts the change in Ultimate Next Cost when moving from the Current Target to Mixes 6-8
 - E.g. Moving to Mix 8 is not expected to incur additional cost and would cost less in a worse case scenario

Net Outflow (as a % of Assets) for the Target Mix

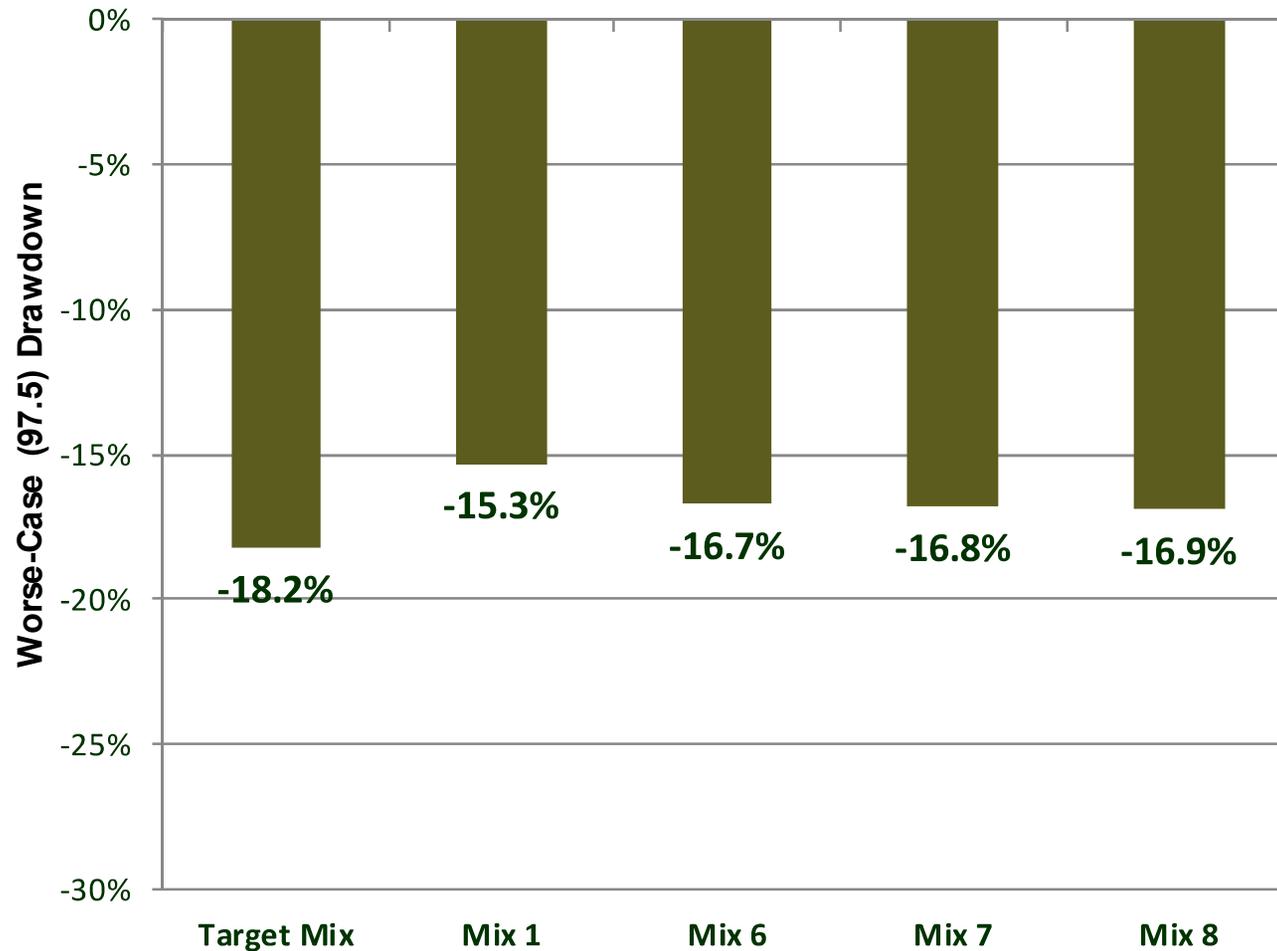


Percentile	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
97.5th	5.1%	5.3%	5.9%	5.6%	5.3%	5.5%	5.7%	6.1%	6.2%	6.3%
75th	5.1%	5.3%	4.5%	4.1%	4.1%	4.2%	4.3%	4.5%	4.6%	4.7%
50th	5.1%	5.3%	4.1%	3.7%	3.6%	3.7%	3.8%	3.8%	3.9%	4.0%
25th	5.1%	5.3%	3.8%	3.3%	3.1%	3.2%	3.2%	3.3%	3.3%	3.4%
2.5th	5.1%	5.3%	3.4%	2.7%	2.2%	2.0%	2.0%	2.1%	2.0%	2.1%

< 7.0%
7-10%
> 10%

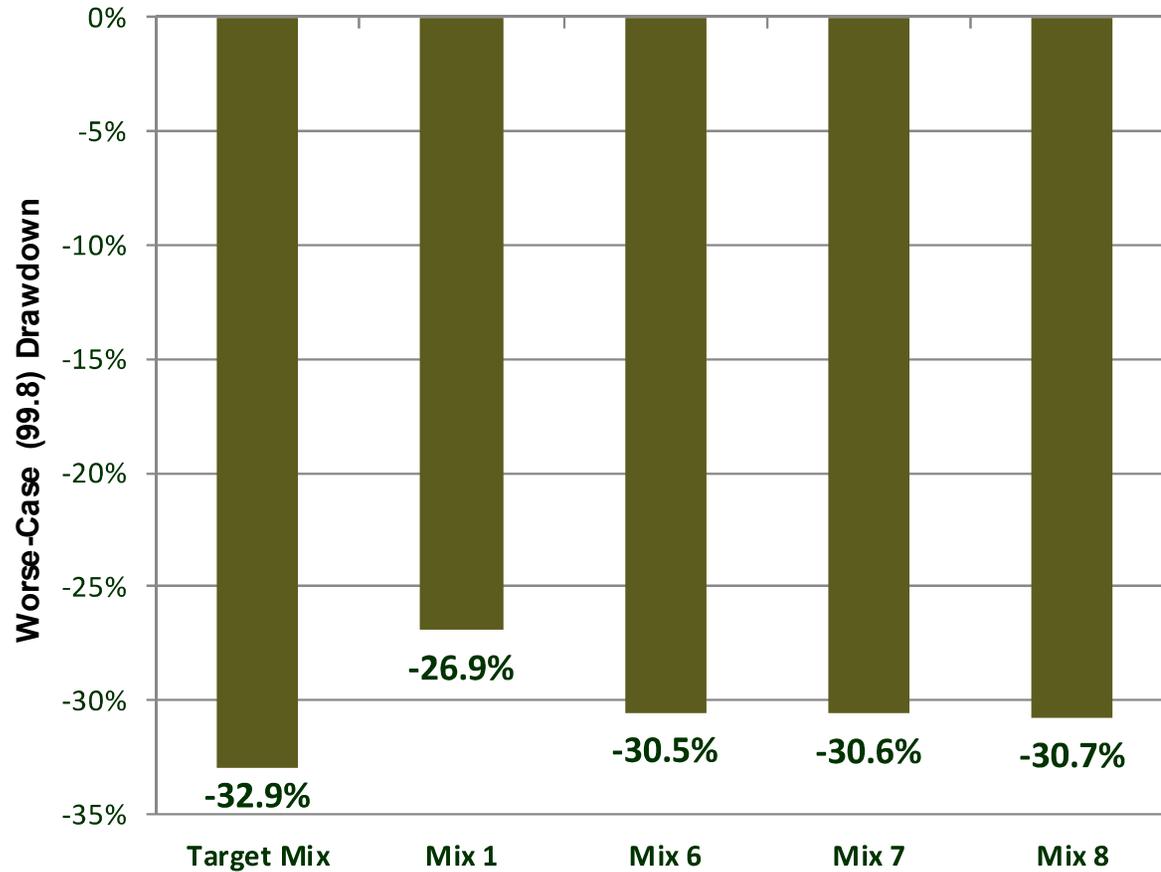
- Expected Net Outflow = Benefit payments + Admin expenses – Contributions
 - A useful indicator of ongoing liquidity needs
 - Median ratio < 7.0% is typically manageable; 7-10% depends on amount of current illiquid investments
 - >10% per year presents high liquidity pressure and illiquid investments may need to be reduced or removed
 - Based on our experience, the majority of public funds have net outflow of 4-7% depending on funded status, funding policy and plan maturity
 - OPERF’s dedicated combined allocation to cash and US Treasuries ranks in the top quartile of fixed income allocations in Callan’s survey of all state public DB pension plans tracked by NASRA
- Importantly, the liquidity analysis is sensitive to the funding policy which drives the amount of future employer contributions. Lower contributions would exacerbate the liquidity needs of the Fund.

Worse Case (97.5th Percentile) Drawdown



- The above graph depicts the average one-year worse-case (97.5th percentile) drawdown based on simulated annual returns over the next 10 years
- Mixes 6-8 reduce drawdown risk relative to the current Target mix

Worse Case (99.8th Percentile) Drawdown



- This graph depicts drawdown deeper in the tail of the simulated returns
 - The 99.8th percentile approximates a 2008 Global Financial Crisis scenario based on Callan’s capital market simulator
 - Absolute drawdowns are much higher in this extreme scenario

Liquidity Analysis – Stress Test in Year 1

Year 1 Assumptions

Assets	64.3
Actuarial Liability	87.3
Funded Status	74%
Benefit Payments	5.0
Employer Contributions	2.7
Gross Capital Calls	7.1
Portfolio Income ³	1.3
Net Outflow (% of assets)	3.6%
Stressed Cash Needs ⁴	8.0
Government Portfolio	4.5
# Months Benefits covered	10.8
# Months NOF covered	23.5
# Months Stressed Need covered	6.7

- Government portfolio is ~7% of the Fund and can be used to pay benefits during a distressed environment

	Target Mix	Mix 1	Mix 6	Mix 7	Mix 8
Worse Case Return ¹	-32.9%	-26.9%	-30.5%	-30.6%	-30.7%
Illiquid Investments (pre-crisis)	37%	0%	37%	37%	37%
Assets after Drawdown Scenario					
Liquid Assets	27.2	47.0	28.2	28.1	28.1
Illiquid Assets	<u>19.5</u>	<u>0.0</u>	<u>20.2</u>	<u>20.2</u>	<u>20.1</u>
Total	46.7	47.0	48.3	48.3	48.2
Smoothed Return ²	-27.4%	-26.9%	-24.8%	-24.9%	-25.1%
Annual Net Outflow (NOF)	2.3	2.3	2.3	2.3	2.3
NOF (% of Total Assets)	4.9%	4.9%	4.8%	4.8%	4.8%
NOF (% of Liquid Assets)	8.5%	4.9%	8.2%	8.2%	8.2%
Annual Stressed Cash Needs	8.0	8.0	8.0	8.0	8.0
Stressed Need (% of Total Assets)	17.2%	17.1%	16.6%	16.6%	16.7%
Stressed Need (% of Liquid Assets)	29.6%	17.1%	28.6%	28.6%	28.6%
Illiquid Investments (post-crisis)	42%	0%	42%	42%	42%

< 7.0%
7-10%
> 10%

1 - A 99.8th percentile event that approximates a 2008 GFC scenario

2 - Marked up illiquid portfolio by 20% to reflect appraisal smoothing

3 - Portfolio Income assumes distributions from private markets cease (except Core Real Estate)

4 - Stressed Cash Flow Needs scenario assumes closed-end fund distributions cease

Liquidity Analysis – Stress Test in Year 10

Year 10 Assumptions

Assets	86.9
Actuarial Liability	104.5
Funded Status	83%
Benefit Payments	7.3
Employer Contributions	3.7
Gross Capital Calls	6.5
Portfolio Income ³	1.8
Net Outflow (% of assets)	4.2%
Stressed Cash Needs ⁴	8.3
Government Portfolio	6.1
# Months Benefits covered	10.0
# Months NOF covered	20.2
# Months Stressed Need covered	8.8

- Government portfolio is ~7% of the total Fund and can be used to pay benefits during a distressed environment

	Target Mix	Mix 1	Mix 6	Mix 7	Mix 8
Worse Case Return ¹	-32.9%	-26.9%	-30.5%	-30.6%	-30.7%
Illiquid Investments (pre-crisis)	37%	0%	37%	37%	37%
Assets after Drawdown Scenario					
Liquid Assets	36.7	63.5	38.1	38.0	37.9
Illiquid Assets	<u>26.3</u>	<u>0.0</u>	<u>27.3</u>	<u>27.2</u>	<u>27.2</u>
Total	63.0	63.5	65.3	65.3	65.1
Smoothed Return ²	-27.4%	-26.9%	-24.8%	-24.9%	-25.1%
Annual Net Outflow (NOF)	3.6	3.6	3.6	3.6	3.6
NOF (% of Total Assets)	5.7%	5.7%	5.5%	5.5%	5.6%
NOF (% of Liquid Assets)	9.8%	5.7%	9.5%	9.5%	9.5%
Annual Stressed Cash Needs	8.3	8.3	8.3	8.3	8.3
Stressed Need (% of Total Assets)	13.1%	13.0%	12.7%	12.7%	12.7%
Stressed Need (% of Liquid Assets)	22.6%	13.0%	21.8%	21.8%	21.8%
Illiquid Investments (post-crisis)	42%	0%	42%	42%	42%

< 7.0%
7-10%
> 10%

1 - A 99.8 percentile event that approximates a 2008 GFC scenario

2 - Marked up illiquid portfolio by 20% to reflect appraisal smoothing

3 - Portfolio Income assumes distributions from alternatives cease (except Core Real Estate)

4 - Stressed Cash Flow Needs scenario assumes closed-end fund distributions cease

Summary

- OPERF's current target is expected to exceed the actuarial investment return assumption at the median case over a 10-year time horizon
 - Other mixes that could be considered increase Diversifying Strategies and/or add Risk Parity funded from Public Equity
- The current diversification of the Target Mix provides for a higher return with a similar risk as a simple public equity centric 70% equity / 30% fixed income portfolio
- Risk Parity was introduced into the simulated mixes as a new “asset class”
- As a percent of assets, benefit payments are expected to range from 7-8.5% (peaking from 2026-2030) then declining
- Net Outflow as a percent of assets is expected to be manageable at less than 7%
- A Liquidity Analysis Stress Test indicates sufficient liquidity in the Target and Mixes 6-8 to withstand a 99.8th percentile decline in the markets (approximating a GFC scenario) in year one and year ten
 - Liquidity provided by the government bond portfolio and adherence to the current funding policy are critical to managing liquidity going forward

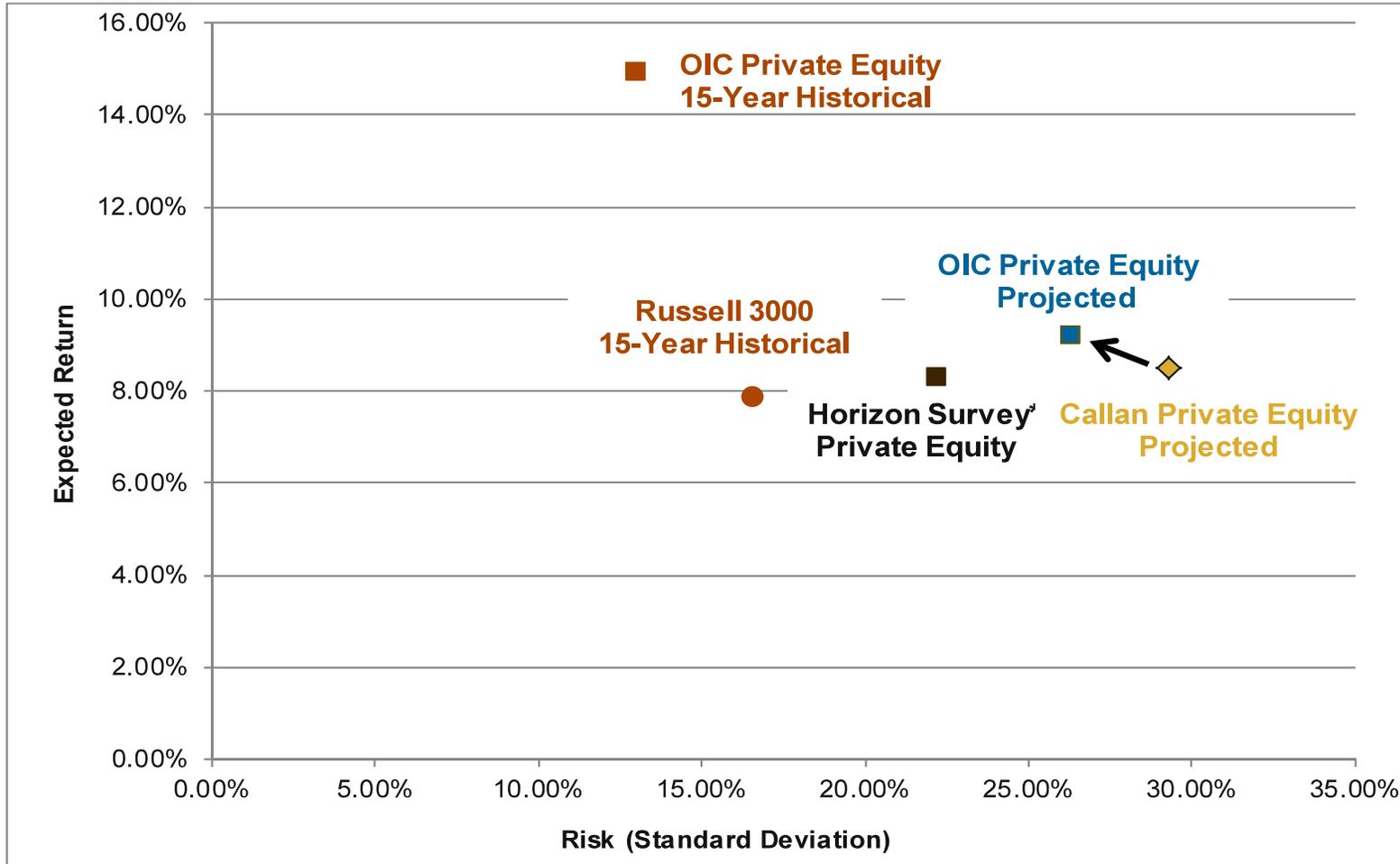
Discussion of Alternative Mixes

- Callan considered simulated mixes with a modest 5% reduction in Public Equity and commensurate increase in Fixed Income, Risk Parity, Diversifying Strategies or a combination
 - These mixes exhibited similar returns and equity beta to the Target with modestly lower risk
 - Expected funded status for these mixes was very similar
 - Contributions are expected to be similar in 2023 (range: 27.8% to 27.7%)
 - Drawdowns at 97.5th percentile are expected to be lower than the Target



Appendix

Private Equity Return-Risk Assumptions



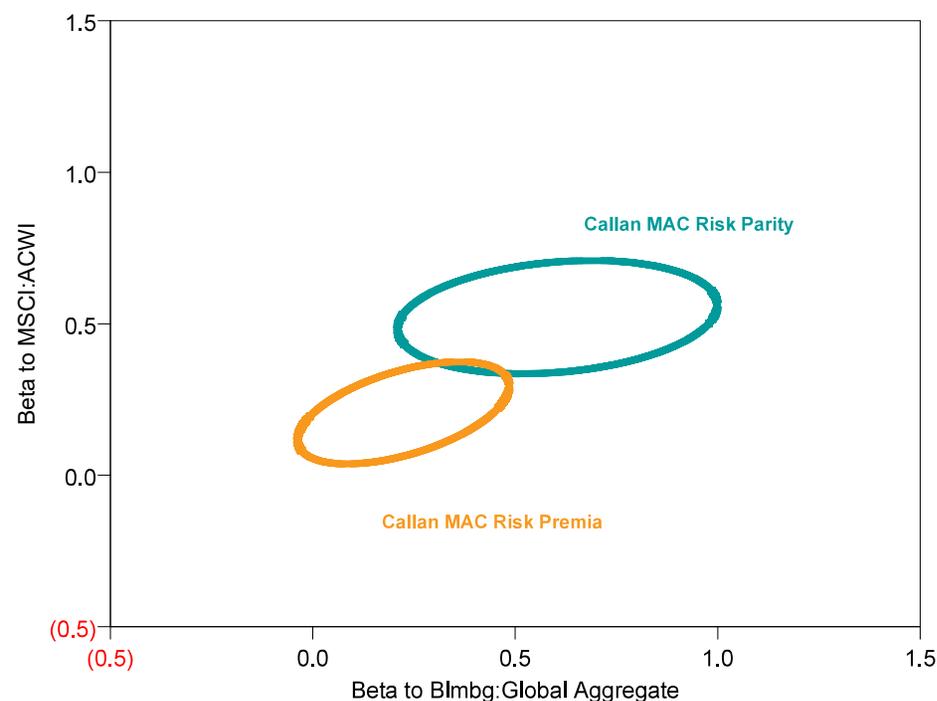
* Source: Horizon Actuarial Services - 2018 Survey of Capital Market Assumptions. 35 Investment Advisors participated in the Survey.

Comparing Risk Parity to Other Liquid Alternatives

A liquid alternative remixing traditional asset classes

- Risk Parity may end up delivering similar returns long-term returns to other liquid alternative strategies, but take a very different path
 - It is essential to understand the underlying drivers of risk and return in the strategy

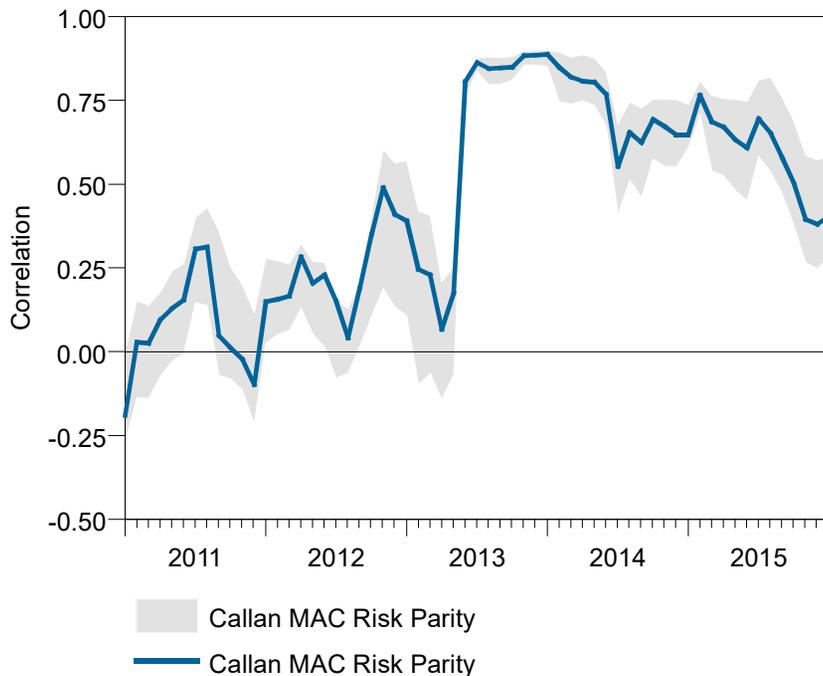
Scatter Chart for 5 Years ended December 31, 2018



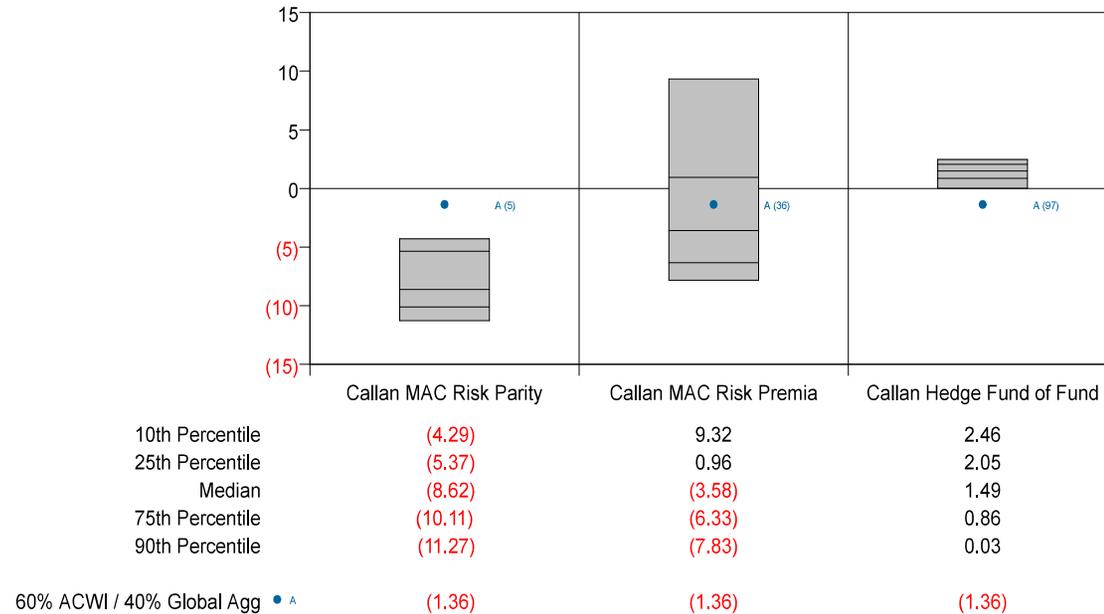
Scenario Analysis

Taper Tantrum

Rolling 12 Month Correlation vs. Barclays Aggregate



Gross of Fee Returns for 1 Quarter Ended June 30, 2013

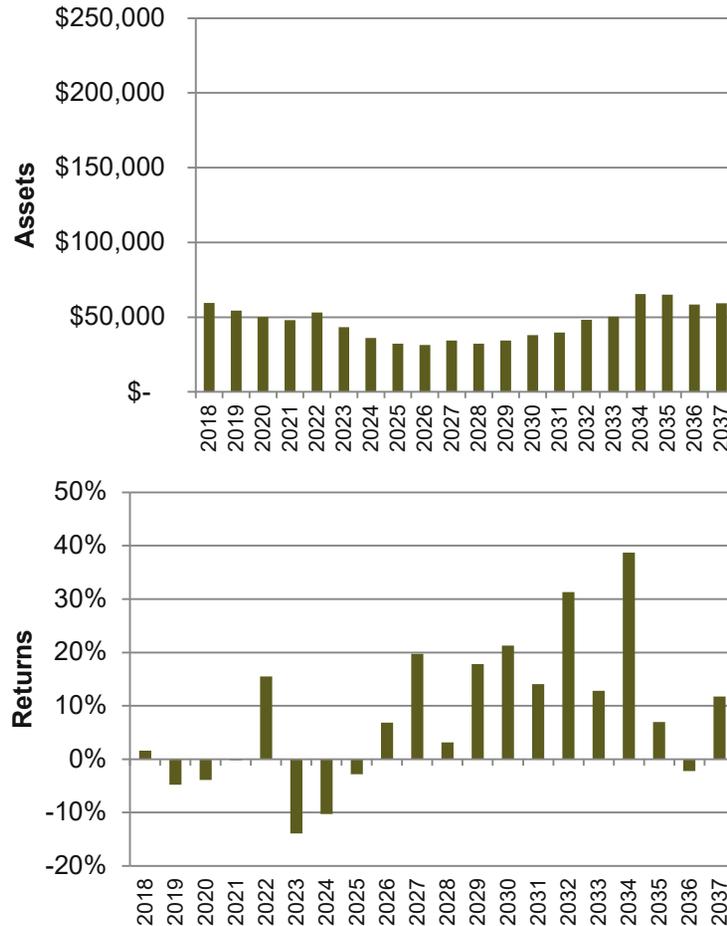


- In the summer of 2013, the market began to expect the Fed would taper its bond purchases
 - While the Fed didn't taper until December 2013, bond markets quickly sold off as interest rates rose
 - Equities also fell as market participants worried about the negative impacts of the Fed's potential action
- While many Multi Asset Class strategies performed poorly in this quarter, Risk Parity strategies—which have significantly more interest rate risk—suffered the most

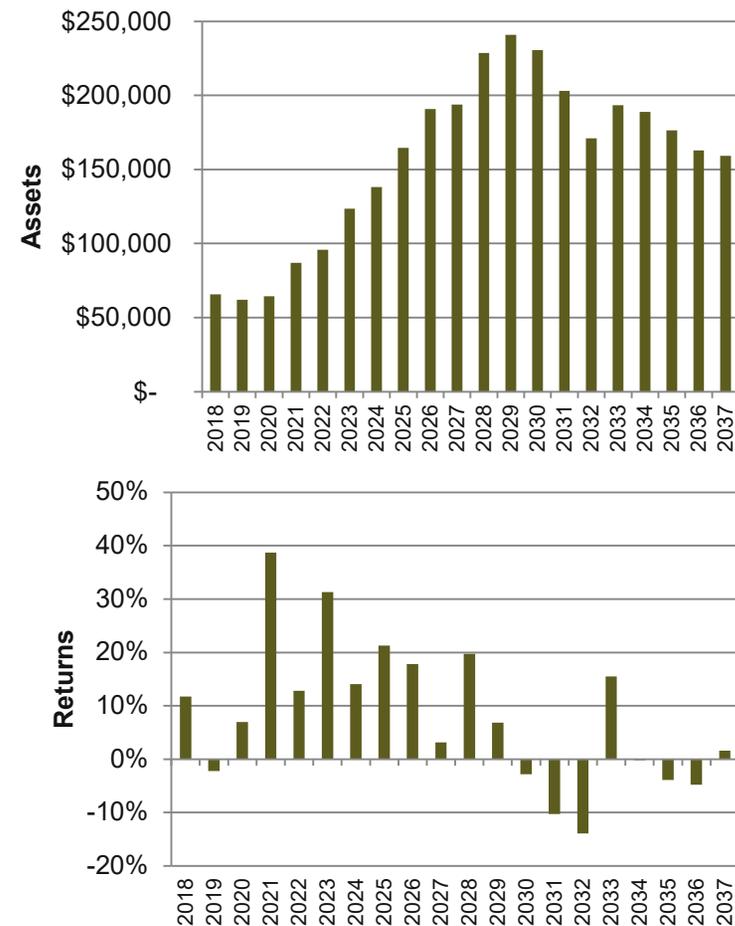
Sequence of Returns Matter

Identical Portfolios, Identical Cash Flows, Different Sequence of Returns

Scenario



Reverse Sequence of Returns Scenario



- These scenarios illustrate sensitivity of a single portfolio to the sequence of returns
 - The only change between the scenarios was that the sequence of returns was reversed
 - A public DB pension plan’s funding policy may encourage contributions to respond to returns indirectly

Correlations

	Broad US Equity	Global ex-US Equity	Fixed Income	Real Estate	Private Equity	Illiquid Alternatives	Diversifying Strategies	Risk Parity
Broad US Equity	1.00	0.85	-0.11	0.69	0.92	0.43	0.23	0.55
Global ex-US Equity	0.85	1.00	-0.14	0.66	0.88	0.40	0.20	0.55
Fixed Income	-0.11	-0.14	1.00	-0.06	-0.23	0.02	0.15	0.45
Real Estate	0.69	0.66	-0.06	1.00	0.77	0.56	0.20	0.54
Private Equity	0.92	0.88	-0.23	0.77	1.00	0.55	0.15	0.40
Illiquid Alternatives ¹	0.43	0.40	0.02	0.56	0.55	1.00	0.17	0.29
Diversifying Strategies ²	0.23	0.20	0.15	0.20	0.15	0.17	1.00	0.33
Risk Parity	0.55	0.55	0.45	0.54	0.40	0.29	0.33	1.00

1 - 42% Private Infrastructure and 58% Private Energy

2 - 67% Risk Premia and 33% Trend Following

PURPOSE

L&C Comments 3/21/19

INTRODUCTION & OVERVIEW

Summary Policy Statement

This Statement of Investment Objectives and Policy Framework (the "Statement") summarizes the philosophy, objectives and policies approved by the *Oregon Investment Council* (the "OIC" or the "Council") for the investment of *Oregon Public Employees Retirement Fund* ("OPERF" or the "Fund") assets.

- ~~1. The Council approved these objectives and framework after careful consideration of OPERF benefit provisions, and the implications of alternative objectives and policies.~~
1. The Statement has been prepared with six audiences in mind: 1) incumbent, new and prospective Council members; 2) ~~investment division staff of the Oregon State Treasury ("OST");~~ staff; 3) the Public Employees Retirement Board ("PERB"); 4) active and retired Oregon Public Employees Retirement System (OPERSPERS) members; 5) the Oregon State Legislature and Governor; and 6) agents engaged by the Council to manage and administer Fund assets.
- ~~2. The Council approved these objectives and framework after careful consideration of PERS benefit provisions, and the implications of alternative objectives and policies.~~
- ~~2.3.~~ The Statement summarizes more detailed policy and procedure documents prepared and maintained by ~~investment division~~ staff, and numerous other documents that govern the day-to-day management of OPERF assets including agent agreements, individual investment manager mandates and limited partnership documents.
- ~~3.4.~~ The Council regularly assesses the continued suitability of its approved investment objectives and policies, initiates change as necessary and updates these documents accordingly.

INVESTMENT OBJECTIVE

- ~~1. The Council believes, based on the assumptions outlined herein, that the investment policies summarized in this document will provide the highest possible return at a level of risk that is appropriate for active and retired OPERF members. The Council evaluates risk in terms of both short term asset price volatility and long term plan viability.~~
- ~~1. Subject to ORS 293.721 and 293.726 and the risk parameters described directly above, the objective for the Regular Account is to maximize the net, annualized, risk-adjusted return on OPERF capital consistent with Council investment policies, particularly those concerning asset allocation and prudent diversification. This objective further contemplates a consecutive ten year forecast horizon, and the Council also understands that estimates of forward looking OPERF returns are a primary consideration during PERB's biennial determination of its actuarial discount rate (ADR).~~
- ~~2.1. Historically, OPERF members were allowed to direct up to 75% of their annual, employee retirement contributions to the Variable Account. While no longer receiving new contributions, the Variable Account's objective remains investment performance consistent with the MSCI All Country World Investable Market Index.~~
- ~~3.1. The Council has established investment objectives for individual asset classes that are also summarized in this Statement.~~

POLICY ASSET MIX DIVERSIFICATION AND RETURN EXPECTATIONS

- ~~1. After careful consideration of OPERF's investment objective, liability structure, funded status and liquidity needs, as well as the return, risk and diversification characteristics of different asset classes, the Council's approved asset mix policy for the Regular Account is summarized in Exhibit 1, and its active management return expectations are summarized in Exhibit 2.~~

- ~~2. Of total Fund assets, 55 percent of OPERF is targeted for investment in equities, inclusive of private equity. Equity investments have generated the highest returns over long time periods, but can also produce low and even negative returns over shorter time periods.~~
- ~~1. The risk of low returns over shorter time periods makes 100% equity policies unsuitable for most pension funds, including OPERF. By investing across multiple equity asset classes, and in lower return but less risky fixed income, real estate and alternatives asset classes, the Council manages and diversifies the Fund's overall risk.~~
- ~~2.1. Specific asset class exposures are maintained within the ranges outlined in Exhibit 1.~~

~~Exhibit 1: Policy Mix and Return Expectations for the OPERF Regular Account~~

Asset Class	Target Allocation (%)	Re-balancing Range (0%)	Expected Annual Policy Return¹ (%)
Public Equity	37.5	32.5-42.5	7.1
Private Equity	17.5	14.0-21.0	9.5
Total Equity	55.0	50.0-60.0	-
Fixed Income	20.0	15.0-25.0	3.0
Real Estate	12.5	9.5-15.5	6.7
Alternatives	12.5	0.0-12.5	6.3
Total Fund²	100.0	-	7.1

~~1 Based on capital market forecasts developed by the Council's investment consultant, Callan Associates.~~

~~2 Total Fund expected returns are calculated geometrically using the investment consultant's forecasts for the arithmetic returns and covariances of the asset classes. Accordingly, the Total Fund's expected returns are not equivalent to the weighted average of individual asset class returns listed in Exhibit 1.~~

- ~~3.1. The policy mix's 7.1% average annual return expectation was developed with reference to observed long-term relationships among major asset classes, adjusted to account for current market conditions. The Council believes this return expectation is reasonable, but recognizes that realized returns can deviate significantly from expectations both positively and negatively.~~
- ~~4.1. The OIC has allocated up to 3.0% of total Fund assets for investment in an Opportunity Portfolio, the objective of which is to enhance OPERF returns and/or diversification. Investments in the Opportunity Portfolio are expected to comprise a combination of both shorter-term (1-3 year) and longer-term holdings. The Opportunity Portfolio has no strategic target since, by definition, eligible investments are only pursued on an opportunistic or episodic basis; moreover, the Opportunity Portfolio allocation shall not result in an allocation range breach for any of the other five, primary asset class allocations.~~

- ~~5.1. OPERF cash balances are invested in the *Oregon Short Term Fund* and managed to levels that are deliberately minimized but still sufficient to cover OPERF's short-term cash flow needs.~~
- ~~6.1. In an effort to minimize cash balances at both the Fund and manager level, the OIC has retained an overlay manager to more closely align the actual Fund portfolio with the approved policy mix, generally through the purchase and sale of futures contracts to increase or decrease specific asset class exposures, as necessary.~~
- ~~7.1. The Council shall review, at least biennially, its expectations for asset class and active management performance, and assess how the updated expectations affect the probability that the Regular Account will achieve its investment objective.~~

~~A. PASSIVE AND ACTIVE MANAGEMENT~~

- ~~1. Passive management uses lower cost *index funds* to access the return streams available from the world's capital markets. Active management tries to earn higher returns than those available from index funds through the application of manager skill in the form of sector and security selection as well as market and/or asset mix timing decisions.~~
- ~~2.1. The Council uses passive management to control costs, evaluate active management strategies, capture exposure to *efficient market* segments, manage *tracking error* and facilitate policy mix re-balancing activities. **Exchange-traded *real estate investment trusts (REITs)* may also be used to maintain the Fund's real estate exposure within specified policy ranges.**~~
- ~~3.1. The Council approves active management of Fund assets when proposed active strategies offer sufficiently high expected incremental returns, net of fees, and when the magnitude of potential under-performance can be estimated, monitored and managed.~~
- ~~4.1. Public equity and fixed income asset classes are managed using both passive and active management strategies. Active management of the Fund's public market equity and fixed income allocations is expected to earn annual return premiums of 0.50% and 0.25%, respectively, over rolling, consecutive five-year periods (and relative to those allocation's respective benchmarks). The Council recognizes that unsuccessful active management can reduce total Fund returns.~~
- ~~5.1. The Council must accept active management in those asset classes for which there are no passive management alternatives; in particular, private real estate, private equity and other alternative and opportunistic investment strategies.~~
- 1. The Council prefers active management strategies that emphasize sector and/or security selection decisions rather than market and/or asset mix timing decisions as the former are much better supported by professional experience and academic research.**
- At the aggregate, Regular Account level, and as outlined in Exhibit 2, active management strategies authorized by the Council are expected to add 0.4% of annualized excess return, net of fees, over rolling, consecutive five-year periods. Relative to the policy benchmark, Regular Account active risk shall be managed to a 2 to 3 percent annualized tracking error target.**

~~Exhibit 2: Active Return Expectations for the OPERF Regular Account by Asset Class~~

Asset Class	Target Allocation (%)	Target Active Return (%)	Target Active Contribution (%)
Public Equity	37.5	0.50	0.19
Fixed Income	20.0	0.25	0.05
Real Estate	42.5	0.50	0.06

Total Fund - - 0.30

~~B.A. PUBLIC EQUITY STRATEGY~~

- ~~1. OPERF's public equity allocation is managed with the objective of earning at least **50 basis points** in annualized net excess return relative to the *MSCI All Country World Investable Market Index (ACWI IMI net)* (unhedged) over rolling, consecutive five-year periods. **Relative to that same benchmark, active risk shall be managed to a 0.75 to 2.0 percent annualized tracking error target.**~~
- ~~2.1. Key elements of the strategy include the following:~~
 - ~~a. In an effort to enhance return, strategy will include maintaining an over-weight to small capitalization stocks and other well supported sources of return premia. These strategic overweights or "tilts" are based on and supported by robust empirical research that historically links persistent and pervasive evidence of excess returns to systematic "factor exposures" such as size (i.e., small cap), value and momentum. Implementation of other factor tilts may be considered at the manager, strategy or mandate level upon approval of both the Chief Investment Officer (CIO) and OIC.~~
 - ~~b.a. Multiple, specialist active managers with complementary investment styles are employed. For example, some OPERF managers focus on growth stocks, some on value stocks, some on large capitalization stocks and others on small capitalization stocks. This diversified approach produces more excess return opportunities and minimizes the Fund's exposure to any single investment organization.~~
 - ~~a. Active management is more common within OPERF's non U.S. equity allocation because non U.S. markets appear to provide more opportunities for the successful application of manager skill.~~
 - ~~b. Managers with skills in security selection and country allocation are utilized as these attributes have historically been the principal sources of excess returns in non U.S. equity portfolios. In addition, managers who have demonstrated an ability to add value through currency management are permitted to do so.~~
 - ~~e.a. Aggregate exposures to countries, economic sectors, investment styles and market capitalization tiers are monitored and managed relative to corresponding benchmark exposures.~~

~~C.A. FIXED INCOME STRATEGY~~

- ~~1. OPERF's fixed income allocation is managed with the objective of earning **25 basis points** in annualized, net excess returns relative to a blended benchmark comprised of 46% *Bloomberg Barclays U.S. Aggregate Index*, 37% *Bloomberg Barclays U.S. Treasury Index*, 13% *S&P/LSTA Leveraged Loan Index* and 4% *Bank of America Merrill Lynch High Yield Master II Index* over rolling, consecutive five-year periods. **Relative to the above described benchmark, active risk within the OPERF fixed income allocation is managed to a 0.5 to 1.0 percent annualized tracking error target.**~~
- ~~2.1. Key elements of the strategy include the following:~~
 - ~~a. A significant proportion of the OPERF fixed income allocation is actively managed due to performance and cost considerations. Specifically, excess returns from active fixed income management are likely as many investors hold fixed income securities to meet regulatory and liability matching objectives, and hence are not total return oriented. **This market dynamic produces systematic mis-pricings of fixed income securities that skilled investment managers can exploit.** Active fixed income management fees are also much lower than active equity management fees.~~
 - ~~a. Multiple active generalist managers will be used for a majority of the fixed income asset class, rather than the specialist manager approach used within OPERF's public equity allocation. However, the OIC may utilize specialist fixed income managers as warranted or necessary, although fixed income manager mandates generally have little impact on the Fund's total risk due to fixed income's lower overall Fund allocation and fixed income managers' generally low tracking error.~~
 - ~~b. Fixed income managers are selected for their skills in issue selection, credit analysis, sector allocations and duration management.~~
 - ~~b.a. Aggregate exposures to duration, credit and sectors are monitored and managed~~

~~relative to corresponding exposures in the fixed income allocation benchmark.~~

~~D.A. REAL ESTATE STRATEGY~~

- ~~1. OPERF's real estate allocation is managed with the objective of earning at least **50 basis points** in annualized, net excess returns relative to the *NCREIF Fund Index* Open End Diversified Core Equity (NFI-ODCE), net of management fees, over rolling, consecutive five-year periods. **Because 80% of the Fund's real estate investments are illiquid and/or traded infrequently, passive management approaches and conventional risk budget concepts are generally not applicable.**~~
- ~~2.1. Key elements of the strategy include the following:~~
 - ~~a. Real Estate is 100% actively managed because a passive replication of the full breadth and depth of the real estate asset class is not viable.~~
 - ~~b.a. Core property investments represent 55% of the Fund's real estate allocation, with a range of 45% to 65%. **Specialist managers are utilized.** Risk is diversified by investing across the following major property types: office, apartments, retail, and industrial. The OPERF real estate allocation may also include structured investments in alternative property types with Core-like risk and return attributes.~~
 - ~~c.a. Exchange traded real estate investment trusts (REITs) represent 5% of the Fund's real estate allocation, with a range of 0% to 10%. **Active management will include style and capitalization specialists, as well as broad market managers.** Up to 50% of the REIT exposure may be invested in markets outside the United States.~~
 - ~~d.a. Value Added property investments represent 20% of the OPERF real estate allocation, with a range of 10% to 30%, and may include direct investments in each of the property types listed above, as well as structured investments in alternative property types. Risk is diversified by property type and geography.~~
 - ~~e.a. Opportunistic property investments represent 20% of the OPERF real estate allocation, with a range of 10% to 30%. Relative to Core and Value Added strategies, real estate investments will be characterized as "opportunistic" based on higher risk/return expectations and other prevailing market conditions.~~
 - ~~f.a. Within its real estate allocation, the Fund may participate in *co-investment* opportunities.~~

~~E.A. PRIVATE EQUITY STRATEGY~~

- ~~1. OPERF's private equity allocation is managed with the objective of earning at least **300 basis points** in annualized, net excess returns relative to the Russell 3000 Index over very long time horizons, typically rolling, consecutive 10-year periods. **Because private equity investments are often illiquid and/or traded infrequently, passive management approaches and conventional risk budget concepts are generally not applicable.**~~
- ~~1. Key elements of the strategy include the following:~~
 - ~~a. Private Equity is 100% actively managed because private equity index funds are not available.~~
 - ~~b.a. Risk within OPERF's private equity allocation is diversified by investing across different fund types and strategies including *venture capital, leverage buyout, mezzanine debt, distressed debt, sector funds, secondaries* and *fund of funds*.~~
 - ~~c.a. OPERF's private equity allocation is further diversified by investing across *vintage year, industry sectors, investment size, development stage* and *geography*.~~
 - ~~d.a. OPERF's private equity investments are managed by external managers operating as general partners. Considerations for private equity manager selection include access to transactions (i.e., "deal flow"), specialized areas of operating expertise, established or promising net of fees performance track records, unique or differentiated investment methodologies and transparent/verifiable reporting processes.~~
 - ~~e.a. Within its private equity allocation, the Fund may participate in *co-investment* opportunities.~~

~~ALTERNATIVES STRATEGY~~

- ~~1. OPERF's allocation to Alternatives is managed with the objective of earning at least **400 basis**~~

points in annualized, net excess returns relative to *CPI* over rolling, consecutive ten-year periods. Because 80% of the OPERF alternatives allocation is illiquid and/or traded infrequently, passive management approaches and conventional risk budget concepts are generally not applicable.

- ~~1. Key elements of the strategy include the following:~~
 - ~~a. Alternatives are 100% actively managed because index funds replicating the broad alternatives market are not available.~~
 - ~~b.a. Infrastructure investments represent 25% of the Fund's alternatives allocation, with a range of 20% to 30%. **Specialist managers are utilized, and risk** is diversified by investment type, size and geography. Specific infrastructure sector exposures will likely include energy, transportation, ports and water in both domestic and international markets and comprising both mid-size and large capitalization enterprises.~~
 - ~~e.a. Natural Resource investments represent 35% of the Fund's alternatives allocation, with a range of 30% to 40%. Risk is diversified by investing across multiple industry sectors including oil and gas, agriculture, timberland, mining and commodities. **Specialist managers are utilized in both domestic and international markets and across both active and some passive strategies.**~~
 - ~~d.a. Diversifying Strategies represent 40% of the Fund's alternatives allocation, with a range of 35% to 45%. Diversifying Strategies investments may include relative value, macro, arbitrage and long/short equity strategies. The objective of this sleeve is to invest in strategies with returns uncorrelated with those of the broader Fund. Risk is diversified by investing in multiple managers and across several strategies.~~
 - ~~e.a. Other investments may represent 5% of the Fund's alternatives allocation, with a range of 0% to 10%. Investment strategies will be characterized as "other" based on prevailing market conditions as well as a specific strategy's unique "value proposition" or investment thesis.~~
 - ~~f.a. Within its alternatives allocation, the Fund may also participate in *co-investment* opportunities.~~

PERFORMANCE MONITORING AND EVALUATION

- ~~1. The Council and its agents use a variety of compliance verification and performance measurement tools to monitor, measure and evaluate the management of OPERF assets. Monitoring, reporting and evaluation frequencies range from daily to annually, although quarterly is the most commonly used reporting frequency.~~
- ~~1. The Council has developed a performance monitoring and evaluation system that answers two fundamental fiduciary questions:
 - ~~• Are Fund assets being prudently managed? More specifically, are Fund assets being managed in accordance with established laws, policies and procedures, and are individual investment managers in compliance with their respective mandates?~~
 - ~~• Are Fund assets being profitably managed? More specifically, has Fund investment performance improved benefit security, and has capital market risk in general and active management in particular been sufficiently rewarded?~~~~
- ~~2. When a breach of policies, procedures or portfolio mandates is reported or detected, the Council requires a supporting report explaining how the breach was discovered, the reasons for the breach, actions taken to rectify the breach, and steps taken to mitigate future occurrences.~~
- ~~2.1. One of many reports used by the Council to satisfy the above requirements is a simple comparison of Regular Account investment performance relative to the Council's assigned total Fund benchmark over rolling, consecutive multi-year periods. Other reports help the Council assess whether or not the Fund was rewarded for its allocations to higher return, higher risk equity investments and whether or not the active management strategies utilized added or subtracted from policy returns on a net of fees basis.~~
- ~~3. The reporting described in this section gives the Council a consolidated or "big picture" view of Regular Account investment performance. **This view is the first level of a comprehensive four-level performance report used by the Council to monitor and evaluate Regular Account investment performance over different time horizons. Level two examines Regular Account investment performance excluding hard-to-price illiquid assets such as real estate and private equity**~~

investments. Level three examines Regular Account investment performance across seven, primary asset allocation categories: U.S. equity; Non U.S. equity; Fixed Income; Real Estate; Private Equity; and the Alternatives and Opportunity portfolios. Level four examines the performance of individual managers within each of the asset allocation categories. This four level reporting structure allows the Council to "drill down" to the level of detail it may need to identify potential performance problems and take whatever corrective actions that may be required.

GLOSSARY

Applicability

Classified represented, management service, unclassified executive service.

Authority

ORS Chapter 293.

POLICY PROVISIONS

Definitions

Actuarial Discount Rate (~~("ADR")~~): The interest rate used to calculate the present value of a defined benefit plan's future obligations and determine the size of the plan sponsor's annual contribution. The ADR currently approved by the PERB is 7.52%.

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

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

Bank of America Merrill Lynch U.S. High Yield Master II Index: This index tracks the performance of publicly-issued, U.S. dollar-denominated, below investment-grade corporate debt. Its constituents are capitalization-weighted based on their current amount outstanding times the market price plus accrued interest ~~and must~~that conform to ~~the followingspecific~~ parameters:

- ~~• Be rated below investment grade rating based on an average of Moody's, S&P and Fitch;~~
- ~~• Have at least 18 months to final maturity at the time of issuance and at least one year remaining to final maturity as of an index rebalancing date;~~
- ~~• Have a fixed coupon schedule and a minimum outstanding of \$100 million; and~~

~~Qualifying securities must have risk exposure to countries that are members of the FX G10, Western Europe or territories of the U.S. and Western Europe (the FX G10 includes all Euro members, the U.S., Japan, the UK, Canada, Australia, New Zealand, Switzerland, Norway and Sweden).~~

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

- ~~• Have at least one year to final maturity regardless of call features;~~
- ~~• Be rated investment grade (Baa3/BBB or higher) by at least two of the major ratings agencies~~

- (Moody's, S&P or Fitch);
 - ~~Be fixed rate, although securities with a coupon that steps up or changes according to a predetermined schedule are permitted;~~
 - ~~Be dollar denominated and non-convertible; and~~
- ~~Be publicly issued, although 144A securities with registration rights and Reg S issues are included.~~

Bloomberg Barclays U.S. Treasury Index: This index is a sub-component of the Bloomberg Barclays Aggregate Index and includes public obligations of the U.S. Treasury ~~that have with~~ remaining maturities of more than one year. ~~Its constituents must that~~ conform to ~~the followingspecific~~ parameters:

- ~~Be a U.S. Government or investment grade credit security;~~
- ~~Have at least one year to final maturity regardless of call features;~~
- ~~Have at least \$250 million par amount outstanding;~~
- ~~Be rated Baa3/BBB or higher (i.e., "investment grade") by at least two of the major ratings agencies (Moody's, S&P or Fitch);~~
- ~~Be fixed rate, although securities with a coupon that steps up or changes according to a predetermined schedule are permitted;~~
- ~~Be dollar denominated and non-convertible; and~~
- ~~Be publicly issued.~~

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

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

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

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

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

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

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

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

Diversification: Reducing risk without a commensurate reduction in expected return by combining assets

and/or investment strategies with low or uncorrelated return and volatility profiles. For example, a decline in the price of one asset (e.g., oil stocks) is offset by an increase in the price of another asset (e.g., airline stocks). In lay terms, this principal is often described as "putting your eggs in more than one basket".

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

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

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

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

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

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

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

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

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

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

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

MSCI All Country World Investable Market Index (ACWI-IMI): A capitalization-weighted index that includes approximately 9,000 publically-traded equity securities and is designed to measure equity market performance across developed and emerging markets. This index consists of over 40 separate developed and emerging market country indices.

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

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

volatile than those of larger capitalized companies.

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

NCREIF Fund Index – Open End Diversified Core Equity (NFI-ODCE): The NFI-ODCE is an investment performance composite published quarterly by the National Council of Real Estate Investment Fiduciaries (NCREIF). This index is a capitalization-weighted index of approximately 30 open-ended, commingled funds pursuing a "core" investment strategy. ~~The and conform to specific qualifications for NFI-ODCE inclusion are as follows:~~

- ~~• At least 80% of fund market value must be in private equity operating real estate;~~
- ~~• At least 95% of fund market value must be in U.S. markets;~~
- ~~• At least 80% of fund market value must be invested in apartments, industrial properties, office buildings, and retail;~~
- ~~• No more than 65% of fund market value can be in one property type or one region as define by the NPI;~~
- ~~• No more than 40% leverage; and~~

~~Compliance with the NCREIF/PREA Reporting Standards parameters.~~

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

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

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

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

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

Oregon Short Term Fund (OSTF): The state's commingled cash investment pool managed internally by Treasury staff. The OSTF includes all excess state agency cash, as required by law, as well as cash invested by local governments on a discretionary basis. The OSTF is invested in accordance with investment guidelines recommended by the state's Oregon Short Term Fund Board and approved by the OIC.

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

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

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

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

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

Regular Account: That portion of ~~the Oregon Public Employees Retirement Fund~~ OPERF that excludes the Variable Account- (defined below). A diversified investment portfolio for which the asset allocation and general investment policies are established and approved by the OIC. Tier One participants are guaranteed a minimum rate of return based on the long-term interest rate used by the actuary, ~~currently~~ 7.50 percent. Tier Two participants have no guaranteed rate of return and receive benefits that reflect the Regular Account's actual or realized investment return.

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

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

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

S&P/LSTA Leveraged Loan Index: This index is designed to mirror the market-weighted performance of the largest institutional leveraged loan portfolios based on market weightings, spreads and interest payments. Facilities are eligible for inclusion in the index if they are senior secured institutional term loans with a minimum initial spread of 125 basis points and minimum one-year term. Facilities are retired from the index when there is no bid posted on the facility for at least 12 successive weeks or when the loan is repaid.

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

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

Sector Funds: A pooled investment product that focuses on a particular industry or economic activity. For

example, pooled funds that invest principally in technology stocks would be termed a technology sector fund.

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

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

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

Value Stock: Stocks that appear to be undervalued for reasons other than low potential earnings growth. Value stocks usually have low price-to-earnings ratios, low price-to-book ratios and a high dividend yield.

Variable Account: ~~The~~ An account established for a PERS member who participated in the VAP (defined below).

Variable Annuity Program (←“VAP”): a program that allowed active PERS members to allocate a portion of their yearly, employee retirement contributions to a domestic equity portfolio. No such contributions were allowed after December 31, 2003. Active members who participated in the VAP had part of their balance invested in the Regular Account and part invested in the Variable Account. Unless a member explicitly elected to participate in the VAP, all of that member's employee contributions were invested in the Regular Account. This "primary" election allowed members to place 25 percent, 50 percent or 75 percent of their employee contributions in the Variable Account. Variable Account balances increase or decrease depending on the investment performance of the variable fund, and individual participant accounts are credited for any amount (gain or loss) available for distribution. The OIC's asset allocation policy purview only applies to the Regular Account since the OIC cannot control the investment option elections of VAP participants.

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

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

Policy Statements

A. INTRODUCTION

1. Subject to ORS 293.721 and 293.726, the Council believes, based on the assumptions outlined herein, that the investment policies summarized in this document will provide the highest possible return at a level of risk that is appropriate for active and retired OPERF members. The Council evaluates risk in terms of both short-term asset price volatility and long-term plan viability.
2. This objective further contemplates a consecutive ten-year forecast horizon, and the Council also understands that estimates of forward-looking OPERF returns are a primary consideration during

- PERB's biennial determination of its ADR.
3. Historically, PERS members were allowed to direct up to 75% of their annual, employee retirement contributions to the Variable Account. While no longer receiving new contributions, the Variable Account's objective remains investment performance consistent with the MSCI All Country World Investable Market Index.
 4. The Council has established investment objectives for individual asset classes that are also summarized in this Statement.

B. POLICY ASSET MIX, DIVERSIFICATION, AND RETURN EXPECTATIONS

1. The OIC undertakes a rigorous study of OPERF's assets and liabilities every three to five years (or more frequently, if desired). These asset-liability studies include the following elements for OIC consideration: 1) capital market assumptions by asset class, which include expected returns, volatilities and correlations; 2) proposed asset mixes using various portfolio modeling/construction techniques; 3) OPERF's liability structure, funded status and liquidity needs; and 4) recommended strategic asset allocation targets and a rebalancing framework. The Council's approved asset mix policy for the Regular Account is summarized in Exhibit 1, and its active management return expectations are summarized in Exhibit 2.
2. Of total Fund assets, 55 percent of OPERF is targeted for investment in equities, inclusive of private equity. Equity investments have generated the highest returns over long time periods, but can also produce low and even negative returns over shorter time periods. The risk of low returns over shorter time periods makes 100% equity policies unsuitable for most pension funds, including OPERF. By investing across multiple equity asset classes, and in lower return but less risky fixed income, real estate and alternatives asset classes, the Council manages and diversifies the Fund's overall risk.
3. Specific asset class exposures are maintained within the ranges outlined in Exhibit 1.

Exhibit 1: Policy Mix and Return Expectations for the OPERF Regular Account

<u>Asset Class</u>	<u>Target Allocation (%)</u>	<u>Re-balancing Range (0%)</u>	<u>Expected Annual Policy Return¹ (%)</u>
<u>Public Equity</u>	<u>37.5</u>	<u>32.5-42.5</u>	<u>7.43</u>
<u>Private Equity</u>	<u>17.5</u>	<u>14.0-21.0</u>	<u>9.25</u>
<u>Total Equity</u>	<u>55.0</u>	<u>50.0-60.0</u>	<u>-</u>
<u>Fixed Income</u>	<u>20.0</u>	<u>15.0-25.0</u>	<u>3.80</u>
<u>Risk Parity</u>	<u>2.5</u>	<u>0.0-2.5</u>	<u>6.5</u>
<u>Real Estate</u>	<u>12.5</u>	<u>9.5-15.5</u>	<u>7.06</u>
<u>Alternatives</u>	<u>12.5</u>	<u>0.0-12.5</u>	<u>6.93</u>
<u>Total Fund²</u>	<u>100.0</u>	<u>-</u>	<u>7.17</u>

1.

†Based on capital market forecasts developed by the Council's investment consultant, Callan Inc.

2.

- 2-Total Fund expected returns are calculated *geometrically* using the investment consultant's forecasts for the *arithmetic* returns and co-variances of the asset classes. Accordingly, the Total Fund's expected returns are not equivalent to the weighted average of individual asset class returns listed in Exhibit 1.
4. The policy mix's 7.43% average annual return expectation was developed with reference to observed long-term relationships among major asset classes, adjusted to account for current market conditions. The Council believes this return expectation is reasonable, but recognizes that *realized* returns can deviate significantly from expectations – both positively and negatively.
5. The OIC has allocated up to 3.0% of total Fund assets for investment in an *Opportunity Portfolio*, the objective of which is to enhance OPERF returns and/or diversification. Investments in the Opportunity Portfolio are expected to comprise a combination of both shorter-term (1-3 year) and longer-term holdings. The Opportunity Portfolio has no strategic target since, by definition, eligible investments are only pursued on an opportunistic or episodic basis; moreover, the Opportunity Portfolio allocation shall not result in an allocation range breach for any of the other five, primary asset class allocations.
6. OPERF cash balances are invested in the *Oregon Short Term Fund* and managed to levels that are deliberately minimized but still sufficient to cover OPERF's short-term cash flow needs.
7. In an effort to minimize cash balances at both the Fund and manager level, the OIC has retained an overlay manager to more closely align the actual Fund portfolio with the approved policy mix, generally through the purchase and sale of futures contracts to increase or decrease specific asset class exposures, as necessary.
8. The Council shall review, at least biennially, its expectations for asset class and active management performance, and assess how the updated expectations affect the probability that the Regular Account will achieve its investment objective.

C. REBALANCING

1. In the absence of any other considerations, the optimal rebalancing strategy would suggest continually rebalancing back to OPERF's strategic asset allocation targets. Rebalancing ensures that the return objectives and risk tolerance parameters approved by the OIC are consistently and effectively reflected in the Fund. However, rebalancing involves transactions costs such as brokerage fees and market impact. As a result of these costs, ranges are established around the strategic asset allocation targets in order to balance the desirability of achieving precise target allocations with the various and often material transactions costs associated with these same rebalancing activities. In addition, the overlay manager is expected to minimize cash exposures at both the Fund and individual manager level.
2. With OIC oversight, OST staff implements the approved rebalancing framework, although the illiquid nature of many private market assets may exempt those assets from staff's short-term rebalancing activities. Rebalancing should be implemented by the most cost-effective means available. For example, cash flows into and out of OPERF will first be used to rebalance back toward asset class targets, whenever possible.
3. -A breach of any of the established asset allocation ranges triggers a review and possible rebalancing back to established targets with due consideration given to the liquidity of the affected investments, all anticipated transaction costs and the current portfolio structure within each asset class.

D. PASSIVE AND ACTIVE MANAGEMENT

1. Passive management uses lower cost *index funds* to access the return streams available from the world's capital markets. Active management tries to earn higher returns than those available from index funds through the application of manager skill in the form of sector and security selection as well as market and/or asset mix timing decisions.
2. The Council uses passive management to control costs, evaluate active management strategies, capture exposure to *efficient market* segments, manage *tracking error* and facilitate policy mix re-

balancing activities.

3. The Council approves active management of Fund assets when proposed active strategies offer sufficiently high expected incremental returns, net of fees, and when the magnitude of potential under-performance can be estimated, monitored and managed.
4. Public equity and fixed income asset classes are managed using both passive and active management strategies. Active management of the Fund's public market equity and fixed income allocations is expected to earn annual return premiums of 0.50% and 0.25%, respectively, over rolling, consecutive five-year periods (and relative to those allocation's respective benchmarks). The Council recognizes that unsuccessful active management can reduce total Fund returns.
5. The Council must accept active management in those asset classes for which there are no passive management alternatives; in particular, private real estate, private equity and other alternative and opportunistic investment strategies.
6. At the aggregate, Regular Account level, and as outlined in Exhibit 2, active management strategies authorized by the Council are expected to **add 0.3% of annualized excess return, net of fees, over rolling, consecutive five-year periods.**

Exhibit 2: Active Return Expectations for the OPERF Regular Account by Asset Class

<u>Asset Class</u>	<u>Target Allocation (%)</u>	<u>Target Active Return (%)</u>	<u>Target Active Contribution (%)</u>
Public Equity	372.5	0.50	0.19
Fixed Income	20.0	0.25	0.05
Real Estate	12.5	0.50	0.06
Total Fund	-	-	0.300.28

E. — PUBLIC EQUITY STRATEGY

1. OPERF's public equity allocation is managed with the objective of earning at least **50 basis points** in annualized net excess return relative to the *MSCI All Country World Investable Market Index (ACWI IMI – net)* (unhedged) over rolling, consecutive five-year periods. **Relative to that same benchmark, active risk shall be managed to a 0.75 to 2.0 percent annualized tracking error target.**
2. Key elements of the strategy include the following:
 - a. In an effort to enhance return, strategy will include maintaining an over-weight to small capitalization stocks and other well supported sources of return premia. These strategic overweights or "tilts" are based on and supported by robust empirical research that historically links persistent and pervasive evidence of excess returns to systematic "factor exposures" such as size (i.e., small cap), value and momentum. Implementation of other factor tilts may be considered at the manager, strategy or mandate level upon approval of both the Chief Investment Officer (CIO) and OIC.
 - b. Multiple, specialist active managers with complementary investment styles are employed. For example, some OPERF managers focus on growth stocks, some on value stocks, some on large capitalization stocks and others on small capitalization stocks. This diversified approach produces more excess return opportunities and minimizes the Fund's exposure to any single investment organization.
 - c. Aggregate exposures to countries, economic sectors, investment styles and market capitalization tiers are monitored and managed relative to corresponding benchmark exposures.

F. — FIXED INCOME STRATEGY

1. OPERF's fixed income allocation is managed with the objective of earning **25 basis points** in annualized, net excess returns relative to a blended benchmark comprised of 46% *Bloomberg Barclays U.S. Aggregate Index*, 37% *Bloomberg Barclays U.S. Treasury Index*, 13% *S&P/LSTA Leveraged Loan Index* and 4% *Bank of America Merrill Lynch High Yield Master II Index* over rolling, consecutive five-year periods. **Relative to the above-described benchmark, active risk within the OPERF fixed income allocation is managed to a 0.5 to 1.0 percent annualized tracking error target.**
2. Key elements of the strategy include the following:
 - a. A significant proportion of the OPERF fixed income allocation is actively managed due to performance and cost considerations. Specifically, excess returns from active fixed income management are likely as many investors hold fixed income securities to meet regulatory and liability matching objectives, and hence are not total return oriented. **This market dynamic produces systematic opportunities in fixed income securities that skilled investment**

managers can exploit. Active fixed income management fees are also much lower than active equity management fees.

- b. Aggregate exposures to duration, credit and sectors are monitored and managed relative to corresponding exposures in the fixed income allocation benchmark.

G. REAL ESTATE STRATEGY RISK PARITY

1. OPERF's risk parity allocation will be managed with the objective of earning a net total return comparable to an equal risk weighting of traditional asset class indices such as *Bloomberg Barclays U.S. Treasury Index* and the *MSCI ACWI IMI*.

H. REAL ESTATE STRATEGY

1. OPERF's real estate allocation is managed with the objective of earning at least **50 basis points** in annualized, net excess returns relative to the *NCREIF Fund Index – Open End Diversified Core Equity (NFI-ODCE)*, net of management fees, over rolling, consecutive five-year periods.
2. Key elements of the strategy include the following:
 - a. Real Estate is 100% actively managed because a passive replication of the full breadth and depth of the real estate asset class is not viable.
 - b. Core property investments represent 55% of the Fund's real estate allocation, with a range of 45% to 65%. Risk is diversified by investing across the following major property types: office; apartments; retail; and industrial. The OPERF real estate allocation may also include structured investments in alternative property types with Core-like risk and return attributes.
 - c. Exchange-traded real estate investment trusts (REITs) represent 5% of the Fund's real estate allocation, with a range of 0% to 10%. Up to 50% of the REIT exposure may be invested in markets outside the United States.
 - d. Value Added property investments represent 20% of the OPERF real estate allocation, with a range of 10% to 30%, and may include direct investments in each of the property types listed above, as well as structured investments in alternative property types. Risk is diversified by property type and geography.
 - e. Opportunistic property investments represent 20% of the OPERF real estate allocation, with a range of 10% to 30%. Relative to Core and Value Added strategies, real estate investments will be characterized as "opportunistic" based on higher risk/return expectations and other prevailing market conditions.
 - f. Within its real estate allocation, the Fund may participate in *co-investment* opportunities.

I. PRIVATE EQUITY STRATEGY

1. OPERF's private equity allocation is managed with the objective of earning at least **300 basis points** in annualized, net excess returns relative to the Russell 3000 Index over very long time horizons, typically rolling, consecutive 10-year periods.
2. Key elements of the strategy include the following:
 - a. Private Equity is 100% actively managed because private equity index funds are not available.
 - b. Risk within OPERF's private equity allocation is diversified by investing across different fund types and strategies including *venture capital, leverage buyout, mezzanine debt, distressed debt, sector funds, secondaries* and *fund-of-funds*.
 - c. OPERF's private equity allocation is further diversified by investing across *vintage year, industry sectors, investment size, development stage* and *geography*.
 - d. OPERF's private equity investments are managed by external managers operating as general partners. Considerations for private equity manager selection include access to transactions (i.e., "deal flow"), specialized areas of operating expertise, established or promising net of fees performance track records, unique or differentiated investment methodologies and

- transparent/verifiable reporting processes.
- e. Within its private equity allocation, the Fund may participate in co-investment opportunities.

J. —ALTERNATIVES STRATEGY

1. OPERF's allocation to Alternatives is managed with the objective of earning at least 400 basis points in annualized, net excess returns relative to CPI over rolling, consecutive ten-year periods.
2. Key elements of the strategy include the following:
 - a. Alternatives are 100% actively managed because index funds replicating the broad alternatives market are not available.
 - b. Infrastructure investments represent 250% of the Fund's alternatives allocation, with a range of 2015% to 3025%. Risk is diversified by investment type, size and geography. Specific infrastructure sector exposures will likely include energy, transportation, ports and water in both domestic and international markets and comprising both mid-size and large capitalization enterprises.
 - c. Natural Resource investments represent 350% of the Fund's alternatives allocation, with a range of 3025% to 4035%. Risk is diversified by investing across multiple industry sectors including oil and gas, agriculture, timberland, mining and commodities.
 - d. Diversifying Strategies represent 4050% of the Fund's alternatives allocation, with a range of 345% to 455%. Diversifying Strategies investments may include relative value, macro, arbitrage and long/short equity strategies. The objective of this sleeve is to invest in strategies with returns uncorrelated with those of the broader Fund. Risk is diversified by investing in multiple managers and across several strategies.
 - e. Other investments may represent 5% of the Fund's alternatives allocation, with a range of 0% to 10%. Investment strategies will be characterized as "other" based on prevailing market conditions as well as a specific strategy's unique "value proposition" or investment thesis.
 - f. Within its alternatives allocation, the Fund may also participate in co-investment opportunities.

K. —PERFORMANCE MONITORING AND EVALUATION

1. The Council and OST staff use a variety of verification and performance measurement tools to monitor, measure and evaluate the management of OPERF assets. Monitoring, reporting and evaluation frequencies range from daily to annually, although quarterly is the most commonly used reporting frequency.
2. The Council directs staff to develop a performance monitoring and evaluation system that validates whether the assets are prudently managed. More specifically, whether Fund investment performance improved benefit security, and capital market risk in general and active management in particular have been sufficiently rewarded.
3. One of many reports used by the Council to satisfy the above requirements is a simple comparison of Regular Account investment performance relative to the Council's assigned total Fund benchmark over rolling, consecutive multi-year periods. Other reports help the Council assess whether or not the Fund was rewarded for its allocations to higher return, higher risk equity investments and whether or not the active management strategies utilized added or subtracted from policy returns on a net of fees basis.
4. The reporting described in this section gives the Council a consolidated or "big picture" view of Regular Account investment performance. Regular Account investment performance across primary asset allocation categories will also be reported to the OIC. Upon request and if available, staff will also provide the Council more granular performance reporting, e.g., at the individual manager level.
5. 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 Fund, as appropriate; and d) when applicable, verify resolution by the appropriate individual or manager within the appropriate time

frame.

Exceptions

None.

Failure to Comply

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

PROCEDURES and FORMS

None.

ADMINISTRATION

Review

Annually.

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.

INTRODUCTION & OVERVIEW

Summary Policy Statement

This Statement of Investment Objectives and Policy Framework (the "Statement") summarizes the philosophy, objectives and policies approved by the *Oregon Investment Council* (the "OIC" or the "Council") for the investment of *Oregon Public Employees Retirement Fund* ("OPERF" or the "Fund") assets.

1. The Statement has been prepared with six audiences in mind: 1) incumbent, new and prospective Council members; 2) *Oregon State Treasury* ("OST") staff; 3) the Public Employees Retirement Board ("PERB"); 4) active and retired Oregon Public Employees Retirement System (PERS) members; 5) the Oregon State Legislature and Governor; and 6) agents engaged by the Council to manage and administer Fund assets.
2. The Council approved these objectives and framework after careful consideration of PERS benefit provisions, and the implications of alternative objectives and policies.
3. The Statement summarizes more detailed policy and procedure documents prepared and maintained by staff, and numerous other documents that govern the day-to-day management of OPERF assets including agent agreements, individual investment manager mandates and limited partnership documents.
4. The Council regularly assesses the continued suitability of its approved investment objectives and policies, initiates change as necessary and updates these documents accordingly.

Applicability

Classified represented, management service, unclassified executive service.

Authority

ORS Chapter 293.

POLICY PROVISIONS

Definitions

Actuarial Discount Rate ("ADR"): The interest rate used to calculate the present value of a defined benefit plan's future obligations and determine the size of the plan sponsor's annual contribution. The ADR currently approved by the PERB is 7.2%.

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

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

Bank of America Merrill Lynch U.S. High Yield Master II Index: This index tracks the performance of publicly-issued, U.S. dollar-denominated, below investment-grade corporate debt. Its constituents are capitalization-weighted based on their current amount outstanding times the market price plus accrued interest that conform to specific parameters.

Bloomberg Barclays U.S. Aggregate Index: This index covers the U.S. investment-grade fixed rate bond market, and includes government, corporate, mortgage pass-through and asset-backed securities. These major sectors are subdivided into more specific indices that are calculated and reported on a regular basis.

Its constituents are SEC-registered, taxable, dollar-denominated securities that conform to specific parameters.

Bloomberg Barclays U.S. Treasury Index: This index is a sub-component of the Bloomberg Barclays Aggregate Index and includes public obligations of the U.S. Treasury with remaining maturities of more than one year that conform to specific parameters.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

MSCI All Country World Investable Market Index (ACWI-IMI): A capitalization-weighted index that includes approximately 9,000 publically-traded equity securities and is designed to measure equity market performance across developed and emerging markets. This index consists of over 40 separate developed and emerging market country indices.

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

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

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

NCREIF Fund Index – Open End Diversified Core Equity (NFI-ODCE): The NFI-ODCE is an investment performance composite published quarterly by the National Council of Real Estate Investment Fiduciaries (NCREIF). This index is a capitalization-weighted index of approximately 30 open-ended, commingled funds pursuing a "core" investment strategy and conform to specific parameters.

Oregon State Treasury: Headed by the State Treasurer, the Oregon State Treasury is responsible for managing the day to day investment operations of the state pension fund (and other funds), issuing all state

debt, and serving as the central bank for state agencies. Within the Oregon State Treasury, the Investment Division also manages investment programs for the state's deferred compensation and college savings plans, and serves as staff to the Oregon Investment Council.

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

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

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

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

Oregon Short Term Fund (OSTF): The state's commingled cash investment pool managed internally by Treasury staff. The OSTF includes all excess state agency cash, as required by law, as well as cash invested by local governments on a discretionary basis. The OSTF is invested in accordance with investment guidelines recommended by the state's Oregon Short Term Fund Board and approved by the OIC.

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

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

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

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

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

Regular Account: That portion of OPERF that excludes the Variable Account (defined below). A diversified investment portfolio for which the asset allocation and general investment policies are established and approved by the OIC. Tier One participants are guaranteed a minimum rate of return

based on the long-term interest rate used by the actuary. Tier Two participants have no guaranteed rate of return and receive benefits that reflect the Regular Account's actual or realized investment return.

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

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

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

S&P/LSTA Leveraged Loan Index: This index is designed to mirror the market-weighted performance of the largest institutional leveraged loan portfolios based on market weightings, spreads and interest payments. Facilities are eligible for inclusion in the index if they are senior secured institutional term loans with a minimum initial spread of 125 basis points and minimum one-year term. Facilities are retired from the index when there is no bid posted on the facility for at least 12 successive weeks or when the loan is repaid.

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

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

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

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

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

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

Value Stock: Stocks that appear to be undervalued for reasons other than low potential earnings growth. Value stocks usually have low price-to-earnings ratios, low price-to-book ratios and a high dividend yield.

Variable Account: An account established for a PERS member who participated in the VAP (defined below).

Variable Annuity Program ("VAP"): a program that allowed active PERS members to allocate a portion of their yearly, employee retirement contributions to a domestic equity portfolio. No such contributions were

allowed after December 31, 2003. Active members who participated in the VAP had part of their balance invested in the Regular Account and part invested in the Variable Account. Unless a member explicitly elected to participate in the VAP, all of that member's employee contributions were invested in the Regular Account. This "primary" election allowed members to place 25 percent, 50 percent or 75 percent of their employee contributions in the Variable Account. Variable Account balances increase or decrease depending on the investment performance of the variable fund, and individual participant accounts are credited for any amount (gain or loss) available for distribution. The OIC's asset allocation policy purview only applies to the Regular Account since the OIC cannot control the investment option elections of VAP participants.

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

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

Policy Statements

A. INTRODUCTION

1. Subject to ORS 293.721 and 293.726, the Council believes, based on the assumptions outlined herein, that the investment policies summarized in this document will provide the highest possible *return* at a level of *risk* that is appropriate for active and retired OPERF members. The Council evaluates risk in terms of both short-term asset price volatility and long-term plan viability.
2. This objective further contemplates a consecutive ten-year forecast horizon, and the Council also understands that estimates of forward-looking OPERF returns are a primary consideration during PERB's biennial determination of its ADR.
3. Historically, PERS members were allowed to direct up to 75% of their annual, employee retirement contributions to the *Variable Account*. While no longer receiving new contributions, the Variable Account's objective remains investment performance consistent with the *MSCI All Country World Investable Market Index*.
4. The Council has established investment objectives for individual asset classes that are also summarized in this Statement.

B. POLICY ASSET MIX, DIVERSIFICATION, AND RETURN EXPECTATIONS

1. The OIC undertakes a rigorous study of OPERF's assets and liabilities every three to five years (or more frequently, if desired). These asset-liability studies include the following elements for OIC consideration: 1) capital market assumptions by asset class, which include expected returns, volatilities and correlations; 2) proposed asset mixes using various portfolio modeling/construction techniques; 3) OPERF's *liability* structure, *funded status* and liquidity needs; and 4) recommended strategic asset allocation targets and a rebalancing framework. The Council's approved asset mix policy for the Regular Account is summarized in Exhibit 1, and its active management return expectations are summarized in Exhibit 2.
2. Of total Fund assets, 55 percent of OPERF is targeted for investment in *equities*, inclusive of *private equity*. Equity investments have generated the highest returns over long time periods, but can also produce low and even negative returns over shorter time periods. The risk of low returns over shorter time periods makes 100% equity policies unsuitable for most pension funds, including OPERF. By investing across multiple equity asset classes, and in lower return but less risky *fixed income*, *real estate* and *alternatives* asset classes, the Council manages and diversifies the Fund's overall risk.
3. Specific asset class exposures are maintained within the ranges outlined in Exhibit 1.

Exhibit 1: Policy Mix and Return Expectations for the OPERF Regular Account

Asset Class	Target Allocation (%)	Re-balancing Range (0%)	Expected Annual Policy Return ¹ (%)
Public Equity	32.5	27.5-37.5	7.3
Private Equity	17.5	14.0-21.0	9.2
Total Equity	50.0	50.0-60.0	
Fixed Income	20.0	15.0-25.0	3.8
Risk Parity	2.5	0.0-2.5	6.5
Real Estate	12.5	9.5-15.5	7.0
Alternatives	15.0	7.5-17.5	6.9
Total Fund²	100.0		7.3

1. Based on capital market forecasts developed by the Council's investment consultant, Callan Inc.
2. Total Fund expected returns are calculated *geometrically* using the investment consultant's forecasts for the *arithmetic* returns and co-variances of the asset classes. Accordingly, the Total Fund's expected returns are not equivalent to the weighted average of individual asset class returns listed in Exhibit 1.
4. The policy mix's 7.3% average annual return expectation was developed with reference to observed long-term relationships among major asset classes, adjusted to account for current market conditions. The Council believes this return expectation is reasonable, but recognizes that *realized* returns can deviate significantly from expectations – both positively and negatively.
5. The OIC has allocated up to 3.0% of total Fund assets for investment in an *Opportunity Portfolio*, the objective of which is to enhance OPERF returns and/or diversification. Investments in the Opportunity Portfolio are expected to comprise a combination of both shorter-term (1-3 year) and longer-term holdings. The Opportunity Portfolio has no strategic target since, by definition, eligible investments are only pursued on an opportunistic or episodic basis; moreover, the Opportunity Portfolio allocation shall not result in an allocation range breach for any of the other five, primary asset class allocations.
6. OPERF cash balances are invested in the *Oregon Short Term Fund* and managed to levels that are deliberately minimized but still sufficient to cover OPERF's short-term cash flow needs.
7. In an effort to minimize cash balances at both the Fund and manager level, the OIC has retained an overlay manager to more closely align the actual Fund portfolio with the approved policy mix, generally through the purchase and sale of futures contracts to increase or decrease specific asset class exposures, as necessary.
8. The Council shall review, at least biennially, its expectations for asset class and active management performance, and assess how the updated expectations affect the probability that the Regular Account will achieve its investment objective.

C. REBALANCING

1. In the absence of any other considerations, the optimal rebalancing strategy would suggest continually rebalancing back to OPERF's strategic asset allocation targets. Rebalancing ensures that the return objectives and risk tolerance parameters approved by the OIC are consistently and

effectively reflected in the Fund. However, rebalancing involves transactions costs such as brokerage fees and market impact. As a result of these costs, ranges are established around the strategic asset allocation targets in order to balance the desirability of achieving precise target allocations with the various and often material transactions costs associated with these same rebalancing activities. In addition, the overlay manager is expected to minimize cash exposures at both the Fund and individual manager level.

2. With OIC oversight, OST staff implements the approved rebalancing framework, although the illiquid nature of many private market assets may exempt those assets from staff's short-term rebalancing activities. Rebalancing should be implemented by the most cost-effective means available. For example, cash flows into and out of OPERF will first be used to rebalance back toward asset class targets, whenever possible.
3. A breach of any of the established asset allocation ranges triggers a review and possible rebalancing back to established targets with due consideration given to the liquidity of the affected investments, all anticipated transaction costs and the current portfolio structure within each asset class.

D. PASSIVE AND ACTIVE MANAGEMENT

1. Passive management uses lower cost *index funds* to access the return streams available from the world's capital markets. Active management tries to earn higher returns than those available from index funds through the application of manager skill in the form of sector and security selection as well as market and/or asset mix timing decisions.
2. The Council uses passive management to control costs, evaluate active management strategies, capture exposure to *efficient market* segments, manage *tracking error* and facilitate policy mix rebalancing activities.
3. The Council approves active management of Fund assets when proposed active strategies offer sufficiently high expected incremental returns, net of fees, and when the magnitude of potential under-performance can be estimated, monitored and managed.
4. Public equity and fixed income asset classes are managed using both passive and active management strategies. Active management of the Fund's public market equity and fixed income allocations is expected to earn annual return premiums of 0.50% and 0.25%, respectively, over rolling, consecutive five-year periods (and relative to those allocation's respective benchmarks). The Council recognizes that unsuccessful active management can reduce total Fund returns.
5. The Council must accept active management in those asset classes for which there are no passive management alternatives; in particular, private real estate, private equity and other alternative and opportunistic investment strategies.
6. At the aggregate, Regular Account level, and as outlined in Exhibit 2, active management strategies authorized by the Council are expected to **add 0.3% of annualized excess return**, net of fees, over rolling, consecutive five-year periods.

Exhibit 2: Active Return Expectations for the OPERF Regular Account by Asset Class

Asset Class	Target Allocation (%)	Target Active Return (%)	Target Active Contribution (%)
Public Equity	32.5	0.50	0.19
Fixed Income	20.0	0.25	0.05
Real Estate	12.5	0.50	0.06
Total Fund			0.28

E. PUBLIC EQUITY STRATEGY

1. OPERF's public equity allocation is managed with the objective of earning at least **50 basis points**

in annualized net excess return relative to the *MSCI All Country World Investable Market Index (ACWI IMI – net)* (unhedged) over rolling, consecutive five-year periods. **Relative to that same benchmark, active risk shall be managed to a 0.75 to 2.0 percent annualized tracking error target.**

2. Key elements of the strategy include the following:
 - a. In an effort to enhance return, strategy will include maintaining an over-weight to small capitalization stocks and other well supported sources of return premia. These strategic overweights or "tilts" are based on and supported by robust empirical research that historically links persistent and pervasive evidence of excess returns to systematic "factor exposures" such as size (i.e., small cap), value and momentum. Implementation of other factor tilts may be considered at the manager, strategy or mandate level upon approval of both the Chief Investment Officer (CIO) and OIC.
 - b. Multiple, specialist active managers with complementary investment styles are employed. For example, some OPERF managers focus on growth stocks, some on value stocks, some on large capitalization stocks and others on small capitalization stocks. This diversified approach produces more excess return opportunities and minimizes the Fund's exposure to any single investment organization.
 - c. Aggregate exposures to countries, economic sectors, investment styles and market capitalization tiers are monitored and managed relative to corresponding benchmark exposures.

F. FIXED INCOME STRATEGY

1. OPERF's fixed income allocation is managed with the objective of earning **25 basis points** in annualized, net excess returns relative to a blended benchmark comprised of 46% *Bloomberg Barclays U.S. Aggregate Index*, 37% *Bloomberg Barclays U.S. Treasury Index*, 13% *S&P/LSTA Leveraged Loan Index* and 4% *Bank of America Merrill Lynch High Yield Master II Index* over rolling, consecutive five-year periods. **Relative to the above-described benchmark, active risk within the OPERF fixed income allocation is managed to a 0.5 to 1.0 percent annualized tracking error target.**
2. Key elements of the strategy include the following:
 - a. A significant proportion of the OPERF fixed income allocation is actively managed due to performance and cost considerations. Specifically, excess returns from active fixed income management are likely as many investors hold fixed income securities to meet regulatory and liability matching objectives, and hence are not total return oriented. This market dynamic produces systematic opportunities in fixed income securities that skilled investment managers can exploit. Active fixed income management fees are also much lower than active equity management fees.
 - b. Aggregate exposures to duration, credit and sectors are monitored and managed relative to corresponding exposures in the fixed income allocation benchmark.

G. RISK PARITY

1. OPERF's risk parity allocation will be managed with the objective of earning a net total return comparable to an equal risk weighting of traditional asset class indices such as *Bloomberg Barclays U.S. Treasury Index* and the *MSCI ACWI IMI*.

H. REAL ESTATE STRATEGY

1. OPERF's real estate allocation is managed with the objective of earning at least **50 basis points** in annualized, net excess returns relative to the *NCREIF Fund Index – Open End Diversified Core Equity (NFI-ODCE)*, net of management fees, over rolling, consecutive five-year periods.
2. Key elements of the strategy include the following:
 - a. Real Estate is 100% actively managed because a passive replication of the full breadth and depth of the real estate asset class is not viable.
 - b. *Core* property investments represent 55% of the Fund's real estate allocation, with a range of 45% to 65%. Risk is diversified by investing across the following major property types:

- office; apartments; retail; and industrial. The OPERF real estate allocation may also include structured investments in alternative property types with Core-like risk and return attributes.
- c. Exchange-traded real estate investment trusts (REITs) represent 5% of the Fund's real estate allocation, with a range of 0% to 10%. Up to 50% of the REIT exposure may be invested in markets outside the United States.
 - d. *Value Added* property investments represent 20% of the OPERF real estate allocation, with a range of 10% to 30%, and may include direct investments in each of the property types listed above, as well as structured investments in alternative property types. Risk is diversified by property type and geography.
 - e. *Opportunistic* property investments represent 20% of the OPERF real estate allocation, with a range of 10% to 30%. Relative to Core and Value Added strategies, real estate investments will be characterized as "opportunistic" based on higher risk/return expectations and other prevailing market conditions.
 - f. Within its real estate allocation, the Fund may participate in *co-investment* opportunities.

I. PRIVATE EQUITY STRATEGY

1. OPERF's private equity allocation is managed with the objective of earning at least **300 basis points** in annualized, net excess returns relative to the Russell 3000 Index over very long time horizons, typically rolling, consecutive 10-year periods.
2. Key elements of the strategy include the following:
 - a. Private Equity is 100% actively managed because private equity index funds are not available.
 - b. Risk within OPERF's private equity allocation is diversified by investing across different fund types and strategies including *venture capital, leverage buyout, mezzanine debt, distressed debt, sector funds, secondaries* and *fund-of-funds*.
 - c. OPERF's private equity allocation is further diversified by investing across *vintage year, industry sectors, investment size, development stage* and *geography*.
 - d. OPERF's private equity investments are managed by external managers operating as general partners. Considerations for private equity manager selection include access to transactions (i.e., "deal flow"), specialized areas of operating expertise, established or promising net of fees performance track records, unique or differentiated investment methodologies and transparent/verifiable reporting processes.
 - e. Within its private equity allocation, the Fund may participate in co-investment opportunities.

J. ALTERNATIVES STRATEGY

1. OPERF's allocation to Alternatives is managed with the objective of earning at least **400 basis points** in annualized, net excess returns relative to *CPI* over rolling, consecutive ten-year periods.
2. Key elements of the strategy include the following:
 - a. Alternatives are 100% actively managed because index funds replicating the broad alternatives market are not available.
 - b. *Infrastructure* investments represent 20% of the Fund's alternatives allocation, with a range of 15% to 25%. Risk is diversified by investment type, size and geography. Specific infrastructure sector exposures will likely include energy, transportation, ports and water in both domestic and international markets and comprising both mid-size and large capitalization enterprises.
 - c. *Natural Resource* investments represent 30% of the Fund's alternatives allocation, with a range of 25% to 35%. Risk is diversified by investing across multiple industry sectors including oil and gas, agriculture, timberland, mining and commodities.
 - d. *Diversifying Strategies* represent 50% of the Fund's alternatives allocation, with a range of 45% to 55%. Diversifying Strategies investments may include relative value, macro, arbitrage and long/short equity strategies. The objective of this sleeve is to invest in strategies with returns uncorrelated with those of the broader Fund. Risk is diversified by investing in multiple managers and across several strategies.
 - e. *Other* investments may represent 5% of the Fund's alternatives allocation, with a range of

- 0% to 10%. Investment strategies will be characterized as "other" based on prevailing market conditions as well as a specific strategy's unique "value proposition" or investment thesis.
- f. Within its alternatives allocation, the Fund may also participate in *co-investment* opportunities.

K. PERFORMANCE MONITORING AND EVALUATION

1. The Council and OST staff use a variety of verification and performance measurement tools to monitor, measure and evaluate the management of OPERF assets. Monitoring, reporting and evaluation frequencies range from daily to annually, although quarterly is the most commonly used reporting frequency.
2. The Council directs staff to develop a performance monitoring and evaluation system that validates whether the assets are prudently managed. More specifically, whether Fund investment performance improved benefit security, and capital market risk in general and active management in particular have been sufficiently rewarded.
3. One of many reports used by the Council to satisfy the above requirements is a simple comparison of Regular Account investment performance relative to the Council's assigned total Fund benchmark over rolling, consecutive multi-year periods. Other reports help the Council assess whether or not the Fund was rewarded for its allocations to higher return, higher risk equity investments and whether or not the active management strategies utilized added or subtracted from policy returns on a net of fees basis.
4. The reporting described in this section gives the Council a consolidated or "big picture" view of Regular Account investment performance. Regular Account investment performance across primary asset allocation categories will also be reported to the OIC. Upon request and if available, staff will also provide the Council more granular performance reporting, e.g., at the individual manager level.
5. 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 Fund, as appropriate; and d) when applicable, verify resolution by the appropriate individual or manager within the appropriate time frame.

Exceptions

None.

Failure to Comply

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

PROCEDURES and FORMS

None.

ADMINISTRATION

Review

Annually.

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.



**OREGON
STATE
TREASURY**

Origination: 09/2014
Last Approved: 09/2015
Last Revised: 09/2015
Next Review: 09/2016
Owner: *John Skjervem: Chief Investment Officer*
Policy Area: *Investments*
References:

INV 215: OPERF Asset Allocation and Rebalancing Policy

OREGON INVESTMENT COUNCIL POLICY

INTRODUCTION AND SUMMARY

Summary Policy Statement

The Oregon Investment Council (OIC) approves the asset allocation of the Oregon Public Employees Retirement Fund (OPERF or the Fund).

Purpose and Goals

The goal of this policy is to provide guidance to Oregon State Treasury (OST) staff and advisors regarding the asset allocation of OPERF.

In the absence of any other considerations, the optimal rebalancing strategy would suggest continually rebalancing back to OPERF's strategic asset allocation targets. However, rebalancing involves transactions costs such as brokerage fees and market impact. As a result of these costs, ranges were established around the strategic asset allocation targets in order to balance the desirability of achieving precise target allocations with the various and often material transactions costs associated with these same rebalancing activities. In addition, the overlay manager is expected to minimize cash exposures at both the Fund and individual manager level.

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

Applicability

Classified represented, management service, unclassified executive service

Authority

293.726 Standard of judgment and care in investments; investment in corporate stock.

1. The investment funds shall be invested and the investments of those funds managed as a prudent investor would do, under the circumstances then prevailing and in light of the purposes, terms, distribution requirements and laws governing each investment fund.
2. The standard stated in subsection (1) of this section requires the exercise of reasonable care, skill and caution, and is to be applied to investments not in isolation but in the context of each investment fund's investment portfolio and as a part of an overall investment strategy, which should incorporate risk and return objectives reasonably suitable to the particular investment fund.
3. In making and implementing investment decisions, the Oregon Investment Council and the investment officer have a duty to diversify the investments of the investment funds unless, under the circumstances, it is not prudent to do so.
4. In addition to the duties stated in subsection (3) of this section, the council and the investment officer must:
 - a. Conform to the fundamental fiduciary duties of loyalty and impartiality;
 - b. Act with prudence in deciding whether and how to delegate authority and in the selection and supervision of agents; and
 - c. Incur only costs that are reasonable in amount and appropriate to the investment responsibilities imposed by law.
5. The duties of the council and the investment officer under this section are subject to contrary provisions of privately created public trusts the assets of which by law are made investment funds. Within the limitations of the standard stated in subsection (1) of this section and subject to subsection (6) of this section, there may be acquired, retained, managed and disposed of as investments of the investment funds every kind of investment which persons of prudence, discretion and intelligence acquire, retain, manage and dispose of for their own account.
6. Notwithstanding subsection (1) of this section, not more than 50 percent of the moneys contributed to the Public Employees Retirement Fund or the Industrial Accident Fund may be invested in common stock, and not more than 65 percent of the moneys contributed to the other trust and endowment funds managed by the Oregon Investment Council or the State Treasurer may be invested in common stock.
7. Subject to the standards set forth in this section, moneys held in the Deferred Compensation Fund may be invested in the stock of any company, association or corporation, including but not limited to shares of a mutual fund. Investment of moneys in the Deferred Compensation Fund is not subject to the limitation imposed by subsection (6) of this section. [1967 c.335 §7; 1971 c.53 §1; 1973 c.385 §1; 1981 c.880 §12; 1983 c.456 §1; 1983 c.466 §1; 1987 c.759 §1; 1993 c.18 §59; 1993 c.75 §1; 1997 c.129 §2; 1997 c.179 §22; 1997 c.804 §5; 2005 c.294 §1]

293.731 Council to formulate and review investment policies; exception. Subject to the objective set forth in ORS 293.721 and the standards set forth in ORS 293.726, the Oregon Investment Council shall formulate policies for the investment and reinvestment of moneys in the investment funds and the acquisition, retention, management and disposition of investments of the investment funds. The council, from time to time, shall review those policies and make changes therein as it considers necessary or desirable. The council may formulate separate policies for any fund included in the investment funds. This section does not apply to the Oregon Growth Account, the Oregon Growth Fund, the Oregon Growth Board, the Oregon Commercialized

Research Fund, the Oregon Innovation Fund or the Oregon Innovation Council. [1967 c.335 §8; 1993 c.210 §20; 1999 c.42 §1; 1999 c.274 §18; 2001 c.835 §9; 2001 c.922 §§15a,15b; 2005 c.748 §§15,16; 2012 c.90 §§22,32; 2013 c.732 §8]

POLICY PROVISIONS

-

Definitions

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

Policy Statements

1. The OIC establishes asset allocation ranges and targets for OPERF. On an ongoing basis, OST staff manages OPERF's asset allocation relative to OIC-established targets, Fund-level cash flows and financial and real asset market volatility.
2. The OIC undertakes a rigorous study of OPERF's assets and liabilities every three to five years (or more frequently, if desired). These asset-liability studies shall include the following elements for OIC consideration: 1) capital market assumptions by asset class which include expected returns, volatilities and correlations; 2) asset mix optimizations using various portfolio modeling/construction techniques; 3) scenario, risk contribution and plan liability analyses; 4) pension surplus/cost projections; and 5) recommended strategic asset allocation targets and a rebalancing framework.
3. The purpose of OST staff's rebalancing efforts are to ensure that OPERF's actual asset allocation does not drift significantly from the strategic targets approved by the OIC and informed by the asset-liability study described above. Moreover, rebalancing ensures that the return objectives and risk tolerance parameters approved by the OIC are consistently and effectively reflected in OST staff's management of OPERF assets over time. With OIC oversight, implementing the approved rebalancing framework is an OST staff responsibility, although the illiquid nature of many private market assets may exempt those assets from staff's short-term rebalancing activities.

OPERF	Policy	Target
Public Equity	32.5-42.5%	37.5%
Private Equity	13.5-21.5%	17.5%
Total Equity	50.0-60.0%	55.0%
Opportunity Portfolio	0-3%	0.0%
Fixed Income	15-25%	20.0%
Real Estate	9.5-15.5%	12.5%
Alternative Investments	0-12.5%	12.5%
Cash	0-3%	0.0%

TOTAL OPERF				100%

Note: Targets and ranges as established by the OIC in June 2015. Full implementation will take multiple years.

IMPLEMENTATION

1. OST Staff will undertake the implementation of the rebalancing program.
2. OPERF's actual asset allocation shall be reviewed at the end of each month when asset valuations become available. More frequent reviews may be undertaken, if appropriate, provided the required asset value information is also available. Rebalancing will take place if the allocation to any particular asset class exceeds the corresponding, stipulated policy range. Staff shall manage liquidity by rebalancing assets between and among managers, as necessary, to a) meet OPERF's cash needs and b) maintain the preferred portfolio structure (i.e., maintain specific manager weightings) within each asset class. All physical rebalancings shall be executed in concert with the overlay manager as described above.
3. Rebalancing should be implemented by the most cost-effective means available. For example, cash flows into and out of OPERF will first be used to rebalance back toward asset class targets, whenever possible. Crossing opportunities in index fund investments and futures/options may also be used in rebalancing in order to reduce costs.
4. When rebalancing occurs, OST staff shall make a recommendation to the Chief Investment Officer regarding the most appropriate asset allocation, taking into account portfolio characteristics, preferred portfolio structure, existing manager weights, market conditions and OPERF's cash flow requirements.
5. All rebalancing shall take place within the asset class and sub-asset class ranges established in policy by the OIC.
6. For illiquid assets such as private equity and real estate, rebalancing considerations should include higher transaction costs and the availability of alternative rebalancing opportunities, if any.
7. Staff shall report to the OIC the actual market valuations versus the target allocations by asset class monthly as well as any and all rebalancing activity quarterly.

ASSET ALLOCATION AND EXPECTED RETURNS

1. Periodically (annually or twice a year) the OIC's general consultant updates its capital market and asset class return assumptions.
2. At least annually, and for OIC approval, OST staff will work with the general consultant to update the policy mix and return expectations for the OPERF Regular Account as reflected in the Statement of Investment Objectives and Policy Framework.

Exceptions

None.

Failure to Comply

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

PROCEDURES and FORMS

None.

ADMINISTRATION

Feedback

Your comments are extremely important to improving the effectiveness of this policy. If you would like to comment on the provisions of this policy, you may do so by e-mailing the Policy 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.

Attachments:

No Attachments

Approval Signatures

Step Description	Approver	Date
Oregon Investment Council	John Skjervem: Chief Investment Officer	09/2015

TO BE RETIRED

TAB 4 – Securities Lending Update

OPERF/SAIF/CSF/OSTF/Agency Accounts

Annual Securities Lending Report

Purpose

To provide the Oregon Investment Council (OIC) with an update on and review of the securities lending program which includes OPERF, OSTF and other state agency funds.

Background

In accordance with *INV 216: Securities Lending* (attached), the investment division may lend securities through an agent lender. The Oregon State Treasury (OST) has participated in securities lending arrangements dating back decades. The current relationship with State Street Bank as agent lender began in 1997. Over the past 22 years, OIC-managed accounts have realized over \$448 million in net earnings from the OST securities lending program.

In 2018, and for all funds participating in the OST securities lending program, the “average on loan” was \$4.1 billion, with OPERF comprising 64% of that average. Note that the OPERF “legacy assets” securities lending fund (established in 2010 with over \$2 billion of program collateral) has declined to \$7 million as of February 2019 from \$25 million in the prior year.

As a reminder, effective January 2014, OST revised the reinvestment guidelines for the securities lending collateral pools managed by State Street. Key changes, all more conservative in nature, included: 1) uniformity of reinvestment guidelines between and among OPERF and other state funds; 2) maturity distribution guidelines that match those required for the Oregon Short Term Fund (OSTF); 3) corporate debt investment criteria that match OSTF; and 4) repurchase agreements that limit approved collateral to U.S. Treasury or U.S. Government Agency securities.

Discussion

Tom Connelley and Johnson Shum will provide the OIC an update on cash management and securities lending markets, respectively, with a focus on the two main accounts managed by State Street on behalf of OPERF and other state agency funds, including the OSTF.

Recommendation

None, information only.

A nighttime photograph of a city skyline, featuring a prominent skyscraper with "STATE STREET" written on its top. The building is illuminated, and the city lights are visible in the background under a dark blue sky. A white circular graphic element is overlaid on the image, containing text.

Securities Finance

Oregon Investment
Council

April 2019



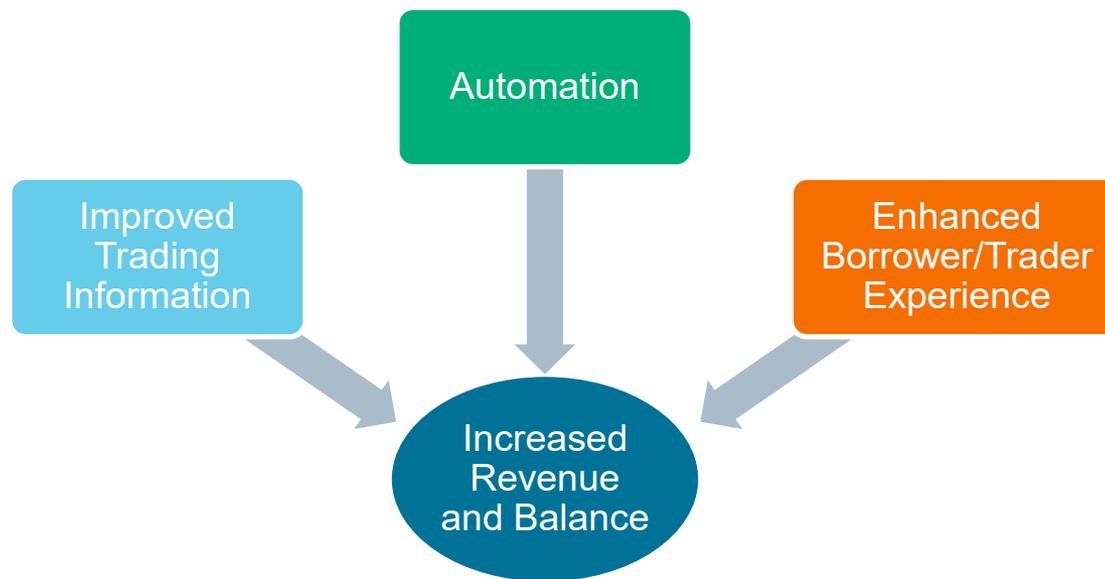
General Update



Next Generation Trading Strategy

High Level

NGT Vision: Transform the Agency Lending business through innovative technology solutions to optimize the lending book, maximize client revenue and achieve operational excellence



- Historically automation focused on volume trading in highly liquid assets (GC)
- Driving significant advancements toward the development of automated bilateral order flow in equities
- Development of Algorithmic pricing process of assigning fair value rates across the equity book
- Unsolicited Bid and Targeted Availability processing enables both push and pull of order flow
- Re-pricing universe of available securities multiple times a day

Innovation

What's new and different in Securities Finance?

Risk Management

State Street Securities Finance has partnered with *Advent's Syncova* and created a customized collateral tool to *monitor non-cash collateral risk levels*. Until now, the industry did not have a challenge process. Enhanced non-cash collateral process has changed the way tri-parties deliver collateral data to State Street. Our new system evaluates all tri-party collateral being pledged, validates it vs. approved collateral parameters, and identifies exceptions.

TAS

Trading and Algorithmic Strategies (TAS) is transforming how we manage and transact in Trading and Operations with new workflows, analytical tools and decision algorithms. We are developing *Machine Learning* for predictive borrows, loan pricing, etc. Benefits include reduction in transaction costs and reconciliation times as well as automation of current manual touch points; therefore, reducing operational risk and improving returns.

Liquidity

Within Securities Finance, *Alternative Financing Solutions (AFS)*, has developed a flexible platform enabling Funds to *access liquidity* from multiple sources (Securities Lending cash collateral, funds as borrowers in the Agency program, liquidity facility combined with Agency Lending, and potential inter-fund lending solution.)

Non-Cash Collateral - Growth

- **Enhanced demand for Non-Cash collateral trades from borrowers** due to balance sheet constraints from the regulatory environment
 - Non-Cash collateral is balance sheet “neutral” for borrowers because there is no funding component
 - Liquidity Coverage Ratio (“LCR”) – Cash trades 30 days and in require prime brokers to hold High Quality Liquid Assets (HQLA), typically U.S. Treasuries/ Agencies or Sovereign debt, which in turn inflates the balance sheet with low yield assets.
 - Net Stable Funding Ratio (“NSFR”) – Cash trades under one year require 10-15% notional long term funding (over one year), which increases borrower costs.
- **Non-Cash collateral continues to grow significantly at State Street**
 - 2014 Non-Cash represented on average of 33% of all loans
 - 2016 Non-Cash represented on average of 45% of all loans
 - 2017 Non-Cash represented on average of 55% of all loans
 - 2018 Non-Cash represented on average of 58% of all loans
- **Lending opportunities enhanced** with the acceptance of Non-Cash collateral

1
Collateral Flexibility is Key to Lending

2
Shift in What Prime Brokers are Pledging
Since 4Q16 Non - Cash has continued to be the primary form of collateral in Agency program

3
Due to Regulations and Market Dynamics

STATE STREET

Source: Securities Finance Business Intelligence

State Street Securities Lending Program

**Performance
Review**

Relationship Summary

- Earnings Overview
 - \$417.2M* in securities lending revenue for Oregon State Treasury since 2001
- Cash Collateral
 - Separate accounts for Oregon PERS Funds and Oregon Non – PERS Funds managed by SSGA with same custom investment guidelines as Oregon Short - Term Fund (changed January 1, 2014)
- Non-Cash Collateral
 - US Treasury and US Agency Bonds, Sovereign Debt
- Approved Borrowers
 - Oregon PERS Funds - State Street approved Borrowers list
 - Oregon Non - PERS Funds - Fed Primary Dealers list
- Program Parameters
 - Limits: 20% per Borrower
- Borrower Default Indemnification provided by State Street

* As of February 28, 2019

Source: my.statestreet.com

Data represents past performance and is not a guarantee of future results

Securities Lending Performance

State of Oregon - All Accounts Performance

	2014	2015	2016	2017	2018	2017 vs. 2018
Average Lendable Assets (\$)	46,572,386,792	46,873,315,429	46,860,853,506	51,858,652,901	52,365,296,785	0.98%
Average On Loan (\$)	4,624,330,337	3,862,547,304	3,345,928,200	3,290,834,044	4,189,356,035	27.30%
Utilization	9.93%	8.24%	7.14%	6.35%	8.00%	26.07%
Earnings by Program (\$)						
US Equity	5,475,584	6,432,435	6,011,253	4,378,891	4,005,729	-8.52%
US Corporate Bond	1,134,885	1,199,884	998,690	899,955	2,087,163	131.92%
US Government	2,298,079	1,052,336	1,504,167	1,108,839	1,866,601	68.34%
Non-US Equity	6,040,817	4,833,880	5,313,485	3,835,483	4,298,421	12.07%
Non-US Fixed Income	79,592	53,843	27,893	20,182	14,096	-30.15%
Total Earnings (\$)	15,028,958	13,572,378	13,855,487	10,243,350	12,272,010	19.80%
Components of Spread (bps)						
Demand Spread	35	45	47	41	34	-15.55%
Reinvestment Spread	10	10	16	7	26	245.73%
Net Spread	44	55	63	48	60	24.60%
Non-Cash Collateral Spread (bps)	26	29	31	29	22	-24.31%
Return to Lendable Assets (bps)	3.2	2.9	3.0	2.0	2.3	18.65%

Notes:

- (1) Risk-Free rate used for spread calculations was Fed Funds Open, which changed to OBFR on 9/19/2016
- (2) Data represents past performance and is not a guarantee of future results
- (3) Data Source: Securities Finance Business Intelligence
- (4) Components of Spread encompass only "cash collateral" backed loans during the period

Securities Lending Performance

State of Oregon - PERS Performance

	2014	2015	2016	2017	2018	2017 vs 2018
Average Lendable Assets (\$)	29,957,224,725	29,691,967,014	29,289,150,404	33,296,379,135	32,168,041,226	-3.39%
Average On Loan (\$)	3,407,053,731	2,776,953,944	2,518,154,606	2,596,442,241	2,683,687,926	3.36%
Utilization	11.37%	9.35%	8.60%	7.80%	8.34%	6.99%
Earnings by Program (\$)						
US Equity	5,366,675	6,374,287	5,951,586	4,287,278	3,940,306	-8.09%
US Corporate Bond	693,662	625,657	445,389	421,351	874,550	107.56%
US Government	1,306,159	449,063	721,885	609,248	852,960	40.00%
Non-US Equity	5,834,749	4,634,822	5,047,557	3,704,779	4,187,004	13.02%
Non-US Fixed Income	79,592	53,843	27,893	20,182	14,096	-30.15%
Total Earnings (\$)	13,280,836	12,137,671	12,194,309	9,042,839	9,868,917	9.14%
Components of Spread (bps)						
Demand Spread	44	60	62	46	48	4.40%
Reinvestment Spread	9	10	16	7	23	240.79%
Net Spread	53	70	77	52	71	35.30%
Non-Cash Collateral Spread (bps)	33	34	34	35	29	-15.75%
Return to Lendable Assets (bps)	4.4	4.1	4.2	2.7	3.1	12.96%

Notes:

- (1) Risk-Free rate used for spread calculations was Fed Funds Open, which changed to OBFR on 9/19/2016
- (2) Data represents past performance and is not a guarantee of future results
- (3) Data Source: Securities Finance Business Intelligence
- (4) Components of Spread encompass only "cash collateral" backed loans during the period

Securities Lending Performance

State of Oregon - Non - PERS Performance

	2014	2015	2016	2017	2018	2017 vs. 2018
Average Lendable Assets (\$)	16,615,162,067	17,181,348,415	17,571,703,102	18,562,273,766	20,197,255,559	8.81%
Average On Loan (\$)	1,217,276,606	1,085,593,360	827,773,594	694,391,803	1,505,668,109	116.83%
Utilization	7.33%	6.32%	4.71%	3.74%	7.45%	99.28%
Earnings by Program (\$)						
US Equity	108,909	58,148	59,667	91,612	65,422	-28.59%
US Corporate Bond	441,223	574,227	553,301	478,603	1,212,613	153.36%
US Government	991,920	603,274	782,283	499,592	1,013,641	102.89%
Non-US Equity	206,069	199,057	265,928	130,704	111,416	-14.76%
Non-US Fixed Income	-	-	-	-	-	
Total Earnings (\$)	1,748,121	1,434,706	1,661,178	1,200,511	2,403,093	100.17%
Components of Spread (bps)						
Demand Spread	9	9	11	20	7	-66.99%
Reinvestment Spread	11	9	18	10	31	202.43%
Net Spread	20	19	30	31	38	22.77%
Non-Cash Collateral Spread (bps)	9	14	17	13	11	-15.26%
Return to Lendable Assets (bps)	1.1	0.8	0.9	0.6	1.2	83.97%

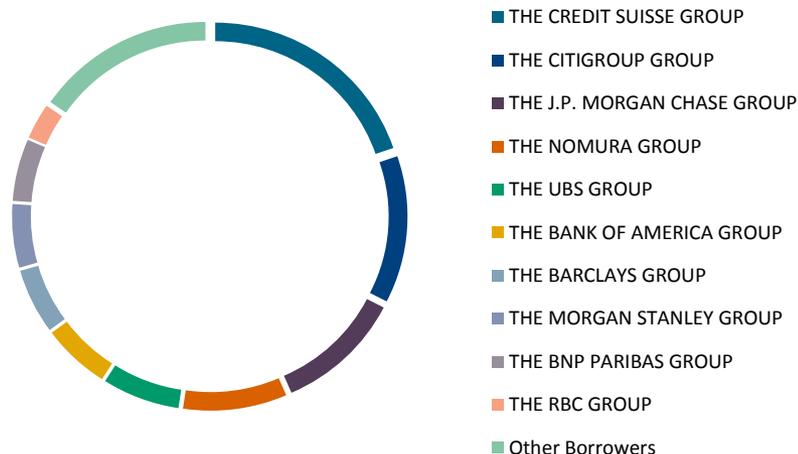
Notes:

- (1) Risk-Free rate used for spread calculations was Fed Funds Open, which changed to OBFR on 9/19/2016
- (2) Data represents past performance and is not a guarantee of future results
- (3) Data Source: Securities Finance Business Intelligence
- (4) Components of Spread encompass only "cash collateral" backed loans during the period

Borrower Diversification

State of Oregon Borrower Diversification

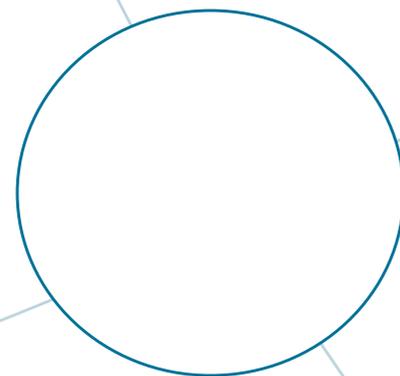
Borrower	On-Loan Market Value	% of Total
THE CREDIT SUISSE GROUP	793,362,979	20%
THE CITIGROUP GROUP	515,829,381	13%
THE J.P. MORGAN CHASE GROUP	438,154,004	11%
THE NOMURA GROUP	358,611,590	9%
THE UBS GROUP	267,855,877	7%
THE BANK OF AMERICA GROUP	235,348,770	6%
THE BARCLAYS GROUP	228,659,470	6%
THE MORGAN STANLEY GROUP	221,985,225	6%
THE BNP PARIBAS GROUP	217,477,738	5%
THE RBC GROUP	125,361,666	3%
Other Borrowers	618,176,705	15%
Total	4,020,823,405	100%



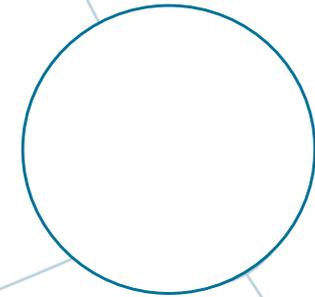
Notes:

- (1) Based Currency (USD) Loan balance as of: February 28, 2019
- (2) Data represents past performance and is not a guarantee of future results
- (3) Data Source: Securities Finance Business Intelligence

Appendix

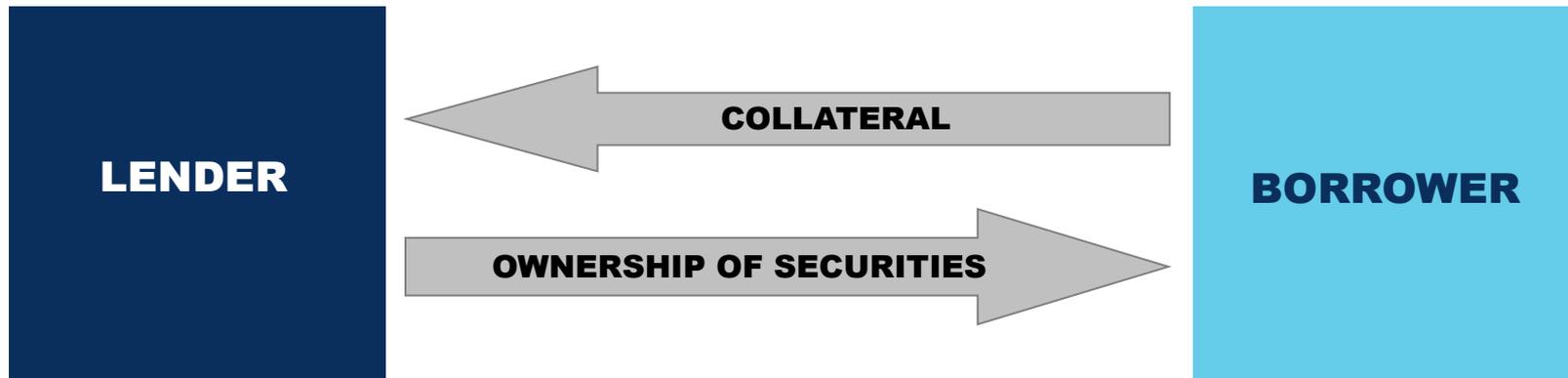


Securities Finance 101



Securities Finance Defined

An investment management product where participants generate revenue by temporarily transferring idle securities, in a collateralized transaction, to a borrower



- Borrower becomes legal owner of securities while lender retains rights of beneficial ownership entitling it to all distributions and corporate actions.
- Lender portfolios can be managed without limitation
- The borrower is contractually obligated to return the securities upon recall by the lender

Securities Finance

Why borrow securities?



Fundamentals of Securities Finance

Transaction Basics / Demand Drivers

- Securities are borrowed by a counterparty that has a commitment to deliver those which it has sold, but does not possess.
 - All asset classes
 - Failing purchase on the other side of the trade
- Securities are borrowed to cover a “short” position in a security.
 - All asset classes, but typically seen in corporate securities
 - Broker sells a position that it doesn’t own and borrows securities to make good on their delivery
 - Bets that the price of the security will fall before it has to return shares to the beneficial owner
 - Broker profits on the difference in price minus the cost to borrow the stock
- Tax treaties between governments allow for dividend arbitrage trades.
 - These are non-U.S. equities entitled to 75%-85% of a foreign dividend, borrower in the local market entitled to 100%
- Securities are borrowed as part of a financing strategy
 - Typically U.S. and non-U.S. government securities
 - “Repo” transaction

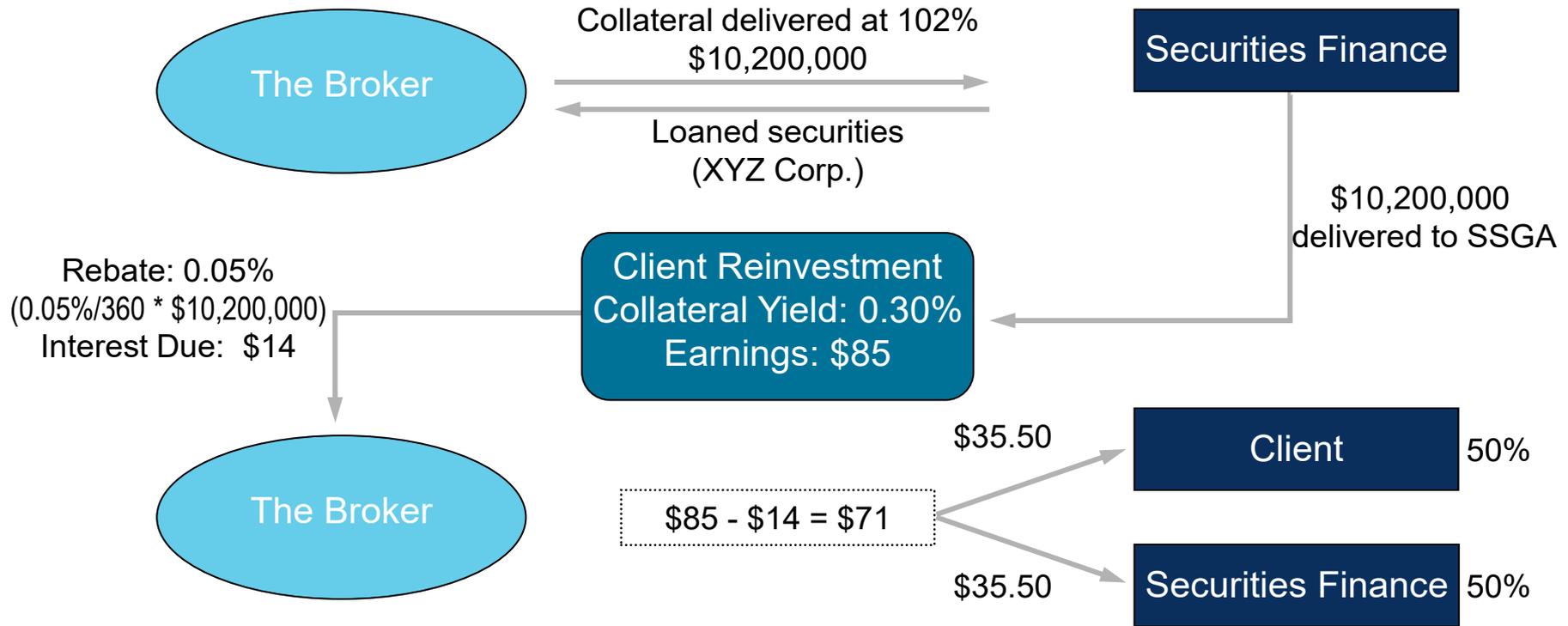
Fundamentals of Securities Finance

One Day Sample Transaction – Cash Collateral

- A Broker is looking to borrow 50,000 shares of XYZ Corp.
 - 50,000 shares of XYZ Corp. has a market value of \$10 million
- The Broker contacts the Securities Finance US Equity Trading Desk in Boston.
 - State Street has the supply/inventory
- Terms are agreed:
 - Rebate rate of 0.05%
 - Cash collateral
 - Open loan (no fixed period of time)
- Trade is executed on DML (Securities Finance's Trading and Accounting Platform).
 - The automated queuing system identifies fund ABCD as next in line for loan
 - ABCD has 50,000 shares of XYZ Corp available
- Collateral is delivered by the Broker
 - Cash collateral valued at 102% of the market value (\$10,200,000)
 - Cash is invested by SSGA in a specific, client designated re-investment portfolio, earning 0.30%
- Shares are delivered through DTC to the Broker

Fundamentals of Securities Finance

One Day Sample Transaction Diagram – Cash Collateral



Yield – Rebate = Total Spread
 $0.30\% - 0.05\% = 0.25\%$ (25 bps)

Yield – OBFR = Reinvestment Spread
 $0.30\% - 0.15\% = 0.15\%$ (15 bps)

OBFR – Rebate = Demand Spread
 $0.15\% - 0.05\% = 0.10\%$ (10 bps)

Collateral Yield and Rebate Rate are annualized

OBFR – Overnight Banking Funding Rate

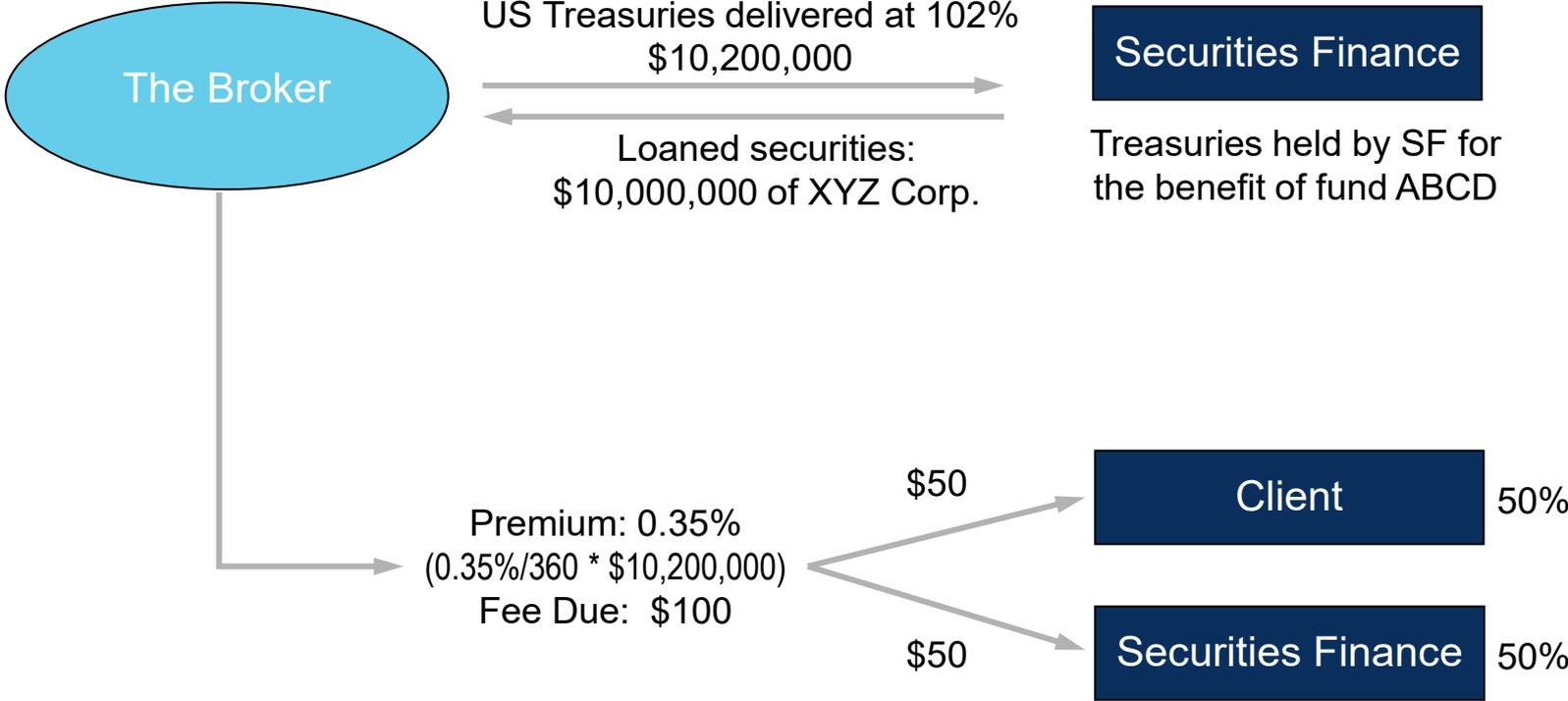
Fundamentals of Securities Finance

One Day Sample Transaction – Non-Cash Collateral

- A Broker is looking to borrow 50,000 shares of XYZ Corp.
 - 50,000 shares of XYZ Corp. has a market value of \$10 million
- The Broker contacts the Trading Desk.
 - State Street has the supply/inventory
- Terms are agreed:
 - Premium rate of 0.35%
 - Non-Cash collateral
 - Open loan (no fixed period of time)
- Trade is executed on DML (Securities Finance's Trading and Accounting Platform).
 - The automated queuing system identifies fund ABCD as next in line for loan
 - Fund ABCD has 50,000 shares of XYZ Corp available
- Collateral is delivered by Broker
 - \$10,200,000 US Treasuries, 102% of the market value of XYZ Corp.
 - US Treasuries are delivered to State Street and held for the benefit of fund ABCD
- XYZ Corp. shares are delivered through DTC to Broker

Fundamentals of Securities Finance

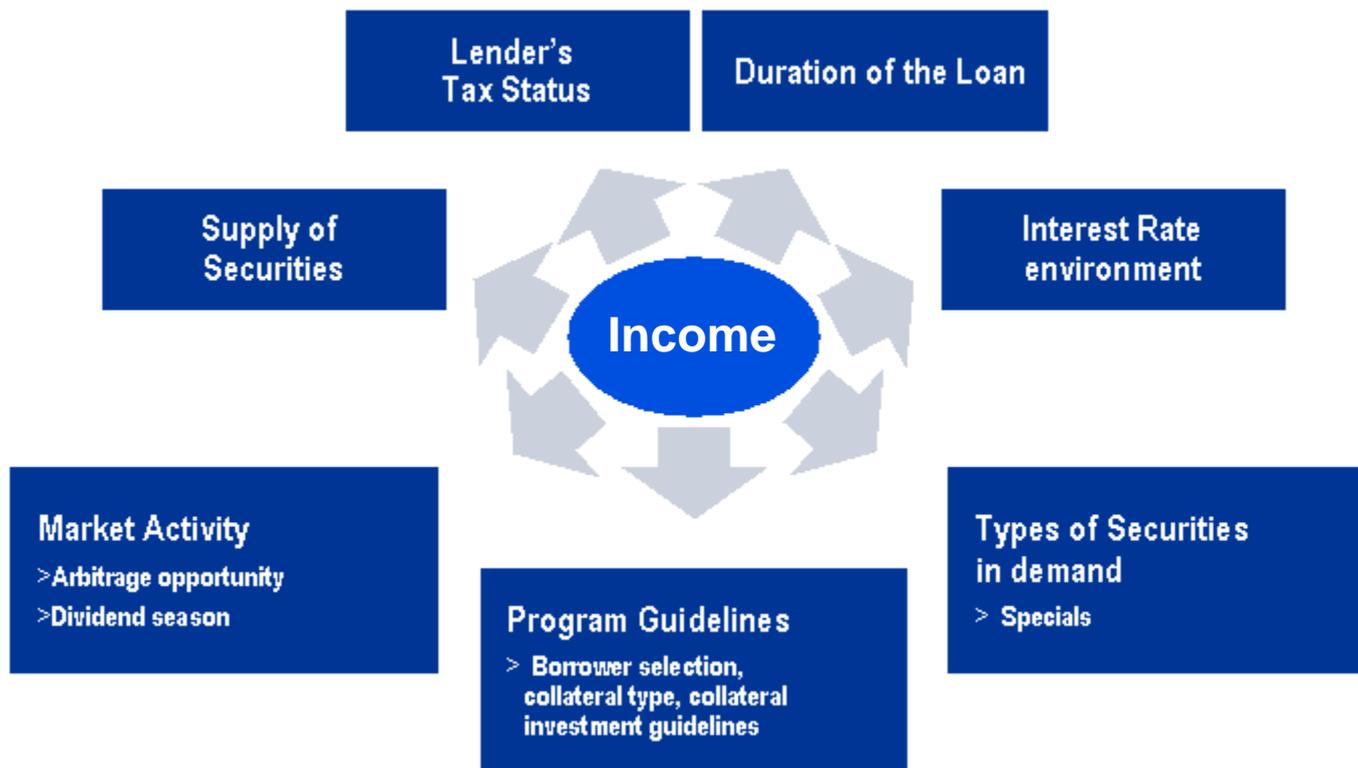
One Day Sample Transaction Diagram – Non-Cash Collateral (US Treasuries)



Premium rate annualized using a 360-day basis.

Fundamentals of Securities Finance

Factors Affecting Income



State Street Agency Lending

Program overview

State Street's securities finance program launched in **1974** and is one of the largest agency lending programs in the world today.

With global coverage across 9 offices, State Street provides *access to demand* within a framework that fits each client's requirements.

44 years of experience in securities lending

#1 in the 2018 Global Investor ISF Survey*

\$3.63 trillion of lendable assets

US (BTC) and **German** (GmbH) legal entities

\$356 billion of active loans

SSGA experience in cash collateral management

34 security markets for equities and fixed income

9 regional offices with **5** trading desks

260 active clients, **44** approved jurisdictions

335* dedicated employees

143 borrowers, **16** approved jurisdictions

AA- rating from Standard & Poor's (December 2018)



“State Street was the top-ranked lenders across all categories in the weighted division. The US firm scored 6.86, which was enough to beat its main rivals J.P. Morgan and GSAL into second and third spots, according to the respondents to the Global Investor/ISF survey..”

2018 Global Investor ISF Securities Finance Survey

*#1 lender overall, weighted by importance

All other State Street data as of 31 December 2018

*Headcount data as of 31 December 2018. This headcount figure does not include contractors .

Securities Finance

Major Risks and Mitigating Factors

Credit Risk

We control the quality of our **approved borrower list** and monitor all borrowers daily against credit limits approved by Enterprise Risk Management.

The borrower default **indemnity** transfers credit risk to State Street Bank & Trust Co which is rated AA- by S&P, the joint highest of any major agent lender.*

Market Risk

We **mark to market** all loans and collateral daily, take a positive margin on collateral, and actively monitor value-at-risk in addition to stress scenario exposures.

The borrower default **indemnity** transfers market risk to State Street, who will cover the shortfall in collateral value in the event of a borrower default.

Ops Risk

We have **dedicated operations teams** to monitor daily processes and industry standard systems such as Pirum to reconcile positions with borrowers.

Security-level **buffers** are imposed to ensure that most sales can be facilitated through swaps with other clients, removing the need for a loan recall.

Legal Risk

Clients sign a single **Securities Lending Agency Agreement (SLAA)** defining all terms and parameters for their program.

The SLAA should be regularly reviewed and updated to ensure that it properly reflects the client's **risk/reward appetite**.

Reinvest Risk

Cash collateral is managed by **State Street Global Advisors**, one of the world's largest cash managers with over \$303 billion under management.**

Our borrower default indemnity typically **does not cover cash collateral** and clients should ensure that their reinvestment policy is appropriate.

Glossary

- **Asset-Backed Commercial Paper (ABCP)**¹ - A short-term investment vehicle with a maturity that is typically between 90 and 180 days. The security itself is typically issued by a bank or other financial institution. The notes are backed by physical assets such as trade receivables, and are generally used for short-term financing needs.
- **Asset-Backed Security (ABS)**¹ - A financial security backed by a loan, lease or receivables against assets other than real estate and mortgage-backed securities. For investors, asset-backed securities are an alternative to investing in corporate debt.
- **Asset/Liability Mismatch** - The process of maintaining assets and liabilities with different durations in an attempt to optimize return. In securities lending transactions, securities loans (liabilities of the lender) are typically overnight instruments while the reinvestment securities (assets of the lender) have various durations, depending on the condition of the yield curve at the time of purchase.
- **Counterparty Risk** - The risk that a counterparty will not settle an obligation in full, either on the due date or at any time afterwards. This risk is present on both the lending side (borrower as counterparty) and the collateral reinvestment side (reinvestment security issuer as counterparty) of a securities lending transaction. Synonymous with credit risk.
- **Demand Spread** - For loans vs. cash collateral, it is the weighted average risk-free rate less the rebate rate. It represents a measure of the demand value of the loaned security and is also referred to as the funding spread, the intrinsic spread, the intrinsic value, the natural spread or the below-the-line spread. For loans vs. non-cash collateral it is equal to the premium paid by the borrower.
- **General Collateral** - Securities that are not highly sought after in the market by borrowers; demand for general collateral is not issue specific. Repo rates, rebate rates and premiums for these specific securities tend to be lower than the prevailing rate for special collateral.
- **Gross Spread** - The difference between the yield generated by the cash collateral and the rebate paid on the securities loans (or, the in case of loans vs. non-cash collateral, the premium). It is comprised of the demand spread and the reinvestment spread. Also referred to as combined spread, integrated spread or total spread.
- **Mark to Market** - The practice of (re)valuing securities and financial instruments using current market prices. Both securities loans and collateral are revalued daily.

Glossary

- **Open Transactions** – Transactions with no fixed maturity date that are subject to the possibility of daily termination or renegotiation of rebate rates. Securities loans are generally considered overnight, or open, transactions.
- **Rebate Rate** - The interest rate that a securities lender pays the borrower on cash collateral. This will normally be below the risk-free rate and will reflect the demand value of the securities. Also referred to as the funding rebate.
- **Reinvestment Spread** - Weighted average collateral yield less the weighted average risk-free rate. This represents a measure of the excess return generated by the investment process. This is also referred to as asset spread, investment spread, above-the-line spread or collateral spread.
- **Repurchase Agreement (Repo)** - A financing arrangement in which the holder of securities sells them to a lender under an agreement to repurchase them on a specified date at an agreed-to price.
- **Risk Free Rate** - A theoretical interest rate that would be returned on an investment that was completely free of risk. The very short-term government securities are usually used as proxies for the risk free rate, since they are virtually risk-free. In securities lending transactions the Overnight Banking Funding Rate (OBFR) and the Eonia are used as close approximations of the risk-free rate for loans vs. USD collateral and loans vs. Euro collateral, respectively. The risk-free rate serves as the breakpoint that segments the total spread/income earned on a securities lending transaction into the portion of spread/income attributable to the demand for the loaned securities and the portion attributable to the reinvestment process.
- **Specials Collateral** - Securities that, for a specific reason, are highly sought after in the market by borrowers. Funding rates, rebate rates and premiums for these specific securities tend to be higher than the prevailing rate for general collateral.
- **Substitute Payment** - A payment made by the borrower of securities to the lender in lieu of actual dividends or other income earned on the securities (net of any applicable taxes). This payment is equal to that which the lender would have received if it had not lent the securities. Also referred to as a manufactured payment.
- **Weighted Average Maturity (WAM)²** - The length of time until the average security in a fund will mature or be redeemed by its issuer. It indicates a fixed income fund's sensitivity to interest rate changes: longer average weighted maturity implies greater volatility in response to interest rate changes.

Biography



Johnson Shum
Vice President

Johnson is a vice president and relationship manager in State Street's Securities Finance division. He is responsible for the overall service delivery and satisfaction for strategic lending customers. He also acts as the point of contact and advocate for Securities Finance-related matters.

Prior to assuming his current role, Mr. Shum worked at Brown Brothers Harriman & Co.'s securities lending group as a product development manager. He was responsible for the development of new products to expand their securities lending capabilities. Previously, he worked as a client services and relationship manager servicing mutual fund clients at The Bank of New York.

Mr. Shum has more than 20 years experience in the financial services industry, specifically in client services and product management. He holds a Bachelor of Arts degree in international business from the State University of New York at Buffalo.

State Street provides experienced securities lending capabilities and supplies liquidity across more than 30 markets, worldwide, via Securities Finance offices and trading desks located throughout the Americas, Europe/Middle-East/Africa and Asia/Pacific regions.

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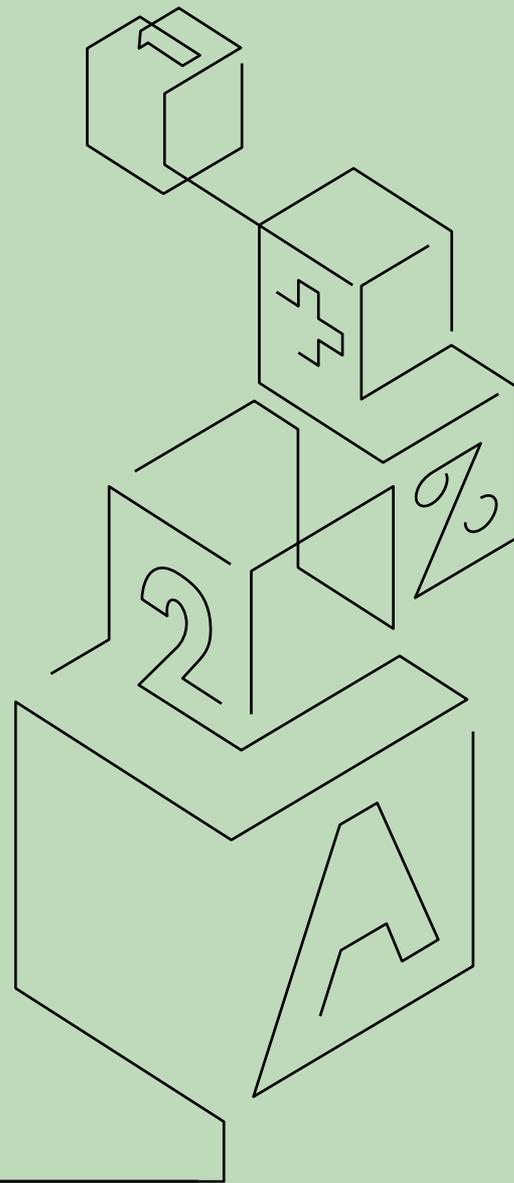
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Global Cash Management

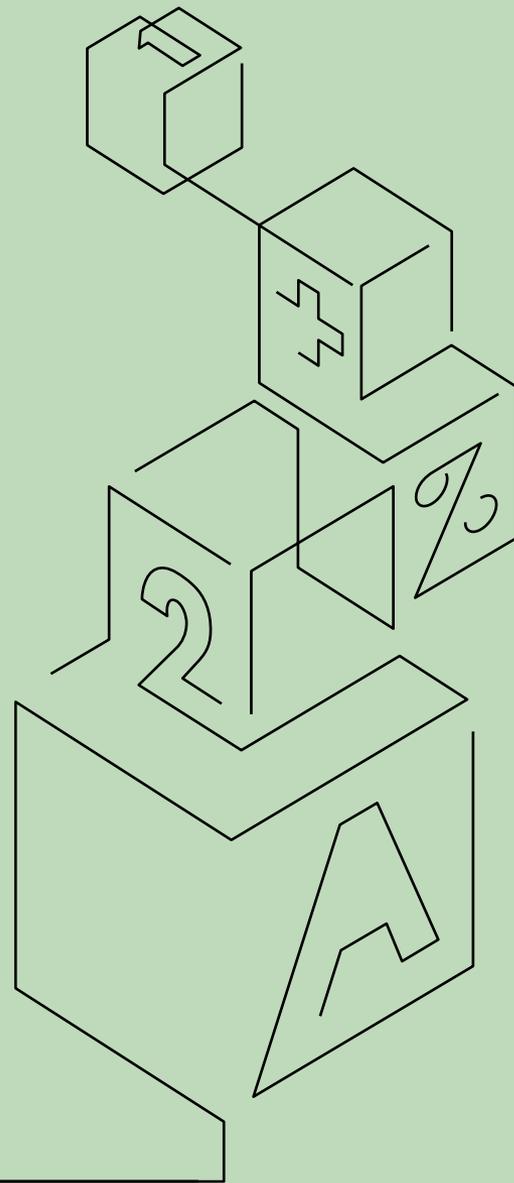
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STATE STREET
GLOBAL ADVISORS®



Portfolio Characteristics

STATE STREET
GLOBAL ADVISORS®



STATE OF OREGON PERF

FC5L — STATE OF OREGON PERF Summary Characteristics

As of February 28, 2019

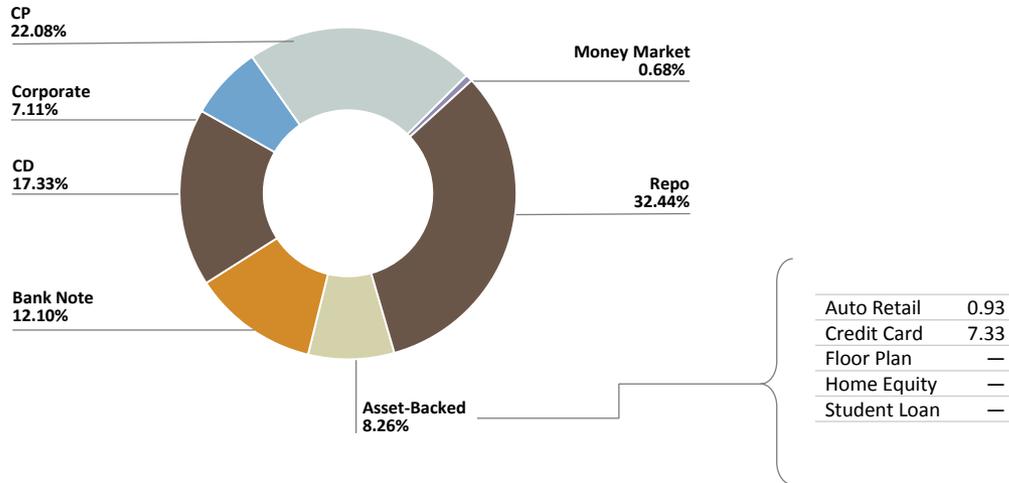
1-Day Yield (360 Basis)	2.67%
Shares Outstanding	1,009,883,952
Floating Rate %	50.44
% Foreign Issuers	20.28
WAM	25
WAM to Call	25
Call versus Mat Spread	—
% Callables	5.89
Avg Life -Expected Maturity	125
Fund Price as of [2/28/2019]	99.9655

Credit Quality Breakdown

LONG-TERM RATINGS	% OF FUND
AAA	4.95
AA	5.82
A	27.17
BBB+	—
BBB	—
BBB-	—
BB+	—
BB	—
BB-	—
SHORT-TERM RATINGS	% OF FUND
A-1+/P-1	31.18
A-1/P-1	19.96
SPLIT	6.94
OTHER	3.99

Floating Index Breakdown

	% of Fund
FED FUNDS	—
1MO LIBOR	21.06
3 MOS LIBOR	28.41
SOFR	0.97
Reset Buckets	% of Fund
Next Business Day	1.95
2–7 Days	6.13
8–31 Days	22.80
1–2 Months	8.88
2–3 Months	10.68
Maturity Buckets	% of Fund
Next Business Day	31.97
1 WEEK LIQUIDITY	36.13
2–30 Days Liquidity	12.33
31–60 Days Liquidity	4.27
61–90 Days Liquidity	11.98
90 DAY LIQUIDITY	60.55
91–120 Days Liquidity	----
121–150 Days Liquidity	5.99
151–180 Days Liquidity	1.98
181–270 Days Liquidity	17.59
271–360 Days Liquidity	6.56
12–15 Month Liquidity	1.29
15–18 Month Liquidity	0.82
18–21 Month Liquidity	3.34
21–24 Month Liquidity	0.69
Greater than 2 Year Liquidity	1.19
Repo Collateral	% of Fund
Treasuries	32.44
Agencies	---
Agency MBS	—
Money Markets	—
Corporates	—
Asset-Backed	—
Equities	—



Source: Bloomberg Finance L.P., SSGA

The fund does not hold any SIV's, CDO's, or Extendible Liquidity Note securities. Ratings are Standard and Poor's.

The designation "Other" under Credit Quality Breakdown refers to Long Term Ratings below BB — and Short Term Ratings below A-1/P-1.

Characteristics are as of the date indicated, are subject to change, and should not be relied upon as current thereafter.

STATE OF OREGON PERF LEGACY

FC5N — STATE OF OREGON PERF LEGACY Summary Characteristics

As of February 28, 2019

1-Day Yield (360 Basis)	2.91%
Shares Outstanding	7,023,465
Floating Rate %	100.00
% Foreign Issuers	64.96
WAM	39
WAM to Call	39
Call versus Mat Spread	—
% Callables	—
Avg Life -Expected Maturity	1759
Fund Price as of [2/28/2019]	93.391

Credit Quality Breakdown

LONG-TERM RATINGS	% OF FUND
AAA	---
AA	64.96
A	---
BBB+	---
BBB	—
BBB-	—
BB+	—
BB	—
BB-	—
SHORT-TERM RATINGS	% OF FUND
A-1+/P-1	—
A-1/P-1	—
SPLIT	—
OTHER	35.04

Floating Index Breakdown

	% of Fund
FED FUNDS	—
1MO LIBOR	35.04
3 MOS LIBOR	64.96
PRIME	—
Reset Buckets	% of Fund
Next Business Day	—
2–7 Days	—
8–31 Days	35.04
1–2 Months	64.96
2–3 Months	---
Maturity Buckets	% of Fund
Next Business Day	—
1 WEEK LIQUIDITY	—
2–30 Days Liquidity	—
31–60 Days Liquidity	—
61–90 Days Liquidity	—
90 DAY LIQUIDITY	—
91–120 Days Liquidity	—
121–150 Days Liquidity	—
151–180 Days Liquidity	---
181–270 Days Liquidity	---
271–360 Days Liquidity	—
12–15 Month Liquidity	—
15–18 Month Liquidity	—
18–21 Month Liquidity	—
21–24 Month Liquidity	—
Greater than 2 Year Liquidity	100.00
Repo Collateral	% of Fund
Treasuries	—
Agencies	—
Agency MBS	—
Money Markets	—
Corporates	—
Asset-Backed	—
Equities	—



Asset-Backed
100.00%

Auto Retail	—
Credit Card	—
Floor Plan	—
Home Equity	35.04
Other	—
Student Loan	---
UK RMBS	64.96

Source: Bloomberg Finance L.P., SSGA

The fund does not hold any SIV's, CDO's, or Extendible Liquidity Note securities. Ratings are Standard and Poor's.

The designation "Other" under Credit Quality Breakdown refers to Long Term Ratings below BB — and Short Term Ratings below A-1/P-1.

Characteristics are as of the date indicated, are subject to change, and should not be relied upon as current thereafter.

OREGON SHORT TERM FUND

FC91 — OREGON SHORT TERM FUND Summary Characteristics

As of February 28, 2019

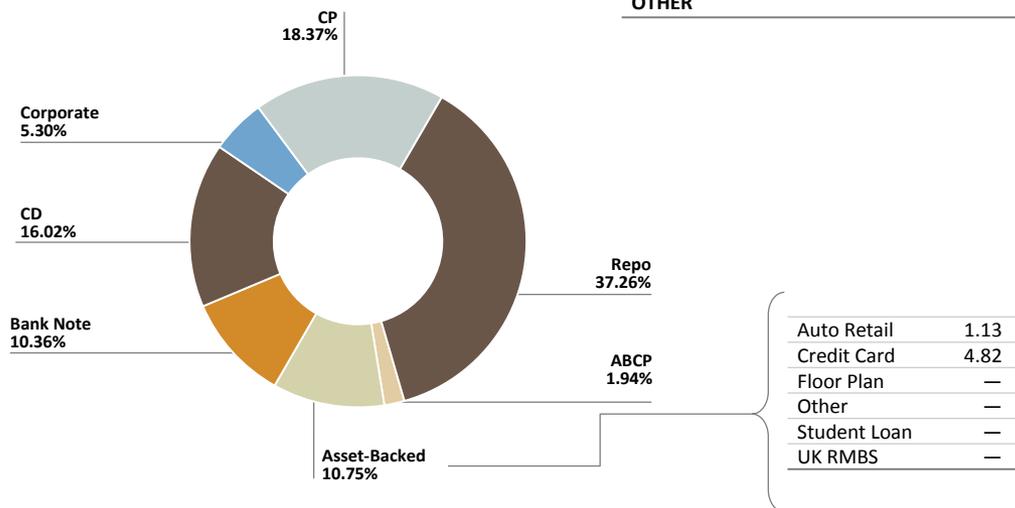
1-Day Yield (360 Basis)	2.70%
Shares Outstanding	760,575,260
Floating Rate %	49.82
% Foreign Issuers	18.09
WAM	23
WAM to Call	23
Call versus Mat Spread	—
% Callables	4.86%
Avg Life -Expected Maturity	133
Fund Price as of [2/28/2019]	100.02

Credit Quality Breakdown

LONG-TERM RATINGS	% OF FUND
AAA	7.34
AA	10.47
A	17.34
BBB+	—
BBB	—
BBB-	—
BB+	—
BB	—
BB-	—
SHORT-TERM RATINGS	% OF FUND
A-1+/P-1	22.49
A-1/P-1	23.56
SPLIT	14.11
OTHER	4.70

Floating Index Breakdown

	% of Fund
FED FUNDS	—
1MO LIBOR	26.66
3 MOS LIBOR	23.16
PRIME	—
Reset Buckets	% of Fund
Next Business Day	0.90
2–7 Days	2.33
8–31 Days	29.01
1–2 Months	6.33
2–3 Months	11.24
Maturity Buckets	% of Fund
Next Business Day	36.17
1 WEEK LIQUIDITY	37.22
2–30 Days Liquidity	13.70
31–60 Days Liquidity	4.05
61–90 Days Liquidity	12.16
90 DAY LIQUIDITY	66.07
91–120 Days Liquidity	3.53
121–150 Days Liquidity	1.97
151–180 Days Liquidity	3.42
181–270 Days Liquidity	4.73
271–360 Days Liquidity	8.94
12–15 Month Liquidity	1.97
15–18 Month Liquidity	2.39
18–21 Month Liquidity	1.84
21–24 Month Liquidity	2.24
Greater than 2 Year Liquidity	2.89
Repo Collateral	% of Fund
Treasuries	37.26
Agencies	—
Agency MBS	—
Money Markets	—
Corporates	—
Asset-Backed	—
Equities	—



Source: Bloomberg Finance L.P., SSGA

The fund does not hold any SIV's, CDO's, or Extendible Liquidity Note securities. Ratings are Standard and Poor's.

The designation "Other" under Credit Quality Breakdown refers to Long Term Ratings below BB — and Short Term Ratings below A-1/P-1.

Characteristics are as of the date indicated, are subject to change, and should not be relied upon as current thereafter.



**OREGON
STATE
TREASURY**

Origination: 04/2007
Last Approved: 04/2018
Last Revised: 04/2018
Next Review: 04/2019
Owner: *John Skjervem: Chief Investment Officer*
Policy Area: *Investments*
References:

INV 216: Securities Lending

INTRODUCTION & OVERVIEW

Summary Policy Statement

Investment funds under the purview of the Oregon Investment Council ("OIC" or "Council") may lend securities through a Lending Agent (the "Agent") selected by Oregon State Treasury (OST) investment staff and approved by the OIC.

Applicability

Classified represented, management service, unclassified executive service.

POLICY PROVISIONS

Policy Statements

1. Recognizing that securities lending activities may provide incremental return to investment fund portfolios:
 - a. The Agent shall reinvest all cash collateral received consistent with risk and return attributes and reinvestment guidelines approved by the OST Chief Investment Officer (CIO);
 - b. Acceptable collateral investments shall be documented with the Agent in advance of any lending activity;
 - c. Collateral reinvestment guidelines for the Oregon Short Term Fund shall be presented to and reviewed by the Oregon Short Term Fund Board prior to CIO approval;
 - d. Any changes to securities lending reinvestment guidelines shall be reported to the OIC at the next regularly-scheduled OIC meeting following the change(s);
2. OST staff shall ensure that securities loaned do not compromise investment fund managers' ability to liquidate fund portfolio positions when necessary; and
3. OST Investment Accounting staff shall ensure that securities lending income is properly credited to the

individual investment fund accounts.

Exceptions

None.

Failure to Comply

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

PROCEDURES and FORMS ADMINISTRATION

Feedback

Your comments are extremely important to improving the effectiveness of this policy. If you would like to comment on the provisions of this policy, you may do so by e-mailing the OST 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.

Attachments:

No Attachments

Approval Signatures

Step Description	Approver	Date
Oregon Investment Council	John Skjervem: Chief Investment Officer	04/2018
	Carmen Leiva: Operations Analyst	03/2018
	John Skjervem: Chief Investment Officer	03/2018

TAB 5 – Private Equity Benchmark Discussion

OPERF Private Equity Portfolio

(CONFIDENTIAL INFORMATION)

TAB 6 – State Accident Insurance Fund

Annual Review

Oregon Investment Council SAIF Corporation Annual Update

Purpose

Provide the Council with an update on SAIF investment activities in accordance with policy *INV 1006: State Accident Insurance Fund: Reporting Requirements*, "Review of the asset allocation policy, investment management and performance will occur at least annually with the OIC and more frequently by OST staff. These reviews will focus on the continued appropriateness of policy, compliance with guidelines and performance relative to objectives. A formal process shall be established allowing SAIF staff to meet with OIC's consultants on an annual basis to discuss issues of management and asset allocation. In addition, SAIF staff will have the opportunity to address the OIC annually to discuss SAIF's particular views as to the management of the fund."

Background

Under separate cover, SAIF management will provide a business and operating update for their organization. As noted at the April 2018 OIC meeting, SAIF management has conducted an asset/liability study, with the presentation of the analysis following this update.

Performance through February 2019

	Market Value	Actual Weight	1 Year	2 Year	3 Year	4 Year	5 Year	7 Year	10 Year
STATE ACCIDENT INSURANCE FUND	4,698,202	100.0	2.68	3.37	4.94	3.16	3.74	4.17	6.90
OREGON SAIF POLICY INDEX			2.78	2.89	3.94	2.61	3.21	3.50	6.08
SAIF-BLACKROCK ACWI IMI-GLBCOR	590,981	12.6	-0.73	8.68	13.27	6.35	6.54	8.78	
MSCI ACWI IMI NET			-1.04	8.34	12.91	6.01	6.19	8.41	13.05
TOTAL FIXED INCOME - SAIF	4,036,417	85.9	3.20	2.74	4.05	2.78	3.42	3.65	6.13
SAIF-WELLINGTON-FICORE	2,015,822	42.9	3.19	2.79	3.83	2.85	3.49	3.65	6.40
SAIF-WESTERN ASSET-FICORE	2,020,595	43.0	3.21	2.69	4.26	2.72	3.36	3.65	5.85
OREGON SAIF FI INDEX			3.12	2.23	2.93	2.17	2.82	2.91	5.04
SAIF-CASH INVESTED IN OSTF	30,207	0.6	2.59	1.90	1.69	1.40	1.22	1.13	1.18
91 DAY TREASURY BILL			2.04	1.51	1.13	0.87	0.70	0.53	0.41
SAIF-PLEDGED SECURITIES-PLEDGD	40,597	0.9	2.67	0.66	0.70	0.74	0.82	0.73	0.95
91 DAY TREASURY BILL			2.04	1.51	1.13	0.87	0.70	0.53	0.41

With the exception of the 1-year period, the SAIF portfolio has outperformed its policy benchmark for all periods.

Recommendation

None, information only.

SAIF

Oregon Investment Council

April 24, 2019

The state of SAIF is good

- Market share is 53.2%
- Approx. 10.5% pricing differential, on average
- Very strong safety program
- Market-leading service levels
 - Agent, employer, worker surveys
 - Return-to-work services
 - Timely claims decisions
 - Timely delivery of first check to injured workers

The state of SAIF (continued)

- Dividends
 - \$120M traditional dividend
 - \$40M safety dividend
 - 21 of last 29 years, 9 in a row
- Year-over-year competitive retention rate (% of premium): 99.5%
- The workers' comp system is stable and balanced
 - 1/1/19 pure premium reduction of 9.7%
 - 1/1/18 pure premium reduction of 14.0%
 - 40.9% reduction over past five years!

SAIF's financial model

- Policies are priced below actual cost
- Investment returns subsidize pricing
- Changes to our \$2.5B claims reserve have a big impact
- Goals:
 - Maintain stable, predictable pricing
 - Small contribution to capital base each year
 - Pay a dividend when appropriate

SAIF's financial profile

Balance sheet

	2018	2017
Invested assets	\$4.7 billion	\$4.9 billion
Other assets	\$0.4 billion	\$0.4 billion
Total assets	<u>\$5.1 billion</u>	<u>\$5.3 billion</u>
Claims reserves	\$2.5 billion	\$2.7 billion
Insurance payables and other	\$0.6 billion	\$0.7 billion
Total liabilities	<u>\$3.1 billion</u>	<u>\$3.4 billion</u>
Total surplus/capital	<u>\$2.0 billion</u>	<u>\$1.9 billion</u>
Total liabilities & surplus/capital	<u>\$5.1 billion</u>	<u>\$5.3 billion</u>

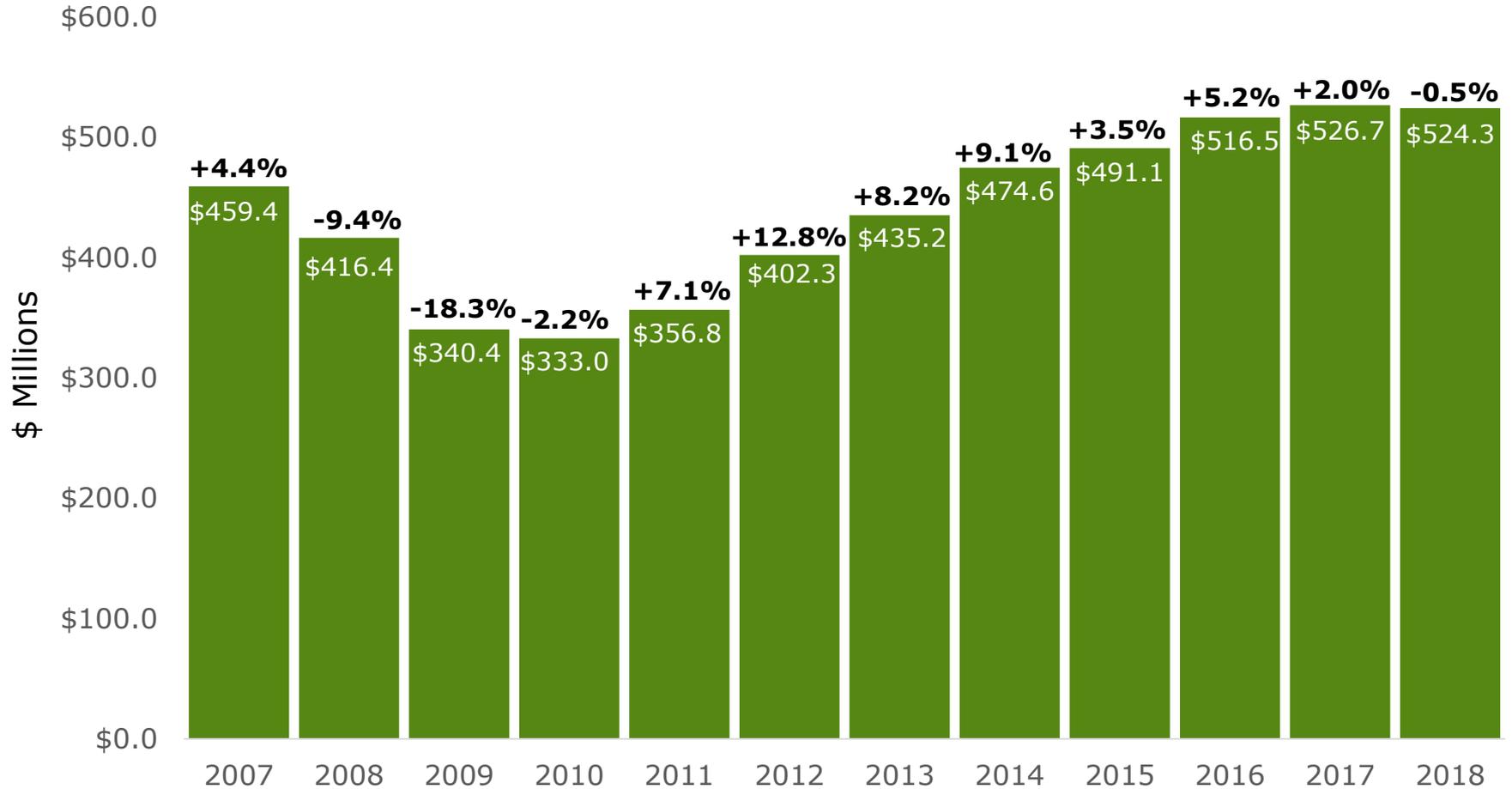
2018 financial results

- Earned premium: \$524M
 - 0.5% lower than 2017 due to reduction in pure premium
- Underwriting gain (premium minus claims and other expenses) of \$186M
- But: that includes a reduction in claims reserve of \$311M
 - Historic low levels of medical cost escalation
- Prior to claims reserve adjustment: \$125M underwriting loss

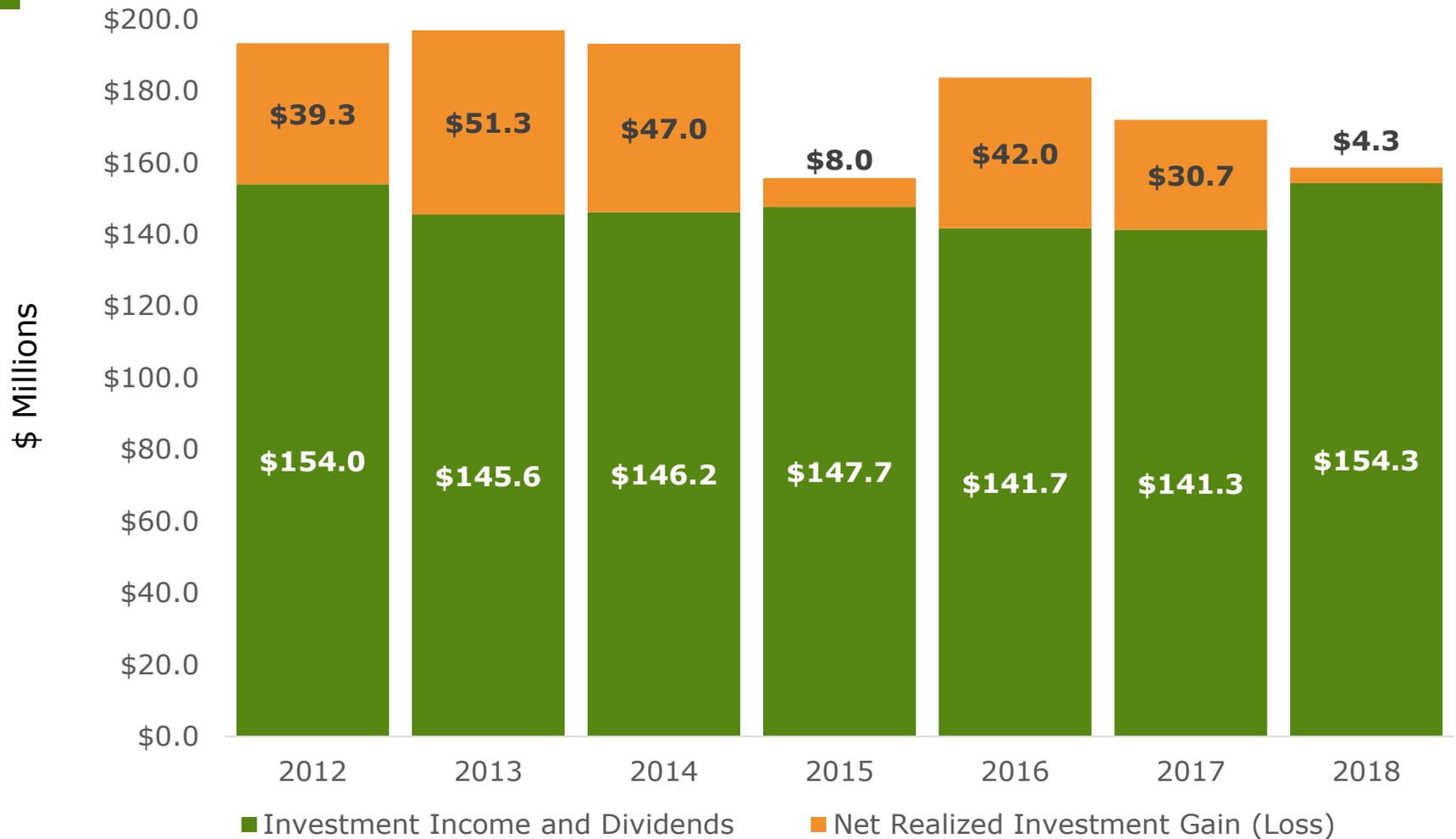
2018 financial results (continued)

- Investment income of \$159M offsets the underwriting loss
- Policyholder dividend: \$160M
- Net income: \$185M added to our capital base
 - Heavily dependent on the \$311M claims reserve adjustment

Net earned premium



Total investment income

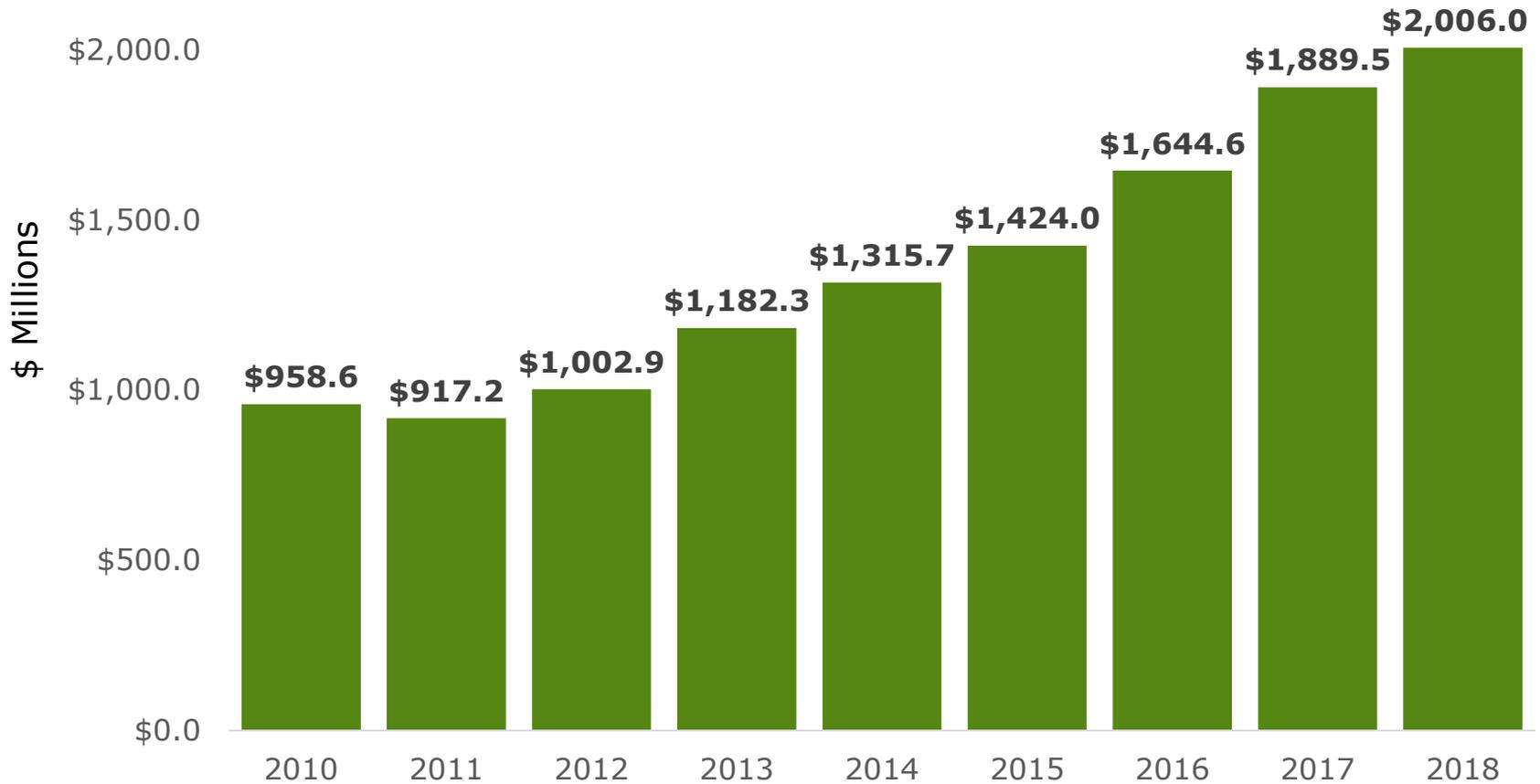


SAIF's investment priorities

- Preservation of capital
- Stable, predictable investment returns
- Matching liquidity to SAIF cash needs
 - Availability of capital in a crisis
 - Availability of capital for project work

Surplus/capital

as of December 31

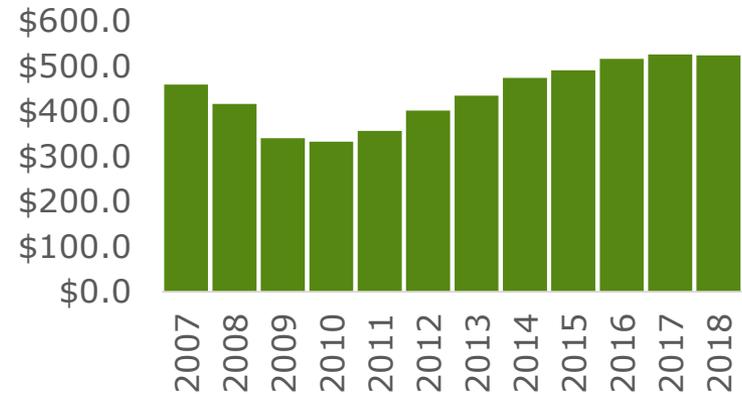


Capital levels help determine:

- Pricing
 - Investment income offsets underwriting losses
- Dividends
 - Based on a snapshot in time
- Underwriting
 - Our charter: Make WC insurance widely affordable and available

Capital levels help determine:

- Our risk tolerance
 - Recession
 - Earthquake
 - Medical Cost Escalation
 - Legislative/Regulatory/Judicial changes
 - Changes in loss patterns
- Our board adopts a risk tolerance statement:
 - Never fall below 4 times CAL-RBC; risk models show the likelihood of capital falling below CAL-RBC over next three years is less than .5%



SAIF's capital need is affected by:

- Lack of diversification
- No other sources of capital
- WC is a "long tail" line of insurance
- Necessary long-term investments
 - New headquarters building
 - New technology systems
 - SAIF Learning Center

SAIF and PERS

Recent headlines...

The Register-Guard

Report: Brown weighing selling SAIF, tapping its surplus to reduce PERS cost

PORTLAND — Gov. Kate Brown is reportedly considering selling the state's workers compensation insurance corporation or tapping its substantial capital surplus to hold down future pension costs for school districts around the state.

The



OREGONLIVE
The Oregonian

Policy makers considering raiding the state's workers compensation insurance corporation to backstop the Public Employees Retirement System would do well to recall the last time a governor and legislature took money from SAIF.

The Bulletin

Serving Central Oregon since 1903

Friday, March 8, 2019

Published Feb. 19, 2019 at 06:01PM / Updated February 20, 2019 at 05:06AM

Editorial: Governor's PERS proposal would be a stealth tax on businesses

New arrivals to Oregon sometimes have a hard time figuring out how state government works. For instance, the state has a \$26 billion unfunded liability for its future pension costs. That means schools and other government entities can't do as much teaching, road paving and law enforcing as they would otherwise. Why not? Because year after year, they almost inevitably have to pay more and more into the state's Public Employees Retirement System to deal with runaway costs. Schools in Oregon already have a future PERS shortfall of some \$9 billion. Their PERS costs are likely to go up by \$375 million over the next two

**This isn't about SAIF,
it's about PERS... and schools.**

**Governor: We're not going to sell
SAIF. Or do anything to prevent
SAIF from doing the great
work they do.**

(...But we ARE looking for money)

Stakeholders are responding

Mail Tribune

SAIF proposal is wrong

Regarding the SAIF proposal that Gov. Kate Brown has run up the flagpole, this administration is always searching for more revenue. Raiding



OREGONLIVE
The Oregonian

Opinion: Where are Oregon's leaders?

Posted Mar 24, 2019

Leadership can draw on many personal traits, but most agree that honesty and ethics must be a leaders to be truly effective and achieve

are currently debating how to raise \$2 billion in state taxes to support schools at a time the state has cut \$1 billion more from taxpayers in the last decade than ever before.

Opinion

Tossing SAIF into the bottomless pit could be costly

In typical government fashion, Gov. Kate Brown has decided that SAIF Corporation is the goose with the golden egg that actually belongs in the bottomless pit, aka PERS. Evidently, she has no recollection of what happened in 1982, when last the State of Oregon decided to raid SAIF to shore up government during a time of recession.

Those of us old enough to remember know how that ended up years later before the Oregon Supreme Court with the state being ordered to repay SAIF to the tune of \$81 million plus interest.

- 
- The issue is intertwined with many others
 - This is disruptive!
 - What we're doing:
 - Heavily engaged with the Governor's Office and legislature
 - Providing information, advice, advocacy
 - Exploring alternatives
 - Staying focused on our business and our customers

**We are very confident SAIF
will emerge strong and stable and
will continue to work in pursuit
of our vision and mission.**

Thank you

TAB 7 – State Accident Insurance Fund

Asset Allocation Analysis

Purpose

In accordance with Oregon Investment Council (OIC) policy *INV 1002: State Accident Insurance Fund: Asset Classes and Allocation*, "Asset/liability reviews will be performed approximately every three to five years to assure the Fund is positioned properly, given the unique industry, regulation, and changing business and financial conditions SAIF Corporation experiences. Any asset classes not specifically addressed in the policy below will be reviewed by Treasury staff and by SAIF for approval by the OIC."

Background

In 2013, SAIF retained Towers Watson, an investment consulting firm, to undertake an asset allocation study. The changes from the 2013 review are summarized as follows:

- Reduce core fixed income by 5% and allocate proceeds into core income-focused real estate; and
- Expand existing fixed income mandates by including allocations to high yield and U.S. dollar-denominated emerging market debt.

In 2018, SAIF retained RVK, Inc. to perform an asset allocation study. Staff from Oregon State Treasury worked closely with RVK, Inc. and SAIF throughout the project. The changes stemming from the current asset allocation study can be summarized as follows:

- Reduce core fixed income mandate by 8% and allocate proceeds into a mix of bank loans and private credit assets.

Representatives from RVK, Inc. and SAIF will provide the OIC with a detailed review of the work performed and the resulting recommendations. The SAIF Board approved moving the proposed changes forward to the OIC at their March 6, 2019 meeting.

Recommendation

Staff recommends approving the proposed asset allocation changes, policy modifications and real estate manager selections as described in the attached materials.

Below is a summary of the key changes that are being proposed:

- *INV 1002 – State Accident Insurance Fund: Asset Classes and Allocation*
 - Modify to include bank loan and private credit asset classes including benchmarks, strategic allocation targets and allowable ranges
 - Reduce allocation to U.S. Fixed Income to fund bank loan and private credit allocations
- *INV 1003 – State Accident Insurance Fund: Fixed Income Investments*
 - Reduce target manager weightings and ranges to reflect overall reduction in fixed income
- *INV 1004 – State Accident Insurance Fund: Real Estate Investments*
 - Refine strategy and investment criteria
 - Add target allocations and ranges for two core real estate investment managers
- *(New Policy) INV 1007 – State Accident Insurance Fund: Bank Loans*
 - New policy crafted to add bank loans as an asset class to SAIF's program
- *(New Policy) INV 1008 – State Accident Insurance Fund: Private Credit*
 - New policy crafted to add select private credit investments as an asset class to SAIF's program

If approved, staff will return at a future OIC meeting with manager recommendation(s) for the bank loan and private credit allocations. Recommended core real estate managers include current OPERF Open End Diversified Core Equity (ODCE) holdings.



April 24, 2019

Insurance Terminology & Definitions

State Accident Insurance Fund



Risk Based Capital (“RBC”)

Definition: Determines the regulatory minimum amount of capital required to maintain to avoid regulatory action

- RBC limits the amount of risk a company can take, requiring a company with a higher amount of risk to hold a higher amount of capital.
- Focused on the primary risks that are common for the particular insurance type:
 1. *Asset Risk*
 2. *Underwriting Risk*
 3. *Other Risk (dependent on the type of insurance)*
- Four levels of action that can be triggered; each of which requires particular action on the part of the regulator, the company, or both:
 - *Company Action Level (CAL)*
 - *Regulatory Action Level*
 - *Authorized Control Level (ACL)*
 - *Mandatory Control Level*

Asset Risk is a risk-weighted assessment of a company’s invested assets:

- R0 Asset risk — Subsidiary Insurance Companies*
- R1 Asset risk — Fixed Income*
- R2 Asset risk — Equity*
- R3 Asset risk — Credit*

- Each of the company’s investments is multiplied by a specific “risk charge” (e.g., *investment grade bonds carry a significantly lower risk charge than common stocks*), and then aggregated to a total “risk charge” at the portfolio level.
- In the analysis of the impact to RBC of potential asset allocation adjustments, only the **Asset Risk** component is considered to change.

SAIF Corporation is focused on maintaining capital levels at least 4x Company Action Level RBC (or “CAL RBC”)

RBC Ratio

Definition: The ratio of Capital & Surplus to Risk Based Capital (RBC)

- Used to measure the adequacy of capital levels relative to RBC, with regulatory action levels triggered if the ratio falls below certain thresholds:

- Company Action Level: Ratio up to 200%
- Regulatory Action Level: Ratio up to 150%
- Authorized Control Level: Ratio up to 100%
- Mandatory Control Level: Ratio up to 70%

- In the analysis of the impact of potential asset allocation adjustments on RBC, only the **Denominator** of the RBC Ratio formula is considered to change:
 - Capital and Surplus levels are not immediately affected by asset allocation changes, however the risk-weighted assessment of the company's invested assets can change.

SAIF Corporation's approved minimum risk tolerance level is four times that of the Company Action Level (CAL) RBC Ratio

- This is measured internally by what SAIF calls "Surplus to CAL RBC Ratio" using the following formula:

$$\text{"Surplus to CAL RBC Ratio"} = \left(\frac{\text{Capital \& Surplus}}{\text{ACL RBC} * 2} \right)$$

- SAIF's minimum allowable "Surplus to CAL RBC Ratio" is 4.0

Selected Insurance Statutory Accounting Terms

- **“Book Value” vs. “Fair Value” reporting:**
 - For financial reporting purposes, investment grade rated bonds are reported at book value, whereas non-investment grade rated bonds are reported at the lower of book or fair value. Stocks are reported at fair value.
- **Other Than Temporary Impairment (“OTTI”):**
 - Insurance companies are required to write-down the value of an investment if it is deemed to be impaired such that the fair value is not expected to recover through the holding period of that security.

Statutory Filing and Rating Treatment

Asset Class	Investment Vehicle Structure	Expected Rating	Valuation	Notes
Equities	Commingled or Separate Account	N/A	Fair value	
Real Estate	Limited Partnership or Private REIT	N/A	Audited GAAP Equity Value	
Bank Loans	Separate Account	NAIC 3-6	Lower of amortized cost or fair value	Rating determined by individual security
Private Credit / Direct Lending (IG Rated)	Senior Note Portion of Investment Unit	NAIC 1-2	Amortized Cost	CUSIP originated from NAIC SVO for purposes of carrying on insurance statutory filing
Private Credit / Direct Lending (Non- IG Rated)	Junior Note Portion of Investment Unit	NAIC 3-6	Lower of amortized cost or fair value	Structures vary among managers
Private Credit / Direct Lending (Limited Partnership)	Equity / Limited Partnership	N/A	Audited GAAP Equity Value	Note/Unit rated based on underlying characteristics of loan portfolio
Investment Grade Fixed Income (High Credit Quality)	Separate Account	NAIC 1-2	Amortized Cost	Rating determined by individual security
Non-Investment Grade Fixed Income (Low Credit Quality)	Separate Account	NAIC 3-6	Lower of amortized cost or fair value	Rating determined by individual security

Appendix



Glossary of Insurance Terms

- **Asset Risk** - in the risk-based capital formula, risk assigned to the company's assets.
- **Authorized Control Level Risk Based Capital** – minimum capital requirement that permits the insurance commissioner to place the organization under regulatory control.
- **Book Value** - original cost, including capitalized acquisition costs and accumulated depreciation, unamortized premium and discount, deferred origination and commitment fees, direct write-downs, and increase/decrease by adjustment.
- **Capital and Surplus** - a company's assets minus its liabilities.
- **Fair Value** - the amount at which an asset (or liability) could be bought (or incurred) or sold (or settled) in a current transaction between willing parties, that is, other than in a forced or liquidation sale. Quoted market prices in active markets are the best evidence of fair value and shall be used as the basis for the measurement, if available. If a quoted market price is available, the fair value is the product of the number of trading units times market price.
- **Investment grade** - the obligation has been determined to be in one of the top four generic lettered rating classifications by a securities rating agency acceptable to the commissioner, that the obligation has been identified in writing by such a rating agency to be of investment grade quality, or, if the obligation has not been submitted to any such rating agency, that the obligation has been determined to be investment grade (NAIC Class 1 and Class 2) by the Securities Valuation Office of the National Association of Insurance Commissioners.

Glossary of Insurance Terms (cont.)

- **Non-investment grade** - the obligation has been determined to be below the fourth highest generic lettered rating classification (BBB) by a securities rating agency acceptable to the commissioner, that the obligation has been identified in writing by such a rating agency to be below investment grade quality, or, if the obligation has not been submitted to any such rating agency, that the obligation has been determined to be non-investment grade (NAIC Classes 3 through 6) by the Securities Valuation Office of the National Association of Insurance Commissioners.
- **National Association of Insurance Commissioners (NAIC)** - the U.S. standard-setting and regulatory support organization created and governed by the chief insurance regulators from the 50 states, the District of Columbia and five U.S. territories. Through the NAIC, state insurance regulators establish standards and best practices, conduct peer review, and coordinate their regulatory oversight. NAIC staff supports these efforts and represents the collective views of state regulators domestically and internationally. NAIC members, together with the central resources of the NAIC, form the national system of state-based insurance regulation in the U.S.
- **Nationally Recognized Statistical Rating Organization (NRSRO)** - refers to rating organizations so designated by the SEC whose status has been confirmed by the Securities Valuation Office. Examples are: Moody's Investors Service, Inc., Standard & Poor's (S&P), A.M. Best Company (A.M. Best) and Fitch Ratings and Dominion Bond Rating Service (DBRS).
- **Risk Based Capital (RBC)** - determines the regulatory minimum amount of capital required to maintain to avoid regulatory action.
- **Risk Based Capital (RBC) Ratio** - ratio used to determine regulatory minimum capital requirements. Calculated by dividing total adjusted capital by risk-based capital.

Glossary of Insurance Terms (cont.)

- **Statutory Accounting** - method of accounting standards and principles used by state regulatory authorities to measure the financial condition of regulated companies and other insurance enterprises. This method tends to be more conservative than the Generally Accepted Accounting Principles used by most businesses. Compliance with solvency and other standards is determined using financial documents prepared in accordance with Statutory Accounting Principles.
- **Surplus to CAL RBC Ratio** - a measure used by SAIF Corporation to measure adequacy of Capital and Surplus levels relative to RBC. Defined as Total Adjusted Capital (TAC) divided by twice the value of Authorized Control Level (ACL) RBC. SAIF's board-approved minimum risk tolerance value is 4.0.

PORTLAND

CHICAGO

NEW YORK





SAIF Corporation Asset Allocation Review

April 24, 2019



Project Overview

RVK was engaged by SAIF to complete a project consisting of the following components:

1. Asset allocation review:

- Review current and prospective asset allocation targets and their expected effect on SAIF's long-term investment total return, income, and risk efficiency
- Measure impacts on Surplus to CAL RBC ratio based on asset allocation changes and potential worst-case downside capital market events
- Review manager implementation considerations and investment management fee implications

2. Peer group comparison:

- Compare SAIF against workers compensation peers across several financial, operational, capitalization, and investment-related measures

3. Investment guidelines and benchmark review

- Review SAIF policies and including updates according to asset allocation and manager implementation recommendations
- Analyze current and prospective fixed income benchmark structures

Project Results

Executive Summary

Conclusions based on the analysis performed:

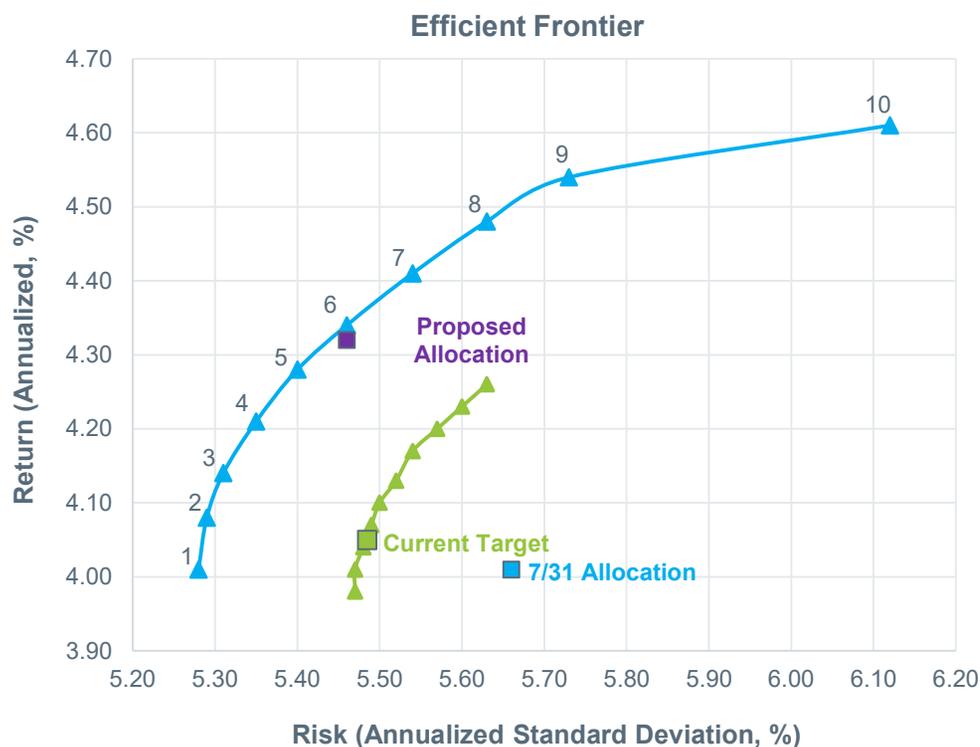
- RVK affirms the appropriateness of SAIF's current broad asset allocation and custom fixed income benchmark construction, relative to fund income and total return objectives
- SAIF is well positioned relative to its peer insurance funds with respect to financial, operating, and capitalization levels; but the SAIF bond portfolio carries greater interest rate risk from its comparatively longer duration liabilities
- RVK holds a positive view of the investment managers currently utilized by SAIF; and confirms that investment management fees appear reasonable

RVK recommends potential enhancements to the investment portfolio:

- Support the previously approved allocation to Private Real Estate
- Introduce strategic exposure to Bank Loans and Private Credit to further diversify portfolio, enhance yield, and mitigate interest rate risk
- RVK concurs with SAIF and the Oregon State Treasury in pursuing a conservative and gradual funding approach for implementing portfolio asset allocation changes

Asset Allocation Review

RVK believes that SAIF's current investment strategy is broadly appropriate relative to its risk tolerance, its strong capital position, and in consideration of our capital markets outlook and the available investable opportunity set



Asset Class	Current Target	7/31/18 Allocation	Proposed Allocation
Global Equity	10.0	12.7	10.0
Int. Duration Fixed Income	85.0	85.8	77.0
Private Credit	0.0	0.0	4.0
Bank Loans	0.0	0.0	4.0
Core Real Estate	5.0	0.0	5.0
Cash Equivalents	0.0	1.5	0.0
Total	100	100	100
Expected Return	4.05	4.01	4.32
Risk (Standard Deviation)	5.49	5.66	5.46
Current Yield	3.47	3.37	3.63
Surplus to CAL-RBC Ratio*	5.59	6.01	5.58
Return (Compound)	3.91	3.86	4.18
Return/Risk Ratio	0.74	0.71	0.79
RVK Exp Eq Beta (LCUS Eq = 1)	0.16	0.17	0.20
RVK Liquidity Metric (T-Bills = 100)	83	86	78

- RVK asset allocation model supports the addition of Private Real Estate, Bank Loans, and Private Credit to the SAIF asset allocation target
- The new asset classes individually carry higher return and risk characteristics, but are less correlated to traditional equities and fixed income—leading to slightly lower expected risk at the total portfolio level
- Strong income orientation of the new asset classes expected to increase total portfolio yield
- Insurance-friendly implementation of Bank Loans and Private Credit neutralizes surplus to CAL RBC ratio impact

7/31 allocation excludes Pledged Securities.

*Surplus to CAL RBC Ratio based on SAIF preferred measure of CAL RBC. Calculation shown is as of 12/31/2017.

Figures shown are net of fees.



Surplus to CAL RBC Ratio Modeling

Relative Impact of Asset Allocation Changes



Global Equity	12.0%	10.0%	10.0%
Core Fixed Income	85.2%	85.0%	77.0%
Private Credit			4.0%
Bank Loans			4.0%
Core Real Estate		5.0%	5.0%
Cash	2.8%		
Expected Return	3.97	4.05	4.32
Risk (Std. Dev.)	5.59	5.48	5.46
Current Yield	3.35	3.47	3.63

Relative Downside Impact Monte Carlo Analysis – 5th percentile



Assumptions

- Asset Risk Factors and Adjusted Capital levels have been reduced in accordance with 5th percentile Monte Carlo analysis
- All other risk factors and liability levels are assumed to remain static

Real Estate allocation treated as a Schedule BA asset (20.0% RBC charge). The RBC charge assumed for Bank Loans is based on equal split between BB/B rated loans (3.25%). RBC charges for Private Credit assumed based on an equal split between two representative manager strategies and their estimated RBC charges (0.85%). Funded Real Estate allocation out of Common Stock, Cash, and NAIC 1 rated Fixed Income, in accordance with targets. Funded Bank Loans and Private Credit out of NAIC 1 rated Fixed Income. Figures shown are net of fees.

Downside Loss Scenario Modeling

Estimated Impact to Surplus – 5th percentile 1-year loss

Asset Allocation and Estimated Loss Attribution (\$ 000)

	Actual Allocation (7/31/18)	Current Target	Proposed Allocation
Total Unrealized Losses	\$ (170,000)	\$ (158,000)	\$ (163,000)
Mark-to-Market Losses	\$ (77,821)	\$ (68,615)	\$ (77,064)
OTTI – 20% of Unrealized Losses on IG Bonds	\$ (18,436)	\$ (17,876)	\$ (15,509)
OTTI – 20% of Unrealized Losses on Private Credit	\$ -	\$ -	\$ (1,678)
Estimated Surplus Impact	\$ (96,257)	\$ (86,493)	\$ (94,251)

- Mark-to-Market losses attributable to Equities, Real Estate, Bank Loans, and non-IG rated portion of Private Credit note (15% of capital structure)
- OTTI losses assumed to be 20% of unrealized loss position for IG Bonds and rated note portion of Private Credit (85% of capital structure)
- OTTI Write-offs do not make any impairment distinction at an individual security level

Figures shown in thousands (\$) and represent projected 5th percentile 1 year losses. Unrealized losses were calculated based on a beginning investment portfolio value of \$4.48B, and are measured from 12/31/2017. Other Than Temporary Impairment (“OTTI”) losses are assumed to be at the asset class level for simplicity. Figures shown are net of fees.



Asset Allocation Review

Summary Overview

Recommended Portfolio

- RVK modeling indicates a 25+ basis point increase in expected long-term returns with the difference primarily generated by increases in income yield
- Reduces total portfolio volatility modestly due to low correlation of new asset classes, particularly Private Real Estate
- Downside return/loss scenarios are benefited over both short- and long-term horizons with the addition of new asset classes (i.e. expected losses are smaller)
- After the addition of Private Real Estate, the expected reduction of the Surplus to CAL RBC ratio is minimal for the new asset classes of Bank Loans and Private Credit
- Moves SAIF in line with many of its peer institutions in adding recommended asset classes

Potential Disadvantages and Other Considerations

- Addition of more complex asset classes and strategies will heighten investment due diligence and monitoring burdens
- Closed end funds will require periodic pacing, identification of new investments to maintain a Private Credit allocation and greater attention to fund liquidity needs
- Fees will increase as a result of investing in private asset classes as well as additional custody bank costs associated with pricing and settling Bank Loans

Implementation Process

Recommended Next Steps

Private Real Estate

- RVK affirmed potential structure and potential manager alternatives
- SAIF and Oregon State Treasury to work on contracting with manager(s) for negotiation of investment guidelines and fees
- Build investment allocations using a gradual implementation process taking into consideration SAIF's current and forecast business conditions as well as the capital market environment

Bank Loans and Private Credit

- SAIF to establish a resource plan for supporting accounting and financial reporting of new asset classes and securities
- SAIF and Oregon State Treasury collaborate to identify manager(s) for funding investment and vehicle structure for investment grade credit rating
- SAIF and Oregon State Treasury to work on contracting with manager(s) for negotiation of investment guidelines and fees
- Build investment allocations using a gradual implementation process taking into consideration SAIF's current and forecast business conditions as well as the capital market environment

Appendix



Asset Allocation Model - Assumptions

Asset Class	Arithmetic Return Assumption	Standard Deviation Assumption
Global Equity	7.65	18.35
Int. Duration Fixed Income	3.50	6.00
Emerging Markets Debt (Hard)	5.25	12.50
High Yield Fixed Income	5.50	15.00
Private Credit	8.50	23.00
Bank Loans	5.25	10.00
Core Real Estate	6.25	12.50
Cash Equivalents	2.50	3.00

Index	Longest Historical Time Frame	Annualized Arithmetic Return	Annualized Standard Deviation
MSCI ACW IMI (Gross)	Jun 1994 - Dec 2017	7.72	18.89
Bloomberg US Agg Bond	Jan 1976 - Dec 2017	7.45	6.80
JPMorgan EMBI Global Div.	Jan 1999 - Dec 2017	9.84	9.25
Bloomberg US Corp: Hi Yld	Jan 1986 - Dec 2017	8.53	15.25
CS Leveraged Loan	Feb 1992 - Dec 2017	5.65	11.14
NCREIF ODCE (Gross) (AWA)	Mar 1978 - Dec 2017	8.50	9.47
BofA ML 3 Mo US T-Bill	Jan 1978 - Dec 2017	4.98	4.10

	Global Equity	Int. Duration Fixed Income	Emerging Markets Debt (Hard)	High Yield Fixed Income	Private Credit	Bank Loans	Core Real Estate	Cash Equivalents
Global Equity	1.00	0.00	0.60	0.70	0.51	0.51	0.30	-0.03
Int. Duration Fixed Income	0.00	1.00	0.55	0.25	-0.01	-0.01	-0.06	0.26
Emerging Markets Debt (Hard)	0.60	0.55	1.00	0.68	0.44	0.44	0.18	0.02
High Yield Fixed Income	0.70	0.25	0.68	1.00	0.76	0.76	0.08	-0.03
Private Credit	0.51	-0.01	0.44	0.76	1.00	0.99	0.19	-0.02
Bank Loans	0.51	-0.01	0.44	0.76	0.99	1.00	0.19	-0.02
Core Real Estate	0.30	-0.06	0.18	0.08	0.19	0.19	1.00	0.00
Cash Equivalents	-0.03	0.26	0.02	-0.03	-0.02	-0.02	0.00	1.00

Reflects RVK's 2018 Capital Markets Assumptions. Modeling and analysis was not updated for 2019 due to timing of availability of the new assumptions set.



Modeling Yield Assumptions

Asset Class	Index	Current Yield As of 12/31/2017
Global Equity	MSCI ACW IMI	2.27%
Core Fixed Income	Blend of Underlying Managers	3.56%
	<i>Wellington</i>	3.33%
	<i>Western</i>	3.79%
Bank Loans	50/50 Credit Suisse/S&P LTSA	5.29%
	<i>Credit Suisse Leveraged Loan Index</i>	5.15%
	<i>S&P LSTA U.S. Leveraged Loan Index</i>	5.43%
Core Real Estate	NCREIF ODCE	4.35%
Private Credit	50/50 Bank Loans/High Yield	5.81%
	<i>Credit Suisse/S&P LTSA average</i>	5.29%
	<i>Bloomberg US Corporate High Yield Index</i>	6.33%

Fixed Income	Index	Current Yield As of 12/31/2017
Benchmark	Bloomberg Barclays US Corporate Investment Grade Index	3.73%
	Bloomberg Barclays US Intermediate Bond Index	3.38%
	Bloomberg Barclays US High Yield Ba/B 2% Issuer Cap Index	5.92%
	Bloomberg Barclays US MBS Agency Fixed Rate Index	3.42%
	Bloomberg Barclays US Government Bond Index	2.11%

Downside Loss Scenario Modeling

Mark to Market Pricing on all Asset Classes

Monte Carlo Returns – 1 Year (\$ M)

1 Year	Actual Allocation (7/31/18)	Current Target	Proposed Allocation
1 st Percentile	-\$573	-\$569	-\$646
5 th Percentile	-\$170	-\$158	-\$163
25 th Percentile	\$66	\$70	\$85
50 th Percentile	\$197	\$200	\$215
75 th Percentile	\$318	\$321	\$334

- Monte Carlo analysis simulates a distribution of investment return outcomes for the aggregate investment portfolio based on the underlying historical performance of individual asset classes contained within a specific asset allocation target
- Monte Carlo analysis used as the basis for estimating unrealized, investment-related losses and the subsequent effect on SAIF's financial condition specifically pertaining to surplus and income forecast

Asset Allocation and Estimated Loss Attribution (\$ 000)

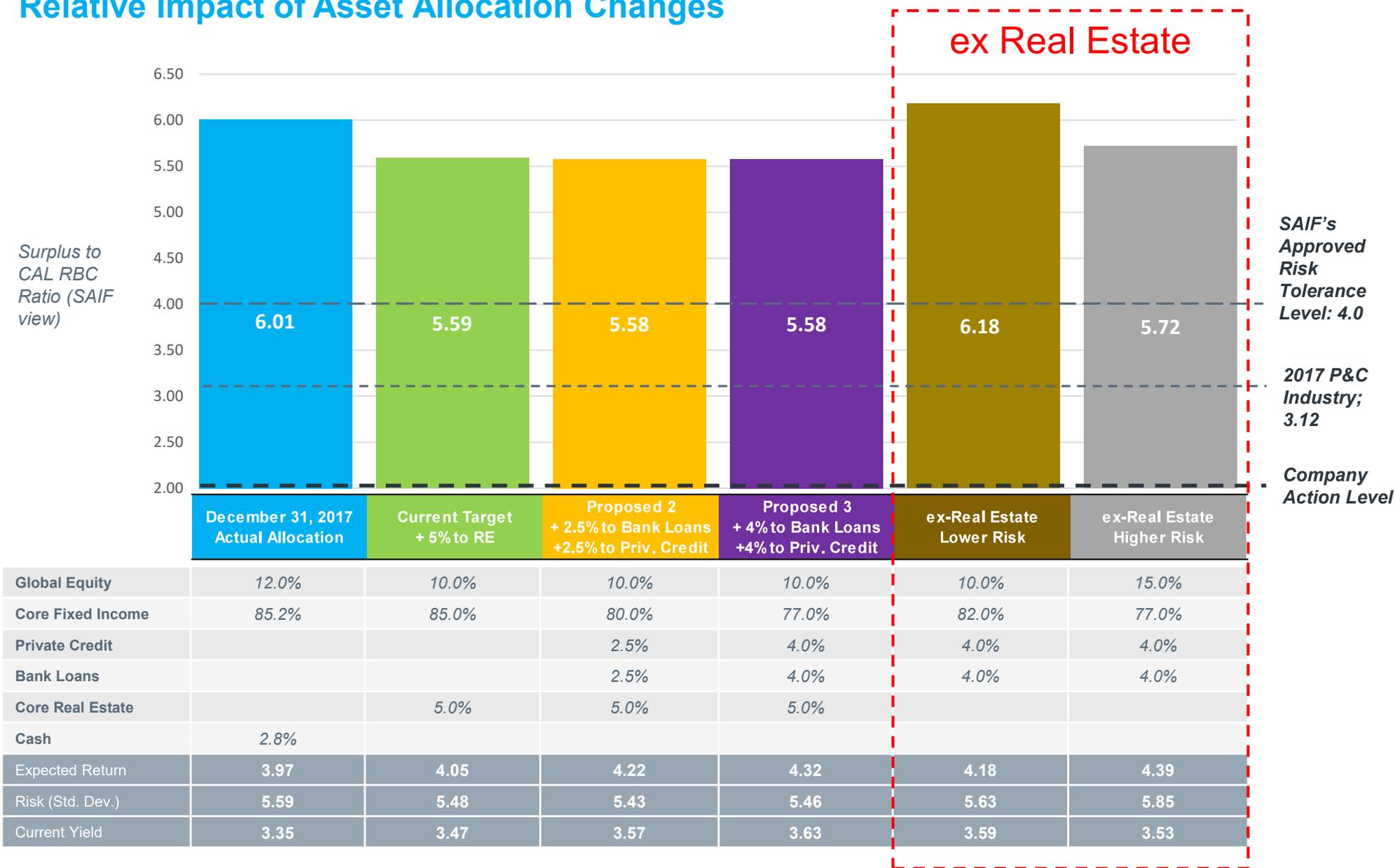
		Actual Allocation (7/31/18)	Current Target	Proposed Allocation
Asset Classes and 5th Percentile Loss	Allocation Target / Loss Attribution			
Equities	-22.6%	13% \$ (77,821)		
Real Estate/Equity	-17.4%		15% \$ (68,615)	15% \$ (65,713)
Private Credit/Bank Loans	-9.8%			8% \$ (19,739)
IG Bonds/Cash	-4.0%	87% \$ (92,178)	85% \$ (89,384)	77% \$ (77,547)
Total Unrealized Losses (000's)		\$ (170,000)	\$ (158,000)	\$ (163,000)

5th percentile losses on a 1-year holding period were used as the basis of analysis. Unrealized losses were calculated based on a beginning investment portfolio value of \$4.48B, and are measured from 12/31/2017. Figures shown are net of fees.



Surplus to CAL RBC Ratio Modeling – ex Real Estate

Relative Impact of Asset Allocation Changes



Real Estate allocation treated as a Schedule BA asset (20.0% RBC charge). The RBC charge assumed for Bank Loans is based on equal split between BB/B rated loans (3.25%). RBC charges for Private Credit assumed based on an equal split between two representative manager strategies and their estimated RBC charges (0.85%). Funded Real Estate allocation out of Common Stock, Cash, and NAIC 1 rated Fixed Income, in accordance with targets. Funded Bank Loans and Private Credit out of NAIC 1 rated Fixed Income. Figures shown are net of fees.



SAIF Fixed Income Benchmark Analysis

Current Fixed Income Portfolio vs. Current Benchmark

	Current Benchmark	Current Fixed Income Portfolio
US Corporate	50%	
US Corp Intermediate	10%	
US HY Ba/B 2% Capped	5%	
US MBS Fixed Rate	20%	
US Government	15%	
Wellington		50%
Western Asset		50%

	Current Benchmark	Current Fixed Income Portfolio
Avg. Maturity	8.85	9.10
Avg. Quality	A1	A2
Coupon Rate	3.72	3.66
Current Yield	3.79	4.18
Effective Duration	6.13	6.18
Yield To Maturity	4.05	4.20
Yield To Worst	4.04	4.20

- SAIF's fixed income managers have performed well since inception, beating the custom benchmark over all trailing periods and most calendar years

	1 Year	3 Years	5 Years	7 Years	10 Years	15 Years	Since Incep.	Inception Date
Est. SAIF Fixed Income Portfolio	-1.90	2.74	3.15	3.53	6.56	4.89	5.61	11/01/2000
Current Fixed Income Benchmark	-2.21	1.90	2.46	2.77	5.66	4.39	5.05	
Difference	0.31	0.84	0.69	0.76	0.90	0.50	0.56	

- SAIF's aggregated current portfolio is similar in duration to the benchmark, with a slightly lower quality and higher current yield

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Est. SAIF Fixed Income Portfolio	6.02	6.18	-0.32	7.09	-0.41	8.94	6.86	10.17	12.14	0.14
Current Fixed Income Benchmark	4.77	4.64	0.07	6.30	-1.13	7.32	7.36	9.09	7.95	4.27
Difference	1.25	1.54	-0.39	0.79	0.72	1.62	-0.50	1.08	4.19	-4.13

- SAIF's risk-adjusted returns have exceeded the benchmark over time

Since Inception MPT Stats	Standard Deviation	Equity Beta (vs. S&P 500)	Correlation to S&P 500	Sharpe Ratio	Tracking Error (vs. Current BM)	Info Ratio (vs. Current BM)
Current FI Portfolio	4.76	0.05	0.14	0.85	0.94	0.59
Current Benchmark	4.56	0.02	0.05	0.77	-	-

Fixed income portfolio performance shown is estimated using client specific performance at a 50% weight for each manager. Benchmark performance shown includes all past iterations of the custom benchmark. Data as of 10/31/2018.

SAIF Fixed Income Benchmark Analysis

Summary Overview

Based on the review, RVK recommends no change to the current benchmark composition

Three alternative benchmark structures were reviewed for comparison:

1. *Lowering Credit Quality/Maintain Duration*
2. *Raising Duration/Maintain Credit Quality*
3. *Decrease Duration/Increase Credit Quality*

Index	Current Benchmark	Prospective Benchmark 1	Prospective Benchmark 2	Prospective Benchmark 3
US Corporate	50%	55%	70%	25%
US Corp Intermediate	10%	10%	0%	25%
US HY Ba/B 2% Capped	5%	10%	0%	5%
US MBS Fixed Rate	20%	10%	10%	25%
US Government	15%	15%	20%	20%

- Increasing/decreasing duration and/or quality on the existing benchmark does not materially affect benchmark performance
 - RVK believes SAIF's largest efficiency gain would come from adding dedicated exposures to yield enhancing assets rather than increasing risk in a traditional fixed income allocation—particularly public corporate debt
- Additional input received from SAIF's two fixed income managers (Wellington and Western)—each of which indicated that the current benchmark is fair, manageable, and does not present difficulties to each managers unique management style

SAIF Fixed Income Benchmark Analysis

Historical Returns Comparison



Current benchmark performance shown includes the current composition of the custom benchmark extended as far back as data is available. Data as of 10/31/2018.

— Current Benchmark
— Prospective Benchmark 2

— Prospective Benchmark 1
— Prospective Benchmark 3



Investment Manager Fee Review

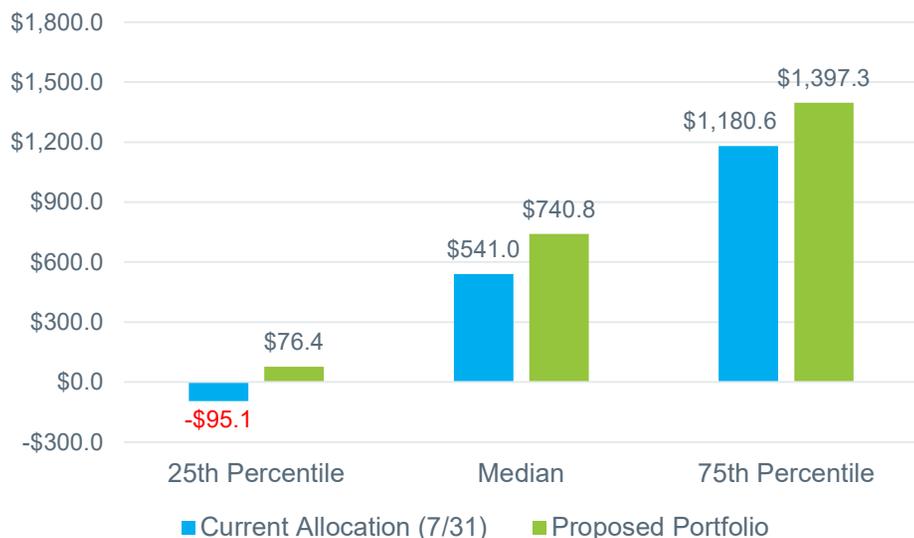
Summary Overview

- Based on the results of RVK's fee analysis, the fees SAIF pays to its current investment managers appear reasonable
- RVK's proposed portfolio allocation would increase investment management fees, but higher expected return and improved diversification benefits offset the additional costs
 - Estimated annual fees would increase from \$4.5 million to \$9.3 million, plus potential Private Credit incentive fees
- RVK believes that SAIF (in concert with the State Treasury) could potentially negotiate lower fees with each of the fixed income managers, Western and Wellington
- Additionally, RVK believes engaging in a fee negotiation with BlackRock would be worthwhile
 - Recently, some providers (i.e. Fidelity) have significantly reduced management fees for index funds
 - Many firms, including BlackRock, have shown willingness to compete with these lower fees in order to keep client business

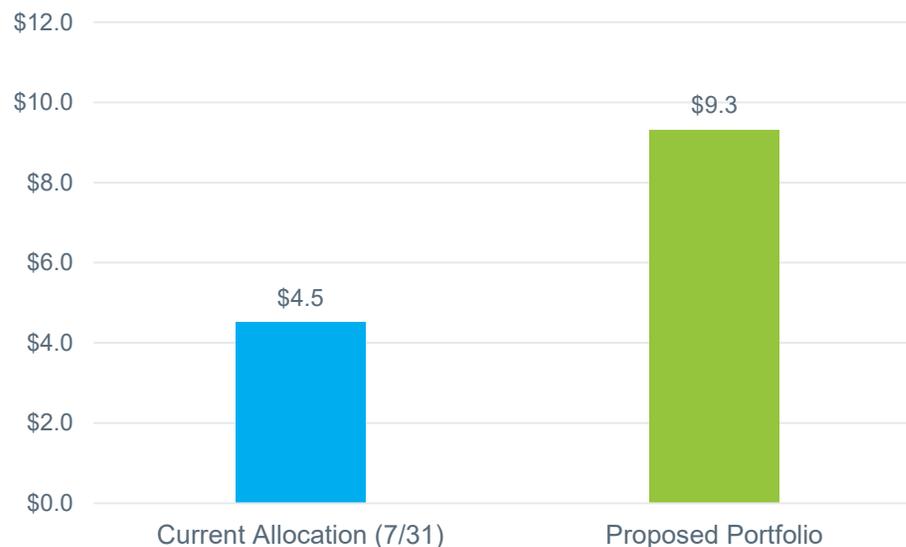
Investment Manager Fee Review

Effect on Future Gain/Loss Projections

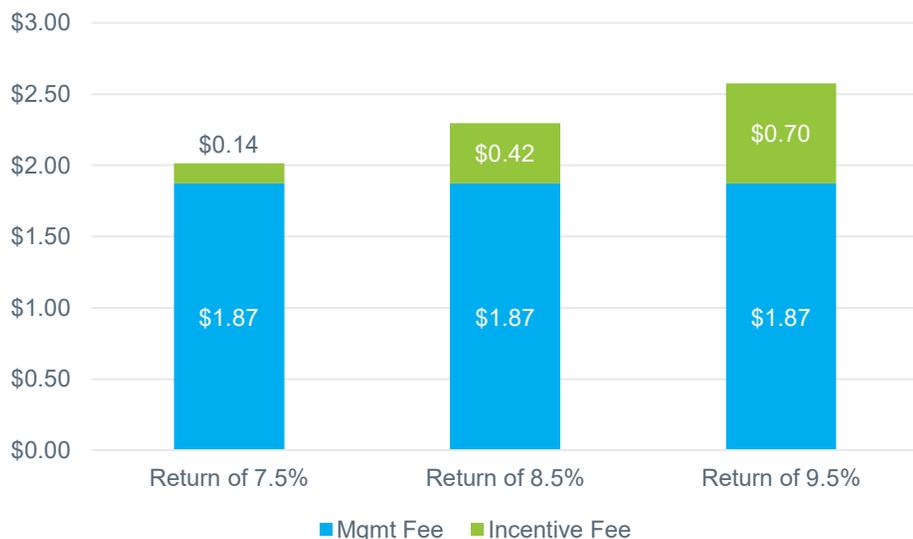
10 Year MC Gain/Loss (\$millions)



1 Year Estimated Fees (\$millions)



1 Year Hypothetical Private Credit Fees (\$millions)



- While estimated annual management fees double with the proposed portfolio, this increase is more than offset by enhanced expected returns and diversification
- In 25th percentile, median, and 75th percentile 10 year Monte Carlo outcomes, the net of fees proposed portfolio outperforms the current net of fees portfolio mix

Gain/Loss figures shown are net of fees. Figures shown in the 10 Year Monte Carlo Gain/Loss chart reflect an annual distribution of \$150 million and all assets are marked to market; figures do not include Private Credit incentive fees. Private Credit fees assume a 4% allocation, a 1% management fee, and a 15% performance fee over a 7% hurdle.

Investment Manager Fee Review

Current Portfolio

- SAIF's manager roster currently includes the following:
 - Wellington (Active Fixed Income)
 - Western Asset (Active Fixed Income)
 - BlackRock (Passive Global Equity)
- The investment management fees are broken down as follows:

	Wellington			Western			BlackRock		
MV Tier	Fee (bps)	Assets (\$B)	Fee (\$000)	Fee (bps)	Assets (\$B)	Fee (\$000)	Fee (bps)	Assets (\$B)	Fee (\$000)
Tier 1: Up to \$1B	14.0	1.00	1,400	15.0	1.00	1,500	5.1	0.61	309
Tier 2: \$1B - \$2B	7.5	1.00	750	5.0	1.04	521			-
Tier 3: Over \$2B	5.0	0.04	19						
Total	10.6	2.04	2,169	9.9	2.04	2,021	5.1	0.61	309
Total Fund	9.6	4.68	4,498						

- Fees for active fixed income separate accounts with \$2B AUM range from 10.4 bps to 30.0 bps, with a median fee of 20.1 bps. SAIF's fees with Wellington and Western rank in the 7th and 4th percentile, respectively.
- Fees for passive global equity strategies for mandate sizes of \$600M range from 3.4 bps to 15.6 bps, with a median fee of 7.6 bps. SAIF's fee with BlackRock ranks in the 16th percentile.

Investment Manager Fee Review

Proposed Portfolio

- RVK's proposed portfolio allocation would alter the current fee structure through the following additions:
 - DWS REEF America REIT II (Private Real Estate)
 - Morgan Stanley PRIME (Private Real Estate)
 - Private Credit and Bank Loan strategies (Illiquid Credit & Senior Debt Issuances) -- ILLUSTRATIVE
- The investment management fees of the proposed portfolio are broken down as follows:

	Wellington			Western			BlackRock		
MV Tier	Fee (bps)	Assets (\$B)	Fee (\$000)	Fee (bps)	Assets (\$B)	Fee (\$000)	Fee (bps)	Assets (\$B)	Fee (\$000)
Tier 1: Up to \$1B	14.0	1.00	1,400	15.0	1.00	1,500	5.1	0.47	239
Tier 2: \$1B - \$2B	7.5	0.80	603	5.0	0.80	402			
Tier 3: Over \$2B	5.0		-						
Total	11.1	1.80	2,003	10.5	1.80	1,902	5.1	0.47	239
	DWS REEF America REIT II			Morgan Stanley PRIME*			Private Credit/Bank Loans**		
MV Tier	Fee (bps)	Assets (\$B)	Fee (\$000)	Fee (bps)	Assets (\$B)	Fee (\$000)	Fee (bps)	Assets (\$B)	Fee (\$000)
Tier 1: Up to \$1B	95.0	0.12	1,112	110.0	0.12	1,288	73.8	0.37	2,764
Tier 2: \$1B - \$2B									-
Tier 3: Over \$2B									
Total	95.0	0.12	1,112	110.0	0.12	1,288	73.8	0.37	2,764
Total Fund	19.9	4.68	9,307						

- The estimated fees are approximately double the current fee level, but the enhanced risk, return, and diversification benefits offered by the new funds and asset classes are expected to more than offset the additional costs.

Assets are based on July 31, 2018 values and exclude cash and pledged securities.

*PRIME fee includes 84 bps of management fees and estimated 26 bps of incentive fees.

**Private Credit/Bank Loans fee is based on an equal-weighted average of the median Bank Loans fee (47.5 bps) and estimated Private Credit fee ex performance fees (100 bps).



Peer Group Review & Analysis

Summary Overview

Approach

- The 2018 group analysis reflects a list of 15 AASCIF members, and 9 private workers' compensation specialists—analysis shows with-and-without California and New York due to size-related impact on results. Data is provided by A.M. Best through 2017.
- This review compares operating and underwriting performance, leverage, and investment strategy relative to peers.

Observations

- SAIF is one of the largest providers of workers' compensation insurance in the U.S., and is exclusively focused on WC (WC specialists included in the peer group have other lines of business)
- SAIF appears very strong relative to peers when comparing operating results, profitability, and return on invested assets
- SAIF's bond portfolio has a longer maturity than most comparable peers—especially within government bonds—highlighting a higher interest rate risk compared to peers
- SAIF's Surplus to CAL RBC ratio, Insurance Leverage, and Investment Leverage Ratios compare favorably to peers
- SAIF's broad asset allocation is in line with peers, but allocation between A-AAA and BBB bonds are materially different compared to peers (SAIF having a higher allocation to BBBs)

Bond Maturity Distribution

SAIF holds a longer-maturity bond portfolio than most comparable peers – given SAIF’s longer liability tail compared with peers, this appears to be appropriate

As noted previously, government bonds represent a material share of the longer-date maturity holdings

	<1 Year	1-5 Years	5-10 Years	10-20 Years	20+ Years
SAIF	7%	30%	35%	14%	13%
AASCIF Avg.	9%	41%	33%	9%	8%
AASCIF Avg. (ex SAIF, NY, & CA)	9%	43%	34%	8%	6%
WC Specialists Avg.	34%	32%	23%	8%	4%

	Bond Maturity Distribution					Peer Group
	<1 Yr	1-5 Yrs	5-10 Yrs	10-20 Yrs	20+ Yrs	
Accident Funds Ins. Co of America	20%	30%	28%	9%	13%	WC
Alaska National	25%	17%	48%	10%	0%	WC
Beacon Mutual	7%	32%	31%	13%	18%	AASCIF
Berkshire Hathaway Homestate	95%	5%	0%	0%	0%	WC
BrickStreet Mutual Insurance	8%	44%	41%	5%	3%	WC
California Insurance Company	41%	59%	0%	0%	0%	WC
Chesapeake Employers'	12%	39%	36%	9%	6%	AASCIF
CopperPoint Mutual Insurance	8%	32%	38%	14%	8%	AASCIF
Employers Insurance Company of Nevada	12%	44%	40%	4%	1%	WC
FFVA Mutual Insurance	9%	47%	31%	12%	1%	WC
Hawaii Employers' Mutual Ins.	12%	47%	33%	7%	2%	AASCIF
Idaho State Insurance	5%	61%	24%	4%	6%	AASCIF
Insurance Company of the West	1%	44%	14%	27%	13%	WC
Kentucky Employers' Mutual	11%	39%	37%	6%	7%	AASCIF
Missouri Employers Mutual	10%	40%	34%	10%	7%	AASCIF
Montana State Fund	7%	53%	40%	0%	0%	AASCIF
New Mexico Mutual Casualty	14%	49%	25%	8%	4%	AASCIF
Pinnacol Assurance	10%	30%	41%	9%	9%	AASCIF
SAIF Corp	7%	30%	35%	14%	13%	AASCIF
State Compensation Insurance Fund of CA	11%	44%	28%	10%	6%	AASCIF
State Insurance Fund Workers Comp.	7%	31%	18%	14%	30%	AASCIF
Texas Mutual	6%	51%	38%	3%	2%	AASCIF
WCF Mutual	8%	43%	36%	8%	4%	AASCIF
Zenith Insurance	91%	2%	1%	2%	5%	WC

NAIC Classification of Total Bond Credit Quality

SAIF's allocation across NAIC Class 1 and Class 2 differs meaningfully from peers

This greater risk exposure, in the form of relatively higher-yielding fixed income assets, generates a higher level of net investment income and, subsequently, the increases to policyholder surplus

NAIC Classification	SAIF	AASCIF Avg.	AASCIF Avg. (ex SAIF, NY, & CA)	WC Specialists Avg.
Class 1 (A-AAA)	58.2%	81.0%	79.1%	89.8%
Class 2 (BBB)	35.5%	16.0%	17.4%	7.9%
Class 3 (BB)	4.8%	1.8%	2.0%	1.1%
Class 4 (B)	1.5%	1.3%	1.4%	1.0%
Class 5 (CCC)	-	0.2%	0.2%	0.5%
Class 6 (D-CC)	-	0.1%	0.1%	0.5%

Asset Leverage as a Percent of Surplus

SAIF's investment leverage as a percent of surplus ranks within the top 5, however, the distribution is wide across AASCIF and workers compensation specialist peers.

Holdings of high yield credit, as well as "other" assets (which includes schedule BA assets), are the primary factors for the level of investment leverage.

	HY Credit	Common Stock	Real Estate	Other	Investment Leverage	CAL RBC Ratio
SAIF	13.1%	31.2%	0.0%	11.7%	56.0%	6.0
AASCIF Avg.	5.1%	28.3%	2.2%	6.3%	41.8%	5.5
AASCIF Avg. (ex SAIF, NY, & CA)	5.3%	28.9%	2.7%	6.8%	43.6%	5.5
WC Specialists Avg.	4.4%	46.2%	1.5%	2.3%	54.3%	5.3

1) See appendix "Asset Leverage" for peer specific details

2) Other includes schedule BA assets

Key Financials and Operating Results

Key Financials 5 Year Growth

SAIF's statutory surplus growth ranks **6th** across the entire peer universe, **4th** across AASCIF only peers, and **3rd** if excluding New York. The **-2.3%** decline in loss and LAE reserves is **3rd** amongst the entire peer group, supported by a 17% decline in "Pure Losses" since 2013.

	Net WP	Invested Assets	Stat. Surplus	Loss & LAE Reserves
SAIF	4.8%	2.4%	13.5%	-2.3%
AASCIF Avg.	5.9%	4.4%	9.4%	2.1%
AASCIF Avg. (ex SAIF, NY & CA)	6.0%	4.8%	9.3%	2.8%
WC Specialists Avg.	9.1%	9.3%	9.9%	8.2%

Average 2017 Operating Results

SAIF's operating results are consistent with the company's strategic focus on writing sound premiums and thereby limiting losses, managing underwriting expenses, and providing meaningful dividends to policyholders. SAIF has the highest dividend ratio against both groups, an expense ratio near the lowest across both groups, and a combined ratio within averages versus AASCIF (inclusive of AASCIF ex SAIF, NY, and CA).

	Loss Ratio	LAE Ratio	Expense Ratio	Dividend Ratio	Combined Ratio After Dividend	Investment Inc. Ratio	Operating Ratio
SAIF	39%	16%	20%	30%	105%	27%	78%
AASCIF Avg.	55%	16%	27%	9%	106%	46%	87%
AASCIF Avg. (ex SAIF, NY, & CA)	57%	12%	28%	7%	104%	17%	88%
WC Specialists Avg.	46%	12%	27%	1%	87%	8%	79%

Table of Peer Key **Financial** Information

(average in \$000)

The AASCIF peer group is dominated by larger providers such as California and New York.

Removing these two peers, as well as SAIF, the remaining AASCIF peers (row 3) show average financial performance notably below SAIF's relative performance.

This is consistent with performance against workers' compensation specialists peers as well.

	Dir. WP	Net WP	Net Inc.(Loss)	Invested Assets	Stat. Surplus	Loss & LAE Reserves
SAIF	498,522	525,538	145,784	4,929,853	1,889,500	2,733,729
AASCIF Avg.	484,105	504,610	114,314	4,290,506	1,619,134	2,432,048
AASCIF Avg. (ex SAIF, NY & CA)	260,431	285,061	57,088	1,821,009	813,565	886,360
WC Specialists Avg.	388,665	506,208	89,077	1,612,273	725,107	779,296

Asset Allocation by Accounting Treatment

SAIF's assets¹ held at amortized cost (primarily investment grade fixed income securities) are consistent with the total peer group, while the BBB investment grade allocation² is the highest within the group. Assets held at fair value, in total, are also consistent with most³ of the group.

	Cash	A-AAA	BBB	Total Amortized Cost	High Yield	Common Stock	Sch. BA at Fair Value	Assets Held at Fair Value
SAIF	2%	49%	30%	81%	6%	13%	1%	20%
AASCIF Avg.	3%	65%	14%	82%	3%	13%	4%	18%
AASCIF Avg. (ex SAIF, NY, & CA)	3%	64%	14%	80%	3%	14%	4%	20%
WC Specialists Avg.	5%	63%	6%	74%	2%	23%	2%	26%

	Asset Allocation by Accounting Treatment								
	Cash	A-AAA	BBB	Total Amort. Cost	High Yield	Common Stock	Schedule BA at Fair Value	Assets at Fair Value	Peer Group
Accident Funds Ins. Co of America	9%	53%	15%	78%	8%	13%	2%	23%	WC
Alaska National	1%	72%	5%	78%	0%	18%	4%	22%	WC
Beacon Mutual	3%	79%	12%	94%	1%	5%	0%	6%	AASCIF
Berkshire Hathaway Homestate	11%	20%	0%	31%	0%	69%	-	69%	WC
BrickStreet Mutual Insurance	3%	81%	6%	91%	0%	9%	0%	9%	WC
California Insurance Company	5%	81%	0%	86%	0%	14%	-	14%	WC
Chesapeake Employers'	4%	62%	18%	84%	4%	10%	2%	16%	AASCIF
CopperPoint Mutual Insurance	2%	61%	17%	81%	1%	17%	2%	20%	AASCIF
Employers Insurance Company of Nevada	2%	61%	10%	72%	0%	27%	0%	27%	WC
FFVA Mutual Insurance	4%	65%	10%	78%	2%	20%	-	22%	WC
Hawaii Employers' Mutual Ins.	1%	56%	21%	78%	6%	15%	1%	22%	AASCIF
Idaho State Insurance	5%	74%	8%	87%	0%	13%	-	13%	AASCIF
Insurance Company of the West	4%	65%	4%	74%	5%	20%	1%	26%	WC
Kentucky Employers' Mutual	3%	77%	12%	92%	0%	7%	1%	8%	AASCIF
Missouri Employers Mutual	3%	67%	15%	85%	1%	14%	-	15%	AASCIF
Montana State Fund	3%	61%	16%	81%	0%	13%	7%	20%	AASCIF
New Mexico Mutual Casualty	2%	73%	6%	81%	0%	15%	4%	19%	AASCIF
Pinnacol Assurance	3%	51%	14%	67%	8%	22%	3%	33%	AASCIF
SAIF Corp	2%	49%	30%	80%	6%	13%	1%	20%	AASCIF
State Compensation Insurance Fund of CA	1%	89%	6%	96%	0%	4%	-	4%	AASCIF
State Insurance Fund Workers Comp.	1%	79%	8%	88%	0%	12%	-	12%	AASCIF
Texas Mutual	2%	47%	18%	67%	3%	17%	14%	34%	AASCIF
WCF Mutual	4%	54%	9%	68%	10%	15%	7%	32%	AASCIF
Zenith Insurance	3%	71%	5%	78%	1%	20%	2%	23%	WC

- 1) Represents non-affiliated invested assets as reported by AM Best
- 2) As detailed in 2017 NAIC classes
- 3) Assets held at fair value for WC Specialists is heavily influenced by a 69% allocation to common equity by Berkshire Hathaway Homestate

Bond Maturity Composition (Average Years)

SAIF holds a longer-maturity bond portfolio than most comparable peers. This is particularly true for holdings of government bonds, where the average maturity is the second longest (behind NY at 19.2 years).

	Gov't Bonds ¹	Political Subs. & Gov't Agcy ¹	Corp. Bonds ¹	Parent, Sub. & Affil.	Total Bonds (Long & Short)
SAIF	12.0	6.8	9.1	0.0	9.0
AASCIF Avg.	6.9	7.6	6.9	0.0	7.1
AASCIF Avg. (ex SAIF, NY, & CA)	5.6	7.1	6.6	0.0	6.5
WC Specialists Avg.	3.4	6.4	4.8	2.3	5.0

	Bond Maturity Composition (Average Years)					Peer Group
	Gov't Bonds (Unaffil.)	Political Subs., Gov't Agcy (Unaffil.)	Corp. Bonds (Unaffil.)	Parent, Sub. & Affil.	Total Bonds (Long & Short)	
Accident Funds Ins. Co of America	7.7	10.7	6.0	0.0	7.7	WC
Alaska National	1.7	6.9	0.7	0.0	5.8	WC
Beacon Mutual	6.9	9.4	10.2	0.0	9.7	AASCIF
Berkshire Hathaway Homestate	0.5	3.9	0.0	3.0	0.6	WC
BrickStreet Mutual Insurance	3.0	5.9	6.0	0.0	5.8	WC
California Insurance Company	2.0	0.0	0.0	0.0	2.0	WC
Chesapeake Employers'	6.7	6.9	6.4	0.0	6.6	AASCIF
CopperPoint Mutual Insurance	9.7	8.5	7.2	0.0	7.9	AASCIF
Employers Insurance Company of Nevada	3.6	5.0	5.5	0.0	5.2	WC
FFVA Mutual Insurance	7.1	6.2	5.4	0.0	5.9	WC
Hawaii Employers' Mutual Ins.	3.6	6.5	4.9	0.0	5.4	AASCIF
Idaho State Insurance	5.2	5.7	7.3	0.0	5.7	AASCIF
Insurance Company of the West	4.1	15.1	6.0	15.0	9.8	WC
Kentucky Employers' Mutual	7.4	7.2	6.3	0.0	6.6	AASCIF
Missouri Employers Mutual	5.3	8.4	6.3	0.0	6.9	AASCIF
Montana State Fund	4.9	4.8	4.4	0.0	4.6	AASCIF
New Mexico Mutual Casualty	3.4	7.3	4.7	0.0	5.7	AASCIF
Pinnacol Assurance	4.4	8.8	7.7	0.0	7.7	AASCIF
SAIF Corp	12.0	6.8	9.1	0.0	9.0	AASCIF
State Compensation Insurance Fund of CA	4.1	7.3	6.0	0.0	6.5	AASCIF
State Insurance Fund Workers Comp.	19.2	14.1	9.9	0.0	12.0	AASCIF
Texas Mutual	5.2	6.2	5.1	0.0	5.3	AASCIF
WCF Mutual	5.0	5.6	8.5	0.0	6.4	AASCIF
Zenith Insurance	0.6	4.1	13.3	3.0	2.0	WC

1) Classified as "Unaffiliated" in AM Best report

Leverage Ratios & RBC Ratio as of 2017

With a **1.7** multiple, SAIF is deploying less leverage versus the broader peer group. This is also true against the relative sub-peer groups.

NWP/Surplus and Reserve/Surplus metrics have been trending lower the past 5 years, driven by a **4.8%** increase in net written premiums, a **-2.3%** decline in loss and LAE reserves, and a **13.5%** increase in policyholder surplus.

SAIF's investment/surplus ratio is in-line with peers, however, the investment/NWP ratio at **9.4** exceeds the peer group averages by a notable amount.

SAIF's CAL RBC ratio is above the peer group average; however, the span of calculations is wide, ranging from 2.4 to 11.0.

	NWP/Surplus	Reserves/ Surplus	<i>Insurance Leverage</i>	Investment/ Surplus	Investment/ NWP	Surplus to CAL RBC Ratio
SAIF	0.3	1.4	1.7	2.6	9.4	6.0
AASCIF Avg.	0.5	1.4	1.8	2.6	7.3	5.5
AASCIF Avg. (ex SAIF & CA) ¹	0.5	1.3	1.8	2.5	6.4	5.5
WC Specialists Avg.	0.7	1.1	1.9	2.3	3.6	5.3

1) NY does not report RBC

Asset Leverage

Accident Funds Ins. Co of America
 Alaska National
 Beacon Mutual
 Berkshire Hathaway Homestate
 BrickStreet Mutual Insurance
 California Insurance Company
 Chesapeake Employers'
 CopperPoint Mutual Insurance
 Employers Insurance Company of Nevada
 FFVA Mutual Insurance
 Hawaii Employers' Mutual Ins.
 Idaho State Insurance
 Insurance Company of the West
 Kentucky Employers' Mutual
 Missouri Employers Mutual
 Montana State Fund
 New Mexico Mutual Casualty
 Pinnacol Assurance
SAIF Corp
 State Compensation Insurance Fund of CA
 State Insurance Fund Workers Comp. (NY)
 Texas Mutual
 WCF Mutual (Utah)
 Zenith Insurance

Asset Leverage as a Percent of Surplus					
Non-IG	Common Stock	Real Estate	Other	Non-Affil Inv. Leverage	Peer Group
18.1%	28.5%	10.5%	1.3%	58.4%	WC
0.0%	32.9%	0.1%	6.8%	39.8%	WC
1.4%	11.2%	0.0%	0.0%	12.6%	AASCIF
0.0%	112.7%	0.0%	0.0%	112.7%	WC
5.8%	29.7%	3.2%	4.8%	43.5%	WC
0.0%	20.7%	0.0%	0.0%	20.7%	WC
11.7%	28.2%	0.0%	25.0%	64.8%	AASCIF
1.4%	34.2%	13.9%	4.2%	52.8%	AASCIF
0.0%	72.6%	0.0%	0.3%	72.9%	WC
3.3%	31.4%	0.0%	0.0%	34.7%	WC
9.0%	21.3%	0.0%	1.5%	31.8%	AASCIF
0.6%	37.2%	0.0%	0.0%	37.8%	AASCIF
10.4%	40.4%	0.0%	2.0%	52.8%	WC
1.0%	29.3%	0.0%	4.5%	34.7%	AASCIF
2.9%	32.2%	0.0%	0.0%	35.1%	AASCIF
0.0%	34.0%	0.0%	21.4%	55.4%	AASCIF
0.0%	27.9%	0.0%	5.9%	33.8%	AASCIF
16.4%	42.7%	0.0%	5.5%	64.6%	AASCIF
13.1%	31.2%	0.0%	11.7%	56.0%	AASCIF
0.0%	12.0%	0.4%	0.0%	12.4%	AASCIF
0.1%	34.5%	0.0%	0.7%	35.3%	AASCIF
5.8%	29.7%	3.2%	4.8%	43.5%	AASCIF
12.9%	19.2%	15.5%	8.9%	56.5%	AASCIF
1.6%	46.6%	0.0%	5.4%	53.6%	WC

PORTLAND

CHICAGO

NEW YORK

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FUNCTION: State Accident Insurance Fund

ACTIVITY: –Asset Classes and Allocation

POLICY: The Oregon Investment Council approves asset classes and allocation guidelines in which State of Oregon moneys are invested.

PROCEDURES:

1. **Authority:** The Oregon Investment Council (OIC) formulates broad policies for the investment and reinvestment of moneys in the investment Funds and the acquisition, retention, management and disposition of investments of the investment Funds. Ultimate control and authority for selecting and implementing the asset allocation classes and policy for the SAIF Corporation portfolio lies with the OIC. The Treasurer’s office will work with SAIF [staff and Board of Directors](#) to ensure the implementation of the asset allocation policy meets the business needs of the [State Accident Insurance Fund \(the “Fund”\)](#). The Oregon Investment Council shall not make asset allocation changes without requesting input from the SAIF Board of Directors.
2. **Reviews:** Asset/liability reviews will be performed approximately every three to five years to assure the Fund is positioned properly, given the unique industry, regulatory, and changing business and financial conditions SAIF Corporation [confront experiences](#). Any asset classes not specifically addressed in the policy below will be reviewed by Treasury staff and by SAIF for approval by the OIC.
3. **Asset Classes:** Recognizing the general objectives and operating philosophy of the Fund, the following asset classes have been approved by the OIC:
 - A. **Equities:** Investments which represent a direct ownership of, or partnership in, a going concern. The Fund currently is invested in alternative equity interests which are included in the equity allocation. These positions are self-liquidating.
 - B. **Fixed Income:** Investments which have pre-defined interest and principal payment schedules and amounts (debt). This asset class includes mortgage obligations.
 - C. **Bank Loans:** [Investments which represent the purchase of non-investment grade senior corporate floating-rate debt secured by a first or second lien. Investments in this asset class will be implemented in the form individual loans \(or portions thereof\) held in a separately managed account.](#)

D. ~~Private Credit:~~ Investments which represent the funding or purchase of privately negotiated corporate loans and other debt structures.
~~Investments in this asset class will be implemented in the form of private funds or limited partnerships.~~

~~DE.~~ Cash: Cash and cash equivalents are defined as cash held in the State Treasury's Oregon Short-Term Fund (OSTF).

~~EF.~~ Real Estate: Investments which represent a direct ownership of commercial real estate or the purchase of debt in commercial real estate. Investments in this asset class will be implemented in the form of private or publicly traded ownership interests~~funds~~.

4. **Asset Allocation:**

- The actual asset allocation is monitored monthly relative to established asset allocation policy targets and ranges. A deviation outside of any of the ranges triggers a review and rebalancing back to the target asset allocation with due consideration given to the liquidity of the investments and transaction costs.
- Whenever possible, cash flows into and out of the Ffund will be used to rebalance between asset classes. Cash ~~is~~shall be held only for business operating purposes. The long-term ~~goal for~~ target allocation to cash is zero percent.
- The Fund's asset allocation will be managed to limit the invested asset risk component of the NAIC RBC calculation as periodically reported.

Asset Class	Benchmark	Strategic Target Allocation	Range
Global Equities	MSCI ACWI IMI Index	10%	7% - 13%
U.S. Fixed Income	Custom Fixed Income Benchmark-*	85 77%	80 72% - 90%
<u>Bank Loans</u>	<u>S&P/LSTA U.S. Leveraged Loan 100 Index</u> -S&P LSTA LLI and separate benchmark TBD for Private Credit	8%	0% - 10%
<u>Private Credit</u>	<u>S&P LSTA LLI + 2.5%</u>		
Cash		0%	0% - 3%
Real Estate	<u>NCREIF Fund Index - Open-End Diversified Core Equity (ODCE)</u> <u>NCREIF Property Index</u>	5%	0% - 7%
Policy Mix	Weighted aggregate of indexes listed above at target allocation	100%	

* Custom Fixed Income Benchmark:

Index:	Percentage:
BarCap Bloomberg U.S. Corporate Intermediate Index	10%
BarCap Bloomberg U.S. Government Index	15%
BarCap Bloomberg Mortgage Backed Fixed Rate Security Index	20%
BarCap Bloomberg Corporate Index	50%
BarCap Bloomberg Ba to B U.S. High Yield 2% issuer cap	5%

SAMPLE FORMS, DOCUMENTS, OR REPORTS: None

FUNCTION: State Accident Insurance Fund
ACTIVITY: Fixed Income Investments

POLICY: A portion of the SAIF Corporation's investment portfolio shall be invested in fixed income securities.

PROCEDURES:

1. ~~Fixed Income Holdings~~**Objective:** Fixed income holdings shall be the largest component of the Fund and shall have multiple purposes:

- To provide a positive cash flow;
- To dampen overall ~~Fund~~ volatility ~~of the Ffund~~;
- To provide positive real rates of return; and
- To ~~provide~~ ~~essess~~ an asset class ~~match~~ ~~whit~~ ~~eh~~ ~~is~~ ~~linked~~ ~~to~~ the Fund's liabilities.

~~Maintain a well-diversified fixed income portfolio. Manage the portfolio to maximize total return, although; however trading that resulting in recognized losses are, is discouraged.~~ Dynamic, flexible management of the fixed income portfolio is both permitted and encouraged.

2. ~~Objective:~~ ~~Maintain a well-diversified fixed income portfolio. Manage the portfolio to maximize total return; however trading resulting in recognized losses, is discouraged.~~

3.2.Strategy:

- Maintain an overall portfolio ~~credit~~ quality ~~rating~~ of at least "A2"/A or higher using a rating to worst methodology.
- Maintain an average bond duration level of +/-20% of the custom fixed income benchmark (~~refer to Activity Reference 4.09.02~~). This benchmark was designed to support a strategic duration target of approximately ~~5 years~~.~~5~~
- ~~years.~~
- Structure maturities to provide reinvestment opportunities ~~that consider in~~ ~~consideration of~~ SAIF's operating cash flow projections ~~and related market risks.~~ ~~This should take into account market risk, produced by cash shortfalls. [Proposed by tg] including market risk to meet SAIF's cash withdrawal needs.~~

3. **Permitted Holdings:**

- Bond and notes issued, assumed, or guaranteed by the U.S. Government or its agencies;
- Corporate notes and bonds rated B2/B or better at time of purchase;
- Bank loans rated B2/B or better at time of purchase;
- ~~Emerging Market Debt~~ rated B2/B or better at time of purchase;
- ~~Asset Backed Securities~~ (including AAA rated CLOs);

- Commercial and residential Mortgage pools and mortgage related securities; TBA securities are permitted, but must take delivery upon settlement (i.e., no TBA rolls);
 - Yankee Bonds (dollar denominated sovereign and corporate debt);
 - Rule 144A securities that the manager believes have liquidity similar to publicly registered securities;
 - Surplus notes will generally include subordinated debt issued by an insurance holding company;
 - Hybrid securities may include but are not limited to fixed income securities with stated final maturity dates, cumulative but deferrable interest payments and no write down or conversion language; ~~and-~~
 - ~~Preferreds~~, fixed/floating rate bonds, and hybrid securities with non-cumulative interest payments, or that include write down or conversion language shall be confirmed with SAIF prior to purchase.
4. **Diversification:** The portfolio should be adequately diversified to minimize various risks. The following specific limitations reflect, in part, the OIC's current investment philosophy regarding diversification.
- No fixed income investment in any one issue shall be in excess of 5% of the outstanding fixed income obligations of the issuer.
 - Issuer diversification:
 - Not more than 5.0% of the total market value of the SAIF fixed income portfolio shall be invested in any one issuer rated Aaa;
 - Not more than 3.5% of the total market value of the SAIF fixed income portfolio shall be invested in any one issuer rated Aa;
 - Not more than 2.5% of the total market value of the SAIF fixed income portfolio shall be invested in any one issuer rated A;
 - Not more than 1.5% of the total market value of the SAIF fixed income portfolio shall be invested in any one issuer rated Baa; and
 - Not more than 0.75% of the total market value of the SAIF fixed income portfolio shall be invested in any one issuer rated less than Baa3.

These issuer level restrictions shall not apply to U.S. Government and Agency obligations including Agency ~~Mortgage-Backed~~ Securities (no limit). ~~Private Mortgage-Backed and Asset-Backed~~ Securities shall be limited to 10% per issuing trust. ~~Obligations of other national governments are limited to 10% per issuer.~~

5. **Liquidity:** SAIF may have the occasional need to draw on a portion of the funds under management ~~for money to be used in the payment of~~ expenses, claims, or ~~for~~ other funding purposes. Prior to any withdrawal, SAIF will communicate its requirement in such a manner as to allow the greatest amount of time possible for planning purposes.
6. **Portfolio Restrictions:**

- No more than 12.5% of the total fixed income portfolio, at market value, may be maintained in securities rated less than Baa3 (NAIC class code 3-6).
- There shall be a maximum of 25% in any one industry, or Government Agency Debentures, excluding Agency Mortgage Backed Securities. The maximum 25% exposure in one industry shall be applied to the ~~Barelays~~ ~~Capital~~ ~~Bloomberg~~ level two sector weightings. FNMA and FHLMC shall be constrained to a 25% maximum per issuer. Mortgage Backed Securities are excluded from the debt limit for “agencies.”
- All securities must be denominated in U.S. Dollars ~~There shall be no investments in non-dollar denominated securities.~~
- There shall be no use of leverage in any fixed securities (excluding use of securities in a securities lending program). Securities such as ABS and CMBS shall not be considered as using leverage unless they are part of a broader structure, ~~such as TARP funds~~, that explicitly use leverage.
- Taxable Build America Municipal Bonds (BABs) issued by entities located in the State of Oregon are not permitted.
- The maximum allocation to each fixed income sector shall be limited to a percentage of the total market value of the ~~investment~~ fixed income portfolio, as follows:

U.S. Treasury Notes

	100%
U.S. Government Agencies	
	-50%
Mortgage Backed Securities (Pass Through and CMO)	
	-40%
Commercial Mortgage Backed Securities	
	-10%
U.S. Corporates	
	85%
Asset Backed Securities (including AAA rated CLOs)	
	-25%
Non-U.S. Dollar Denominated	
	0%

	Tax-Exempt Municipal Bonds
0%	Taxable Municipal Bonds
	-25%
	Structured Securities (Combined MBS, CMBS, ABS)
	-50%
	Surplus Notes and Hybrid Securities combined
5%	Emerging Market Debt
	-5%
	Bank Loans
	-5%

- Credit Ratings:** With respect to compliance with these Investment Guidelines, the rating agencies include Moody’s Investor Service, Standard & Poor’s and Fitch Investor Service. If a security is rated by two or more rating agencies, the lower rating will apply.

For certain securities, such as newly-issued bonds, expected credit ratings may be used until actual credit ratings are assigned by the credit rating agencies. In such cases, the securities may be purchased if it is anticipated that rating agencies will assign ratings that are compliant with the investment guidelines. Should the actual credit rating assigned to a security diverge from the expected rating, it will not be deemed a breach of these investment guidelines, but the managers and Treasury staff will consult on [a strategy to ultimately achieve policy compliance](#)~~next steps~~. If an issue remains unrated by these rating agencies or it is anticipated that it will not be rated, then the managers and Treasury staff will consult on [a strategy to ultimately achieve policy compliance](#)~~next steps~~.

- Policy Compliance:**- Any out of compliance issues with this policy, shall result in the external manager providing [Treasury OST and SAIF staff](#) with a timely plan to achieve compliance.

9. **Performance Expectations/Reviews:** Over a market cycle of 3-5 years, this portfolio is expected to outperform the Custom Fixed Income Benchmark, net-of-fees. Quarterly investment review will take place focusing on:
- Performance relative to objectives; and
 - Adherence to guidelines.

10. Manager, Target Weightings and Ranges:	Target	Range
Wellington Management Company	4238.5%	4036-45%
Western Asset Management Company	4238.5%	
	4036-45%	

SAMPLE FORMS, DOCUMENTS, OR REPORTS: None

FUNCTION: State Accident Insurance Fund
ACTIVITY: Real Estate Investments

POLICY: A portion of SAIF Corporation's investment portfolio shall be invested in securities representing equity or debt interests in commercial real estate.

PROCEDURES:

1. Objective: The real estate holdings shall be a small component of the Fund and shall have multiple purposes:

- To enhance total return of the Fund;
- To increase the income yield of the Fund;
- To diversify risk and reduce the overall volatility of the Fund; and
- To protect the Fund against inflation risks.

Maintain a well-diversified portfolio by investing in a broad array of ~~The objective of the real estate portfolio is to enhance total return, generate income, and diversify portfolio level risk by investing in a diversified allocation of~~ debt and equity interests in commercial real estate. The OIC and SAIF are mindful of both the potential volatility and the lower level of liquidity of the real estate market and choose to dampen both of these potential risks through the diversification and liquidity inherent in ~~a~~ institutional fund vehicles.

~~1.2.Strategy: Hold a fully invested,~~ Invest in a diversified portfolio of private equity real estate and debt funds that have the potential to generate income and capital appreciation ~~focused real estate equity and debt interests implemented through one or more commingled vehicles.~~ The strategic objectives of the real estate portfolio are to produce stable current income and market level returns commensurate with a low to moderate level of risk.

2.3. Permitted Holdings: Open and closed end funds which predominately invest in commercial real estate equity and/or debt. Comparable vehicles such as private REITS or LPs are ~~also~~ permitted.

3.4. Diversification: The OIC recognizes the need for high levels of diversification to confirm minimize the risk of large losses to the Fund. Diversification by property type and geographic region shall be obtained by participation in one or more diversified commingled investment vehicles.

4.5. Portfolio Restrictions:

- Property types will be generally limited to ~~institutional-quality~~ the primary real estate sectors of office, retail, industrial, and apartment properties with a limited allowance to invest in other core property types such as storage, senior housing, and medical office.
- Properties will be limited to real estate markets located in the United States and distributed across the primary real estate geographic regions: West, East, South, and Midwest.
- Non-Core property types such as raw land, lease-up assets, mezzanine debt are limited to 15% or less of portfolio.
- Use of leverage is permissible with the real estate asset class, subject to a maximum of ~~50-40~~ percent as measured at the fund level ~~of the fair market value of the real estate portfolio.~~
- All property or securities must be denominated in U.S. Dollars.
- Non-Core

6. Policy Compliance: Any out of compliance issues with this policy shall result in the external manager providing OST and SAIF with a timely plan to achieve compliance.

5.7. Performance Expectations/Reviews:

- The real estate investments are expected to outperform the relevant index commensurate with risk in the investments.
- Quarterly reviews will take place focusing on adherence to guidelines and evaluation of investment performance to objectives.

<u>8. Target Manager Weightings and Ranges:</u>	<u>Target</u>	<u>Range</u>
<u>DWS Asset Management</u>	<u>2.5%</u>	<u>0-3.5%</u>
<u>Morgan Stanley</u>	<u>2.5%</u>	<u>0-3.5%</u>

SAMPLE FORMS, DOCUMENTS, OR REPORTS: None

FUNCTION: State Accident Insurance Fund

ACTIVITY: Bank Loans

POLICY: A portion of SAIF Corporation's investment portfolio shall be invested in loans representing debt interests in public and private institutions.

PROCEDURES:

1. **Objective:** Bank loan holdings shall be a small component of the Fund and shall have multiple purposes:

- To enhance the Fund's total return;
- To increase the Fund's income yield;
- To diversify the Fund's risk and reduce its overall volatility; and
- To reduce the Fund's sensitivity to rising interest rates.

Maintain a well-diversified bank loans portfolio. Manage the portfolio to maximize total return within the guidelines established in this policy; however, trading resulting in recognized losses is discouraged.

2. **Strategy:** Hold a fully invested and diversified portfolio of individual bank loans. The strategic objectives of the bank loans portfolio are to produce stable current income and market level returns commensurate with a low to moderate level of risk.

- Average minimum credit quality of the portfolio of B3/B- or higher.
- Portfolio duration must be plus or minus one year of the benchmark index, using effective duration. The manager will be responsible for the duration calculation of both the portfolio and the benchmark.
- The market value of loans secured by first priority liens shall at no time represent less than 80% of the net asset value.

3. **Permitted Holdings:**

- U.S. Corporate loans or securities;
- Secondary interim holdings;
- U.S. Treasury and U.S. agency debt securities;
- Repurchase agreements collateralized by U.S. Treasuries and U.S. agency debt securities;
- Money market funds;
- Collateralized Loan Obligations (CLOs); and
- All other securities must be approved by OIC and SAIF.

4. **Diversification**: The OIC recognizes the need for a high level of diversification to minimize the risk of large losses to the Fund. Risk mitigation efforts shall include investing in a diversified portfolio of issuers across a variety of economic, industry and geographic sectors.
 - No more than a maximum of 5% of an investment manager's Bank Loan Fund may be invested in any one issuer (excluding U.S. Government securities).
5. **Liquidity**: SAIF may have the occasional need to draw on a portion of the funds for operational or other funding purposes. Prior to any withdrawal, SAIF will communicate its requirement in such a manner as to allow the greatest amount of time possible for planning purposes.
6. **Portfolio Restrictions**
 - The maximum investment in cash and cash equivalents (defined as cash less yet to be settled trades) shall not exceed 10% of the portfolio.
 - The market value of loans shall be no less than 80% of the portfolio.
 - The market value of loans secured by first priority liens shall be no less than 80% of the net asset value.
 - Fixed rate securities shall not exceed 20% of the net asset value.
 - Second lien loans shall not exceed 10% of the net asset value.
 - High yield securities shall not exceed 10% of the net asset value.
 - No more than 20% of the portfolio can be invested in U.S. dollar denominated foreign investments.
 - Manager(s) use of leverage is not permitted at the fund level or on an individual loan basis.
 - No more than 10% of the portfolio can be invested in securities rated CCC- to CCC+ / (Caa1 – Caa3).
 - All securities must be denominated in U.S. dollars.
7. **Credit Ratings**: With respect to compliance with these Investment Guidelines, the rating agencies shall include Moody's Investor Service, Standard & Poor's and Fitch Investor Service. If a security or loan facility is rated by two or more rating agencies, the lower rating will apply.
 - All securities and loans of U.S. issuers must be rated Caa3 and/or CCC- or better by Moody's, Standard & Poor's, Fitch or the NAIC equivalent. Loans of non-U.S. issuers must be from countries with a sovereign debt rating of investment grade and carry a rating of NAIC-2 or better. Split-rated issues (i.e., securities rated differently by respective rating agencies) shall be determined by the highest rating.
 - Securities and loans purchased without a rating by a National Recognized Statistical Rating Organizations (NRSRO) can be no greater than 5% of the portfolio net asset

value and have an internal manager rating equivalent or better than Caa3 and/or CCC-.

For certain securities, such as newly-issued loans, expected credit ratings may be used until actual credit ratings are assigned by the credit rating agencies. In such cases, the securities may be purchased if it is anticipated that rating agencies will assign ratings that are compliant with the investment guidelines. Should the actual credit rating assigned to a security diverge from the expected rating, it will not be deemed a breach of these investment guidelines, but the managers and Treasury staff will consult on a strategy to ultimately achieve policy compliance. If an issue remains unrated by these rating agencies or it is anticipated that it will not be rated, then the managers and Treasury staff will consult on a strategy to ultimately achieve policy compliance which may include directing the managers to proactively seek an issue rating.

- Securities and loans failing to meet quality restrictions after purchase may be held to maturity. Oregon State Treasury (OST) staff will review a credit report for all securities and loans that fail to meet the quality restrictions. Based on the credit report, the OST and SAIF have the discretion to either direct the manager to liquidate the security or continue to hold it.
8. **Policy Compliance:** Any out of compliance issues with this policy shall result in the external manager providing OST and SAIF with a timely plan to achieve compliance.
9. **Performance Expectations/Reviews:** Over a market cycle of 3-5 years, this portfolio is expected to outperform the S&P/LTSA Leveraged Loan Index Benchmark, net-of-fees.
- The bank loan investments are expected to outperform the relevant index on a risk-adjusted basis.
 - Quarterly reviews will take place focusing on adherence to guidelines and evaluation of investment performance relative to objectives.

10. **Manager, Target Weightings and Ranges**

TBD

SAMPLE FORMS, DOCUMENTS, OR REPORTS: None

FUNCTION: State Accident Insurance Fund
ACTIVITY: Private Credit

POLICY: A portion of SAIF Corporation's investment portfolio may be invested in credit assets representing interests in public and private institutions, financial instruments, and real assets.

PROCEDURES:

1. **Objective:** The private credit portfolio shall be a small component of the Fund and shall have multiple purposes:
 - To enhance total return of the Fund;
 - To increase the income yield of the Fund;
 - To diversify risk and reduce the overall volatility of the Fund; and
 - To reduce rising interest rate sensitivity of the Fund.

Maintain a well-diversified portfolio by investing in a broad array of credit strategies and asset classes (e.g. corporate credit, structured credit, global credit, and real asset credit) carrying both investment- and non-investment grade quality ratings. The OIC and SAIF are mindful of the illiquidity, default risk, and complexity associated with the private nature of the asset class.

2. **Strategy:** Hold a diversified portfolio of credit strategies and assets. The strategic objectives of the private credit portfolio are to generate higher levels of current income and market level returns commensurate with a moderate level of risk.
 - Portfolio characteristics for the total portfolio relative to the opportunity set should include the following:
 - Higher credit quality
 - The ability of manager to achieve a credit rating on the investment vehicle structure and/or the underlying securities
 - Conservative loan-to-value and leverage levels
 - Medium term and shorter duration investments
 - Covenants and other structural protections favoring asset owner
3. **Permitted Holdings:** Permitted holdings shall be defined by a funds' respective partnership agreements, fund prospectuses or separate account agreement as negotiated and agreed upon by the OST and SAIF.
 - Private credit assets shall generally include, but are not limited to, the following:
 - U.S. corporate credit: middle market loans, high yield, and opportunistic
 - Structured Credit: CLO liabilities

- Global Credit: European loans, European high yield, global financials, and emerging market corporates
 - Real asset credit: Residential real estate, commercial real estate and infrastructure credit;
4. **Diversification:** The OIC and SAIF recognize the need for an appropriate level of diversification to minimize the risk of large losses to the fund. The portfolio seeks to mitigate such risks by investing in a diversified portfolio across a broad mix of industry sectors, asset types, number of holdings, counterparties, and duration.
5. **Liquidity:** Investment vehicles utilized for investment in private credit shall be considered illiquid and as such SAIF will exclude the asset class as a short-term source for money to be used in the payment of expenses, claims or other funding purposes. Where appropriate, SAIF may access available liquidity from private credit assets so long as it does not affect fund diversification, fees, strategy or other structural characteristics in a manner inconsistent with policy objectives.
6. **Portfolio Restrictions:** Portfolio restrictions shall be defined by a funds' respective partnership agreements, fund prospectuses or separate account agreement as negotiated and agreed upon by the OST and SAIF.
- All securities must be denominated in U.S. Dollars.
7. **Credit Ratings:** With respect to compliance with these Investment Guidelines, National Recognized Statistical Rating Organizations ("NRSRO") used for purposes of rating investment structures and individual securities include Moody's Investor Service, Standard & Poor's, Fitch Investor Service, Kroll Bond Rating Agency, and Egan Jones Ratings Company. Fund managers will file for ratings.
- NRSRO and investment managers' proprietary credit ratings and supporting analysis may be reviewed as needed to support valuations, statutory filings, other-than-temporarily-impaired considerations and other requirements relying upon the information.
 - For certain securities, such as newly-issued, expected credit ratings may be used until actual credit ratings are assigned by the credit rating agencies. In such cases, the securities may be purchased if it is anticipated that rating agencies will assign ratings that are compliant with the investment guidelines. Should the actual credit rating assigned to a security diverge from the expected rating, it will not be deemed a breach of these investment guidelines, but the managers and Treasury staff will consult on next steps. If an issue remains unrated by these rating agencies or it is anticipated that it will not be rated, then the managers and Treasury staff will consult on next steps.

8. **Policy Compliance:** Any out of compliance issues with this policy shall result in the external manager providing OST and SAIF with a timely plan to achieve compliance.
9. **Performance Expectations/Reviews:** Over a market cycle of 3-5 years, this portfolio is expected to outperform the S&P/LTSA Leveraged Loan Index + 2.5%, net-of-fees. For capital call structured vehicles this performance comparison will be calculated on an IRR basis.
 - The individual private credit investments are expected to outperform the relevant index commensurate with risk specific to the investments.
 - Quarterly reviews will focus on adherence to guidelines and evaluation of investment performance to objectives.

10. **Target Manager Weightings and Ranges:**

TBD

SAMPLE FORMS, DOCUMENTS, OR REPORTS: None

TAB 8 – Asset Allocation & NAV Updates

Asset Allocations at March 31, 2019

OPERF	Regular Account						Target Date Funds	Variable Fund	Total Fund	
	Policy	Target ¹	\$ Thousands	Pre-Overlay	Overlay	Net Position	Actual	\$ Thousands	\$ Thousands	\$ Thousands
Public Equity	32.5-42.5%	37.5%	26,338,002	35.1%	59,166	26,397,167	35.2%	1,022,061	501,391	27,920,619
Private Equity	13.5-21.5%	17.5%	15,946,221	21.3%		15,946,221	21.3%			15,946,221
Total Equity	50.0-60.0%	55.0%	42,284,222	56.3%	59,166	42,343,388	56.4%			43,866,840
Opportunity Portfolio	0-3%	0.0%	1,671,351	2.2%		1,671,351	2.2%			1,671,351
Fixed Income	15-25%	20.0%	14,668,184	19.5%	1,197,046	15,865,230	21.1%	1,311,895		17,177,125
Real Estate	9.5-15.5%	12.5%	8,252,948	11.0%	(7,900)	8,245,048	11.0%			8,245,048
Alternative Investments	0-12.5%	12.5%	6,905,357	9.2%		6,905,357	9.2%			6,905,357
Cash ²	0-3%	0.0%	1,257,784	1.7%	(1,248,311)	9,472	0.0%		2,486	11,958
TOTAL OPERF		100%	\$ 75,039,845	100.0%	\$ -	\$ 75,039,845	100.0%	\$ 2,333,956	\$ 503,877	\$ 77,877,678

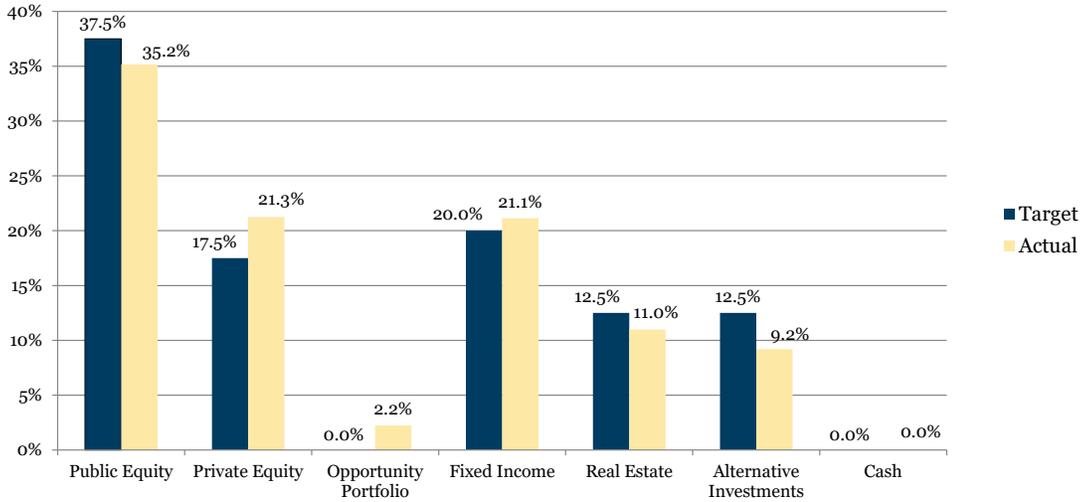
¹Targets established in June 2015. Interim policy benchmark consists of: 40% MSCI ACWI IMI Net, 22.5% Custom FI Benchmark, 20% Russell 3000+300bps (1 quarter lagged), 12.5% NCREIF ODCE net (1 quarter lagged), & 5% CPI+400bps.

²Includes cash held in the policy implementation overlay program.

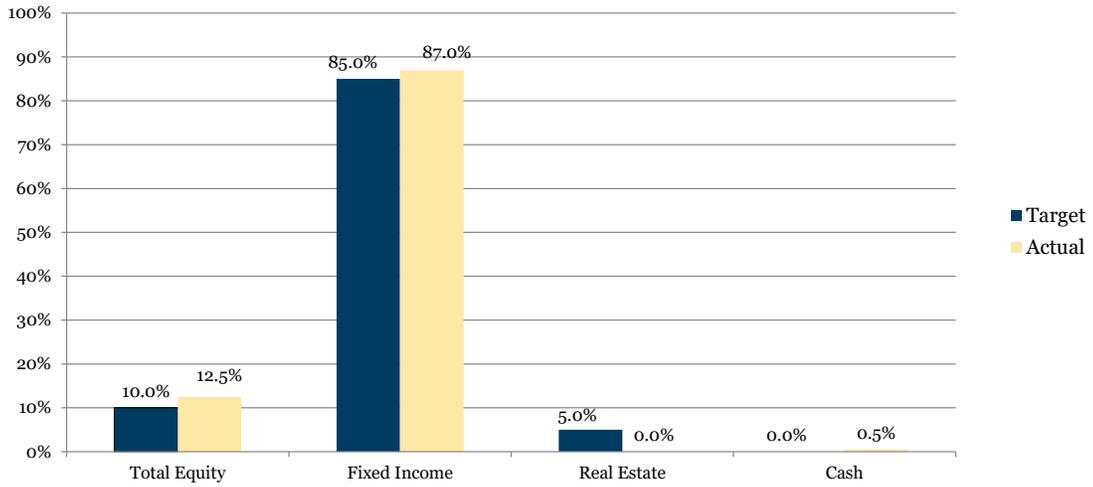
SAIF	Policy	Target	\$ Thousands	Actual
Total Equity	7-13%	10.0%	597,189	12.5%
Fixed Income	80-90%	85.0%	4,154,911	87.0%
Real Estate	0-7%	5.0%	-	0.0%
Cash	0-3%	0.0%	25,991	0.5%
TOTAL SAIF			\$ 4,778,091	100.0%

CSF	Policy	Target	\$ Thousands	Actual
Global Equities	40-50%	45.0%	819,122	46.7%
Private Equity	8-12%	10.0%	198,803	11.3%
Total Equity	58-62%	55.0%	1,017,924	58.1%
Fixed Income	25-35%	25.0%	491,960	28.1%
Real Estate	8-12%	10.0%	123,049	7.0%
Alternative Investments	8-12%	10.0%	92,667	5.3%
Cash	0-3%	0.0%	26,625	1.5%
TOTAL CSF			\$ 1,752,226	100.0%

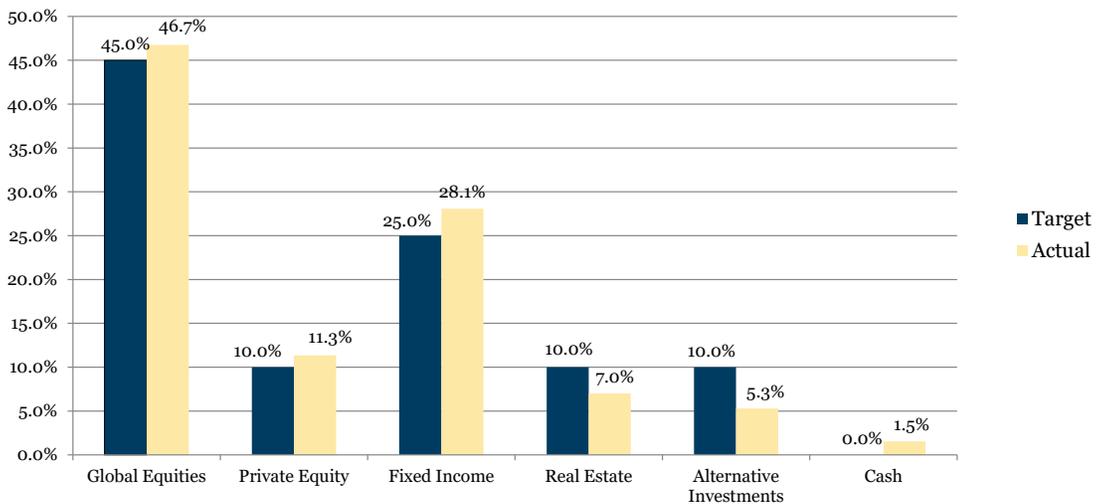
OPERF Asset Allocation



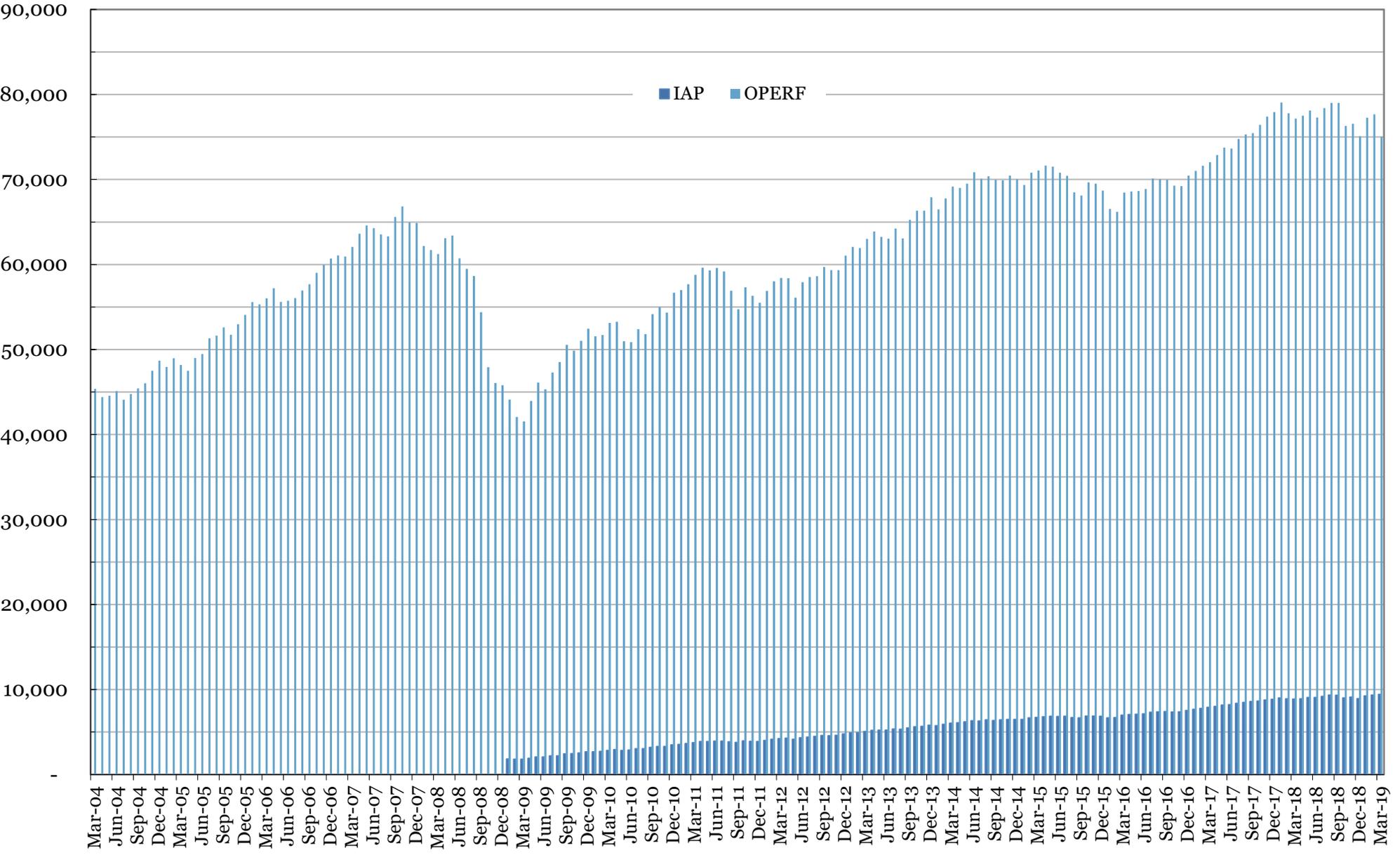
SAIF Asset Allocation



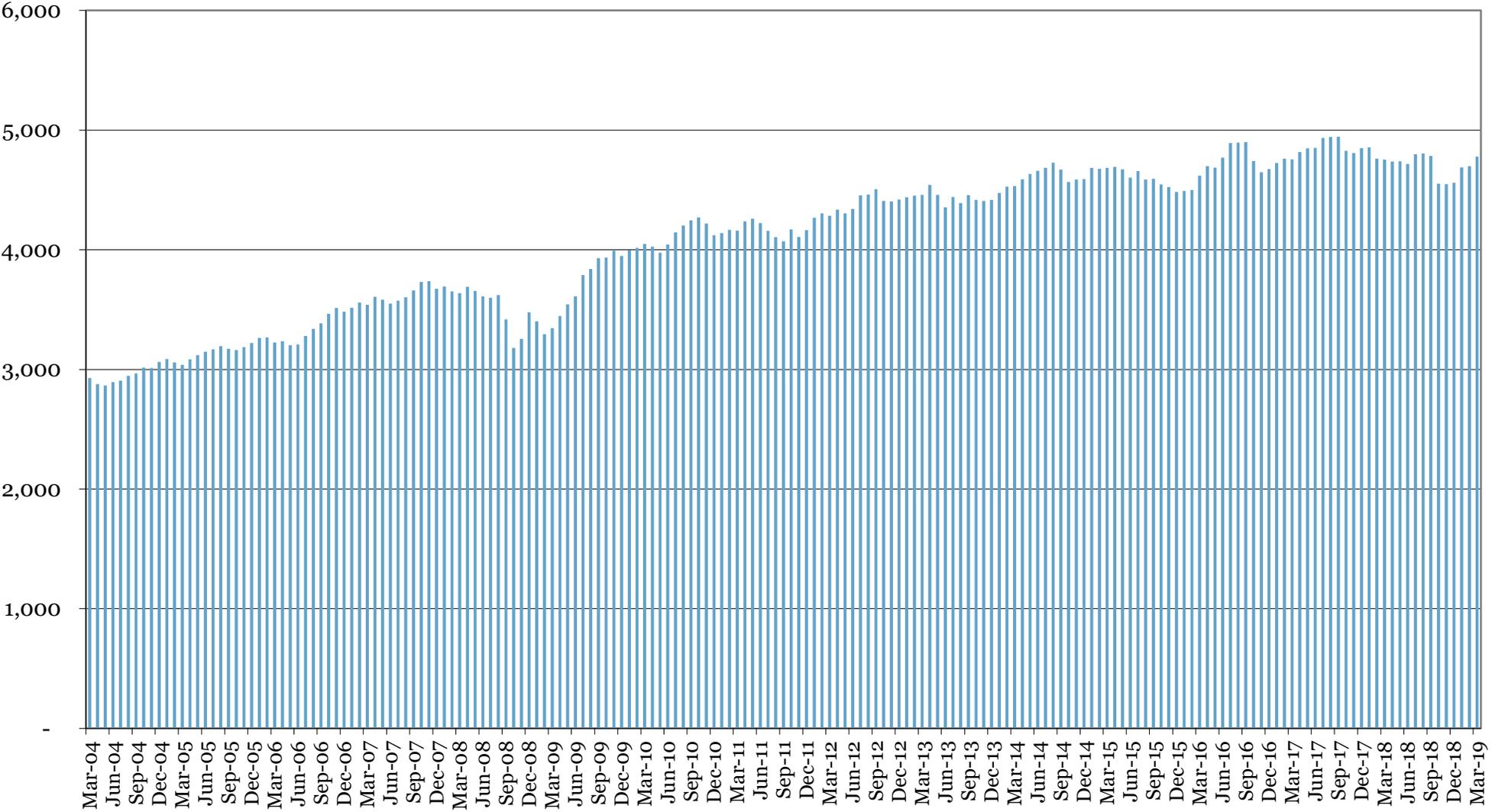
CSF Asset Allocation



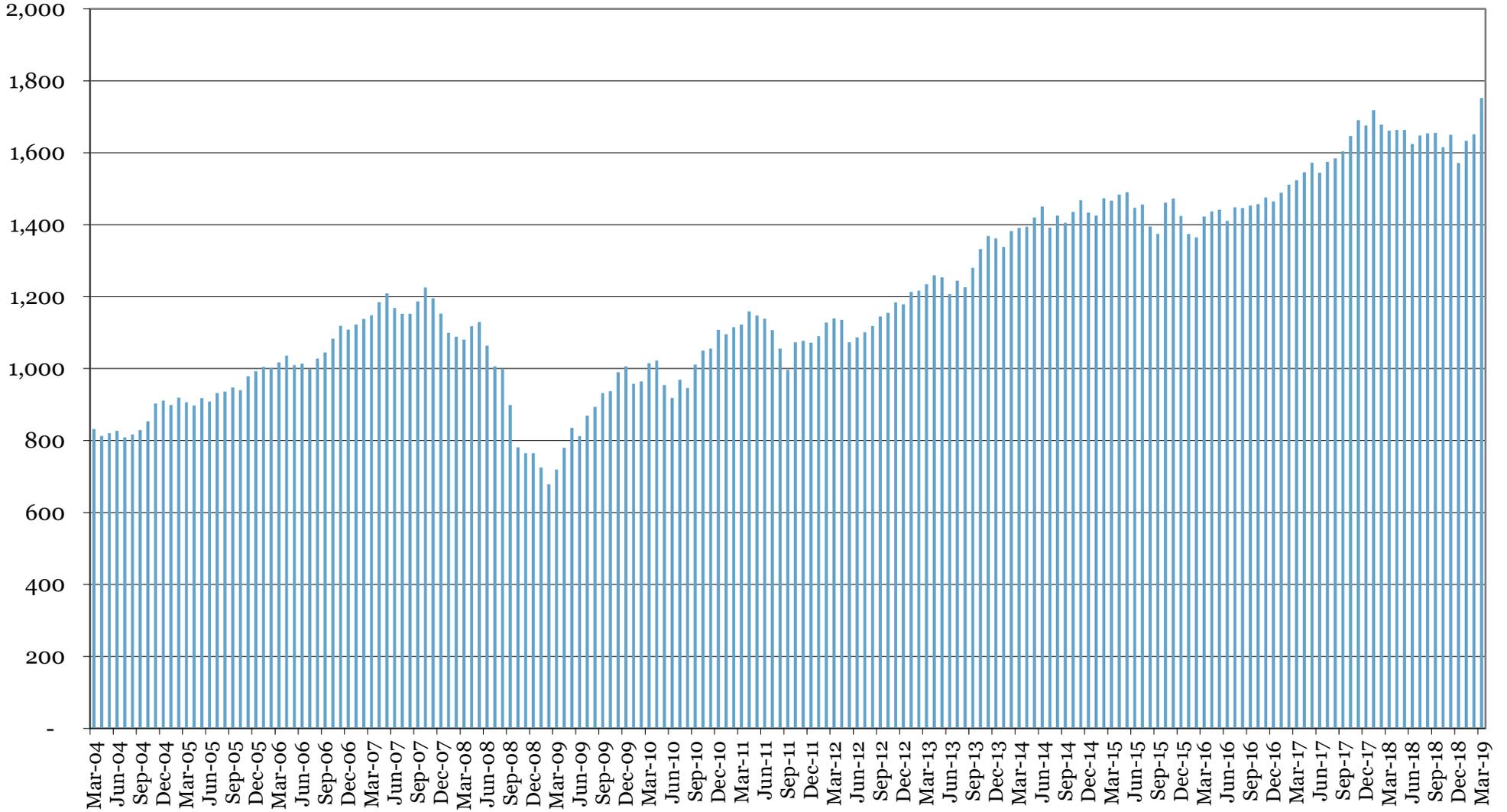
OPERF NAV
15 years ending March 2019
(\$ in Millions)



SAIF NAV
15 years ending February 2019
(\$ in Millions)



CSF NAV
15 years ending March 2019
(\$ in Millions)



TAB 9 – Calendar — Future Agenda Items

2019/20 OIC Forward Calendar and Planned Agenda Topics

June 5, 2019	Alternatives Portfolio Review Overlay Review Q1 Performance & Risk Report Operations Update Joint PERS/OIC Board Discussion
August 7, 2019	Opportunity Portfolio Review OSGP Annual Review Corporate Governance Update OIC Governance Discussion
September 18, 2019	CEM Benchmarking Report Q2 Performance & Risk Report OIC Governance Discussion
October 30, 2019	General Consultant Recommendation Currency Overlay Review Public Equity Program Review OIC Governance Discussion
December 11, 2019	Fixed Income Program Review Q3 Performance & Risk Report OIC Governance Discussion
January 30, 2020:	2021 OIC Calendar Approval Private Equity Program Review Placement Agent Report IAP Update
March 11, 2020:	Liquidity Update & Analysis CSF Annual Review Real Estate Portfolio Review Q4 2019 Performance & Risk Report
April 22, 2020:	Asset Allocation & Capital Market Assumptions Update Securities Lending Update Overlay Review SAIF Annual Review